

## **Diseases of the rectum and anus : a practical handbook.**

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DISEASES  
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DISEASES OF THE RECTUM AND ANUS

*BY THE SAME AUTHOR*

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# DISEASES OF THE RECTUM AND ANUS

A PRACTICAL HANDBOOK

BY

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P. LOCKHART-MUMMERY, F.R.C.S. ENG.

SENIOR SURGEON TO ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES  
OF THE RECTUM; AND SURGEON TO THE QUEEN'S HOSPITAL FOR CHILDREN;  
LATE HON. SURGEON, KING EDWARD VII. HOSPITAL FOR OFFICERS



LONDON  
BAILLIÈRE, TINDALL AND COX  
HENRIETTA STREET, COVENT GARDEN

1914

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## PREFACE

My object in writing this book has been to provide a practical guide to the treatment of diseases of the rectum and anus—one that may prove of real service to those members of the medical profession who wish to add to their knowledge in this special branch of surgery. No attempt has therefore been made to include all the work published on this subject in recent years, but only those operations and methods of treatment have been described which I have found from experience to be of the most value. The material for the book has been gathered from my own experience in private practice and at St. Mark's Hospital. This hospital affords unrivalled opportunities for studying diseases of the rectum, for only diseases of the bowel are treated there, and the attendances in the Out-Patient Department are over 7,500 in the course of a year, while cases admitted to the wards average about 650. It is much to be regretted that while numbers of doctors from America, the Colonies, and abroad generally, attend the practice of this hospital, the number of English doctors who avail themselves of the clinical material to be found there is deplorably small.

Diseases of the rectum and anus are very common maladies, and it may be roughly estimated that nearly 50 per cent. of the population suffer from rectal ailments during some period of their lives. Surgery of the rectum has now become quite as much a speciality as gynæcology, ophthalmology, or laryngology; but although it is now the practice to have special surgeons and teachers attached to the large teaching hospitals in these latter subjects, and teaching in these subjects is part of the medical curriculum, no general hospital in this country has yet appointed a special surgeon as proctologist, or provided special teaching in rectal surgery. It is to be hoped that the time will soon come

when no teaching staff will be considered complete unless it includes a proctologist on its special staff.

This book being intended to form a practical guide to the treatment of rectal diseases, the descriptions in the text have, wherever possible, been illustrated by drawings or diagrams. Most of the blocks are from my own drawings, but in preparing some of them I must acknowledge my indebtedness to the Marchese Rappini di Castel Delfino for his valuable assistance. I have also to tender my thanks to Mr. J. Kennedy, late House-Surgeon at St. Mark's Hospital, for his kind help in collecting statistics and looking up cases, and to Miss G. Preston for her valuable assistance. The chapter on anæsthesia in relation to operations upon the rectum has been specially written by my friend, Dr. T. Blumfeld. For the loan of a number of blocks illustrating instruments I am indebted to Messrs. Allen and Hanburys.

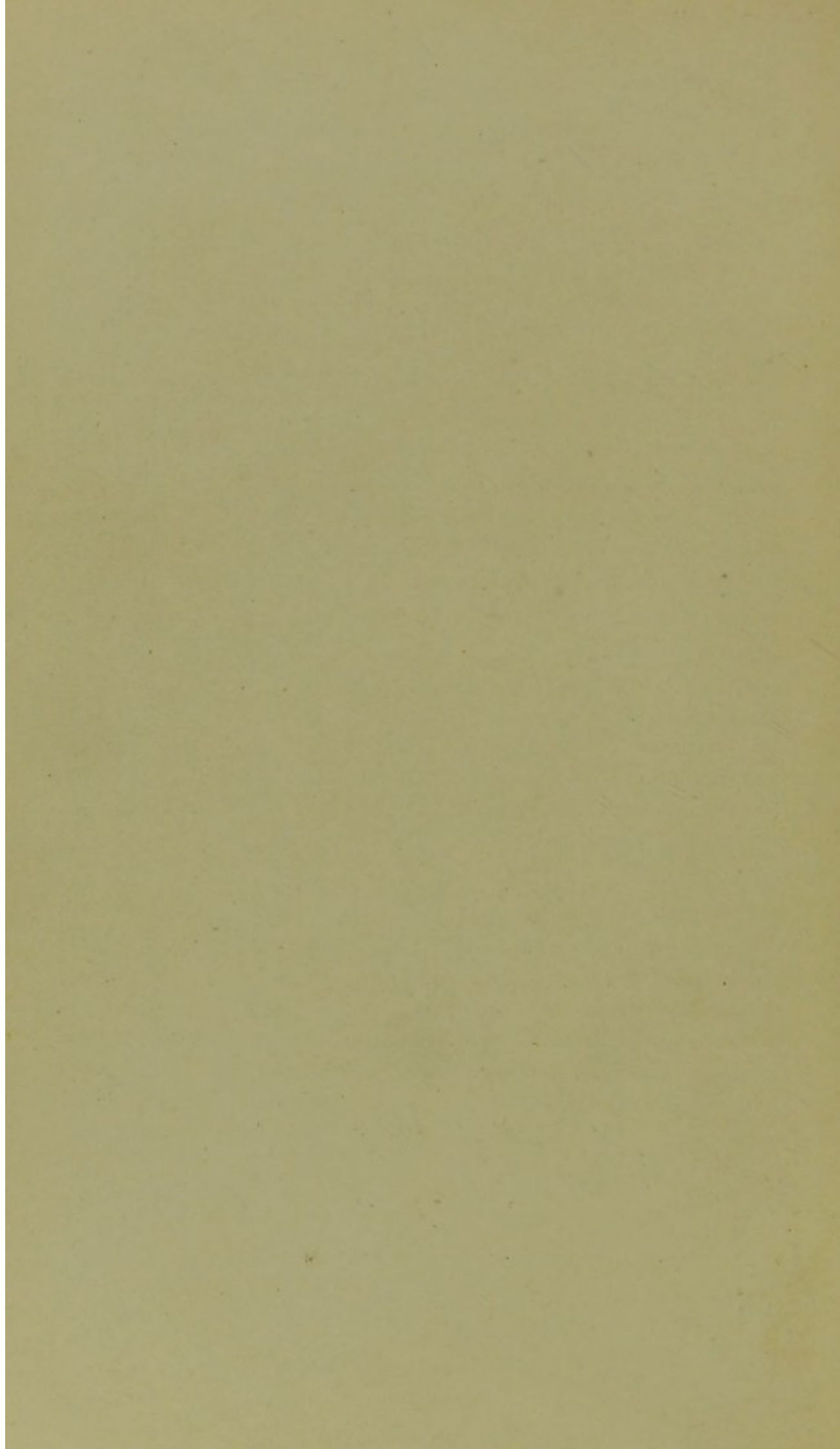
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*April, 1914.*

## CONTENTS

CHAPTER	PAGE
✓ I. MALFORMATIONS OF THE RECTUM AND ANUS - - -	I
II. EXAMINATION AND DIAGNOSIS - - -	10
III. ANTISEPTIC TECHNIQUE AND DIET - - -	27
IV. ANÆSTHESIA IN RECTAL OPERATIONS - - -	43
✓ V. HÆMORRHOIDS - - -	51
✓ VI. TREATMENT OF INTERNAL HÆMORRHOIDS - - -	64
✓ VII. DIVULSION OF THE SPHINCTERS - - -	100
✓ VIII. PROLAPSE - - -	107
IX. PROCTITIS - - -	128
X. ULCERATIVE PROCTITIS - - -	147
✓ XI. ABSCESS - - -	159
✓ XII. FISSURE - - -	168
✓ XIII. FISTULA - - -	18c
✓ XIV. TREATMENT OF FISTULA - - -	196
XV. RECTAL INCONTINENCE - - -	220
✓ XVI. PRURITUS - - -	235
XVII. RECTAL NEURALGIA - - -	250
XVIII. NON-MALIGNANT STRICTURE - - -	257
XIX. BENIGN TUMOURS - - -	269
XX. MALIGNANT DISEASE - - -	276
XXI. MALIGNANT DISEASE—OPERATIVE TREATMENT - - -	296
XXII. MALIGNANT DISEASE—PALLIATIVE TREATMENT - - -	328
XXIII. FOREIGN BODIES - - -	342
INDEX - - -	345



# DISEASES OF THE RECTUM AND ANUS

## CHAPTER I

### *MALFORMATIONS OF THE RECTUM AND ANUS*

IMPERFORATE anus and other congenital malformations of the rectum and anus are very rare. They are only found in a very small proportion of all births. It has been estimated by Starr and other observers that only one child in every 10,000 is born with imperforate anus. Lesser degrees of these congenital conditions, in which the anus is not entirely imperforate, are probably commoner than this estimate would lead us to suppose, but they do not so certainly come under the doctor's observation unless incompatible with life.

Although these conditions are so seldom met with, it is most necessary that they should be understood and the appropriate treatment known, as the life of the child will depend upon prompt treatment.

The explanation of the congenital abnormalities of the rectum and anus is one of the most complicated problems of human embryology. It would be quite outside the objects of this book to enter into a detailed description of the developmental sequence in the formation of the rectum and anus. Considerable modification in our ideas on this subject has recently become necessary, and it is now obvious that many of the older views on the development of these abnormalities are incorrect. Mr. Wood-Jones's\* investigations into this branch of embryology seem to afford the best explanation of many of these conditions, and much of the ensuing description is founded upon his valuable paper.

In the early stages of the development of the human embryo the allantois is continuous with the hind-gut, and forms the

\* "The Nature of the Malformations of the Rectum and Urogenital Passage," *Brit. Med. Jour.*, December 17, 1904.

body stalk. The embryo itself becomes bent forward upon this body stalk, and in this way a U-shaped bend is formed at the



FIG. 1.—CONDITION OF THE HIND-GUT AND ALLANTOIS AT THE EARLIEST STAGE.

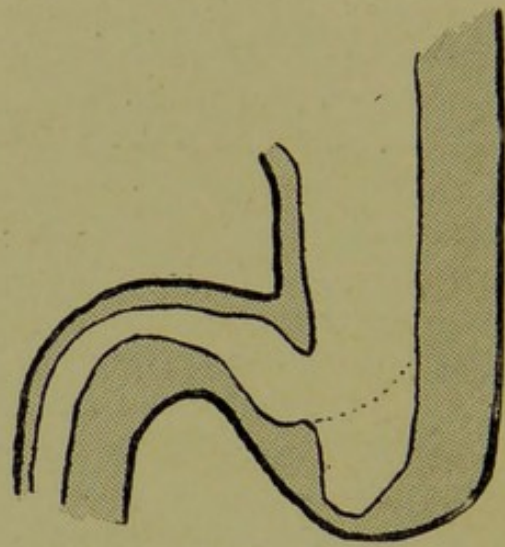


FIG. 2.

Note that the hind-gut has grown back with the allantois.

point where the allantois joins with the hind-gut. This is shown in Fig. 1. The apex of this bend now becomes dilated, and forms a

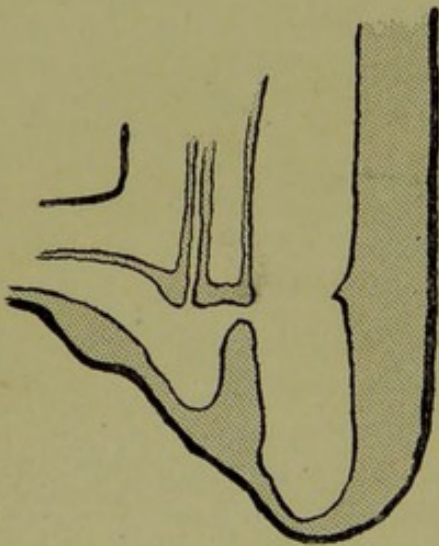


FIG. 3.

The post-allantoic gut has grown back farther, and the separation from the allantois is almost complete. The Müllerian ducts are seen opening into the allantois.

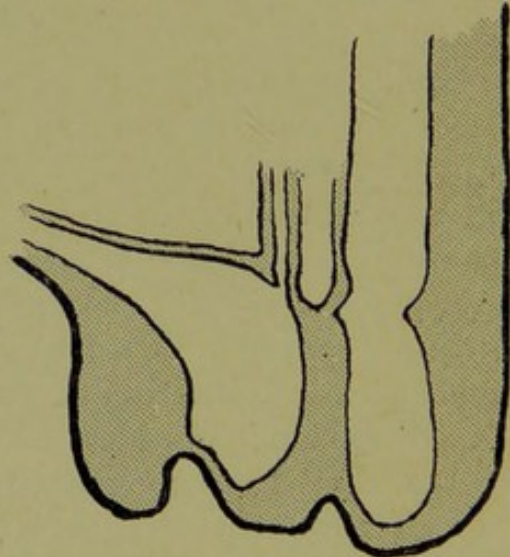


FIG. 4.

The communication between the hind-gut and allantois has closed, and the proctodeal depression has formed.

chamber situated at the posterior end of the embryo, into which opens the allantois in front and the hind-gut above (Fig. 2).

As the hind portion of the body continues to grow backwards, this chamber or pouch of the hind-gut also continues to grow backwards past its anterior or cloacal opening. This anterior or cloacal opening, where it was at first continuous with the allantois (Fig. 2), becomes normally closed in the process of development (Figs. 3 and 4).

The hind-gut and the pouch which has grown backwards from it, and which has been called the "post-allantoic gut," are now without any communication with the outside of the body. This communication is normally established by the proctodeum, which is developed as a depression in the perineum on the outside of the body, meeting with this post-allantoic gut and opening into it.

It will thus be seen that the rectum and anus are developed from three distinct embryonic structures—(1) The hind-gut; (2) the pouch developed from the hind-gut, and called the "post-allantoic gut"; and (3) the proctodeum. The points which mark the limitations of these embryonic structures in the adult rectum are, from the point of view of treatment, of considerable importance. The point of junction of the hind-gut and the post-allantoic gut is indicated in the adult rectum roughly by the reflection of the peritoneum from the anterior surface of the rectum.

The point of junction of the post-allantoic gut and the proctodeum is indicated in the adult rectum by the anal sinuses or sinuses of Morgagni.

It will be observed that at an early stage of embryonic life there is a definite communication between that portion of the hind-gut, which subsequently becomes the rectum, and the allantois in front, from which the genito-urinary organs are later developed. In cases of imperforate rectum the post-allantoic portion of the gut is missing, and consequently we may expect

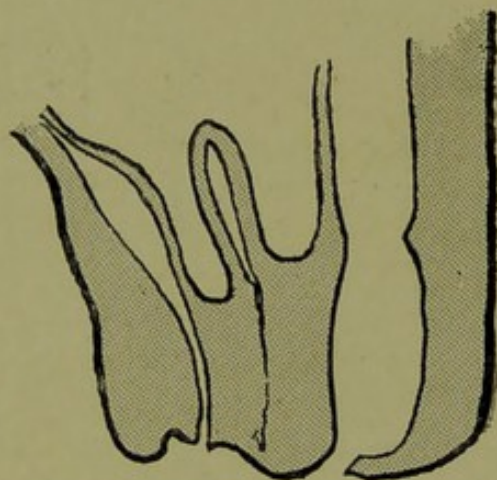


FIG. 5.

This shows the rectum formed by the junction of the proctodeum and the hind-gut. The uterus has been formed from the lower end of the Müllerian ducts. The vagina has not yet been completely canalized.



to find the termination of the pervious gut somewhere near the peritoneal reflection from the front of the rectum. Similarly, the opening between the allantois and the hind-gut, when persistent, occurs at a definite point—in the prostatic urethra in the male, and in the posterior vaginal wall and just below the cervix in the female.

The malformations of the rectum and anus which may result from arrested development fall into two main classes: (1) A septum divides the anus from the rectum—this is called “imperforate anus”;

(2) a portion of the tube is missing altogether—this is called “imperforate rectum.”

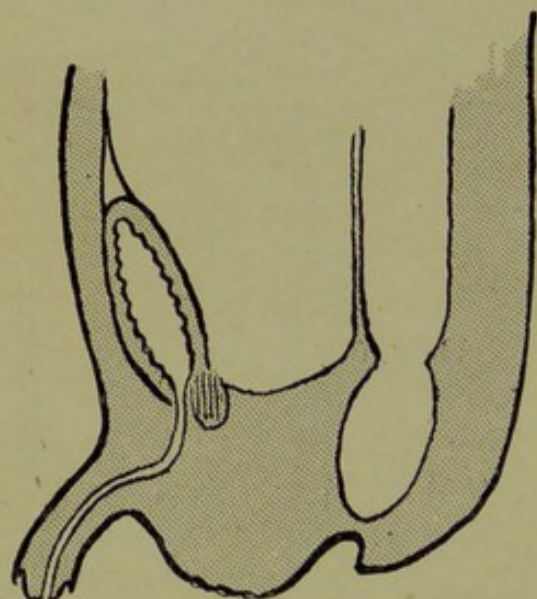


FIG. 6.—TYPE OF IMPERFORATE ANUS IN WHICH THE PROCTODEUM AND HIND-GUT HAVE FAILED TO JOIN.

There are a great many different varieties of each of these two classes of malformations. The deformity may consist solely in the condition produced by the arrested development, or it may be increased and altered by the secondary changes resulting from the deformity.

**Deformities resulting from the Proctodeum and Anus not having joined properly.**—This is

the condition produced when the septum, which always separates the post-allantoic gut and the proctodeum at one period

of foetal life, has not been entirely obliterated.

The septum may have been only partially obliterated, and then there is a partial narrowing, or stricture, at the point of junction between the anus and rectum, the rest of the parts being normally developed.

The septum may be complete, the so-called condition of “imperforate anus.” The septum in such cases may vary from a thin sheet of tissue, which is bulged down by the meconium contained in the rectum above, or it may be a thick membrane. The position of the septum also seems to vary considerably; it may be situated at the supposed point of junction of the proctodeum and post-allantoic gut—that is to say, at the position of the anal sinuses. This is the position at which one would expect

to find it. Not infrequently, however, it is situated lower down, or appears to be, and then we must either assume that secondary changes have produced it after the arrest in development, or that it is due to some condition as yet unknown.

The view has recently been put forward that the anus is not formed by a depression in the ectoderm of the perineum, but results from the absorption of a definite cellular mass, situated between the post-allantoic gut and the perineal ectoderm. The absorption of this mass is said to commence laterally. This view as to the development of the anus, which is probably the correct one, will explain the presence of a membrane anywhere between the anal orifice and the termination of the post-allantoic gut, as we have only to assume that absorption of the cell mass has been incomplete at one part.

This view also explains another curious malformation, where the anus is divided into two lateral halves by a membrane placed antero-posteriorly. Some four or five cases of this condition have been reported. This condition can be explained by assuming that the "cellular mass" has been absorbed laterally, but that the central portion has failed to be absorbed.

A well-marked case of this kind was reported by Stansfield Collier.\* The child, a boy, had a thick fold of skin passing backwards from the scrotum, and continuous with the median raphe of the perineum to the tip of the coccyx. It divided the anus into lateral halves, and fæces passed on each side of it. Similar cases have been described by Morgan† and by Tuttle.‡

When the arrest of development has been more complete, still greater deformity may result. Thus the anus may be represented merely by a dimple, or may be altogether absent.

**Conditions resulting from Arrested Development of the Rectum.**

—The condition here results from arrested development of the post-allantoic gut. This condition has been called "imperforate rectum." The anus may or may not be normally developed; but even when well developed, the rectum is situated at some distance from its extremity. It has frequently been stated that in the cases where this condition is present the pervious portion of the rectum may be situated anywhere in the pelvis. It seems almost certain, however, that this statement is incorrect.

\* *Lancet*, November 5, 1904, p. 1283.

† *Ibid.*, October 22, 1881, p. 705.

‡ "Diseases of the Anus, Rectum, and Pelvic Colon," second edition, 1906, p. 53.

As has already been stated, the part of the rectum which has been arrested in development is that portion formed by the post-allantoic gut. The pervious portion of the rectum will therefore be found at the point at which the post-allantoic gut is developed from the hind-gut. This point, as already mentioned, is marked by the anterior reflection of the peritoneum from the rectum—that is, by the lowest portion of the peritoneal cavity—and the pervious portion of the gut will of necessity also be situated behind the peritoneum; so that in all such cases the pervious portion of the bowel will be found not higher than the lowest part of the peritoneal cavity, and behind it.

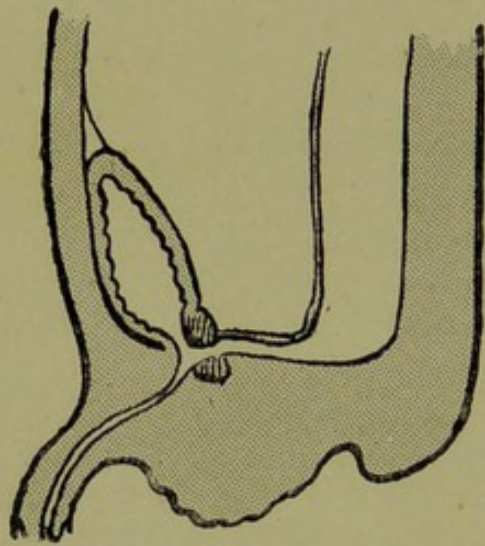


FIG. 7.—TYPE OF IMPERFORATE ANUS IN WHICH THE EXTREMITY OF THE HIND-GUT HAS FAILED TO DEVELOP, WHILE THE ORIGINAL CLOACAL OPENING TO THE ALLANTOIS HAS PERSISTED.

In most of the cases of imperforate rectum where the post-allantoic gut has not developed, the original opening of the hind-gut into the allantois persists (Fig. 7). In Curling's statistics of imperforate rectum, 20 per cent. of the cases showed a communication between the hind-gut and the urethra, and it is probable that this much underestimates its real frequency.

As that portion of the allantois immediately in front of the hind-gut subsequently becomes the bladder, it follows that the pervious portion of the rectum is found in these cases to open into the bladder. This is the case in the male, and the opening is almost always situated in the neighbourhood of the prostate. In the female the vagina is developed between these two structures, and consequently the opening in the female is into the vagina, instead of into the bladder. The position of the opening is most often posteriorly, just below the cervix uteri, for reasons into which it is not necessary to enter here. The opening may, however, be into any other part of the posterior vaginal wall.

This opening between the hind-gut and the prostatic portion of the urethra in the male, or the vagina in the female, is present in most cases of true imperforate anus. It was found to be

present in seven out of nine such cases examined by Wood-Jones at the London Hospital. The opening is frequently very small and is probably often missed in the dissection.

In some cases the anus is found to be abnormally situated either in the perineum or elsewhere. These cases are of considerable interest, and very difficult of explanation. Several cases have been reported where the rectum was normally developed, but the ureters or uterus opened into it.

TREATMENT.—The varieties of malformation of the rectum and anus which are the most important from the point of view of treatment are those where there is no outlet for the fæces. Such a condition of things is generally soon noticed, and the doctor's attention called to it.

It is of the utmost importance that the condition should be promptly treated, and an outlet for the fæces provided with the least possible delay. There can be no object in deferring the operation, and the child's chances of recovery will be seriously decreased by any delay.

If any anus exists, this should be carefully examined to see if any bulging of the rectum into it can be detected. Should it be obvious that the condition consists only of a septum separating the anus and rectum, all that is necessary is to incise this membrane by a crucial incision, the remains of the septum being snipped away with scissors. This will give a free passage to the meconium, and it will be only necessary for the parts to be subsequently kept dilated by the occasional passage of the mother's or nurse's finger.

In all cases where the anus is absent, or where no bulging or other indication of the position of the rectum is found, much greater difficulty will be experienced.

The old-fashioned method of trying to establish an opening by means of the trocar and cannula is altogether bad, and should never be attempted. Fatal injuries may be, and often are, inflicted by the use of this instrument. Thus the peritoneum is often opened and peritonitis set up, and such accidents as perforation of the bladder or of great pelvic bloodvessels have been recorded.

The child should be placed in the lithotomy position, and in a good light. An incision should be made from the base of the scrotum to the tip of the coccyx, and exactly in the middle line of the perineum. This incision should be made deeper posteriorly than anteriorly, and the rectal pouch should be looked for in

the hollow of the sacrum. The surgeon should introduce his finger into the wound, and try to feel the bulging of the rectal pouch. Pressure upon the abdomen will sometimes make the rectum bulge down into the pelvis, and facilitate its recognition.

It is most important to keep the dissection as much as possible in the hollow of the sacrum, as otherwise there is considerable danger of wounding the genito-urinary organs.

The guides to take in searching for the rectal pouch have already been indicated in discussing the anatomy. They are the lowest portion of the peritoneal cavity, immediately behind which the rectal pouch should be found. Another valuable guide in a male infant is the prostate gland; in a female, the cervix uteri.

Should much difficulty be experienced in finding the bowel, the coccyx should be removed in order to give more room. This procedure has been much advocated by several modern writers upon the subject.

In some cases the undeveloped portion of the rectum is represented by a fibrous band, and when this is recognized, it may be used as a guide to find the bowel.

When the bowel has been found, an attempt should be made to bring it down and affix it to the skin edges before opening it. This is not, however, always possible, and it may have to be opened *in situ*. Whenever possible, the bowel should be brought down and carefully stitched all round to the skin wound. This is not only a great safeguard against subsequent periproctitis, but also leaves a much more satisfactory condition of affairs than simple incision.

In the rare cases where it is not possible to bring the bowel down to the perineum, it may sometimes be attached to the skin just below the sacrum after excision of the coccyx.

The stitching should always be carried out very carefully, so as to close the wound entirely, if possible.

Should it be found impossible, after a careful search, to find the bowel, the only thing left is to perform colotomy. Sometimes, after opening the abdomen and finding the bowel, it can be pushed down and brought out at the perineal wound, and a perineal opening thus established.

In the cases where the anus is absent and the rectum opens into the vagina, the deformity is in no way incompatible with life. There are several cases where women with this deformity

have grown up and been married and borne children. A case is recorded by Sir Charles Ball of a woman whose rectum opened into the vagina. She suffered no inconvenience from this circumstance, and was the mother of six children.

In these cases, provided that there is a sufficiently free exit for the fæces, no immediate operative treatment is called for. Later on an attempt can be made to transplant the intestinal opening backwards into the normal situation, and to restore the vulva by the formation of a recto-vaginal septum. Several cases have been recorded where this has been done successfully after one or two operations.

When the rectum in a male infant opens into the urethra or bladder, the condition is incompatible with life, and an operation must be performed at once to establish a perineal opening.

In all cases it is of the utmost importance that the opening should be kept well dilated by the frequent passage of a finger or bougie into the bowel.

PROGNOSIS. — In all cases of true imperforate anus or rectum the prognosis is not good. This does not mean that it is altogether hopeless; there are plenty of cases on record where children born with such deformities have, as the result of successful operative interference, grown up and led useful lives. More frequently, however, great trouble has been experienced in keeping the opening into the rectum pervious, the constant use of bougies and other means of dilating the passage being necessary. Again, in many cases where the anus is absent, no true sphincteric control is obtained, and there is a continual liability to fæcal incontinence, rendering the child a nuisance alike to himself and those surrounding him.

The best results are to be expected in those cases where it has been possible to bring down the mucous membrane of the bowel and stitch it to the skin. The worst cases are those where colotomy has had to be performed.

A great many plastic operations have been invented for the purpose of establishing a normal condition of the parts in children born with some of these deformities.

For a more detailed description of these malformations and the methods of dealing with them, the reader is referred to the special books upon this subject, such as Bodenhamer's "Congenital Malformations of the Rectum and Anus" (New York, 1860), and Tuttle's work on Disease of the Rectum.

## CHAPTER II

### *EXAMINATION AND DIAGNOSIS*

It is impossible to overestimate the importance of a local examination in all cases where rectal symptoms are complained of, and it is imperative that the diagnosis in such cases should be founded upon the findings, and little, if at all, upon the patient's history and symptoms. It seems scarcely credible that doctors should diagnose diseases of the rectum and anus from the symptoms only, without a local examination ; but such, nevertheless, is too often the case. The reason for this is fairly obvious. A patient frequently walks into the doctor's consulting-room, and says: "I am suffering from piles; I wish you would give me some ointment for them." And he or she is not willing to undress so that there can be an examination. But to treat any case of doubtful disease of the rectum without making an examination is wrong, since it can only result in grave conditions being missed. I have frequently seen cases in hospital about whom the doctor has sent a note, saying: "I have been treating this case for some months for piles, but it does not seem to be getting any better." I have examined and found, perhaps, a carcinoma, and inquiry has shown that the doctor has not even troubled to put his finger inside the rectum. If he had done so, he could not have missed such an obvious condition. In many cases the patient has been obliged to have colotomy performed, whereas, if the disease had been detected when the doctor first saw the case, excision of the growth might have been possible. It is wrong to treat any case, however trivial it may seem, without first making an examination of the rectum.

As an example of the mistakes which may result from failure to make a local examination, I will recount the following cases:

*Case.*—A young girl, who had for some months been under the care of a London physician for a constitutional ailment, went to see him one day, complaining that she

was suffering, she thought, from piles, and that for a week she had had considerable pain in the rectum. He did not examine her, but, after making a few inquiries, sent her to a nursing-home to have high-frequency electricity applied to the rectum. The applications were made several times without benefit, and, as it was then discovered that there was a large swelling at the side of the anus, I was asked to see her. I discovered a large ischio-rectal abscess, which on being opened was found to contain quite a pint of foul pus.

The following case is even more remarkable:

*Case.*—A labouring man who was residing in a tropical country where dysentery is indigenous was attacked with diarrhœa, and passed much pus and blood by the bowel. He was treated for some four or five weeks by a doctor with various medicines, but without any improvement in his symptoms. It was then decided to make a rectal examination, and in so doing it was discovered that he had a broken egg-cup impacted in his rectum.

The patient's account of his symptoms and history is of very little value from a diagnostic point of view, and it cannot be too strongly insisted upon that a digital examination of the rectum should always be made when symptoms of rectal trouble are complained of, and that no case should be treated for rectal symptoms without an examination. However obvious the condition may appear, the digital examination of the rectum should never be omitted. So frequently does one find piles and fistulæ existing with, and usually as the result of, cancer higher up in the rectum, that unless this rule is adhered to, many cases of cancer will continue to be missed in the early stages, when alone treatment can be successful.

A great deal of tact and patience is often required by the surgeon in arriving at a correct diagnosis in cases of rectal disease. Delicate questions have to be asked, and many patients, especially women, through a natural sense of delicacy, are very unwilling to allow a rectal examination to be made. On no account should any sense of delicacy or shyness on the part of the patient be allowed to prevent the surgeon from making a proper examination, but he should study how he can best examine the patient without making her feel uncomfortable.



Again, many conditions of the anus and rectum for which the surgeon is consulted are very painful, and patients naturally shrink from an examination which they think may be painful, or which they know from previous experience is so. No surgeon can hope to be successful in rectal surgery who has not carefully studied how to examine a patient without causing him pain. It is not necessary to cause pain in examining the rectum, but it needs a considerable amount of practice to acquire the art of painless examination, which is, however, an art well worth the study.

The value of symptoms in diseases of the rectum is practically negligible. My experience is that, if one tries to diagnose diseases of the rectum from symptoms, one is wrong in 50 per cent. of the cases. The patient with fissure will detail the symptoms of carcinoma, and the patient with carcinoma will complain of symptoms which seem to point to fissure, or to mere pruritus. It is, however, always advisable, on first seeing a patient, to spend some time in going carefully into the history and symptoms, for although the information obtained is not of much use, the time so occupied allows the surgeon an opportunity of estimating the type of patient with whom he has to deal, and of obtaining his confidence; while it enables the patient to shake off the not unnatural nervousness induced by walking into the surgeon's consulting-room. It makes the patient feel, too, that the surgeon whom he has come to consult is taking an interest in his case. For we must remember that, although to us the history and account of the symptoms are of little importance, the patient as a rule thinks quite the reverse.

The patient should first be asked what it is that he complains of, not what is the matter, or one lays oneself open to the obvious retort: "But, doctor, that is what I have come to you to find out." When the patient has described his complaint, one should proceed to cross-examine him as to the details. I ask whether it is pain he complains of, and, if so, whether it keeps him awake at night, or whether it comes on after the bowels act. Or is it bleeding, and if so, how much. The best way is to get the patient to compare it with something he knows. One patient with quite a trivial lesion will complain of pain which another would not trouble about. It is always advisable to ask whether the pain interferes with the patient's ordinary voca-

tion, whether it is worse on standing, or on lying down, whether it keeps him awake at night, or makes him perspire. The neurotic woman will often complain of pain when she is not suffering any at all. It is always important to ascertain by direct questions what effect upon the daily habits the patient's symptoms have. This will be of use in judging of the gravity of his condition, and in estimating what treatment one should advise. The amount of incapacity which any abnormal or diseased condition of the rectum causes is always a matter of importance, as it has a bearing upon the treatment which one should advise, as have also the habits and profession of the patient. The following is a case in point: I was recently consulted on the same day by two patients, both of whom were suffering from prolapsed internal piles. One patient was an officer in the British army, and he told me that, when on leave or ordinary light duty, his piles did not cause him any real inconvenience; but when he was on manœuvres and obliged to be many hours in the saddle, or in camp and too busy to attend to himself properly, the piles caused him serious pain and inconvenience. The other patient was an elderly lady, with almost an identical condition in the rectum; but she lived a quiet and sedentary life, had a maid to attend to her, and, owing to chronic arthritis, was able to get about very little. Her piles caused her very little inconvenience, and she had consulted me chiefly to please some relations who were worried about her condition. I advised the first patient to have his piles removed, while I told the lady that no operation was needed in her case, and that a little care was all that was necessary to prevent the piles getting worse or causing her inconvenience.

One should always inquire carefully as to how the bowels act. If the patient says that they act regularly, one must ask whether this is the result of taking aperients or not. The nature of the stools should be inquired into, and it should be ascertained whether there are any abnormal constituents, such as blood, pus, mucus, etc.

Next we should inquire into the history, the duration of the symptoms, and ask what it was which first drew the patient's attention to his condition. In all cases we must inquire into the general condition, habits, occupation, and so on.

Although, for the reasons stated, this preliminary inquiry should always be made, one must not allow oneself to be biased,

by the patient's description of his condition, towards any particular diagnosis, nor must we assume that, because perhaps the symptoms are trivial, the disease is the same. I have seen patients who, from their symptoms, one would suppose to be suffering from simple fissure, but who, on examination, were found to have cancer, while the reverse is even commoner.

The symptoms complained of in cases of rectal disease are so various, and differ so widely in different cases, that, as has already been stated, the symptoms alone can never be depended upon in making a diagnosis, but the condition must always be verified by a careful rectal examination. There are, however, certain symptoms which, if present, should always be most carefully investigated, since they may be the result of malignant disease in some portion of the bowel. It must be remembered that malignant disease cannot be excluded simply because a patient is young. In the course of one month there were three patients suffering from malignant disease of the rectum under treatment at St. Mark's Hospital, whose ages were seventeen, twenty-nine, and thirty-two respectively.

The symptoms which should put us on our guard, and which should lead to a most careful investigation, are—

The sudden onset of constipation without obvious cause.

A history of alternating diarrhœa and constipation.

Attacks of colic at frequent intervals, which can only be relieved by large doses of aperients.

The sudden onset of piles, especially in an elderly patient.

Morning diarrhœa. This condition consists in the patient being called upon to relieve the bowels immediately on rising in the morning. It results from the accumulation of discharge, usually of a liquid nature, in the rectum during the night. While the patient is in the recumbent position this does not cause any uneasiness, but directly he assumes the erect position, there is an urgent call to relieve the bowel. This symptom invariably indicates the presence of some lesion either in the rectum or sigmoid flexure, the commonest causes being ulceration or some other inflammatory manifestation within the rectum. It may also result from strictures, either simple or malignant, and when this symptom is complained of, the surgeon should always make a careful investigation to ascertain the cause.

*Reflex Symptoms.*—The symptoms resulting from rectal troubles may be very misleading, and especially those symptoms

which are the result of referred pain. The nerve-supply of the rectum and that of the genito-urinary apparatus are so closely associated that there is probably no part of the body where the results of referred pain are more often seen. Thus the pain from a fissure may be referred entirely to the genito-urinary organs. A small strangulated or thrombosed external pile may, and often does, cause complete retention of urine. The retention of urine may be the only symptom complained of by the patient, and when this is the case, the real trouble may easily be missed; and the patient may be treated for a stricture, or have a catheter passed for several days, when cutting off the pile, dilating the sphincter, or even applying sedatives to the anus, would quickly overcome the retention. Fissures may cause all sorts of referred symptoms. Thus irritability of the bladder, with frequent micturition, strangury, and other symptoms usually associated with urethral and bladder troubles, may be the leading symptoms.

In women symptoms due to uterine troubles may be closely simulated. It is well to bear this in mind, and to examine the anus and rectum in cases where women complain of uterine symptoms without obvious cause. I have seen cases where metrorrhagia, and even dysmenorrhœa, have been apparently cured by the healing of a previously undetected fissure.

The various reflex symptoms which may be complained of in cases of rectal disease are so numerous and varied that it would be quite impossible to describe them in detail. We should, however, always be on our guard in such cases, so that we may discover the true cause, and by a thorough and careful examination detect the real lesion.

#### **EXAMINATION OF THE PATIENT.**

As a rule it is not necessary for the patient to be specially prepared for examination, as the rectum is usually empty. Where, however, the first examination proves to be unsatisfactory on account of the bowel not being empty, or in difficult and obscure cases, it is always advisable to arrange for the patient to have an enema administered previous to the examination. As a rule it is quite sufficient for the patient to have an enema at his own house before coming to see the surgeon.

*Position.*—There are several different positions in which to examine the patient, and different surgeons have a preference for one or the other. The position most generally adopted, and by far the best one in the majority of cases, is the left lateral, or semi-prone position. The patient is placed on the left side, on a flat couch without any pillows. The buttocks should be at the edge of the couch, with the left elbow or arm behind the back, and the chest resting flat on the couch, with the knees well drawn up. If specula have to be used, a small sandbag placed under the left hip is also advisable. This position enables all ordinary examinations to be carried out, and the sigmoidoscope used, without any difficulty. It is also by far the most comfortable and least embarrassing position for the patient, and is equally suitable for men and women.

There are several other positions which are useful in certain cases. Where the patient is very stout or particularly muscular, it is sometimes very difficult to examine the rectum properly with the patient on his side, and almost impossible to use specula. In such cases the knee-elbow position will often make an examination much easier. In this position the patient should kneel on a flat couch, with the thighs at right angles to its surface, and he should rest entirely upon the elbows and knees. This position is very useful in examining large fistulæ. The chief objection to it is that it is rather difficult to maintain for more than a few moments.

Another position which is useful in certain cases is the exaggerated lithotomy position. For this purpose the patient must be placed at the end of the couch, with a cushion under the sacrum; or the couch must be tipped, and the thighs flexed right up on the abdomen. This is a somewhat awkward position for use in a consulting-room, and is more suitable when the patient is under an anæsthetic.

There are several other positions sometimes used, but they are only obtainable by means of special chairs or apparatus. One of these which may be useful in certain cases is the one used by Dr. Hanes of Louisville, U.S.A., in which the patient rests with his elbows almost on the floor, and with his legs upon the couch at right angles with the trunk, and face downwards. A special table has been designed for obtaining this position. It is, however, seldom, if ever, necessary to use these unusual positions. Another position which is sometimes useful when

one wishes to examine the higher parts of the rectum, or to feel something which is just out of reach in the ordinary position, is the squatting position. In this position the patient kneels on the couch in a squatting attitude, and strains down. This will often bring any lesion in the higher part of the rectum within reach of the finger when it would otherwise be inaccessible.

*Illumination.*—A good light is, of course, necessary, and by far the best form of light is that provided by a good forehead lamp, fitted with a 4-volt Osram lamp, connected either to an accumulator or to the main electric-supply by means of a suitable rheostat. The forehead lamp should fit by a spring over the top of the surgeon's head, and should be so constructed that it does not cause an unpleasant heat on the forehead even if worn for some considerable time. It should also be arranged with a lens, by means of which the light can be focussed to the desired size and distance. I consider this by far the most satisfactory form of light for examining the rectum, though it is, of course, necessary to become accustomed to the difference from the appearances when seen by daylight.

In these days a forehead lamp and a small portable accumulator can easily be carried about without much inconvenience, and those who are accustomed to visit their patients on a motor-car will find it very convenient to have a spare 6- or 8-volt accumulator on the car, fitted into a wooden case with a strap handle and a small rheostat attached. It can then be used for working the forehead lamp or other electro-medical apparatus, and, if necessary, for the ignition of the car, should the regular accumulator fail.

The external part should first be carefully examined, the condition of the skin noted, the orifices of fistulæ looked for, etc. Then the anus should be gently separated with the fingers in order to see if there is a fissure present. If so, it will generally be found in the mid-line posteriorly, and more rarely anteriorly. The first finger should next be lubricated, and for this purpose nothing is as good as vaseline, though if one desires to apply any local application to the parts, such as cocaine, it is better to use soap or glycerine, as it is almost impossible to remove the vaseline thoroughly enough to apply anything after it has been used. The great objection to glycerine is that it causes considerable stinging if there is any abrasion or fissure. With a lubricated finger the surgeon should next examine the

condition of the sphincter muscle, and estimate its power of contraction.

The introduction of the finger into the bowel requires considerable care, but with practice it should be possible to do this without causing any pain or serious discomfort. It is needless to remark that the surgeon's nails should be cut as short as possible.

The front of the finger should be pressed towards the lateral wall of the anus and then slowly inserted. In this way the minimum of pain and discomfort will be produced. It should always be remembered that the vast majority of lesions in the bowel are within the last  $\frac{3}{4}$  inch. For instance, the orifices of fistulæ, fissures, polypi, piles, and the induration produced by abscesses in this neighbourhood, are generally to be felt within the first  $\frac{3}{4}$  inch. The parts should be carefully palpated all the way round, and any induration felt for. Its extent, etc., should be estimated by feeling it between the finger within the bowel and the thumb without. Finally, the finger should be passed as far up as possible, to ascertain whether there is any abnormality high up. In cases of painful fissure it is often difficult to carry out a proper examination on account of the extreme pain caused by the introduction of the finger. This may usually be overcome by keeping the pulp of the finger towards the fissure and pressing firmly in the opposite direction during its introduction; or very often a little anæsthesin powder blown on to the fissure when the parts are separated will, in the course of about a minute, allow the examination to be made without causing pain. I think, personally, that this is much more effectual than the use of cocaine. If the patient is instructed to strain down while the edges of the anus are separated, there will seldom be any difficulty in getting the powder well on to the fissure. It is needless to say that vaseline must not be used first if the anæsthesin powder is to be used. In order to avoid causing pain when making a digital examination of the rectum, the important thing to remember is not to make any sudden movement, but to move the finger very slowly and very gently. The pain as a rule is produced not so much by the finger as by involuntary contractions of the muscle owing to its presence, and much may be done to avoid these contractions by gentle manipulation. The educated sense of touch, which a specialist on diseases of the rectum obtains by long practice, is not a thing which can be

speedily acquired. The educated finger is, however, by far the most valuable means of examination.

Gentleness and skilfulness in manipulation cannot be too strongly insisted upon. At my clinic at St. Mark's Hospital I have often seen a patient who has made no complaint when the house surgeon or myself examined his bowel with the finger, nearly jump off the couch with pain when some visiting doctor, not accustomed to making rectal examinations, has inserted his finger. It is a mistake to suppose that piles can be felt with the finger. Piles, unless thrombosed or ulcerated, convey no particular sensation to the finger, and it is necessary to be able to see them in order to diagnose them. A doctor who asserts, on the evidence of a digital examination only, that a patient is not suffering from piles, is committing himself to a statement for which there is no foundation.

*The Use of Specula.*—There are two desiderata for a speculum—first, that it should give as good a view as possible of the parts; and secondly, that it can be used without hurting the patient.

I have seen the statement in books on rectal surgery that no specula should be used without the patient first being given an anæsthetic. While that may possibly have been true some ten years ago, it is certainly not so at the present day. If proper specula are used skilfully, it is possible to examine even the most nervous patients without hurting them in the least.

The number of different forms of rectal specula that have been invented is legion, as any reference to an instrument-maker's catalogue will demonstrate. Very few of these, however, are of any use in actual practice, and many of them are little more than instruments of torture. Most, if not all, of the expanding or bivalve types of specula are objectionable. The great objection to them is that they have to be passed with the sharp edge in contact with the lesion which it is desired to examine, and that the separation of the blades stretches and tears the parts. This causes pain and bleeding, and is in every way objectionable. Moreover, the mucous membrane prolapses between the blades, which results in its being impossible to close the speculum in order to withdraw it without nipping the mucous membrane, and so causing further distress. Personally, I never use any form of bivalve speculum, except very occasionally when the patient is under an anæsthetic.



Another common form of speculum is the fenestrated pattern. This usually consists of a closed or open cone with a gap or window in one side. The speculum is introduced with the gap towards the lesion it is desired to examine. With this instrument there is the advantage that only that part of the bowel wall which is to be examined is exposed, and that only a

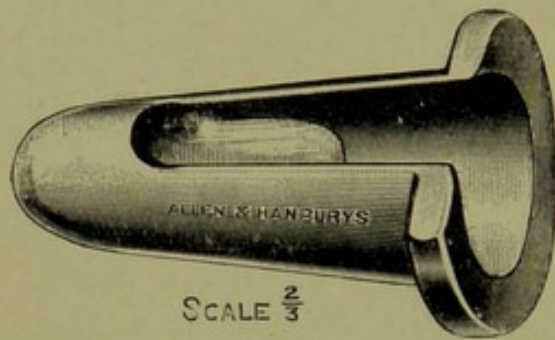


FIG. 8.—AUTHOR'S SPECULUM.

very small part of the instrument need touch the lesion during introduction. Most models of this type of speculum are easy enough to introduce, but cause acute pain on being removed, owing either to the edges being sharp, or to prolapsed mucous membrane catching in the upper edge of

the window; and I have known it to be necessary to give an anæsthetic in order to remove one of these specula. My fenestrated speculum (Fig. 8) is, however, free from any of these objections, as mucous membrane prolapsed into the window slides up the end without any difficulty; and this instrument has been found most satisfactory for the examination of fissures or other lesions within the anal canal.

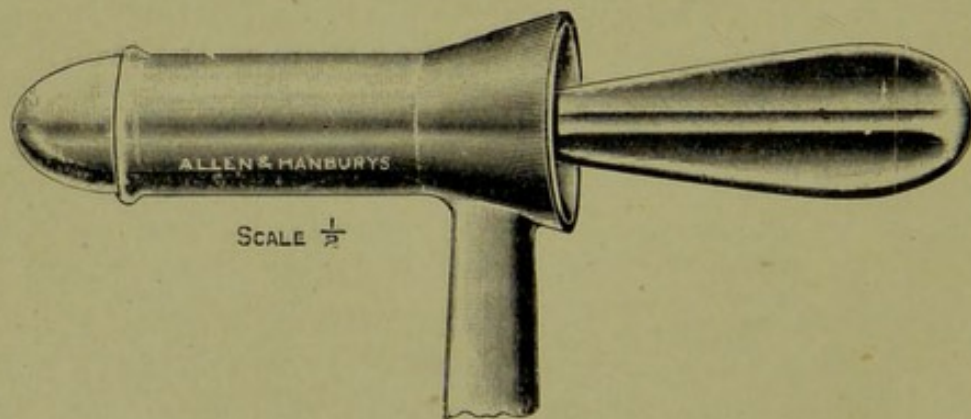


FIG. 9.

In using any form of fenestrated speculum the surgeon should never rotate it for the purpose of examining a further portion of the anal canal, but should remove it completely, and re-introduce it in the desired position.

Another form of speculum with which every surgeon should be provided, and which is particularly useful for the examina-

tion of piles and inflammation of the rectum, such as proctitis, etc., is the modification of Kelly's short rectal tube, which has for some years been used at St. Mark's Hospital (Fig. 9). This is a hollow tube with an obturator fitting into it, and with a thick front edge. It should be warmed, well lubricated, and then pressed gently into the bowel until the extremity has passed

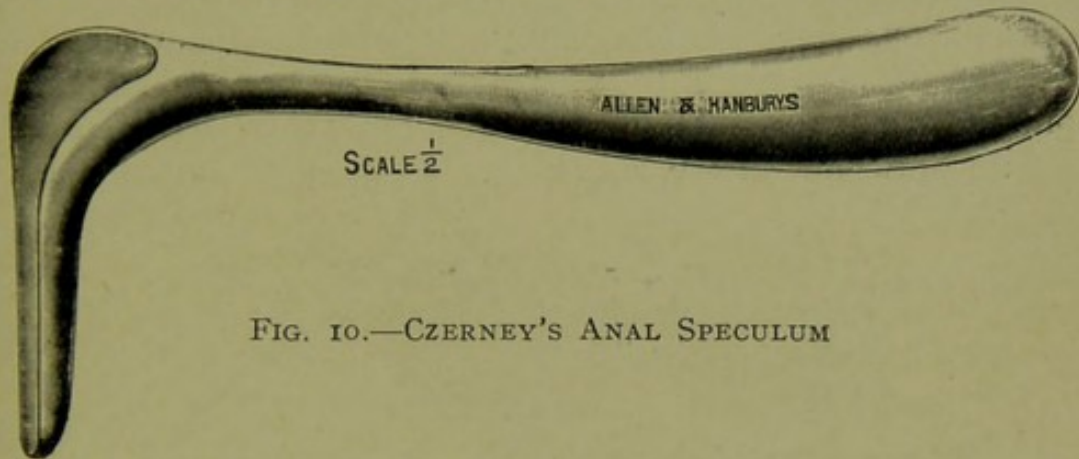


FIG. 10.—CZERNEY'S ANAL SPECULUM

the sphincters. The obturator is then removed, and with a good light an excellent view of the rectum can be obtained. As it is slowly withdrawn, a very good view of the anal canal is obtained. Piles, if present, will prolapse into the end of the tube, and their size and situation can be very well seen.

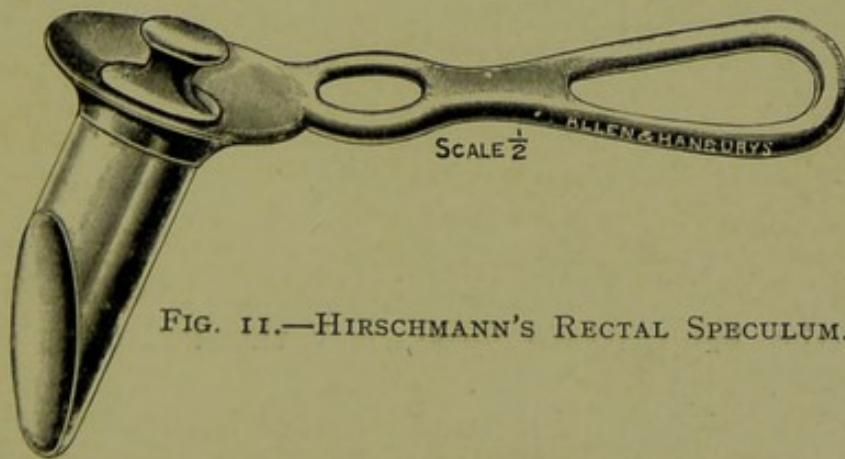


FIG. 11.—HIRSCHMANN'S RECTAL SPECULUM.

While these two specula are quite sufficient in examining the anal canal, they are of no use in the case of lesions situated in the upper part of the rectum or in the sigmoid flexure; and for this purpose it is necessary to employ the electric sigmoidoscope. Of this instrument there are several patterns now in use, but by far the most satisfactory is my modification of Strauss's

sigmoidoscope (Fig. 12). This instrument is 30 centimetres long, and consists of a tube closed at the back end by a glass window. Illumination is obtained by means of a small lamp, situated about an inch from the end of the instrument against the roof. The lamp can easily be removed for cleaning purposes should it become soiled during the examination. There is an arrangement by which air can be pumped into the tube so as to inflate the bowel and facilitate the introduction of the instrument. In order to pass the instrument through the sphincters, the lamp attachment and back glass are removed, and an obturator inserted. As soon as the nose of the instru-

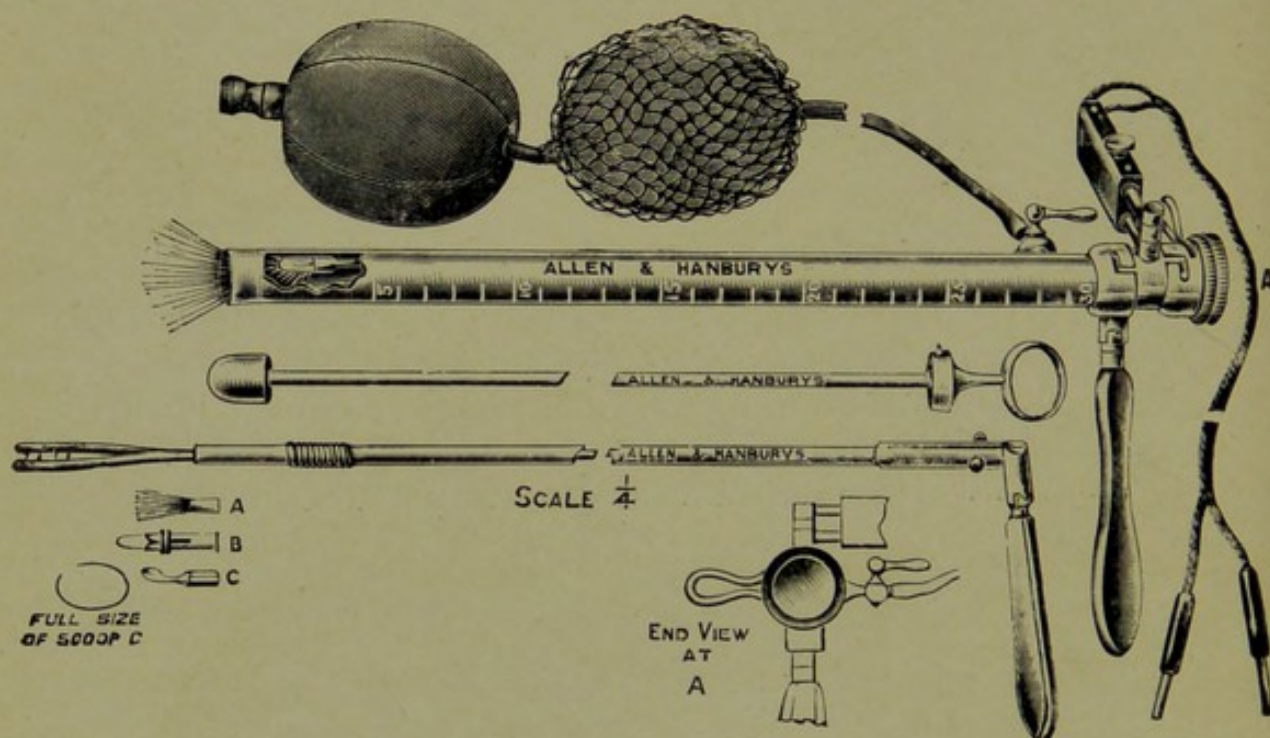


FIG. 12.

ment has passed in 2 or 3 inches, the obturator should be removed, the lamp reintroduced, and the instrument subsequently passed by sight alone.

For the examination of the upper part of the rectum, my short electric proctoscope-tube is all that is necessary. This instrument is very easily passed, and causes no pain, so that it can be used without an anæsthetic. It gives an admirable view of the parts, and with it one can examine with the utmost thoroughness the whole of the rectum. It is, however, not long enough to reach the sigmoid flexure, and in order to examine the lower pelvic colon, the long sigmoidoscope is necessary. As in the

case of all special instruments, practice and experience are necessary before it can be passed with ease and safety. In experienced hands it is perfectly safe, and of the greatest value in difficult cases. Even in inexperienced hands the short proctoscope can hardly result in damage, provided it is passed

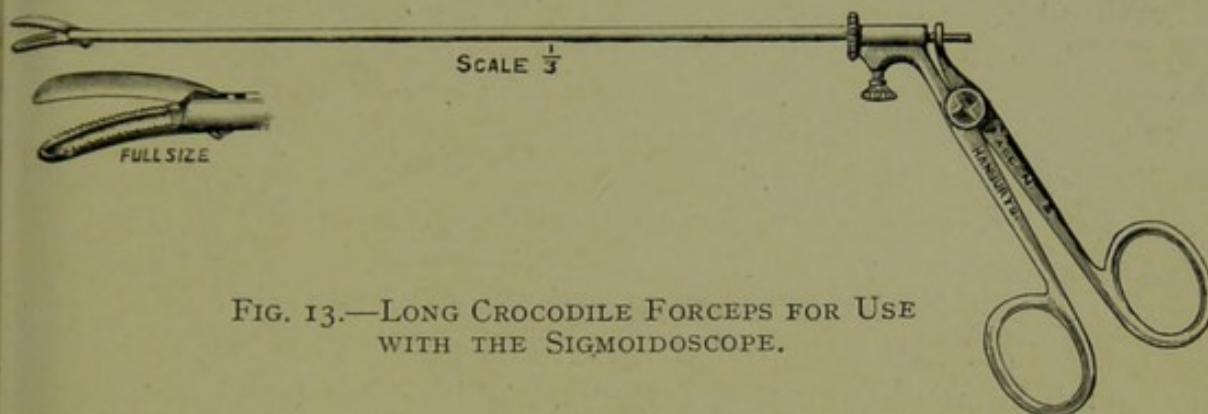


FIG. 13.—LONG CROCODILE FORCEPS FOR USE WITH THE SIGMOIDOSCOPE.

by sight and no force is used in introducing it. It is in constant use at St. Mark's Hospital, and no harmful results have ever been seen there.

It is, of course, obvious that the bowel must be empty before using any of these instruments. For this purpose it is often necessary to prepare the patient by means of enemata. The best position is the semi-prone position already mentioned.

SCALE 1/4

FIG. 14.—INSUFFLATOR, FOR USE WITH THE SIGMOIDOSCOPE.

Before the instrument is introduced, the lamp attachment is withdrawn and the obturator inserted. The instrument should be warmed with hot water, and vaseline applied all over it, not merely at the tip. It should be gently pressed through the sphincters in a direction backwards towards the sacrum. As soon as the end is felt to pass the sphincter, the obturator is

withdrawn, the lamp attachment inserted, and the electric light switched on. The instrument is subsequently passed by sight, little puffs of the bellows being used to inflate the bowel and push out of the way any folds of mucous membrane that obstruct the view. This instrument is quite easily used, but considerably more skill is necessary to be able to examine the pelvic colon with the sigmoidoscope. For a description of the latter instrument and of the method of using it, the reader is referred to my book, "The Sigmoidoscope," or to my other book, "Diseases of the Colon."

Other methods of examination which are available in difficult cases are bimanual examination, with one or two fingers of the right hand in the rectum and the left hand on the abdomen, the patient being in the left lateral or dorsal position; and an examination under an anæsthetic. This latter is particularly advisable in difficult cases, or when the patient complains of severe pain on any attempt being made to examine the parts, and it is always advisable to insist upon such an examination if the surgeon is not satisfied that he has been able to make a thorough examination without an anæsthetic. In any case an examination of the abdomen should never be neglected, for it is important to ascertain the size of the liver, and to find out whether tumours or other lesions exist in the abdominal cavity, etc.

The use of the electric proctoscope and the sigmoidoscope has entirely done away with the necessity for elastic bougies for diagnostic purposes, and they are no longer of any value.

The use of probes for the diagnosis of fistulæ is to be avoided if possible. As a rule the tracks of fistulæ can be much better mapped out with the finger by feeling the indurated areas than by means of any probe. Personally I only make use of probes for diagnostic purposes in very exceptional cases. They easily cause considerable pain, and give very little information.

The method of passing the whole hand into the rectum for purposes of diagnosis is dangerous, and in these days quite unnecessary.

In cases where a satisfactory examination cannot be made in the ordinary way, or where there are obscure symptoms which cannot be accounted for, it is always advisable to make a thorough examination under full anæsthesia. The sphincter should be dilated, and the whole of the rectum and anal canal

carefully examined with a bent probe. Not infrequently it will be found that one or other of these valves forms a pocket in the mucous membrane, and there is an ulcer in the bottom of it. Such a lesion may give rise to troublesome symptoms, and yet be most difficult to detect in the ordinary way.

**Examination of the Fæces and Discharges.**—The surgeon should make it a rule to examine the stools himself. He should not trust to the hearsay evidence of the patient or nurse. Useful information can frequently be obtained from observing the character and appearance of the stools. It is often stated that the shape of the fæces is markedly changed in cases of malignant stricture of the rectum, the fæces in this condition being described as "ribbon-like" or as resembling "sheep's dung." Experience does not bear out this statement. "Ribbon-like" fæces could only result from stricture if the latter were at the anal margin. If the stricture is higher up, the fæces are remoulded again below the stricture, however narrow the opening may be. And malignant disease at the anal orifice is invariably epitheliomatous in character, and, instead of causing narrowing of the passage, usually gives rise to the reverse condition. In my experience the small, round fæcal balls, which resemble sheep's dung, though they may result from stricture, more usually result from chronic constipation. The shape of the fæces is therefore of but little significance.

*Mucus.*—Mucus is normally present in the stools, but not usually in sufficient quantity to be obvious. In many forms of colitis, and in all severe ulcerative conditions of the bowel, whether malignant or otherwise, the quantity of mucus in the stools is considerably increased; and in some cases the stools consist mainly of thick slimy mucus, with but a small amount of fæcal material. A distinction is sometimes drawn between the mucus found in cases of colitis and in cases of malignant ulceration, and it is asserted that mucous casts are characteristic of colitis, as opposed to malignant disease. It must be remembered, however, that the two conditions may, and not infrequently do, co-exist in the same patient. It is not safe to assume that because a patient is passing mucous casts, the case is one of simple colitis. I had recently to examine a patient supposed to be suffering from colitis, in whose stools large mucous casts were present. On examining her with the sigmoidoscope, a large malignant ulcer in the sigmoid flexure was

detected. There is a curious form of colitis in which large quantities of sand are passed in the stools. This sand may be present in such quantities as to render the surfaces of the fæces like sand-paper, and in this case considerable hæmorrhage may result from the injury caused to the bowel wall during the process of defæcation. This intestinal sand closely resembles ordinary sea sand. On analysis, it is found to be composed of carbonate and phosphate of lime, coloured by urobilin. The way in which it is formed is somewhat obscure, but it is supposed to be formed in the upper colon as the result of alkaline mucous secretion.

In obscure cases of rectal disease a specimen of the fæces should be sent for examination to a clinical laboratory. A bacteriological examination may reveal the presence of tubercle bacilli, or the gonococcus. When the patient has been residing in hot climates, a microscopic examination of the fæces is particularly important. Among the more important parasites which may be discovered are the amœba of dysentery, the parasite of sprue, and the *Bilharzia hæmatobia*.

### CHAPTER III

## *ANTISEPTIC TECHNIQUE AND DIET IN RELATION TO OPERATIONS UPON THE RECTUM*

### **ANTISEPTIC TECHNIQUE IN RELATION TO OPERATIONS UPON THE RECTUM.**

I HAVE deemed it advisable to refer specially to this subject, as there are some points in which the technique as applied to operation on the rectum differs from the ordinary aseptic methods of surgery. Many surgeons have advanced the opinion that all operations upon the rectum must of necessity be septic. This is, of course, a preposterous proposition, and only arises from the fact that the difficulty of obtaining aseptic healing in rectal wounds is greater than in many other parts of the body, and that those surgeons who advance this statement have failed to achieve success.

Many people fail to differentiate between a part being dirty and being septic. A part is septic when it is the site of a septic wound, or when septic organisms in large quantities are present on or beneath its surface. No part of the skin or mucous membrane of the body is, so far as we know, free from pathogenic micro-organisms, under ordinary circumstances. Probably the largest number of micro-organisms to a given surface is to be found in the mouth. The fæces, as a matter of fact, do not under ordinary circumstances contain an exceptional number of micro-organisms, with the exception of the colon bacillus; and but few are pathogenic, so that in all probability the rectal mucous membrane might compare favourably as regards the number and quality of the micro-organisms upon its surface with the skin on the exposed portions of the body, and exceptionally favourably with the mucous membrane of the mouth. It is entirely wrong to suppose that the rectum is a portion of the body where pathogenic organisms are especially prevalent; it



seems almost certain that the reverse is the case. So that it will, I think, be obvious that in operating upon the rectum we have not to deal with a particularly septic part of the body.

The difficulty in securing aseptic healing in rectal wounds does not arise from any specially septic condition of the part, but from the fact that in the first place it is not a very easy matter to cleanse the rectal mucous membrane—at any rate, by the ordinary methods that are used to cleanse the skin; and, secondly, it is difficult to prevent the wound from being fouled after the operation has been performed.

It is obvious that the ordinary aseptic technique, which is successful in operations performed upon skin-covered surfaces of the body, will fail if applied to the interior of the rectum; but it does not follow that aseptic methods cannot be applied to the rectum. They can, but a special technique is necessary, and this in many cases will necessitate the operation being modified to suit the conditions.

There are certain conditions which must obtain in operation upon the interior of the rectum. The bowels can be emptied with certainty, and kept empty for some time, but after a few days (usually two or three) the bowels have to be opened, and this cannot be done without soiling the wound. So that, although we may succeed in operating upon the rectum under aseptic conditions, these conditions cannot be maintained for more than a brief period—too brief as a rule for complete healing to have had time to occur.

With proper attention to the preparation of the patient and to the cleansing of the rectal mucosa, we can, with a fair degree of certainty, be sure of operating under aseptic conditions and of keeping the wounds clean until granulation has commenced.

Wounds which are sutured are obviously unsuitable for such conditions, as before union has become complete infection is practically certain to occur, and sepsis will result in the giving way of the closed wound, or the formation of an abscess in it. Wounds which are accurately sutured may, it is true, be sufficiently healed before soiling occurs to be able to remain aseptic, and we do sometimes see healing occur by first intention in the rectum in this way. But, unfortunately, some stitches must be exposed in the lumen of the rectum, and they then act as a channel to convey infection to the deeper portions of the wounds; so that

one can never be sure of obtaining aseptic healing, and failures are common, even when the greatest care is taken.

Wounds which contain pockets or partly closed spaces will, for the same reason, not heal well, and will be liable to result in complications for the same reason. Open wounds which can be easily cleansed do the best, and if kept aseptic for forty-eight hours, will have begun to granulate, and thus have acquired a protective covering which can effectually resist invasion by micro-organisms. Experience has shown that wounds in the rectum which are left open to granulate, heal much better and are less liable to be followed by complications than those which are stitched up.

In the older methods of operating upon the rectum no attempt was as a rule made to operate on clean tissues, or to keep the wound clean until the time came for the bowels to be opened, as it was thought to be unnecessary, since soiling must inevitably occur in the course of a day or two. The improvement, however, which I have found to result from operating on clean tissues and from keeping the wound clean until granulation has commenced, is so great that I should not think of going back to the old method, and I am sure that this will be the experience of others if they try this method.

The advantages are that septic complications, both local and general, are entirely avoided, healing occurs much more rapidly, and with far less formation of scar tissue, while pain (which is due to swelling and congestion) is almost entirely got rid of.

Merely douching the exposed pile over with a little antiseptic before commencing the operation is not sufficient to obtain aseptic conditions. When operating upon the rectum, considerable care and a good deal of time must be expended upon the preliminary cleansing process—in fact, in the case of such an operation as that for piles, I find that the cleansing of the mucosa, etc., takes much longer than the actual operation. It is, however, time well spent, and the improved results will be found to more than repay the surgeon for the time occupied.

#### **Preparation of the Patient.**

Nearly every surgeon has his own special method of preparing patients for operation, and there are doubtless many which are quite satisfactory in practice. The value of a proper method of

preparation for operations upon the rectum can hardly be over-estimated, as the success or otherwise of all operations upon this part of the bowel depends to a very large extent upon the success or failure of the preliminary treatment—in other words, upon whether the bowel is really empty at the time of operation, and will remain so until the surgeon deems it advisable to get the bowels to act. The first essential of any method of rectal preparation is that there shall be a practical certainty of the bowel being empty, and that, should the patient strain down or cough as the result of unequal anæsthesia, this will not result in the soiling of the wound. The second necessity is to obtain these conditions so far as possible without putting the patient to a great deal of discomfort and inconvenience in the process of preparation.

The method of preparation which is employed at St. Mark's Hospital, and which has been in use for many years, is extremely successful, so much so, indeed, that, although from fifteen to twenty operations a week are performed there, it is not more than about once in six months that we find that the bowel has not been properly emptied. Patients are always taken into the hospital at least two days before the operation. Two rhubarb and colocynth pills are administered on the night of admission, and this dose is repeated on the following night. The night before operation the patient is given a dose of opium and catechu, and the following morning, some four hours before operation, the lower bowel is washed out with enemata. The chief point in this method of preparation is the use of opium and catechu on the night before operation, followed by an enema the next morning. The effect of the opium is to inhibit peristalsis, so that, when the enema is given, the lower bowel is emptied without inducing peristalsis and bringing fresh material from above into the field of operation.

My own method of preparing patients for operation varies slightly from the above, although it was founded upon it, and is as follows:

**Day before Operation**—*Aperient*.—One ounce of castor oil first thing in the morning (or overnight), followed, if necessary, by a dose of salts.

*Food*.—Ordinary breakfast. A cup of milk at 11 a.m.

Plain lunch.

Dinner: A cup of soup and custard, or Benger's food.

**Evening before Operation.**—Soap-and-water enema. A dose of the following medicine:

R	Tincture of opium	.. .. .	10 minims.
	Spirit of chloroform	.. .. .	15 "
	Solution of acetate of ammonia	.. .. .	30 "
	Tincture of catechu	.. .. .	$\frac{1}{2}$ fluid drachm.
	Compound tincture of cardamoms	.. .. .	1 "
	Cinnamon-water	.. .. .	1 fluid ounce.

Patient to have a hot bath and be shaved, if necessary.

**Morning of Operation.**—Three to four hours before operation, a plain water enema ( $1\frac{1}{2}$  pints), to be repeated if not returned clean.

*Food.*—A cup of tea, quite early.

Three-quarters of an hour before operation a hypodermic injection to be given (morphia, grain  $\frac{1}{4}$ ; atropine,  $\frac{1}{120}$  grain).

Skin to be prepared by painting with 2 per cent. iodine in 75 per cent. rectified spirit (two coats), and then covered with a sterilized towel and bandage.

With regard to shaving the hair, this is quite unnecessary in the case of a simple pile operation, and should always be avoided if possible, as, when the hair grows again, it often causes considerable discomfort in the process. In the case of fistulæ, however, it is usually advisable for the patient to be shaved.

This method of preparation is successful almost without exception, and causes the minimum of inconvenience. The opium gives the additional advantage of insuring to the patient a good night's sleep before the operation. The use of morphia and atropine three-quarters of an hour before the anæsthetic also assists in preventing any soiling of the rectum during the operation or immediately afterwards, although it is not given with this object, but rather to diminish the amount of anæsthetic that would otherwise be necessary.

Considerable modification of this method of preparation may, of course, be necessary in the case of children or old people, or in patients suffering from some special constitutional condition.

Many surgeons, in order to prevent soiling of the wound during operation, are in the habit of introducing into the rectum a tampon of gauze, to which a silk thread is attached, and of removing this at the end of the operation. But in the first place, if the patient is properly prepared, the use of a tampon is quite unnecessary; and, secondly, the withdrawal of the tampon at the end of the operation, unless it is done extremely carefully, very frequently results in the soiling of the wound by the upper part

of the tampon, which must be dirty. Personally, I never use a tampon either before or after the operation. They often cause considerable pain and discomfort if left in after the operation, and I have known cases in which it was necessary to administer an anæsthetic for their removal.

In order to obtain an aseptic field of operation for working in the rectum or its immediate neighbourhood, the use of antiseptics is necessary, and it is not safe to trust to so-called aseptic methods alone in this region. The antiseptic which I have found to be by far the most useful is lysol, as it does not coagulate mucus, nor does it cause excessive secretion by the rectal mucous membrane. It also acts as a cleansing agent. It should be used in the strength of about 1 drachm to the pint.

The practice of giving antiseptic injections before the patient comes to the operating-table is not a good one. It must be remembered that considerable absorption takes place from the rectal mucous membrane, and that even weak antiseptics, if any large amount is retained, may cause poisoning. I remember a good instance of this which occurred in another surgeon's practice some years ago. He had given instructions that the patient should have an enema of weak carbolic before coming to the operating-table. An enthusiastic nurse administered a  $\frac{1}{2}$ -pint enema of 1 in 40 carbolic acid, with the result that in about three minutes the patient became comatose, and her life was only saved with the very greatest difficulty. It is better to use antiseptics only after the patient is anæsthetized. My own practice is thoroughly to wash out the lower part of the rectum with ether soap and warm water on gauze swabs. When this has been done, the rectum is douched out with lysol, 1 drachm to the pint, until I am satisfied that it is quite clean. Any excess of fluid is then mopped away, and, lastly, before any incision is made, the area through which the wound is to be made and the surrounding parts are thoroughly cleaned with 1 in 500 biniodide in 75 alcohol. All this preliminary cleansing should be carried out very thoroughly, but it should always be remembered that large quantities of strong antiseptics must not be used, owing to the risk of poisoning.

The dressing of the wound after an operation on the rectum is a matter requiring some consideration. It is not easy to find a really suitable dressing, on which one can rely to keep the wound under aseptic conditions. Sealing up the wound with

collodion is not advisable, and seldom effective. I have found sterilized ointments to be the most useful form of dressing, combined with small pledgets of wool to protect the actual wound surface. Vaseline makes an excellent dressing, and if obtained in tubes, can be readily sterilized by boiling. Friar's balsam also makes a good protective dressing for rectal wounds. Wool is much better than gauze, as it can be more easily removed without hurting the patient. A short piece of rubber tube, to which either a safety-pin or a loop of silk is attached, should be introduced into the rectum. This is very useful in preventing oozing from the wound, and in enabling flatus to be passed without its coming into contact with the wound area. A large rectangular pad of wool and a T bandage generally complete the dressing for most rectal operations. In the case, however, of extensive operations, such as those for malignant disease, the ordinary T bandage is not effectual in keeping the dressings in place; and by far the best dressing in such circumstances is a large triangle of Gamgee tissue, the base of the triangle being sewn to the back of the waistband, and the apex of the triangle just reaching to the perineum, where two strips of bandage should be sewn to it, so that their ends can be brought up and tied to the waistband in front. If properly made, this forms a very effectual bandage, and can be relied upon to keep the dressings in place. The best form of T bandage is one made of flannelette with a double strip to come across the perineum. When it is desired to exert pressure over the anus, the best kind of bandage is one put on as follows: A piece of bandage 5 inches wide is first tied round the patient's waist. The remainder of the bandage is then passed under this waistband at the back in the middle line, and the bandage carried across the perineum, between the legs, and under the waistband in front. The two ends are then brought together over the anus, and tied firmly together. This makes an excellent bandage, and is easily constructed out of any wide bandage or strip of flannel.

**AFTER-TREATMENT.**—There is hardly any department of surgery in which more depends upon the successful after-treatment than in the case of rectal operations. Indeed, in the case of fistula more depends upon the successful after-treatment in many instances than upon the operation itself. In difficult cases it is always advisable for the surgeon himself to attend to the after-treatment, or at least to supervise it.

*Nursing, etc.*—The bed should always be examined to see whether it is suitable. A bed which sags down in the middle is almost useless for nursing a rectal case. As a rule, a narrow, fairly high bed, with either a very stiff spring mattress or boards, is the best. If the patient complains that the bed is uncomfortable, an extra mattress should be added so as to soften it somewhat and prevent sagging in the centre. Water-beds are entirely unsuitable for rectal cases, and where bedsores are feared, or the patient is extremely uncomfortable on a hard bed, the best thing is an air-bed. The air-mattress should, however, be only half the length of the bed, as a full-length air-bed is apt to raise the patient's head and feet too much.

The nurse should be taught to move the patient by the draw-sheet, and not by catching hold of him. This is particularly important in the case of patients after excision of the rectum. Dressings are far less likely to be displaced, and the patient is not nearly so liable to be hurt when moved on the draw-sheet. With a little practice, it is quite easy to move even a heavy patient on a draw-sheet without touching him.

*Treatment of the Wound.*—After most rectal operations I prefer to dress the wound with sterilized ointment and a small pad of plain gauze. Over this is placed a large pad of wool coming well up between the legs, and held in place by a T bandage. The form of bandage which is most comfortable for the patient is one made of flannelette. Flannel often causes irritation of the skin, and flannelette has not this objection. The T bandage should be made by the nurse out of two long strips of flannelette 6 inches wide. One strip should be long enough to pass round the waist and tie in front; and the other strip should come between the legs and be split down to the perineum in front. Plain gauze makes the best dressing for rectal wounds on account of its softness and unirritating properties. The pad immediately next the wound should be quite small, so that it will fit well between the legs, and this should be covered with a larger one to keep the first in place. The wound should be dressed at least twice a day. The patient should be brought to the edge of the bed, and a mackintosh placed underneath him. The dressings should then be removed, and the parts thoroughly syringed outside with 1 in 40 carbolic by means of a glass syringe or douche. This keeps the ligatures clean in the case of piles, and in the case of fistula it keeps the packing sweet. Fresh dressing

is then applied, with plenty of sterilized ointment. I have for some years now used sterilized ointment as a dressing in these cases with very satisfactory results, and I believe it to be much better than the ordinary dressing used for wounds in other parts of the body. In the case of a fistula, hot fomentations should be applied at intervals of four hours, commencing on the day after the operation. This is very comforting to the patient, and by increasing the supply of blood to the part, it hastens the formation of granulations and the healing of the wound. In a case of piles it is often advisable to change the ointment for powder, after the bowels have been opened for the first time. This keeps the part dry, prevents irritation, and makes the patient more comfortable. The best powder for the purpose is a mixture of starch and boracic powder, which should be applied freely. Aristol and dermatol also make excellent powders for this purpose.

In treating fistula wounds, baths are of the greatest value, and my own practice is to start these as soon as the bowels have been opened, and then to let the patient have a bath every morning after the bowels have been opened and again in the evening, the wound being redressed each time after the bath. In the case of fistula, the dressing, which consists of small pledgets of wool, will soak out in the bath, and the patient will thus be saved the discomfort of its forcible removal. The bath should be as hot as the patient can comfortably bear it, and it is perhaps an advantage to add boracic acid to the bath water—at any rate, at first. The dressing should always be done morning and evening, and each time after the bowels have acted. When the bath has been given, the parts should be lightly syringed with 1 in 40 carbolic, and then wool very gently inserted into the whole wound area. Anything like plugging of the wound is particularly to be avoided. In addition to the dressing of the wound, it is usually advisable, where a portion of the wound is within the anal canal or extends to any height within the bowel, to have the rectum washed out with a weak solution of lysol or boracic acid twice daily. This is best done either by giving small enemata of the solution, or by means of a two-way rubber irrigating tube. Where the latter is not available, an excellent substitute can be made by inserting a fairly large piece of rubber tubing into the bowel, and passing a small rubber catheter through or at one side of this. The solution is then



allowed to flow in through the catheter and out through the larger tube.

*The Aperient.*—There is a good deal of difference in the practice of surgeons as to the length of time allowed to elapse after a rectal operation before the bowels are opened. Many surgeons wait till the fifth day, and some even till the seventh or eighth. Personally, I see no advantage in confining the patient's bowels for so long a period, and there are certainly many disadvantages. My own practice is to have the bowels relieved on the third day, occasionally on the fourth if the patient is perfectly comfortable, and on the second day if the patient is very uncomfortable. There is not much gained by keeping the bowels confined after the second day, and a great many patients suffer considerably from wind and distension if their bowels are kept confined for a long period, even though the diet is very light. It is worth while to take considerable care over the method of getting the bowels opened for the first time after an operation for piles, and it is quite possible for the bowels to be relieved without the patient's having any pain if care is taken, although it is often an exceedingly painful proceeding, and one much dreaded by the patient, unless such care is exercised. I have found that the following method, if properly carried out by the nurse, will generally insure an almost painless action of the bowels: On the morning of the third or fourth day after the operation, the patient is given an ounce of castor oil as soon as he wakes up. At the same time 4 ounces of warm olive oil are injected into the bowel with a No. 10 catheter and a glass funnel or syringe. Should the oil not be retained, some more must be injected. The bowels will generally act about three or four hours after this, and in most cases the patient is allowed to make use of a commode by the side of the bed, and is particularly warned against straining. As soon as the bowels have been opened, the wound is syringed outside with 1 in 40 carbolic, a hot fomentation is applied, and 10 grains of aspirin administered by the mouth. Should the aperient not prove sufficient, a dose of salts is given two or three hours later to hasten its effect. After the first action of the bowels an aperient should be given each night, and an injection of oil given in the morning, as described above. The best aperient for this purpose is either a drachm of cascara evacuant, senna-pods, or some similar mild laxative, which, however, should be sufficient to insure that the stools are quite fluid. A

very good plan in the case of rectal operations is to give the patient petroleum by the mouth during the period of healing of the wound. A tablespoonful of petroleum twice a day, in addition to some mild aperient overnight, will generally insure a perfectly easy action of the bowels daily; and this is essential from the point of view of satisfactory healing, and also from that of the comfort of the patient.

*The Use of Dilators.*—Many surgeons advise that after the first week a finger should be passed into the bowel, or a dilator used daily, with the object of preventing any contraction during the healing process. This is an excellent method if contraction is feared, but personally I have never used it or seen any necessity to do so. There should be no danger of contraction if the operation is properly carried out, and the constant introduction of a finger or of a dilator is often extremely painful.

*Relief of Pain.*—Owing to the better technique now used in operations upon the rectum, there is nothing like the amount of pain that there used to be after these operations. If care is taken to see that the operation is performed on aseptic tissues and the wound is kept clean until granulation has commenced, the amount of pain following the operation for piles or fistula should not be any greater than that after operations in other parts of the body. Occasionally, however, there is a good deal of pain, and it is advisable to give something for its relief. Ten grains of aspirin every six hours will often keep the patient quite comfortable, and is, as a rule, all that I find necessary in uncomplicated cases of piles, and that only for the first twenty-four hours. Should the patient have severe pain, hypodermic injections of morphia must be administered. It is useless to give small injections, as they frequently only excite the patient without giving any relief. If morphia has to be given at all,  $\frac{1}{3}$  grain should be administered. Considerable relief from pain may often be obtained by the use of hot fomentations applied locally, or of a hot-water bottle placed over the sacrum. It is a mistake to suppose that the pain can be relieved by cocaine suppositories or cocaine solutions applied locally. They are generally a complete failure, and often cause unpleasant after-effects.

Many patients, when confined to bed, are unable to sleep properly, although they may not be in any pain. In such cases a sleeping-draught should be administered. There are now many excellent narcotics which do not cause any unpleasant

after-effects in the majority of patients. One of the most useful of these is trional in doses of from 10 to 15 grains. Bromoral and veronal are also good.

*Retention of Urine.*—This complication often occurs after operations for piles, and occasionally after other operations upon the rectum. It is a mistake to be in too much of a hurry to pass a catheter. As a rule the patient will generally manage to pass urine himself; but should he be unable to do so, the urine must be drawn off with a catheter, proper antiseptic precautions being taken to prevent any possibility of infecting the bladder. It is, of course, as well to assure the patient that the difficulty in passing urine is not directly due to the operation, but is merely a nervous effect which is of no consequence, and which will soon pass off.

*Confinement to Bed.*—It is always advisable to keep the patient in a recumbent position until the wounds have quite healed. A great many operations have been failures for no other reason than that the surgeon has allowed the patient to get up too soon. It will often be noticed that a wound which was healing quite well begins to give trouble directly the patient is allowed to get about. However inconvenient it may be for the patient, he should be rigidly confined to bed until the wound has entirely healed, though there is no objection to his having baths or to his getting up to use a commode.

### **DIET IN RELATION TO OPERATIONS UPON THE RECTUM.**

It is extraordinary how little is really understood with regard to diet in the treatment of conditions of the large bowel. Dietary in the treatment of disease of the stomach is now almost an exact science, but it is often assumed that the diet which is correct for diseased conditions of the stomach is also correct for lesions in the bowel 20 to 30 feet lower down.

In most textbooks the diet advised in such conditions as ulceration of the large bowel is a bland, easily digested form of food, like milk, albumin, beef-tea, or soup. It is generally advised that all indigestible foods, such as those which contain cellulose or meat-fibre, should be sedulously avoided. In association with fluid forms of dietary, the administration of opium and various astringents—for example, bismuth, tannic acid, etc.—is recommended. It might be said that this form of dietary is

almost universally recognized as the correct thing in disease of the large intestine, where it is desired to obtain a minimum of irritant effect upon the mucous membrane, or to give rest to the large bowel.

Now, while this may be, and doubtless is, the correct principle on which to treat disease of the stomach, it does not follow that it is right for disease of the large bowel.

The all-important fact in finding the correct dietary is not the condition of the food when swallowed, or even after it leaves the stomach, but the condition of the residue which reaches the large bowel. Indeed, the only important factor is the condition of the fæces which result from the diet, and this is entirely lost sight of in the diets usually prescribed.

We must, therefore, study the different diets with a view to the fæcal material which results from them, and prescribe that diet which will result in the least irritating form of residue.

Now, the ordinary milk diet, erroneously described in most textbooks as a fluid diet, results in the formation within the colon of small, hard, black scybalæ somewhat resembling sheep excrement. The fæces from a purely milk diet are almost always hard, and there is a tendency to constipation. In addition, there is a pronounced tendency in most patients to the formation of gas within the bowel; and often a number of highly injurious destruction products of lactic acid are formed.

The only apparent advantage of such a diet in disease of the colon is the comparatively small quantity of residue; but this, in reality, far from being an advantage, is an actual disadvantage. It results in the formation of small scybalæ which the bowel is unable to move on properly, with the consequence that they tend to be unduly retained in it, and to cause or increase local irritation.

The same remarks apply more or less to all very highly nutritious diets. They nearly all result in hard-formed fæces and large quantities of harmful by-products of digestion, which, owing to the small quantity of the fæcal residue, are not adequately diluted.

It is even doubtful whether the large bowel is more at rest when it is empty than when it is full. The colon is never intended to be empty during life; in its normal condition it contains a certain amount of fæcal material. In animals that have been

living a natural life the colon is always found partly full, no matter at what period of digestion they may be killed. This is true of all animals that I have examined, and I do not believe that there is any period in the life of an animal or human being during which the colon is in any sense empty except as the result of starvation. The colon, like the heart and blood-vessels, is in almost continuous movement, and it cannot be put at rest by modifying the diet.

Any diet which tends to the production of hard and scybalous fæces is certainly bad. Fluid fæces, on the other hand, are almost equally bad. The colon is not designed to deal with fluid contents, and its functions are seriously impeded thereby. It is well known that it is impossible to obtain any healing of an ulcerated bowel while there is diarrhœa.

We have, therefore, to find a diet which will produce a form of fæcal material, or colon contents, intermediate between hard scybalæ and fluid.

The form of fæcal material which is the least irritating to the colon, which best carries harmlessly away any poisonous by-products of digestion, which gives the colon the least amount of work, and best protects its interior, is a semi-solid one, about the consistency of pomade. This conclusion is unquestionable, whether we reach it by physiological argument or by the results of actual experience.

Von Noorden was one of the first to recognize this most important fact, as he was also the first to apply it systematically in the treatment of diseases of the colon.

To come, then, to the consideration of the form of diet necessary to produce semi-solid contents in the colon. One of the first essentials is to insure its semi-solid character, and for this purpose an excess of fat is required. It is a well-known physiological fact that only a very limited quantity of fat can be absorbed from the diet, so that by adding to the diet a certain quantity of fat, we can insure as much fat passing undigested into the colon as will render its contents of a semi-solid character. The guide as to the amount of fat which must be added to the diet in any given case is the condition of the fæces. The fæces should be of such consistency that when passed they tend to spread out and resemble ordinary soft pomade. When the patient is passing fæcal matter of this character, we know that the correct amount of fat is included in the diet.

The kind of fat added to the diet is quite immaterial, and should be adapted to the taste and requirements of the patient. Two ounces of thick cream per day is usually quite sufficient to obtain the desired effect, but an extra amount of butter will do equally well. Sardines in oil, salads with oil, and similar means of giving extra fat in the dietary will easily suggest themselves. In some cases the patient can drink olive oil, or take a sufficient quantity of cod-liver oil. I have found as the result of experience, however, that a large number of patients are unable to stand so large an increase of fat in the diet on account of its upsetting the digestion and causing biliousness. For this reason it is advisable in most cases to substitute a mineral oil for the fat. One or two teaspoonfuls of liquid petroleum (British Pharmacopœia) three or four times a day with a little bismuth added to it, or four or five teaspoonfuls of white vaseline in the day, will have just the same effect on the colon contents as the extra fat; and since the mineral fat is not absorbed at all, biliousness does not occur. There are now a number of patent preparations of vaseline on the market which have quite a pleasant taste, such as lenitol, fructolax, ruspol, etc. Agar-agar has recently been used with the same object, under the name of "regulin." The only objection to agar-agar is that it rather tends to collect in masses in the intestine, and, being absolutely insoluble, may cause obstruction at the ileo-cæcal valve or elsewhere.

Apart from the excess of fat the diet must be modified according to the circumstances of the case. In chronic and obstinate constipation, and in most cases of chronic colitis, the diet should be increased to the point of stuffing the patient. Meat should be allowed sparingly, and food containing much insoluble cellulose prescribed. Thus, Graham or wholemeal brown bread should be taken plenteously, green vegetables, fruit cooked or uncooked, salads, jams with pips, such as gooseberry, currant, strawberry, etc. Bacon is good, and plenty of farinaceous food should be taken. With such a diet and an excess of fat, the bowels should soon act twice a day without medicine. Where it is possible, great assistance may be obtained at first by ordering the patient to have about ten minutes' abdominal massage after each meal.

In cases of ulcerative colitis, or where there is tenderness or bleeding, the diet must contain less indigestible residue and be less in quantity. Milk should be almost stopped, and puddings,

bread-and-butter, meat, fish, etc., be allowed together with the excess of fat or petroleum.

Alcohol and tobacco must be stopped in all cases, unless the patient's health is likely to suffer by the deprivation.

In cases where there is a serious lesion of the bowel and it is desired to keep the bowel absolutely empty for a few days, the patient should be given as little food as possible, and that should consist of cream, albumin-water, weak tea, and beef or other meat jelly, while small doses of petroleum jelly should be given several times a day. After a few days, when the diet is increased, the petroleum should be increased first so as to insure the semi-solid character of the residue.

## CHAPTER IV

### ANÆSTHESIA IN RECTAL OPERATIONS

By DR. J. BLUMFELD

IN considering the choice and administration of anæsthetics for rectal operations it is convenient to discuss the matter, firstly, with regard to the smaller, and, secondly, with regard to the more extensive operative procedures. Under the first heading we include most operations for fissure, for piles, for polypus, and for fistula; whilst the second class is typically represented by operations for excision of the rectum, but also includes some plastic operations upon the rectum and some required for prolapse. In rectal surgery, as in cases of operation elsewhere, the choice of anæsthetic cannot be determined solely by the site and nature of the operation. There are general considerations concerning the patient's physique, temperament, and state of health that must be allowed their due weight. With such matters, however, we have no particular concern here, although they play an important part in determining the course of action when a patient is to undergo a rectal operation. Thus, the preliminary nervousness which may be present before any operation is often accentuated in the cases of those who have been long worried by a rectal complaint, though this may be essentially of a trivial nature. In the case of such nervous subjects a preliminary sedative hypodermic—*e.g.*,  $\frac{1}{8}$  grain of morphia with  $\frac{1}{100}$  grain of atropine—an hour before operation is of great service. Again, in cases of fistula there is sometimes active tuberculosis of the lungs, and the chest disease must then outweigh the local condition in determining the correct anæsthetic.

With regard to the first class of cases as a whole—piles, fissure, etc., with which may be classed examinations by the sigmoidoscope—we may say that there are two special features of the anæsthesia distinguishing these cases from the operation cases of equally slight extent in other regions of the body. These features



are the depth of the narcosis required, and the position of the patient which is necessary for the surgeon. Rectal operations, even when trivial in themselves, demand a deep degree of narcosis. Thus it happens that even the slightest of them, which is, I suppose, stretching the sphincter ani, cannot be comfortably performed with nitrous oxide as the anæsthetic. Reflex movements, particularly of the lower limbs, are so readily called forth when the anal sphincter is attacked that, unless there is a deep narcosis, there are sure to be inconvenient, if not violent, disturbances of the patient's position when the sphincter is stretched. If the operator is prepared to ignore these, then of course the stretching may well be done under nitrous oxide and oxygen, giving the patient the great advantage of immediate and comfortable recovery. When, however, besides the stretching it is desired to make a careful examination of the anal region and the rectum, then the patient should certainly be got fully under the influence of ether, to the extent of almost complete inhibition of the corneal reflex. Perhaps the only operations in this part of the body that can be done with perfect convenience under "gas" or "gas and oxygen" are incision of acute abscesses, and the incision and turning out of thrombosed external piles. If the subject is physically an unsuitable person for this anæsthetic, then ethyl chloride may be preferred. Such subjects are the very fat or plethoric persons, particularly if they are of alcoholic habits or have much nasal insufficiency. In such a case 4 c.c. of ethyl-chloride for a woman, or 5 c.c. for a man, should be sprayed into the small bag of a Clover's inhaler, which is fitted straight on to the face-piece; a small prop should be inserted horizontally between the molars on one side of the mouth, and the face-piece closely applied during an expiration. The bag is raised a little with each succeeding inspiration, so that it is vertical after three or four. A breath of air is then given, and the face-piece reapplied. Anæsthesia is very rapidly induced, unconsciousness supervening after about the third or fourth inspiration. The early breath of air is important, and stertor is not to be waited for. Anæsthesia is often complete without its arising at all, the fixed globe of the eye, dilated pupil, and insensitive conjunctiva being sufficient indication that the little operation may be proceeded with.

Coming now to the rather longer but still not very formidable operations, we must first of all recognize that there must be

more or less interference with a part the reflex from which is one of the last to disappear under anæsthetics. The effect of stimulating the rectal reflex may be widespread. Besides the movement of limbs and drawing away or opisthotonic movements of the trunk, effects on respiration are commonly produced; indeed, the most usual phenomenon produced by stretching the sphincter ani under anæsthesia is that spasmodic inspiratory effort which has been called the "rectal cry." This may be heard even during deep narcosis, and although it is produced partly through some amount of glottic spasm, the anæsthetist should not aim at preventing its occurrence. There is no harm or inconvenience in the "rectal cry," and to regard it as essential to avoid the production of this reflex effect would be to aim at a dangerous depth of narcosis. There may be, at the same time as this respiratory phenomenon, a reflex circulatory effect; the pulse may, at the moment of stretching the sphincter, grow perceptibly feebler. Now, these common results of rectal manipulation are harmless when the patient is under the influence of ether, but, on the other hand, they may easily lead to danger when he is inhaling chloroform. It is easy to see, then, that general considerations not contra-indicating it, ether should be our routine anæsthetic for rectal cases. Furthermore, for these comparatively short operations it may be administered by the most pleasant and most rapid methods. The comparatively slow and trying process involved in the induction of anæsthesia by the open method need not be adopted in these cases. The ether should be preceded by nitrous oxide, and administered from a Clover's inhaler (Hewitt's modification). In this way all taste of the ether in going under may be avoided, and the after-effects are of the slightest. It is not necessary to describe here in detail the steps of such an administration, which may be found in the textbooks of anæsthetics. One or two special points may, however, be mentioned. It is important to remark that it is the very beginning of these operations, the interference with the sphincter, for which the deepest narcosis is required. Consequently the anæsthetist must not allow himself to be hurried into permitting the operation to begin before he is quite confident that the patient is so fully narcotized that there will be no reflex movement. After the sphincter has been stretched, or the pile brought down, as the case may be, then a progressively lighter narcosis is permissible. Again, there should be no trace of cyanosis in the face by the

time the operation is to begin, for not only does a bluish face mean that there is certainly inconvenient congestion in the rectal veins too, but also reflex movements are more easily called forth when the blood is imperfectly aerated. Very stout persons are therefore not good subjects for this method, because, in the lithotomy position usually adopted for these operations, their breathing is so hampered that cyanosis almost certainly arises if nitrous oxide and a closed apparatus are in use. In such cases as these, or where the patient is an alcoholic, or is exceptionally robust, I prefer the use of ethyl chloride to that of "gas" before the ether. The dose should be 4 or 5 c.c., according to the patient, and should be inserted into the small bag of the Clover before this is applied to the face. The application is made during an expiration which distends the bag. This is raised during the next two or three inspirations, and the ether then turned on. A breath of air is given after the first four breaths, and it is remarkable how free from cyanosis patients of the types referred to can be kept when anæsthetized by this particular closed method.

Hitherto we have been referring to operations that last about twenty minutes. For all larger operations—such, for instance, as Whitehead's operation, or plastic operations upon the rectum—closed methods of administration are best avoided. "Open ether" is the best procedure to employ in all these cases, provided that there is no contra-indication in the patient's respiratory system. As a routine measure,  $\frac{1}{120}$  grain of atropine should be given an hour before operation, and often it is an advantage to give  $\frac{1}{4}$  grain of morphia as well, the consequent constipation being desirable. In very alcoholic or resistant subjects, such as are continually met with in hospital practice, the administration should be begun with "C.E. mixture" (chloroform 2 parts, ether 3 parts by volume), for in such cases induction with ether only is apt to be protracted, and may be anything but peaceable. The mask should be of the Schimmelbusch variety, and covered with two layers of flannelette or domette, or twelve of fine surgical gauze. A pad or roll of gauze supports the edge of the mask. This prevents adventitious air from entering round the edges, and insures that the inspirations pass only through the ether-laden material on the mask. The administration must be effected by gradually quickening, but always continuous drops from a bottle holding at least 4 ounces, an ounce lasting about ten minutes.

It is not often that operations of the character now under consideration are required upon patients who are in grave conditions of illness. Severe anæmia from the rectal complaint itself is perhaps the only common serious condition, and this is quite safely and conveniently dealt with by the open ether method. Spinal analgesia as the method of election does not therefore make any weighty claims except upon those surgeons who regard it as ordinarily preferable to general anæsthesia. These operations come, of course, well within its scope; but most persons—at any rate in private practice—suffer far less inconvenience bodily and mental if they are unconscious as well as insensible to pain during manipulative operations upon the rectum and its immediate neighbourhood.

We come now to the severe operations, such as excision of the rectum. Our broad guiding principle is the same as before: ether is to be used for all cases unless there is special contra-indication. In these cases, however, which are all of considerable and some of extremely long duration, the open method only is to be employed. A preliminary injection of morphia or atropine is always advisable. Authorities differ as to the advisability of employing scopolamine in addition. The drowsy condition thus produced is sometimes a great boon to nervous patients, freeing them from a period of dreadful apprehension for an hour before operation; and the prolonged stupor afterwards during which the ether is being eliminated is doubtless an advantage. Sometimes, however, a condition of excitement and of dizzy discomfort is produced by the preliminary injection, and in at least one case—that of a highly nervous medical man where there were two consecutive operations—the patient much preferred his experience of the second, when no injection was employed, to that of the first, when morphia, scopolamine, and atropine were used. An injection which I have often employed with good results consists of omnopon,  $\frac{1}{4}$  grain; scopolamine,  $\frac{1}{100}$  grain; atropine,  $\frac{1}{120}$  grain; and is given one hour before operation. A great deal of shock is necessarily involved in the more extensive of these operations, and it is this which makes the use of ether so advantageous. Another step which should be taken when severe shock is anticipated is the continuous infusion of normal saline into the cellular tissue of the axilla. The carrying out of this generally falls to the lot of an assistant, but the anæsthetist can quite well insert and look after the cannula if required. The infusion should be

started as soon as the patient is anæsthetized, and it is important that the fluid should be kept at the temperature of about 100° F. and allowed to flow in at the rate of a pint an hour. Too rapid infusion may lead to œdema of the lungs. In abdomino-perineal excisions I believe this infusion should always be employed.

Such matters as the warmth of the operating-room and the proper covering of the patient must also, of course, be attended to, and have an important bearing upon the avoidance of shock. A jacket of wool or Gamgee for the chest and arms, and similar covering for the lower limbs, are generally the best provision against undue loss of body heat. Attention to the cleanliness of the mouth and teeth deserves more scrupulous care than is commonly given to it before these long operations. There is inevitably much dryness after the long inhalation of an anæsthetic, and very likely slight abrasion of the gum from use of a gag or artificial airway, or of the tongue from a tongue-clip; or other little superficial wounds may prove a source of sepsis if thorough cleanliness has not been observed. A mouth-wash, such as listerine, and careful brushing of the teeth should be employed three or four times a day during the two or three days immediately preceding operation, and all gags, props, airways, and tongue-clips should be sterilized with the same care as the surgeon's instruments.

In those operations which do not involve any opening of the abdomen, such as Kraske's and allied procedures, it is, generally speaking, best to use open ether from first to last. The very deep degree of narcosis which must be reached for the early stages of the operation can generally be considerably lightened during the greater part of its performance, and the anæsthetist should aim at preserving the necessary anæsthesia with the least amount of his drug possible. In this way, reactionary shock and subsequent chest troubles are most likely to be avoided. Provided the ether is dropped continuously upon the mask, it is surprising what small amounts are required to keep even robust and massive patients perfectly anæsthetized throughout these long operations. The use of intratracheal insufflation certainly reduces to a minimum the quantity of ether which it is necessary to use, and the perfectly unhampered respiration is another advantage. This method, however, does not always provide the very deep degree of narcosis necessary for, at any rate, part of the time during rectal excisions.

Spinal analgesia is, of course, perfectly adapted to these operations, and may be chosen when the surgeon prefers it; a second injection is sometimes necessary in the longest cases. If there is a serious amount of chest trouble, such as emphysema with chronic bronchitis, this is the best method to adopt if the operation must be performed before the chest condition can be materially improved. Ether infusion may be chosen if preferred, but here, again, the narcosis tends to be of too light a nature for these cases, unless the quantity of fluid run in is so great as to be of itself not without danger.

Abdomino-perineal excisions are best managed on the lines just laid down. In these long and very extensive operations the anæsthetist finds much scope for exercise of skill and experience in so controlling the narcosis as to meet exactly the requirements of the surgeon at the various stages of the operation. By properly managing the narcosis in this respect, the anæsthetist contributes much towards the patient's satisfactory recovery, for the patient is spared a large amount of unnecessary anæsthetic which he will certainly have to inhale at the hands of an inexperienced administrator. Thus, in the early stages of the excision when the abdomen is opened, and the surgeon is engaged upon the often very difficult task of freeing the bowel with the growth and the part below it, it is necessary to have complete flaccidity of the abdominal muscles. The operation must therefore not begin until a deep degree of narcosis is arrived at, and this must be maintained till the surgeon has freed the growth. Then, if there have been absolutely no reflex phenomena, no straining or crowing breathing, for instance, the narcosis may be lightened, so that for the remainder of the intra-abdominal work the corneal reflex may be present. Cases vary, of course, and an absolute general rule cannot be laid down, but in most cases I find this plan perfectly suitable. When the abdominal part of the operation is over, some deepening of the narcosis may be required for the perineal incision, but from this point onwards the anæsthetic can be given with a very sparing hand; in fact, little more is needed than to keep complete unconsciousness, for the chance of awkward reflex movement now is slight indeed in a patient who has already undergone the preceding portion of the operation, with its deep degree of narcosis. The subsequent shock and reaction are materially lessened by this careful use of the anæsthetic.

From the point of view of avoiding shock there is much to be said for the employment of spinal analgesia in these severe operations. It need not be relied upon solely, but can be supplemented by very small amounts of open ether or C.E. mixture. In this way all chance of "psychic shock" is avoided, and the amount of general anæsthetic required to maintain unconsciousness is so small that after-effects are reduced to the minimum. When this combination of methods is chosen, the spinal injection should be made first, unless the patient is highly nervous, when it is better to abolish consciousness even for this. The preliminary sedative hypodermic injection should be employed whether spinal analgesia is used or not. The temporary depression with retching and vomiting that occurs so often about twenty minutes after the spinal injection is less likely to be seen when a stimulating general anæsthetic is used in addition.

## CHAPTER V

### *HÆMORRHOIDS*

HÆMORRHOIDS are generally divided into two main varieties—internal hæmorrhoids and external hæmorrhoids—though in many particulars these two varieties differ so widely, both as regards their symptoms and pathology, that they should be regarded as entirely separate conditions. Indeed, it is unfortunate that the two conditions should be described by the same name, since their pathology is quite distinct.

Internal piles are probably peculiar to the human species, and are the result of the erect position. External piles, though very rare in animals, do occur. I myself have seen dogs with a condition closely resembling the external piles of human beings.

Internal and external hæmorrhoids usually occur as separate diseases, but they are not infrequently found associated in the same individual.

Any condition which tends to produce venous engorgement of the rectal veins is a predisposing cause of piles. Thus, piles are said to be more common in hot climates than in the more temperate zones; and individuals who habitually eat and drink too much, and who live sedentary lives, are more prone to the development of piles than those who live a more active and temperate life.

Chronic constipation is a common cause of hæmorrhoids, because it results in pressure upon the pelvic veins, and so directly conduces to stagnation and engorgement in the hæmorrhoidal veins. For the same reason cirrhosis and congestive conditions of the liver, pelvic tumours, and pregnancy are common causes of piles.

In some individuals—one might even say in some families—there is a congenital tendency to a varicose condition of the veins in the lower part of the body; and such individuals often suffer from hæmorrhoids sooner or later.



There is no particular age for hæmorrhoids, but they are most frequently seen during the middle period of life. Hæmorrhoids are rare in children, though by no means unknown. Comby has reported cases of children between two and three years old with hæmorrhoids, and cases are occasionally met with in a children's hospital. Trunka has reported thirty-nine cases of piles in children under fifteen years of age, and five of the children were less than one year old. I have personally had considerable opportunity of seeing piles in children, both at St. Mark's Hospital and at the Queen's Hospital for Children, where I see many hundreds of children in the course of the year; but although I am always on the look-out for such cases, I have only once met with a real case of internal piles in a child under ten years of age. I have certainly seen several cases in which there was engorged mucous membrane in the anal canal; but the condition has always been a temporary one, due to diarrhœa or straining, and did not deserve, in my opinion, to be classed as piles. I have never seen a case of piles in a child under twelve years of age which required operation. External piles certainly occur in children, but are generally either a syphilitic lesion or the result of one.

### EXTERNAL HÆMORRHOIDS.

There are two common varieties of external piles. One variety consists of tags or ridges of redundant skin round the margin of the anus. These skin tags are of little real importance, although they are always described as piles by patients, and not infrequently by doctors. They consist of little else than loose folds of skin, with perhaps some cellular tissue, and as a rule they cause slight, if any, inconvenience. I believe most of these skin tags result from previous attacks of the next variety—thrombotic external hæmorrhoids. Some are the result of previous operations upon the anal region; and they are occasionally seen in cases of pruritus ani of old standing.

The other and more common form of external pile is the thrombotic or venous external pile. The predisposing cause, in almost all cases, is engorgement of the hæmorrhoidal veins. The exciting cause is usually some kind of traumatism. A sudden strain during some form of exercise will often cause the formation of one of these piles. Straining at stool is another

common exciting cause. In fact, any action which causes a sudden increase in the intra-abdominal pressure, such as coughing, sneezing, blowing the nose, etc., may, by the strain which it throws upon the veins in the anal plexus, produce an external pile.

These small thrombotic piles generally develop quite suddenly. They consist of small, circular, ovoid swellings at the anal margin, varying in size from a small millet-seed to a thing as big as a cherry. In colour they are livid or dark blue, the skin over them

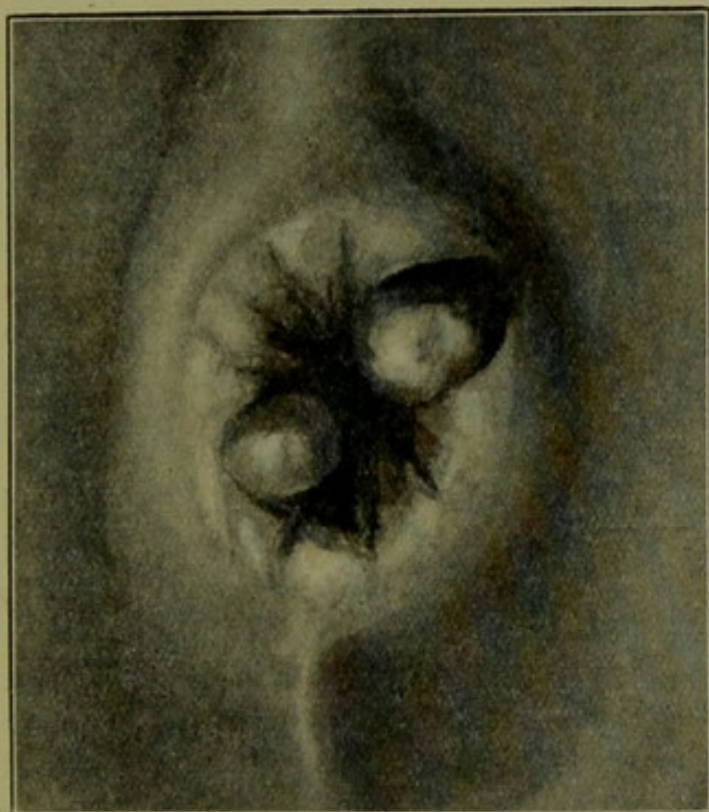


FIG. 15.—EXTERNAL PILES.

being smooth and shiny. They are usually single, but there may be two, or even three, at a time.

There is a difference of opinion as to their exact pathology. Some authors maintain that they are due to the formation of a thrombus within a varicose vein, while others believe them to be the result of the rupture of a small vein and extravasation of blood into the delicate cellular tissue of the anal margin, the blood forming a thrombus in the cellular tissue. According to the latter view, these small tumours are practically hæmatomata at the anal margin. Both conditions probably occur, but the

latter explanation is no doubt the correct one in most instances. These thrombotic piles often occur in what may be called "attacks." A patient often says that he has had several such "attacks," and not infrequently when one of these piles has made its appearance, another will form soon afterwards. The attack usually starts by a slight itching or sensation of fulness in the parts, or sometimes a patient will say that while at stool he suddenly felt a sharp, pricking sensation. In the course of twenty-four hours or so great tenderness is noticed, and on examination the patient feels a small and very tender swelling at the anal margin.

As a rule these thrombotic piles quickly become inflamed, and are acutely painful. The most characteristic symptom is pain, and this is often extreme, the patient being frequently unable to sit down on account of it, and being terrified of the bowels acting. Any action of the bowels is followed by great increase in the pain for some hours afterwards. The amount of pain which these small tumours can cause is quite remarkable. In some cases the inflammation becomes acute, and there is œdema of the surrounding skin, so that when examined a large inflamed œdematous swelling is seen all round the anus.

The inflammation does not often go on to suppuration, though, if neglected, it may do so. If left alone, these external piles, after causing a great deal of suffering for several days, usually subside; the swelling goes down; the tenderness passes off; and nothing but a tag of loose skin is left. Bleeding never occurs from this form of pile unless there is septic inflammation, and even then it is only slight in amount. The cause of the extreme pain is the tension of the inflamed clot, and the resulting pressure upon the numerous nerve endings with which the skin of the anal margin is richly supplied. Not infrequently the blood-clot becomes infected and is converted into a small abscess. This makes the pain worse, and may result in the formation of an ulcer or small fistula.

The indication in this form of piles is to relieve the tension, and the best way to do this is by operation. It is true that if left alone these piles will, in most cases, eventually subside, but this only occurs after prolonged suffering; and, on the other hand, they may result in the formation of a marginal fistula.

**TREATMENT.**—A great deal can be done by palliative means to allay the pain caused by external piles. A hot fomentation

of the ordinary lead and opium lotion, applied as hot as it can be borne, and changed frequently, will as a rule quickly relieve the pain. Carbolic lotion as a fomentation is also of use, and any sedative application may be employed with advantage. It is a mistake to suppose that astringent ointments, such as gall ointment, are the correct means of treating these cases. Astringent ointments do little or no good, and often increase the pain. The bowels should be relieved by some mild laxative, and violent purges avoided.

One of the most important factors is to insure cleanliness of the part, so as to prevent the blood-clot from becoming infected. The anus should be bathed frequently with hot water, to which a little antiseptic may be added. Some soothing ointment should be applied to relieve the pain, such as—

Morphine sulph.	..	..	..	..	grs. v.
Ung. bella.	..	..	..	..	ʒi.
Ung. stromon.	..	..	..	..	ʒi.

or—

Ung. hydrarg. subchlor.	..	..	..	..	grs. iv.
Extr. opii	..	..	..	..	grs. ii.
Extr. belladonnæ	..	..	..	..	grs. ii.
Lanoline	..	..	..	..	ʒss.

A lead and opium compress will often give great relief.

Rest is of great importance, and the more the patient will lie down or refrain from walking about, the quicker will the inflammation subside. Hot baths are also most effectual in allaying pain.

In many cases of painful external hæmorrhoids much of the pain is due to a tight sphincter muscle, and great relief can be obtained by well stretching this muscle. Divulsion of the sphincter is also often an effective method of preventing a recurrence of the condition.

By far the best method, however, of treating these cases is by cutting off the pile at once. This immediately relieves the tension, and the pain quickly subsides. The operation can be very easily performed, and although gas or ethyl-chloride anæsthesia is advisable in nervous or excitable patients, a general anæsthetic is seldom required. The anus should be well cleansed with soap and some antiseptic, and then about 5 minims of a 5 per cent. solution of eucaine—or, what is better still, a solution consisting of eucaine  $\beta$ , 1 in 1,000, adrenin, 1 in 100,000, should

be injected along the base of the pile with a hypodermic syringe having a fine needle. About 20 minims of this latter solution should be injected slowly. This is infiltration anæsthesia, and can be produced almost equally well with plain sterilized water. It depends upon the pressure produced upon the nerve filaments below the skin by the injected solution. It is therefore necessary to inject a sufficient quantity to produce a slight œdema of the tissues beneath and around the pile. The great advantages connected with this method are that the anæsthesia is produced immediately, and that it is absolutely safe. The injection of cocaine solutions into or near piles is attended with danger, for should the solution get into a vein, as it easily may, serious poisoning symptoms may result.

Anæsthesia having been produced, the pile should be seized in a pair of toothed forceps and cut off, either with the scissors or

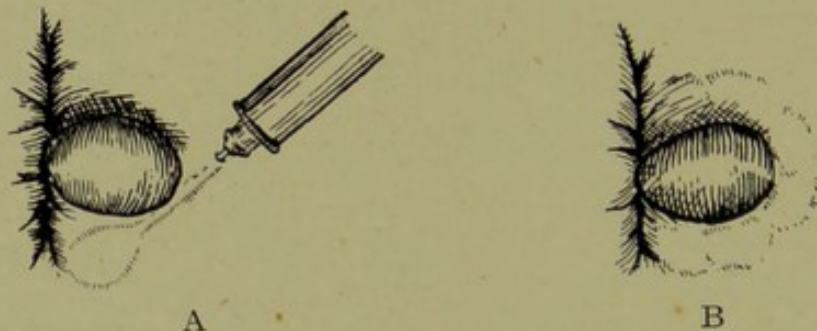


FIG. 16.—DIAGRAM SHOWING METHOD OF PRODUCING LOCAL ANÆSTHESIA FOR THE REMOVAL OF AN EXTERNAL PILE.

A shows the way in which infiltration of the tissues is commenced, and B shows a ring of infiltration completed.

with a bistoury. It should be cut off in a direction radiating from the anus, so as to avoid subsequent contraction. Only about two-thirds of the pile should be removed, and the clot should then be turned out. The resulting wound is a small, flat one, and if kept powdered with iodoform, will soon heal without much trouble. The anus should afterwards be bathed several times a day with some antiseptic lotion, such as carbolic acid, and a dressing should be kept over the anus with a T bandage until the wound has healed. It is usually advised that the pile should simply be laid open and the clot turned out. The result of this, however, is that afterwards the remaining skin becomes swollen and inflamed, and but slight relief follows. It is much better to cut the pile off; the relief is almost

immediate, and the wound heals more quickly than if the pile is merely laid open. If the operation is performed in this way, it should cause the patient no pain, and there is a great saving of time as compared with the palliative treatment.

Sometimes the skin tags first mentioned become inflamed and cause pain, or they may be the cause of itching and discomfort at the anus. In this case they should be snipped off with scissors, under local anæsthesia, after the parts have been cleansed.

In performing these little operations upon the anus, success largely depends upon the careful cleaning of the skin beforehand, as for any surgical operation. It is too often assumed that because it is almost impossible to keep a wound close to the anus permanently clean, it is unnecessary to clean the skin before

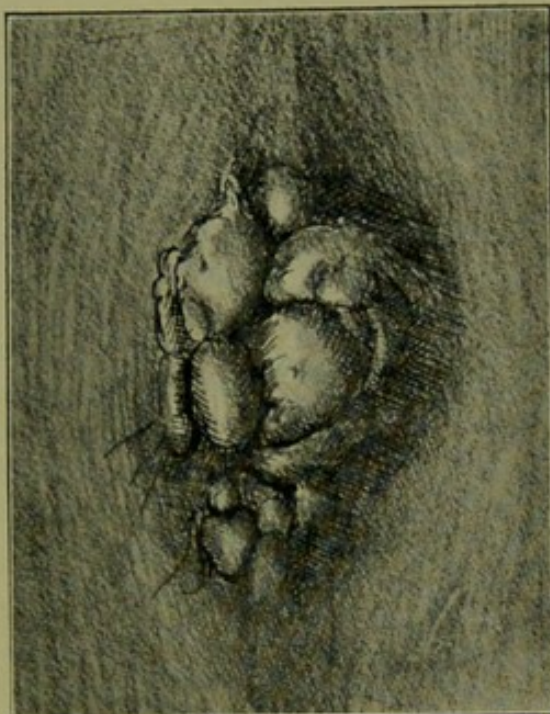


FIG. 17.—SKIN TAGS.

making the wound. This is altogether a mistake; if the wound is made through clean skin, and kept clean for some hours after it has been made, it seldom becomes infected to an extent that matters.

### INTERNAL HÆMORRHOIDS.

Internal hæmorrhoids are vascular tumours situated in the lower portion of the rectum. They vary considerably both as regards size and appearance, and are often divided into three varieties—arterial, venous, and capillary hæmorrhoids. There is, however, no very hard and fast line to be drawn between these different varieties either as regards their symptoms or treatment. In some cases they consist mainly of tortuous veins, and have a bluish tint on inspection. Such hæmorrhoids constitute a true varicosity. In other cases the structure approximates more nearly to erectile tissue, and, on section, arteries of considerable size can be seen in them. The capillary variety is smaller than

either of the others, is usually sessile, bleeds very readily, and is frequently situated somewhat higher up than the other two varieties. These capillary hæmorrhoids are often compared to arterial nævi.

The causes of internal hæmorrhoids have already been dealt with. They are more frequently due to a congenital tendency than external hæmorrhoids are, and it is not uncommon to find them present in several individuals of one family without any very definite cause beyond the family tendency towards the

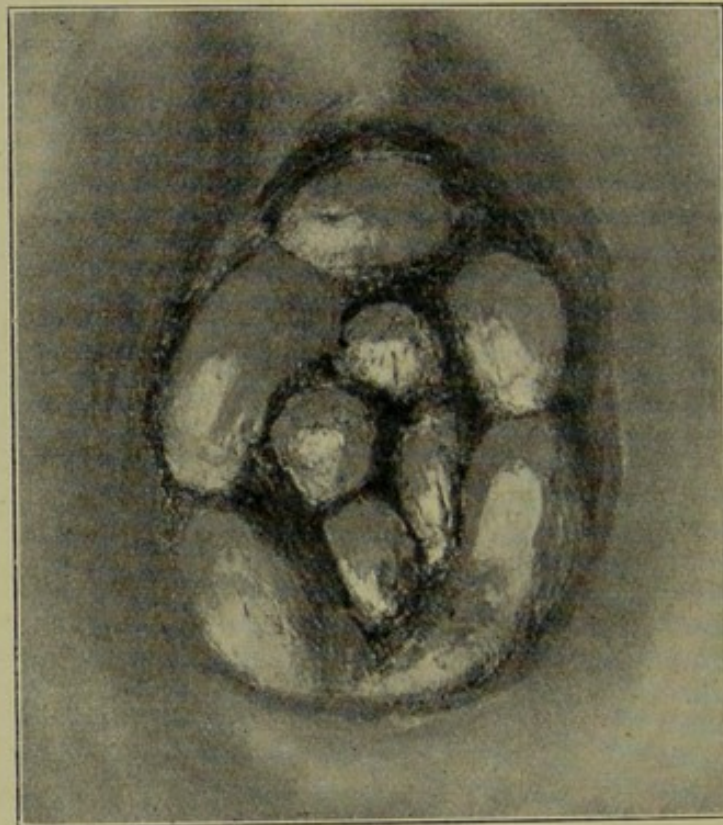


FIG. 18.—PROLAPSED INTERNAL PILES.

Note the ring of œdematous skin round the anus.

development of a varicose condition of the veins in the lower part of the body. I once operated upon a patient who told me that all his brothers and sisters had been operated upon for piles, and so had his father and an uncle. And I have operated upon three members of one family for piles, while two others were operated upon for the same complaint by other surgeons.

There is one cause of internal hæmorrhoids which deserves special mention; for if overlooked, as it too frequently is, it may result in most serious errors in treatment. I refer to piles which

are the result of obstruction to the venous return from the hæmorrhoidal veins by new growths. Just as a varicocele may develop as the result of sarcoma in the left kidney, so may hæmorrhoids develop in consequence of malignant disease of the liver, or pelvis, or upper portion of the rectum. Cirrhosis of the liver and other conditions which cause obstruction to the portal circulation often cause hæmorrhoids in the same way. It is most important to bear this in mind, as no form of treatment which is directed simply to the hæmorrhoids can do otherwise than fail. Operations upon such cases of hæmorrhoids are more than likely to be total failures, quite apart from the fact that if malignant disease is the cause of the hæmorrhoids, the diagnosis has been missed at the time when radical treatment might have been possible. We should always be particularly suspicious of some such cause for the hæmorrhoids when they have developed rapidly in a subject previously free from such trouble, and especially if the patient is elderly. It cannot be too strongly insisted upon that no case of hæmorrhoids should be treated without first making a digital examination of the rectum, and in many cases an examination of the abdomen as well.

Internal hæmorrhoids seem particularly common in men who have to do much riding, especially when they are in the saddle for many hours, and are in hot climates. A considerable number of cases of hæmorrhoids occurred among the officers and troops in the late Boer War, and in most cases the patient attributed the trouble to long hours in the saddle. It is a little difficult to see how horse exercise, even if carried to excess, should cause piles. It seems probable that the irregular dietary and habits which are inseparable from a military campaign, together with the hot climate, were the real cause of so many men suffering from piles during the late war; and long hours in the saddle, especially a military saddle, would do much to aggravate the piles and increase the severity of the symptoms.

Several patients have told me that after a long day on horseback in South Africa they have found the seat of their riding-breeches caked with blood, and have had to ride standing in the stirrups for long distances because of the pain.

Constipation is certainly the commonest cause of internal piles; even when it is not the direct cause, it is certainly the predisposing cause in the vast majority of cases, and without it most



of the other causes mentioned would be quite ineffective in producing piles.

The overloaded sigmoid flexure, which is the condition constantly present when a patient is suffering from constipation, causes pressure upon the pelvic veins and engorgement of the venous plexuses around the rectum and genital organs. Owing to the looseness of the cellular tissue surrounding the rectum, the rectal venous plexuses are but poorly supported, and thus engorgement of the rectal veins and the formation of piles easily follow.

The natural course of events is for the bowels to be emptied in the morning, so that the loaded sigmoid is not pressing upon the pelvic veins during the day while the individual is in the erect position. Many persons, however, habitually neglect this natural preventative against the formation of piles by not making it a custom always to empty the bowel before going about the day's duties.

Another way in which constipation tends to produce piles is by the straining at stool in which it usually results. Constant and habitual straining, in time, causes partial prolapse of the mucous membrane, and tends to produce a varicose condition of the lower rectal veins.

Finally, when piles have formed, constipation and consequent straining markedly aggravate the condition and accentuate the symptoms. An attack of diarrhœa has a similar effect when piles are present.

It has been stated that spasm and hypertrophy of the sphincter muscles may be the cause of piles in some cases, and elaborate theories have been propounded to account for this. Personally, I cannot believe that any spasm or hypertrophy of the sphincter muscles can possibly give rise to internal piles. But there can be no doubt that an hypertrophied sphincter greatly aggravates the symptoms. When piles are associated with an hypertrophied sphincter, stretching the muscle will, in many cases, entirely relieve the symptoms, if not permanently, at any rate, for the time; and as from the patient's point of view piles, apart from symptoms, are of no consequence, a cure of his trouble may result from this procedure, as far as he is concerned.

If well-marked piles are present, however, no real cure can possibly result from stretching the sphincter.

**SYMPTOMS.**—In uncomplicated cases the symptoms of internal hæmorrhoids are chiefly bleeding and prolapse. The amount of bleeding which occurs varies very considerably in different cases. Sometimes the patient says there has never been any bleeding. This may be due to the fact that the patient is accustomed to evacuate the bowels in some dark closet, and consequently has failed to notice it. But patients may present themselves for treatment on account of prolapse who have never suffered from hæmorrhage. Hæmorrhage probably occurs in nearly 85 per cent. of all cases of piles, although it is probably not very profuse in half that number. On the other hand, hæmorrhage may be so profuse as to threaten the patient's life. Quite recently a man came to St. Mark's Hospital who looked as if he were in the last stages of pernicious anæmia, and this condition was entirely due to the blood which he had lost from hæmorrhoids.

A cavalry officer upon whom I operated recently told me that he was once stopped by the police for cruelty to his horse, and on his asking the reason, the policeman pointed to the horse, whose hind-quarters were streaked with blood. The blood, however, belonged to the officer, and came from his hæmorrhoids.

After a time internal hæmorrhoids become markedly pedunculated, and prolapse through the sphincters. At first this prolapse only occurs as the result of straining at stool, and readily goes back, but in time it refuses to return unless pushed back. And in old-standing cases the piles prolapse quite independently of an action of the bowels, often coming down while the patient is walking about, and causing great discomfort. Under such circumstances the piles are a constant source of annoyance to the patient, and at any time may become strangulated and cause extreme pain. In bad cases of prolapsing piles a certain amount of incontinence to flatus and the fluid contents of the bowel results, and this, by keeping the skin of the anus moist, often leads to pruritus and excoriation of the skin.

Pain is not a characteristic symptom of internal piles, though a considerable amount of discomfort is common. Pain is only present when the piles have become strangulated, or when, from constant protrusion, they have become ulcerated as the result of friction with the clothes, or of the patient's efforts in replacing them. Women with internal hæmorrhoids not infrequently

complain of a bearing-down pain in the rectum, and a feeling as if the bowels had not been properly emptied.

The degree and severity of the symptoms complained of by patients with internal piles vary considerably in different cases, and as a rule the variations depend more upon the individual patient than upon the condition of piles present. It is, indeed, quite remarkable that in some cases a patient will present himself for treatment on account of piles, and will complain of but slight symptoms, when, on examination, he will be found to have an extreme degree of prolapsed hæmorrhoids, which it seems hardly believable any individual could possibly endure while walking about. I repeatedly see patients at St. Mark's Hospital who have presented themselves for treatment with a mass of strangulated and ulcerating piles, nearly as large as one's fist, protruding from the rectum, and yet they have walked up to the hospital. On the other hand, one often sees highly sensitive persons with a comparatively slight degree of piles, whose life is a misery to them, and who can think of nothing else but the condition of their anus.

**PATHOLOGY.**—Piles are small swellings or tumours at the lower end of the rectum, consisting of dilated bloodvessels covered with mucous membrane, and held together by loose connective tissue.

On section, they are seen to consist of a number of dilated venous cavities cut across in different planes. There is also often an increase in the number of arteries. The walls of the dilated vessels, which form the partition between the different venous spaces, are very thin. After piles have existed for some time, they undergo a considerable amount of change in their structure. The mucous membrane covering them becomes much thickened, and the histological character is often much changed. There is also a tendency to the formation of fibrous tissue in old piles, due to injury and partial thrombosis. When thrombosis occurs as the result of strangulation of the pile mass, the pile becomes much swollen, and there is œdema in addition to the thrombosis. Surface gangrene is also quite commonly seen, the point at which this occurs being generally on the lowermost part of the pile towards the lumen, which is the part farthest removed from the blood-supply.

**Degenerative Changes in Piles.**—In some cases where internal piles have existed for a long period of time, there is a tendency for them to undergo degenerative changes, and become con-

verted into fibrous tissue. What probably happens is that at some time or other, in consequence of strangulation or partial strangulation, thrombosis of the pile occurs, and as a result it is slowly converted into fibrous tissue. In course of time, owing to the frequent attempts on the part of the bowel to expel the mass, the pedicle becomes elongated, so that eventually the pile is converted into a fibrous polypus. Such polypi may reach a con-

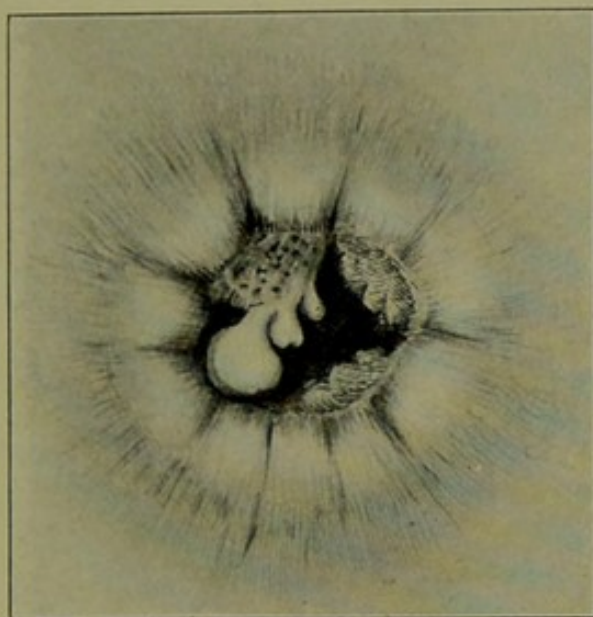


FIG. 19.—POLYPUS GROWING FROM AN INTERNAL PILE

siderable size, and I have seen them as large as a walnut. In some cases, only the extremity of the pile undergoes the change, so that we see an ordinary internal pile with a fibrous polypus at its free end. Such a condition tends to increase any prolapse which previously existed, and to render the pile polypoid in character (see also under Innocent Tumours of the Rectum, p. 273).

## CHAPTER VI

### *TREATMENT OF INTERNAL HÆMORRHOIDS*

THE treatment of internal hæmorrhoids is usually divided into palliative and operative. The word "palliative" is here used in its true sense, for with but few exceptions no treatment other than operation will cure internal hæmorrhoids. Non-operative treatment will often relieve the symptoms, and if persisted in, will sometimes keep the patient free from discomfort for a considerable time; but a cure of the condition by anything short of operation is only possible in a few exceptional cases.

It is necessary to distinguish clearly between a cure of the piles and a cure of the symptoms. The latter is often possible, at any rate, for a time, by suitable and carefully carried out palliative treatment, but a real cure by palliative measures is very seldom possible.

Apart from the fact that a cure of the piles cannot be effected by non-operative treatment, there is but little advantage in such treatment. It is tiresome, and has, of necessity, to be continued for a long time; and as a rule the patient has ultimately to submit to an operation which, had it been performed at once, would have saved much time and worry. Nothing is to be gained by waiting, and by a trial of palliative measures when a patient has well-marked internal hæmorrhoids. The operation for piles is one of the safest in surgery, and enables the patient to be cured in the space of ten days or a fortnight, so there is no advantage in palliative treatment.

We must, however, recognize the fact that many patients have a great objection to undergoing an operation, and that others are quite unable to spare the time necessary. In these days of bustle the difficulty of sparing sufficient time to undergo an operation is often a very serious one, and it is important to be acquainted with methods of treatment which can be carried out without having to confine the patient to bed.

Patients often ask if it is not possible to cure their piles without their undergoing an operation. I always tell such patients that it is impossible to promise them a cure unless the piles are removed, but that if they are willing to carry out instructions and to devote considerably more time to their rectal function than that usually accorded it, they can probably be relieved of their symptoms, but that it may only be to find that an operation is necessary at some future date. When the piles prolapse well outside the sphincters, it is very doubtful whether any form of treatment short of operation can effect a cure, and operation is in such cases the only satisfactory treatment.

In some cases of venous hæmorrhoids, when the condition is due to a congested state of the portal system, a great deal of relief, if not an actual cure, can be effected by removing this congested condition by suitable treatment. But this only applies to those cases where there is little or no prolapse of the hæmorrhoids, and where there has not been much bleeding. If either of these symptoms is present to any marked degree, non-operative treatment will only tide over the trouble.

In cases where there is well-marked cirrhosis of the liver or other co-existing disease, which either contra-indicates an operation or renders its complete success improbable, palliative treatment should be adopted, and an operation should be performed only if the symptoms are severe, and other forms of treatment are ineffective in affording relief.

Age is not necessarily a contra-indication to operation in these cases. At St. Mark's Hospital many quite aged persons are operated upon for internal hæmorrhoids, and they recover from the operation quite as well as their more youthful fellow-patients.

Palliative measures should be tried in pregnant women who are suffering from internal hæmorrhoids; but if there is severe bleeding or great pain, operation must be resorted to, and as a rule there is little fear of a miscarriage. It is a mistake to suppose that the condition of profound anæmia sometimes produced by constant bleeding from hæmorrhoids is a contra-indication to operation. On the contrary, an immediate operation affords the only means of preventing the risk of a fatal issue and of removing the cause of the anæmia.

**PALLIATIVE TREATMENT.**

Palliative treatment is directed to removing any congestion of the portal circulation and diminishing the size of the piles by the application of astringent medicaments. The diet should be inquired into, and, if the patient is a big eater, it should be considerably cut down. The diet should be as simple as possible, all fancy and indigestible dishes should be forbidden, and the patient must not be allowed alcohol in any form.

The bowels should be kept acting regularly, and for this purpose nothing is so good as salts in some form or another. Apenta, Villacabras, and Friedrichshall waters are very useful; or some simple mixture of magnesium sulphate may be prescribed. Local applications to the rectum may take the form of suppositories, ointments, or injections.

A good plan is to tell the patient to inject some cold water into the rectum night and morning with a 6-ounce rectal syringe.

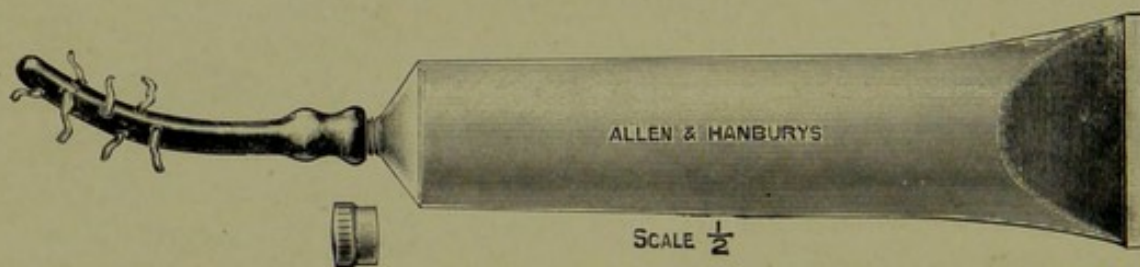


FIG. 20.—OINTMENT INTRODUCER.

Tincture of hamamelis may with advantage be added to the water in the strength of 1 drachm to the pint.

If ointment is used, it should be introduced well into the rectum with an ointment introducer, or, what is better, the ointment should be ordered in a collapsible lead tube to which can be screwed a short bone nozzle with lateral openings. This is introduced into the rectum, and some of the ointment is squeezed out as the nozzle is being withdrawn. These tubes with a bone nozzle are now always used at St. Mark's Hospital in preference to the old ointment introducer.

The following ointments and suppositories are recommended:

R Extract. suprarenalis	..	..	..	ʒii.
Olei. theobromi	..	..	..	ʒvii.

Fiat suppositoria.

R Ichthyol	}	..	..	..	..	āā grs. v.
Tannic acid						
Extract belladonna	}	..	..	..	..	āā grs. ½.
Extract stramonium						
Extract hamamelis						

Fiat suppositoria.

R Ung. acidi tannici	..	..	..	̄iv.
Ung. stramonii	}	..	..	..
Ung. belladonnæ				

### Treatment of Piles by Divulsion of the Sphincters.

There is another method of treating piles which may be termed "palliative," though in certain cases it will effect a cure. This method consists in simple stretching of the sphincter muscle. In some cases of hæmorrhoids where there is a very tightly contracted and spasmodic sphincter, great relief, and even a permanent cure, if the piles are not large, can be effected by divulsion of the sphincter. This was first advocated by Mr. Pridgin Teale in 1865, and was for a long time practised in Paris. It is not applicable to cases where there is much prolapse of the hæmorrhoids when the patient goes to stool, or where the bleeding is severe; and it is of no use in cases of arterial hæmorrhoids. It is a good method for patients who refuse a cutting operation, and in the case of patients who have diabetes or some other complicating disease which renders it improbable that a wound will heal properly. The sphincter should be thoroughly dilated in the manner described in the separate chapter on that subject.

### Injection with Carbolic Acid.

This method of treating piles was at one time extensively practised in America by quacks who styled themselves "pile curers," and although good results were doubtless obtained in a large number of cases, yet, as was naturally to be expected, considering that the treatment was being carried out by quite ignorant persons, serious complications not infrequently occurred. Consequently the treatment fell into considerable disrepute, from which it has never quite recovered.

Within certain limits, however, and in selected cases, this treatment will give very good results if it is properly carried out by surgeons who understand what they are doing.

The advantages of this method of treating piles are that the patient need not lie up or alter his daily life, and that the piles



can, in suitable cases, be cured without putting him to any serious inconvenience. The treatment has, however, a very restricted use, and should not be employed indiscriminately, but only in selected cases.

It is quite unsuitable where the piles are very large, or where they prolapse very easily. It is not suitable where there is severe hæmorrhage, or in cases where there are complications; and it is also inadvisable where there are more than three small piles. Further, it is impossible to promise the patient that he will be cured, for in a definite number of cases, even when the cases are carefully selected, the piles are no better after several injections, or they recur after a short interval.

The treatment is especially suitable in the following cases: In old people whom it is not advisable to subject to an operation, or in whom an anæsthetic is contra-indicated; in patients suffering from some other disease which renders it highly desirable that they should not undergo an operation; in women in an advanced stage of pregnancy; and in men who are suffering from troublesome piles, but who, on account of business or other ties, are quite unable to spare the necessary time to undergo an operation.

It is not as good a method of treatment as operation, and should not be used in place of operation unless there are special contra-indications to operating, and it is only suitable where there are not more than three small piles.

If the treatment is carefully carried out, there is little, if any, danger in it. Andrews of America, who collected 3,304 cases treated by injection by quacks in the United States, found that out of this number there were thirteen fatalities, and a number of other cases in which serious results followed. It must be remembered, however, that these cases were all treated by ignorant persons, who doubtless dealt with numbers of quite unsuitable cases, and without any proper precaution. One rather wonders that the serious results were not more frequent. I have personally never seen any serious complication follow this treatment, and I have used the method in a number of cases, while it has been employed at St. Mark's Hospital for many years.

The following case is a good instance of the type suitable for this treatment.

*Case.*—A gentleman, aged seventy-nine, who was in feeble health and of a very nervous disposition, consulted

me with regard to a small pile which slipped out every time he went to stool, and which caused him considerable discomfort. He had, under medical advice, tried ointments and injections into the bowel, but without success. I found, on examining him, that there was one small pile which readily prolapsed, but that there were no others of importance. He was not a suitable subject for an operation, if that could possibly be avoided, and I decided to treat him by injection. On my advice he went into a nursing home, and I injected his pile on two occasions at an interval of five days. In ten days all that was left of the pile was a small hard lump in the bowel wall, and this disappeared in the course of another week. He was quite cured of his trouble, and has had no recurrence since.

There are numerous different solutions used for the injection, but they all consist of a solution of carbolic acid, and may all be divided into two classes: concentrated solutions, which act by causing sloughing of the pile, and weaker solutions, which act by causing local thrombosis.

The stronger solutions are not to be advised, and one of the weaker solutions should alone be used. The following two solutions are those in use at St. Mark's Hospital. It is not necessary to sterilize them, as they are powerfully antiseptic, and cannot cause infection.

R	Liquefied carbolic acid	..	..	..	48 minims.
	Glycerine	..	..	..	2 fluid drachms
	Distilled water	..	..	..	2 „
	Mix.				

This is a 20 per cent. solution.

R	Liquefied carbolic acid	..	..	..	48 minims.
	Pond's extract	}	..	..	of each ½ fluid ounce.
	Water				
	Mix.				

The following solution is recommended by Dr. Hamilton,\* and seems to have several reasons to recommend it:

Carbolic acid	..	..	..	..	10 per cent.
Oil of sweet almonds	..	..	..	..	90 „

\* *Trans. Amer. Proct. Soc.*, 1909, p. 176.

It is necessary to have a proper syringe, as an ordinary hypodermic syringe cannot be used, for the liquid is too thick to go through the needle, and it is difficult to manipulate the syringe.

The best syringe I have found to be the one illustrated in Fig. 21, which has rings for the fingers and a needle of medium calibre, which is bent at an angle, so as to prevent the body of the syringe from obscuring the parts from view during the process of injecting the pile. The ordinary hypodermic needle is too small to allow the solution to pass through it, and is also too short to allow of easy manipulation through a speculum. There should be a milled nut on the piston rod of the syringe, which can be

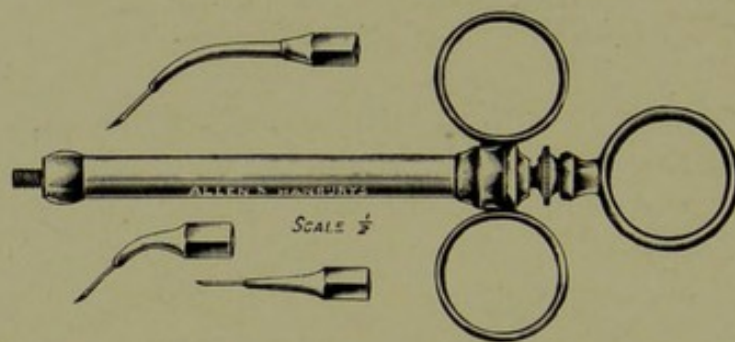


FIG. 21.—SYRINGE FOR THE TREATMENT OF PILES BY INJECTION.

screwed down, so as to allow only a definite and measured amount of the fluid to be injected.

It is a mistake to suppose that this method of treatment is very easy to carry out. On the contrary, it is a little operation requiring a good deal of practice.

*The method of injecting the pile is as follows:* The selected pile may be made to prolapse outside the anus, if it does so very readily; but if, as is frequently the case, this is impossible, a fenestrated speculum, such as the one illustrated on p. 20, is introduced, and the pile made to prolapse well into it. As a rule it is much better to inject the pile *in situ* by means of a speculum, as there is then no disturbance of the pile after the injection has been made. Many surgeons practising this method prefer to use a window speculum with a slide, such as the Brinkerhoff or Tuttle pattern; but I have found my own speculum easier to use and less uncomfortable to the patient.

The pile is wiped clean with pledgets of wool, and touched at

the spot where it is proposed to introduce the needle, with a probe which has been dipped into pure carbolic acid. This renders the introduction of the needle painless, and also insures that it does not carry infection in with it from the surface of the mucous membrane. The needle is then inserted into the pile through the carbolized spot till the point reaches the centre of the pile. About 4 or 5 minims of the solution are then injected. If the pile is a fairly large one, 2 or 3 minims more are injected into its base after withdrawing and again inserting the needle. Two piles may be injected at one sitting, but I prefer to inject only one. No dressing or application is necessary, and the patient can be allowed to resume his ordinary occupations. He should be told that the pile will swell up, and that, should it prolapse, it must be returned at once; and he should be instructed to take a mild aperient daily. It is not necessary to make the patient lie up, but he should keep quiet for a couple of days and not take unnecessary exercise. Where possible, the patient should be seen daily. After an interval of four or five days, another pile may be injected in the same way. In about a week the pile first injected should have been converted into a fibrous ridge on the anal wall. If this has not occurred, another injection is indicated.

It is better to make the mistake of not injecting enough of the fluid than of injecting too much, as in the latter case sloughing will result, and there will be pain, and possibly other complications. The needle should always be inserted through the base of the pile, for otherwise there will be bleeding from the puncture, and most of the solution will escape. The treatment is not easy to carry out well until one has had practice with it, but when properly done, it should cause no pain at the time and none afterwards. All that the patient is conscious of, as a rule, is a feeling of something in the rectum for a few days.

The results of this treatment are often very satisfactory when it is used in suitable cases. It must not, however, be looked upon as a radical cure, for in quite a number of cases the relief afforded is not permanent, and after the lapse of a few years the old condition recurs. In spite of this, however, many patients will, for the reasons already given, prefer this treatment to undergoing an operation, and it is admirably adapted for those cases in which an operation cannot be performed. Moreover, there is no difficulty in repeating the treatment should the pile recur at a later time.

This treatment should not be carried out in patients who are hæmophiliacs, as the following case will illustrate:

*Case.*—A man, aged twenty-eight, came to see me at the hospital with two small piles which prolapsed and bled. They caused him considerable discomfort, but he was very anxious not to undergo an operation. He had a very definite history of hæmophilia, but, as is so often the case with such patients, he said nothing to arouse suspicion as to this tendency. I injected the largest pile in the usual way, and he returned home. That night and the following morning he had a serious rectal hæmorrhage, and he was at once admitted to the hospital. After several more hæmorrhages of a serious character the bleeding stopped, and he recovered. We subsequently discovered that he had a typical history of hæmophilia. The whole of the bleeding had occurred from the needle puncture in the rectum.

#### **The Treatment of Piles by High-Frequency Electricity Currents.**

This treatment consists in applying high frequency by means of a glass electrode introduced into the anus. The treatment is based upon no scientific principle, and although it has been much lauded as a means of treating internal piles, by those interested in electrical treatment, my personal view is that it involves a waste of time and money. I have never seen a case in which anything more than slight temporary relief followed the use of the high-frequency current in a genuine case of internal piles, and it has always seemed to me that the relief which did result was to be attributed to the slight dilatation of the bowel produced by the use of the electrode rather than to any direct effect of the current. Patients should certainly be warned against those who promise to cure internal piles by means of electricity.

#### **Treatment of Complicated Cases of Piles.**

**Prolapsed and Strangulated Internal Piles.**—It may happen that one is called in to see a patient whose piles have prolapsed and cannot be returned. This is a condition which calls for immediate treatment, as not only is it very painful, but strangulation and sloughing of the prolapsed mass will probably occur unless the piles can be replaced at once.

One of the best methods of treating such a case when it can

be properly carried out is to administer an anæsthetic and stretch the sphincter carefully, the fingers being passed through the prolapsed mass, and the sphincter gradually and fully dilated above it. The prolapsed piles should be cleaned and pushed back into the rectum, which will be an easy matter after the sphincter has been stretched. A suppository of adrenalin or hamamelis should then be placed in the rectum, and a firm pad applied over the anus.

The alternative practice, which should be carried out if an anæsthetic is not available or possible, is the following: The patient should be placed on the left side with the knees well drawn up. The prolapsed mass should then be carefully cleaned and a piece of wool soaked in adrenalin applied to it. A little cocaine may be added to the adrenalin, but it is not safe to use much, as the cocaine may be absorbed and cause unpleasant symptoms if applied freely to so large a mucous surface. An icebag, if procurable, should be applied firmly to the prolapsed mass to aid in reducing the swelling, or the mass may be well bathed with cold water. After the congestion has been to some extent relieved by this treatment, reduction should be attempted. The central portion or apex of the prolapse should first be returned, and later the base or peripheral portion. The subsequent treatment is the same as above (see also under Pro-cidentia). In any case, the piles should be subsequently removed by operation at the earliest convenient date, as the condition is almost certain to recur.

In many cases considerable time can be saved to the patient by proceeding at once to remove the piles by radical operation. If the piles are sloughing, the operation should be performed with the clamp and cautery so as to prevent any possibility of infecting the wounds. It is a mistake to wait until the inflammation has subsided, as there is no increased risk in operating at once, and it saves the patient much pain, and shortens the time before he is well again.

It is wrong to leave the piles to cure themselves by sloughing. If this is done, the consequences are most unsatisfactory, and ulceration or fistula is very apt to result from such treatment, not to speak of the amount of pain to which such a course condemns the patient.

I have always made it a practice to operate at once upon sloughing and strangulated piles, unless some other contra-

indication existed, and in such cases I have always used the clamp and cautery with the object of preventing, as far as possible, any infection of the wound. The result in all cases has been an immediate relief of pain; and as a rule the patient has been quite well again in a fortnight or three weeks, and at the same time cured of his piles. If one waits until all sloughing and inflammation have subsided before doing the radical operation, the total time before the patient is well is nearer five or six weeks. Slight complications, such as swelling and the formation of external piles, are certainly more common after the operation upon sloughing piles than when piles are operated upon in the ordinary way, when there is no sloughing or strangulation; but since these complications are quite common to sloughing piles when no operation has been performed, little significance need be attached to them.

I have never seen any ill-effects follow immediate operation upon sloughing piles, and, on the other hand, I am sure that the patient is saved much trouble and pain by immediate operation.

### OPERATIVE TREATMENT.

#### Excision of Internal Hæmorrhoids.

Many different methods have been proposed by surgeons for treating piles by excision and suturing of the wound or wounds. This method is certainly the ideal one, but it is always a mistake to give up an operation which has proved entirely satisfactory and adopt another, the only claim of which is that it aims at the ideal. At any rate, it is a mistake unless the new operation can be proved to be as entirely successful and free from danger as the old one.

So far no method of excision has been, as regards its results, so satisfactory as the ligature method, and many surgeons who have practised one or other of the excision methods have, after a time, gone back to the ligature operation. The reasons for this are discussed on p. 28.

There are several different excision methods, notably those of Thomas, Earle, McBurney, and Laplace, which vary only in a few details. In some a special clamp is used, while in others the suturing is done without any special apparatus.

**The Author's Excision Operation.**—The sphincter is sufficiently stretched to bring the pile well into view, and a clip is then applied

to the lowermost part of the base of the pile. Another clip is applied to the pile itself, and the separation of the pile from the rectal wall is commenced, starting from just above the lower clip.

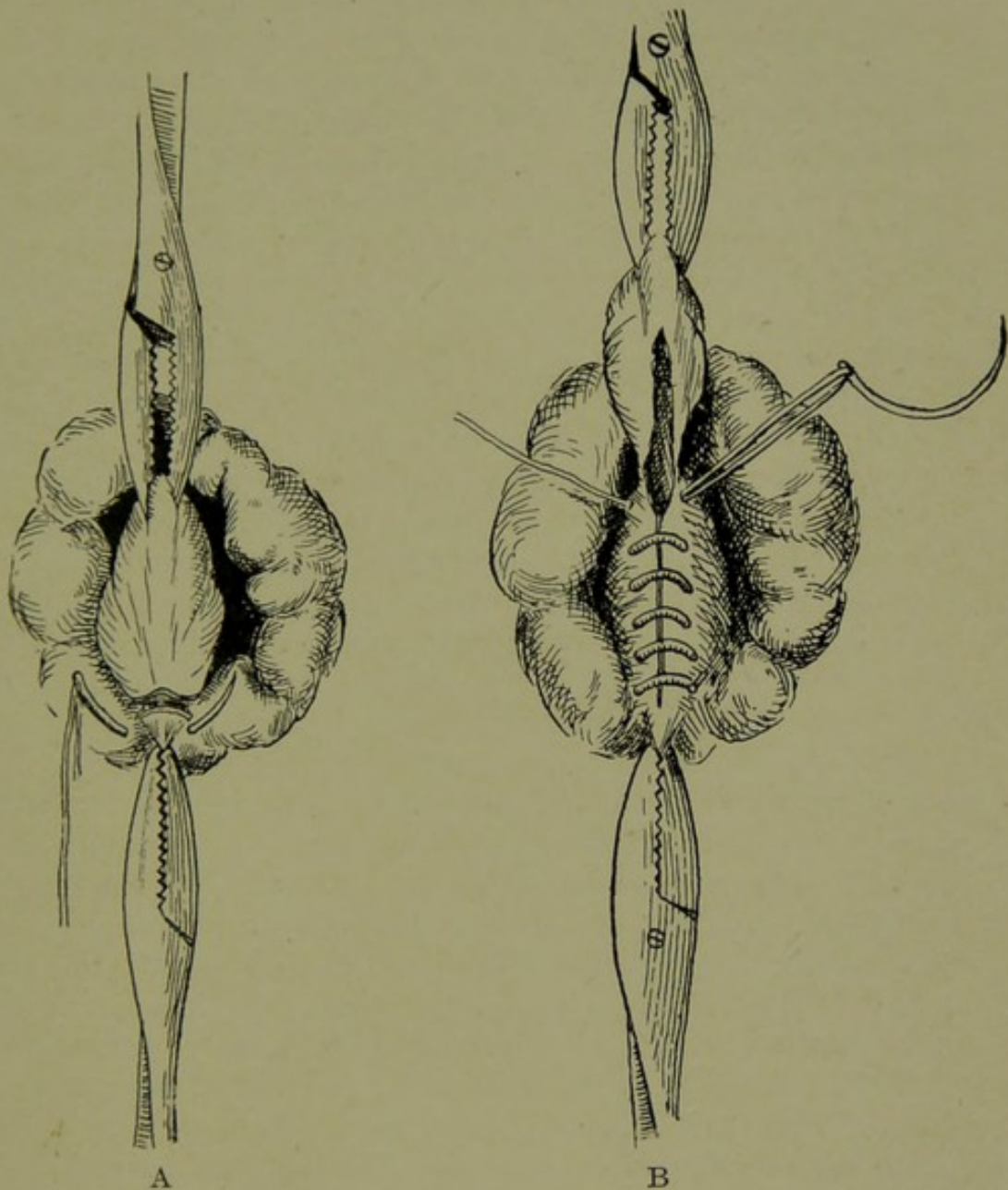


FIG. 22.—DIAGRAM TO SHOW THE AUTHOR'S OPERATION FOR INTERNAL PILES.

A shows separation of the piles commenced, and first stitch being inserted.

B shows separation almost completed, and last stitch ready to be tied.

A small incision is first made with blunt-nosed scissors, and the wound on the rectal wall sewn up by a continuous catgut suture on a curved round-bodied needle. This suture is continued along



the incision as the latter is made by successive snips of the scissors, the suture being kept tight by an assistant while the surgeon is separating each portion of the pile. In this way the wound formed by the removal of the pile is sewn up simultaneously with the separation of the pile from its base (Fig. 22). When the pile has been completely separated, with the exception of its upper extremity, which contains the largest vessels, the end of the suture is tied over the remains of the pile, and the narrow pedicle grasped in the termination of the suture in the same way as it would be by a ligature. The pile is then cut off just beyond this ligature, a sufficient stump being left to insure a good hold for the suture.

Each pile is treated similarly, but it is never advisable to remove more than three piles at the same time by this method, nor is it applicable to very large piles. Needless to say, the bowel must be thoroughly aseptized before performing the operation, and afterwards a small plug of cotton-wool thoroughly soaked in sterilized vaseline is applied over the wound and left *in situ*. If the stitching is carefully done, this method gives very good results; but I have now almost entirely discarded it in favour of the ligature operation, as I found that recurrence was more apt to take place than after the ligature operation, and very little was gained.

**Earle's Operation.**—This operation is performed with a special pair of forceps with long narrow blades. After dilating the anus and pulling down the piles, an incision is made at the base of one of them. At the base of this incision a catgut suture is inserted and tied. The pile is then grasped at its base with the forceps, and cut off above them. The suture is then continued by passing it over the blades of the forceps and through the base of the pile beneath the forceps. The suture thus passes round and round the blades of the forceps until all the base of the pile has been included in the suture. The forceps are then released and withdrawn, and the suture is tightened up. Each pile is similarly treated.

**Laplace's Operation.**—The sphincters having been dilated in the usual way, one of the piles is seized with two pairs of artery forceps at its upper and lower end near the base. Then, starting from above, the pile is cut away from its attachment to the rectal wall bit by bit from above downwards. As each portion is detached, the resulting wound in the rectal wall is closed by a

continuous suture of No. 2 catgut. Each portion is sutured as it is cut. All the piles are treated in the same way. The bowels are not opened until the sixth day after the operation, and healing should by that time be complete. Laplace states that he has performed this operation eighty-three times without complications occurring.

#### **The Ligature Operation.**

The patient is carefully prepared for operation in the manner described in Chapter III., and is anæsthetized with ether until full relaxation is obtained. It is important that there should be complete relaxation, as otherwise the piles cannot be reached properly without thoroughly stretching the sphincter, and it is desirable to avoid this if possible. Ether is much safer than chloroform for rectal operations, and should be used in all but exceptional cases.

The patient should be placed in the lithotomy position, with the buttocks well over the end of the table. The left Sims' position can be used, but is, in my opinion, not so satisfactory as the lithotomy position, for it does not allow of such complete exposure of the parts, and if the patient moves at all as the result of the operation, which may easily be the case when one is dealing with such a sensitive part as the anus, it will be impossible to proceed with the operation until the patient has been moved back into position. This entails moving towels, etc., and interferes with the aseptic conditions of the operation.

The anus should be separated, and, if necessary, slightly dilated; but it is quite unnecessary and undesirable to stretch the muscle, provided that the latter is not hypertrophied and that the anæsthetic is properly given. In almost all descriptions of this operation dilatation of the sphincters is insisted upon as a necessary preliminary; and when I first began to operate for piles, I also thought it an important part of the operation. But for some years I have quite given up the practice, and now never stretch it unless it is absolutely necessary to get at the piles, or unless there is obvious hypertrophy of the sphincter which requires correction.

Each pile is seized at its extremity with artery forceps, and all the forceps are left hanging out of the anus, attached to their respective piles. There are usually three main piles, and sometimes two extra small ones. When the whole of one side of the rectum seems to consist of one large pile, or when one of the piles is very large, it should be treated as if it were two piles—

that is to say, two pairs of forceps should be applied to it, and it should be split up between them.

The surgeon having satisfied himself that all the piles have been caught in forceps, takes the clip attached to the lowermost pile in his left hand, and places the first finger of the same hand on the inner or upper surface of the pile (Fig. 23). Then, with a pair of straight, blunt-pointed scissors, he cuts into the junction of the pile with the skin just at its base (Fig. 24). This cut should open up the submucous space, and the pile should then be stripped up till it remains attached only by its upper end, which contains the vessels feeding it. The more usual method is to cut the pile away from the bowel wall till only the

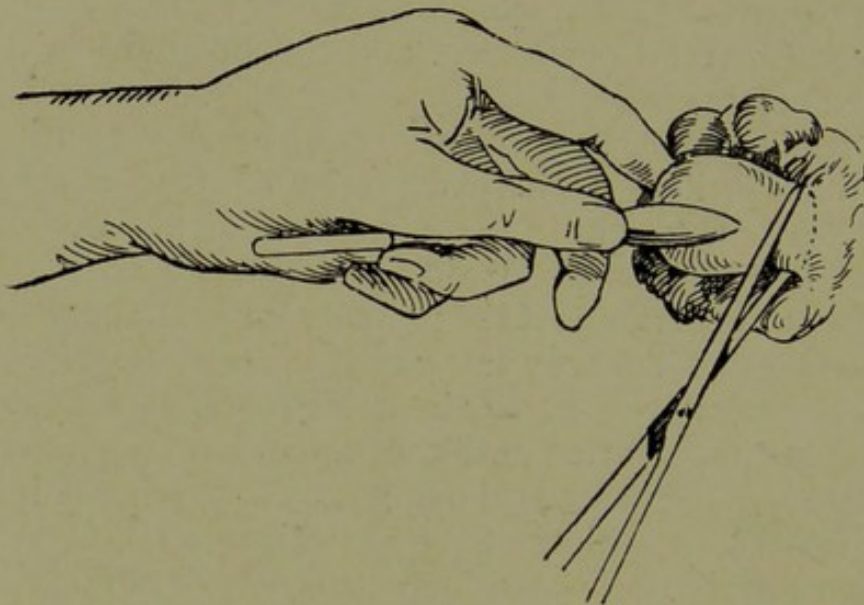


FIG. 23.—DIAGRAM TO SHOW METHOD OF HOLDING PILE WHILE MAKING INCISION.

upper part is left; but though it is a little more difficult to acquire the knack of finding the right layer, which is necessary if the pile is to be stripped up, I think it has considerable advantages, one being that there is less bleeding. My own practice is to crush the pedicle of the pile in a powerful pair of crushing forceps before applying the ligature (Fig. 26). This completely obliterates the vessels in the pile, and insures the ligature being tight.

The clip is now handed to the assistant, and the surgeon takes a ligature which should be about 8 inches long. The material for the ligature is important, and the best is hollow-plaited silk, No. 8.

The centre of the ligature is placed in the groove formed by the separation of the pile from the rectal wall, and the assistant then drags the pile outwards across the ligature, which is tied as tightly as possible round the neck of the pile and with the knot on the bowel aspect (Fig. 25). If there are any spurting

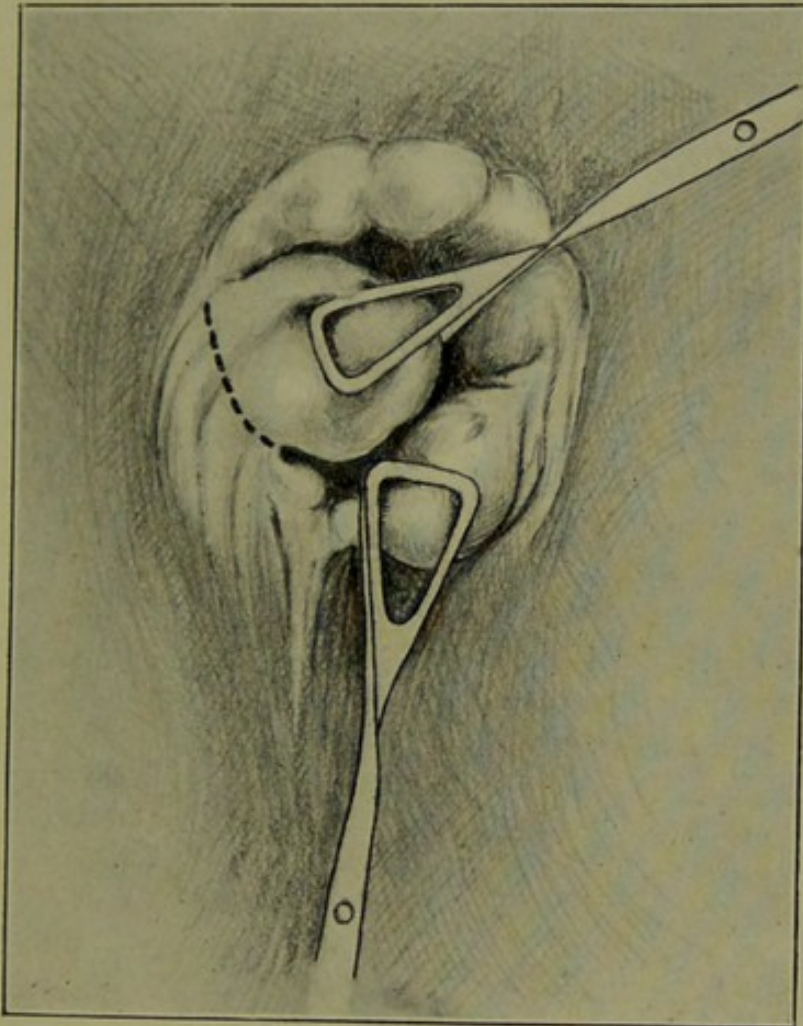


FIG. 24.—FIRST STAGE IN OPERATION FOR PILES BY LIGATURE.

The dotted line shows position of incision

vessels where the pile has been separated, these should be clipped in artery forceps.

Each pile is similarly treated, but if there are several, care should be taken not to separate all up to the same level, as this will result in the formation of a diaphragm-like narrowing. For the same reason the pedicle formed by the separated pile should not be too wide.

When all the piles have been ligatured, the ends of any that

are large should be cut off, but care must be taken not to endanger the ligature slipping. Part of the ligatures is then cut off, so as just to leave the ends hanging out of the anus. The surgeon should next insert his finger into the rectum, and if there is any narrowing caused by the tying of the piles, he should stretch this till it no longer exists.

Any bleeding-points that have been picked up with forceps will next require attention. If small, they should be twisted,

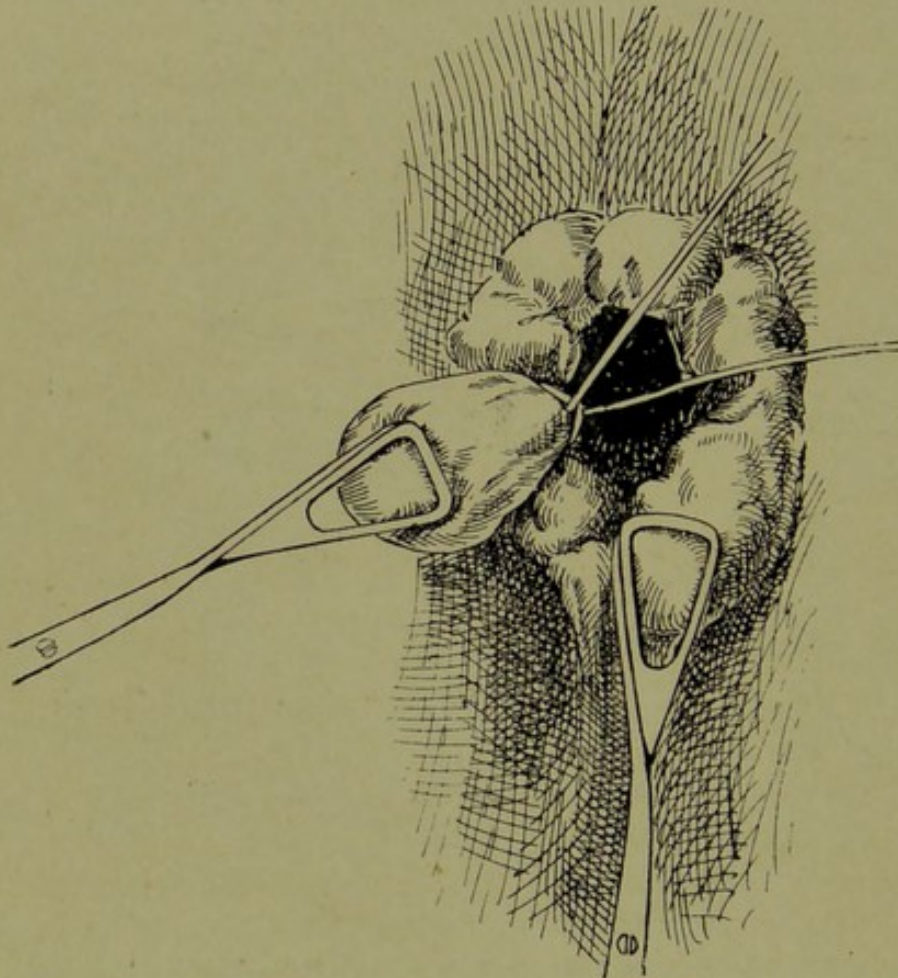


FIG. 25.—DRAWING TO SHOW THE SAME PILE AS IN FIG. 24, WITH LIGATURE IN PLACE AND READY TO TIE.

but otherwise tied off with fine silk, the ends of which should be left long as before.

The parts having been cleaned up, about a drachm of sterilized vaseline is squeezed into the rectum from a collapsible tube, and a short piece of drainage-tube is inserted into the anus. The dressings are then applied and held in place by a T bandage. The operation in experienced hands should not take more than five or six minutes to perform.

*After-Treatment.*—The dressings should be changed twice a day, and the external parts washed with weak carbolic lotion. I always remove the tube in twenty-four hours. Its chief object is to prevent oozing, and to give warning if there is concealed hæmorrhage; it is therefore unnecessary to retain it longer, and it is apt to cause discomfort after twenty-four hours.

I do not keep the patient on a slop diet, but allow ordinary food in small quantities until the bowels are open. The patient is allowed to move about in bed as he likes, but is warned against disturbing the bandage. If he complains of pain, 10 grains of aspirin are given by the mouth. Morphia is required only in quite exceptional cases, but it should certainly be given if there is severe pain.

The bowels are confined for two or three days. If the patient complains of distension, an aperient is given on the second day,

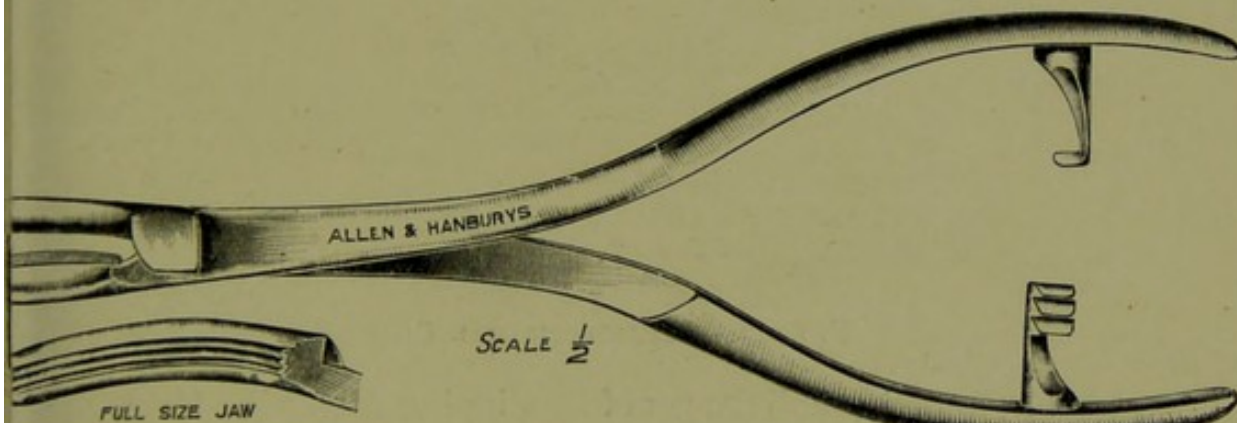


FIG. 26.—AUTHOR'S INSTRUMENT FOR CRUSHING THE PEDICLE IN THE OPERATION FOR PILES BY THE LIGATURE METHOD.

otherwise on the third. To relieve the bowels, my own practice is to administer an ounce of castor oil, and at the same time to give an injection of 3 or 4 ounces of olive oil into the bowel with a No. 10 soft rubber catheter. This should result in an easy action without pain or serious discomfort. After this the bowels are kept acting daily with some mild aperient such as Cascara or salts. The patient is allowed to use a night commode beside his bed when the bowels act, as there is less straining than when using a bed-pan. The patient is confined to bed until the ligatures come away, which usually occurs about the eighth to the eleventh day. After this he is allowed to get up, but is kept on the sofa for a few days longer until the wounds are quite healed, which is ascertained by passing a finger into the bowel.

### The Clamp and Cautery Operation.

This operation was most frequently associated with the name of the late Mr. Henry Smith, although, in truth, it was devised in its entirety by Mr. Cusack, of Dublin, and was first introduced into London by Mr. Henry Lee of St. George's hospital.

The position and preliminary stages of the operation are the same as for the ligature method. After the sphincters have been dilated, one of the piles which it is desired to remove is seized at its extremity by a clip and drawn down. If there is any skin at the lower portion of the pile, a cut should be made with scissors, so as to prevent the skin being caught in the clamp (Fig. 27). The clamp is now slipped over the forceps and the pile grasped at its base. The clamp should next be screwed up as tight as

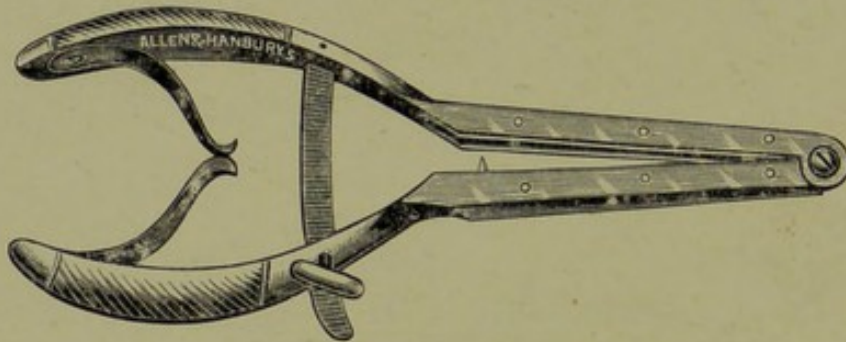


FIG. 27.—HÆMORRHOIDAL CLAMP.

possible, to prevent all danger of its slipping (Fig. 28). Next, the pile should be cut off with scissors on the distal side of the clamp; about one-eighth of an inch of the pile should, however, be left projecting from the clamp. The pile should never be cut off flush with the clamp. A piece of damp gauze should next be tucked in round the blades of the clamp so as to protect the mucous membrane while the cautery is being used. The stump of the pile that has been left projecting between the blades of the clamp should now be thoroughly cauterized with the blade of a Paquelin cautery heated to a dull red heat (Fig. 29). If the cautery is used very hot, bleeding is likely to occur when the clamp is released. Some surgeons prefer to use a large cautery iron instead of the Paquelin blade. The projecting portion of the pile should be thoroughly charred. The clamp can then be relaxed, and if any bleeding occurs, it should be retightened and the cautery again applied.

Each pile must be treated in the same way. After all the

piles have been so treated, the stumps should be gently smeared over with sterilized iodoform ointment, and a firm pad of wool applied over the anus. The after-treatment is the same as for the ligature operation. This method of treating internal piles is used considerably in America and Germany, but is not often employed in this country except in special cases.

The removal of the piles is not so complete as with the ligature method, and recurrence is more likely to follow. Secondary hæmorrhage is certainly more common than after the ligature

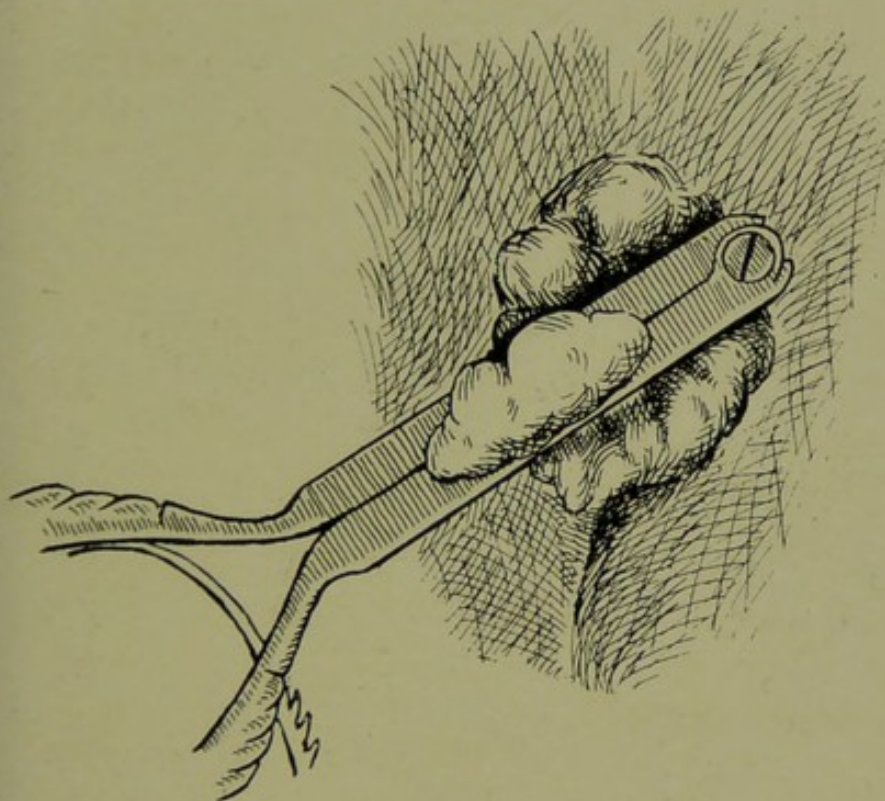


FIG. 28.—CLAMP AND CAUTERY OPERATION.

The pile to be removed is shown crushed in the clamp and ready to be cut off.

operation. The wounds resulting from a burn do not heal so rapidly as those resulting from a clean cut, as in the ligature method, and healing tends to be delayed in some cases. As regards the subsequent pain, there is not much difference between this and the ligature method, though I should certainly favour the latter in this respect. The operation takes longer to perform than the ligature, and is a decidedly messy one, owing to the smoke and smell.



Though this operation is safe and satisfactory in the hands of those accustomed to it, complications are more frequent and more severe than after the ligature operation. I personally only use this method where the piles are sloughing or septic. In

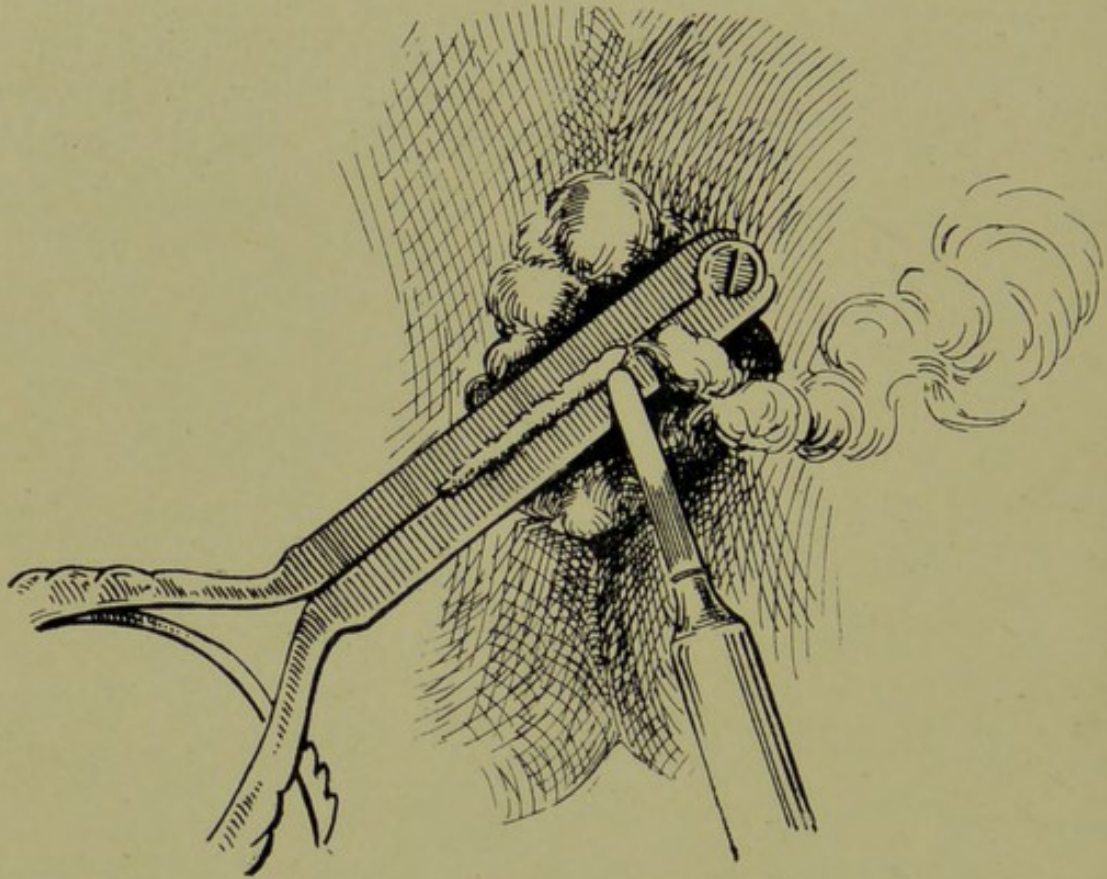


FIG. 29.—THE CRUSHED STUMP OF THE PILE BEING CAUTERIZED WITH A PAQUELIN'S CAUTERY.

cases where the after-treatment of the patient must be entrusted to those unaccustomed to rectal surgery, I should always prefer the ligature operation.

#### **Whitehead's Operation.**

I have always been an uncompromising opponent of this operation as the right treatment for ordinary cases of internal piles; and I have never been able to see any reason for preferring this operation to the other and simpler methods. Whitehead's original contention, that recurrence was impossible after this operation, has long ago been proved to be fallacious. Recurrence is certainly as common, if not commoner, than after a

properly performed ligature operation; while other complications are much commoner, and far more serious, than after the ligature or clamp and cautery methods. I have personally never used it for an uncomplicated case of piles, but have done so on a good many occasions where the piles were complicated by a considerable prolapse of the mucous membrane.

With modifications, it is also a useful operation in some cases of stricture very near the anal orifice. If it is recognized that the operation should be reserved for a few special cases, I think it has a useful place in rectal surgery.

The following is the method of performing this operation, which I have usually adopted, and which differs very little from that originally described by Mr. Walter Whitehead in 1882:

The patient is prepared in the usual way, and the sphincters are stretched. The bowel is thoroughly washed out, as has already been described (see p. 32). An incision is then made with scissors at the junction of the skin with the mucous membrane, on one side of the bowel, or posteriorly. The end of a pair of blunt-pointed scissors is next inserted into this incision, until the points are felt, by a finger in the rectum, to lie in the submucous space, and by blunt dissection the mucous membrane is separated from the external sphincter in both directions (Fig. 30). The whole of the mucous membrane lining the anal canal, together with the hæmorrhoidal mass, is freely separated in this way by blunt dissection. Then, with one blade of the scissors within and the other on the outside, the junction of the mucous membrane with the skin is cut through, first on the one side and then on the other. The only point at which there is any difficulty in the separation is in front, or at any spot where there has been an inflamed pile. When the cuff of the mucous membrane has been completely separated the whole way round, to a sufficient extent to allow healthy mucous membrane to be drawn down to the skin, two or more T clips are attached to the cuff just below the level at which it is proposed to divide it transversely (Fig. 31). An incision is then made longitudinally, so as to split the cuff on the anterior aspect up to the point of transverse division. The cuff is cut off in stages, a small portion being cut and sutured to the skin, and then the next portion cut, and sutured in a similar manner, until the entire cuff has been separated and the mucous membrane stitched down to the skin. A separate suture should be used for each half circumference of

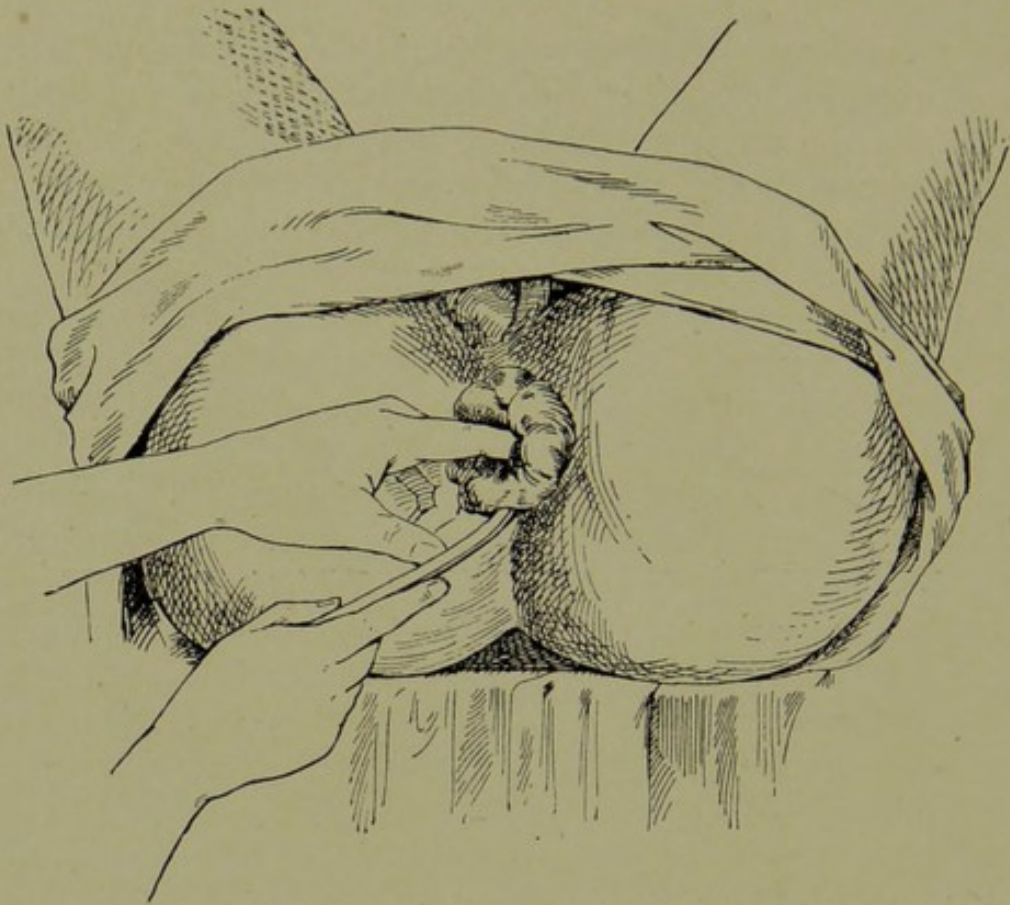


FIG. 30.—DRAWING TO SHOW METHOD OF SEPARATING THE CUFF OF MUCOUS MEMBRANE BY BLUNT DISSECTION.

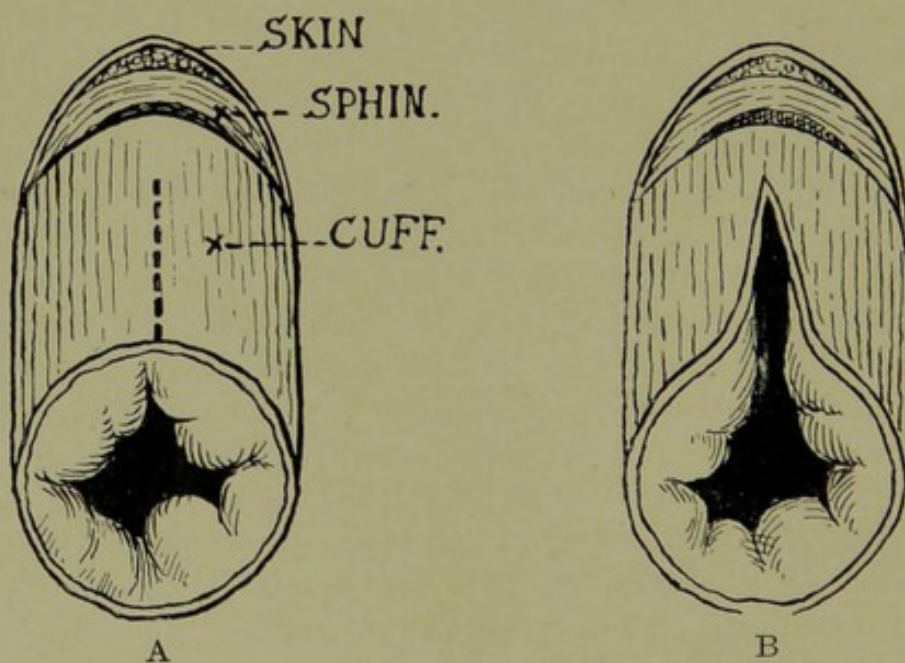


FIG. 31.—DIAGRAMS TO ILLUSTRATE WHITEHEAD'S OPERATION FOR PILES.

A, The cuff drawn down, and the direction of the incision along the anterior wall indicated by the dotted line; B, the cuff split up to the level of transverse division.

the bowel, and the two ends tied together at the back. Any points which fail to stop bleeding should be controlled by the insertion of mattress sutures.

A continuous catgut suture should be used on a curved needle. Catgut of fairly large size is the best, and it should not be chromacized. After the continuous suture has been inserted the whole way, about four or more separate sutures should be inserted at equal distances around the anus, so as to hold the cuff in case of premature giving way of the continuous suture.

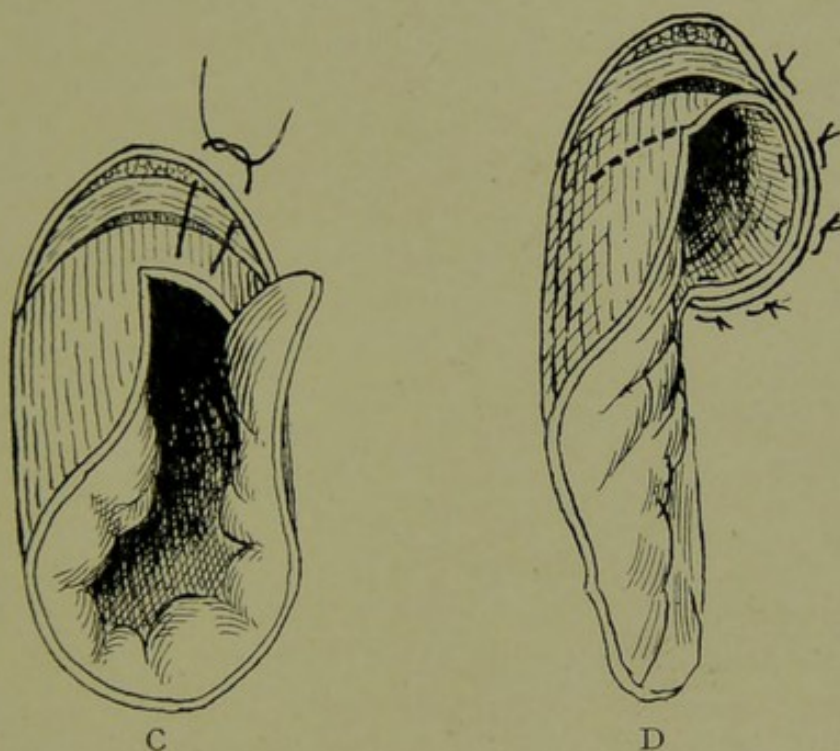


FIG. 32.—DIAGRAM ILLUSTRATING WHITEHEAD'S OPERATION.

C, Transverse incision commenced, and first suture in place ; D, cuff cut away on right side, and stump of mucous membrane sutured to skin.

The subsequent dressing is exactly the same as for the ligature operation previously described.

In Whitehead's original operation a circular incision at the junction of the mucous membrane and skin was first made the whole way round, and the cuff was then dissected up from below. The method here described, which I believe owes its origin to the late Dr. Tuttle, of New York, differs from the original operation in that the separation of the cuff is done before it has been cut away from the skin at its lower end. This, though a little more difficult to do, has the advantage that it involves much less

bleeding, and that the separation is done with very much greater rapidity. It is, however, very important to find the correct layer.

It is necessary to observe the following points in performing this operation: (1) The cuff should be separated exactly at the junction of the skin and the mucous membrane. (2) The separation

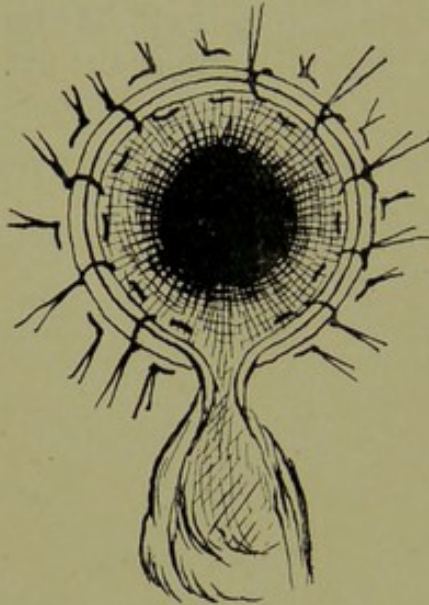


FIG. 33. — DIAGRAM ILLUSTRATING WHITEHEAD'S OPERATION: FINAL STAGE BEFORE THE LAST PORTION OF THE CUFF IS CUT OFF.

must be in the submucous layer. If carried the least bit outside this, the muscular wall of the rectum will be damaged. (3) Great care must be taken to prevent damage to the external sphincter in performing the operation. It is very easy for anyone unaccustomed to the operation to carry the dissection outside the external sphincter, in which case a large portion of this muscle may easily be removed, with disastrous results. (4) Too large a cuff must not be removed, or there will be serious tension on the sutures, and retraction will almost certainly occur. (5) The suture should be carried deep so as to get a good grip of the cuff, and so as to control the bleeding. (6) The suturing must be very accurately

done, and care taken not to leave places where the mucous membrane extends too far down to the skin, or where the skin extends too far up to the mucous membrane, as either of these conditions will give rise to very considerable trouble later on.

#### Period of Confinement to Bed.

This will depend upon the opinion of the operator, and no definite rule can be laid down. After an operation by ligature, or by clamp and cautery, the wounds will be completely healed, in an average case, in about twelve to fifteen days. I do not personally think that it is quite safe or advisable for the patient to be going about as usual until healing is complete, although I admit that no harm is likely to result in the majority of cases, and if the patient were willing to take the risk of possible complications, I should not object to his getting about after the

sixth day. My own practice has always been to avoid all possible risk, and I keep the patient in bed until the ligatures have separated, and make him take things very quietly for another week after this.

The following figures compiled from the records of St. Mark's Hospital are interesting, as they show the average period necessary for healing after an operation for piles by the different methods now in common use:

*Ligature Operation.*—Average stay in hospital after operation: Males, 10·86 days; females, 12·2 days.

*Clamp and Cautery.*—Average stay in hospital after operation: 10·7 days.

*Whitehead's Operation.*—Average stay in hospital after operation: Males, 20·7 days; females, 22·1 days.

#### **After-Results and Complications of Pile Operations.**

**Pain.**—Operations for piles have in the past had a very bad name for causing a great deal of pain. All operations for piles used to be accompanied by considerable pain, and it was the custom to give morphia, or some other form of opium, for days after the operation. It is, however, now possible to prevent this pain if the operation is properly performed, and if the after-treatment is properly carried out; and the operations for piles should result in no more pain than one for hernia or varicose veins. The pain after an operation for piles—as, indeed, after most operations—is due to swelling of the tissues and to the wound becoming inflamed. A primarily aseptic wound does not cause pain, with the exceptions of some of the bone operations and operations upon joints. After removing the piles, the wound must be kept clean and the tissues aseptic for some hours, and then there is no severe pain. It is obviously impossible to keep the wound clean for a long period. In order to keep the wound aseptic for a few hours after the operation it is necessary that the patient should be so prepared for operation that one can be certain no fæcal material shall be found in the rectum, or come into the area of operation, either during or immediately after the operation. By careful attention to details this can be insured. The patient's preparation should occupy at least thirty-six hours before the operation, and, when possible, two days. Further, before the operation is commenced, the bowel should be washed out with soap and water, and with a weak

antiseptic, such as lysol 1 per cent. strength, until the lower few inches are quite clean and aseptic. I have found by experience that if great care is taken in operating upon piles to make the wounds through clean tissues and to keep the wounds clean for some hours afterwards, pain is not present in any marked degree in the majority of cases. Of course, failure to secure aseptic conditions is certain to occur sometimes, but I have found that by very careful attention to detail, both in the preparation and after-treatment of the cases, it is possible to insure that patients will not have any pain requiring the use of morphia except in about 8 per cent. of the cases. I never use morphia suppositories after operation, but usually give 10 grains of aspirin as soon as the patient is able to swallow after the anæsthetic. Morphia is given only if there is severe pain, or to secure sleep on the night of the operation. Should there be severe pain, aspirin (grs. x.) every six hours, and morphia or heroin hypodermically, should be given. Hot fomentations are also very useful in allaying pain.

**Retention of Urine.**—This occurs in a certain proportion of cases, no matter how carefully the operation is performed. It is not, however, peculiar to operations for piles, as it often occurs after operations for fistula, hernia, varicose veins, varicocele, and numerous other operations. The liability to retention depends very much upon the manner in which the operation is performed. It is most likely to occur in those cases where the parts have been roughly handled, where the sphincter has been thoroughly stretched, where the rectum is packed, and when there is much swelling of the anus as the result of operation. It used to be stated that retention was particularly liable to occur when an anterior pile was ligatured. I have not found this to be the case. In fact, since I have adopted the method of operating which I now use, I have found retention of urine to be a very uncommon complication. I do not think I have during the last two years found it necessary to pass a catheter in more than 1 in 25 cases.

Tuttle states that retention is very common after the ligature operation, but though I use this operation almost exclusively, I have not had this experience, but quite the opposite. I attribute the difference to the way in which the operation is performed, and especially to performing the operation under strict aseptic conditions.

There are some individuals, however, who are almost unable

to urinate under unusual conditions, and who will get retention however much care is taken. It is best not to be in a hurry to pass a catheter, and the patient can safely be left twelve or fourteen hours. If, however, he is in much distress and the ordinary methods have failed, a soft rubber Jacques catheter, No. 10, should be used—of course, with strict aseptic precautions. Before resorting to this, however, the patient should try standing at the side of the bed, but should be warned against straining. Straining will not help him, while it may easily cause pain in the rectum.

**Hæmorrhage.**—This is, fortunately, a rare occurrence with the present improved methods of operating; but it still occasionally follows operations for piles, etc. It is a very troublesome complication, not only on account of the difficulty of stopping it, but also because a large amount of blood may be lost into the bowel before there is any external evidence of its presence. The hæmorrhage usually takes place after the bowels have acted for the first time following the operation, and is, as a rule, due to the slipping or premature separation of a ligature. The bleeding is free, and is accompanied by a considerable amount of collapse. The bleeding may, however, occur where no ligature has been used. In a case which I saw recently, a hæmorrhage which might have been fatal, and which necessitated plugging the rectum, occurred three weeks after the operation, and a week after all the ligatures had separated.

It is well to remember that the amount of blood lost externally is no indication of the total hæmorrhage, as the rectum and sigmoid may be filled with clot. An anæsthetic should be administered, and the sphincter dilated; then, after emptying the bowel of clot with the finger, and syringing with hot water, an attempt may be made to clip the bleeding-point and religate it. To facilitate this manœuvre, the wall of the rectum above the bleeding-point should be caught with a pair of pile forceps or an ordinary clip, and drawn down so as to give good access to the bleeding-point. Even then it is sometimes a difficult matter to control the hæmorrhage, as the rectum tends to lie in folds, and the bleeding often comes from a surface rather than a point. If, as is not infrequently the case, it is found to be impossible to control the hæmorrhage in this way the rectum must be plugged.

This is best done as follows: A piece of sterilized india-rubber



drainage-tube, about  $3\frac{1}{2}$  inches long and  $\frac{1}{2}$  inch in diameter, is taken, and round one-half of this a strip of dry gauze or wool is wrapped, so as to increase its diameter by about three times. The surface of the gauze is then well greased with sterilized vaseline, and the tube is inserted into the rectum, with the big end upwards. The portion of the tube which projects out of the anus should then be pulled upon, so as to bring the dilated part down against the bleeding surface. A large safety-pin should next be passed through the end of the tube, about  $\frac{1}{2}$  inch away from the anus, and a long strip of gauze, which has been previously greased with vaseline, wrapped round and round the tube between the anus and the safety-pin. Any required amount of pressure can thus be exerted upon the bleeding-point, as

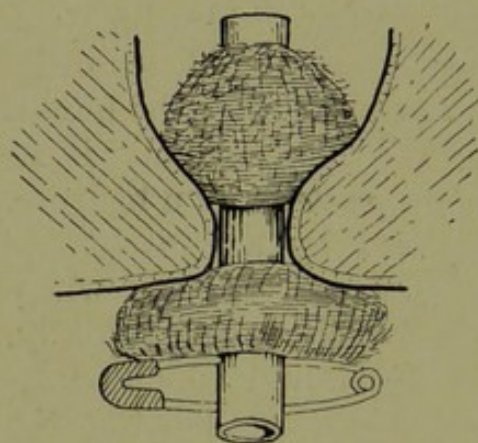


FIG. 34.

the gauze wrapped round outside pulls down the tube and retains it in place (Fig. 34). Another method of plugging the rectum, which is useful in cases where an anæsthetic cannot be given, is to cut a finger-stall out of an india-rubber operating-glove, and, having greased it inside and out and inserted one's finger into it, pass it gently into the rectum. Then the finger should be withdrawn, and the inside of the finger-stall plugged

with gauze, a large safety-pin being used as before to prevent the plug from slipping up too far into the bowel.

It is seldom necessary to leave the plug in for more than forty-eight hours. After its removal, a small piece of drainage-tube may be left in the bowel to give warning should any further bleeding occur.

In cases of secondary hæmorrhage—*i.e.*, when bleeding occurs a week or more after the operation, and is due to sloughing—no attempt should be made to catch the bleeding-point with clips, but plugging should be resorted to at once. In women, hæmorrhage from the rectum may be temporarily controlled by passing a finger into the vagina and compressing the rectal wall against the sacrum.

**Metastatic Infection.**—This is very rare, and should not occur if the operation is performed aseptically. I have met with two

cases of this unpleasant complication. In neither case did I perform the original operation, and so cannot tell exactly what was done, but the patient developed serious septic complications in distant parts of the body some weeks after the operation, although the healing of the rectal wounds was apparently in both cases quite normal.

*Case.*—A. C., an elderly man, was operated on in St. Mark's Hospital for piles by ligature. There were no complications, and the wounds healed in the usual time and in the usual manner. The ligatures came away on the tenth day, and the patient was to have left the hospital on the twelfth day, but he developed a cough. His breathing became embarrassed, and at the end of the third week he developed a double empyema. The pus removed from the chest was tested, and was found to contain a pure culture of *Bacillus coli*. The patient subsequently died.

*Case.*—A. R., a man aged fifty-six, was operated on for piles at a London hospital. The wounds appear to have healed up quite satisfactorily, and he left the hospital in the usual time. A month after the operation he went back to report himself, and apparently a dilator was passed, which caused him a little pain at the time. The same night he woke up with severe pain in the right wrist-joint, which by the morning was badly swollen and very painful. I saw him a month later, and he then had a typical septic joint, with absorption of all the cartilages of the wrist and carpal joints. In fact, the joint was attacked by acute rheumatoid arthritis.

While it cannot be absolutely proved that the operation was responsible in either of these cases, it seems more than probable that it was.

As in all other operations which involve a wound, infection with virulent pathogenic micro-organisms may occur and cause serious trouble. Thus, cases of tetanus and severe suppuration, with sloughing and perirectal abscess, have occurred. But all these serious septic complications are entirely preventable, and should not arise if proper precautions are taken. These complications are now extremely rare, but in the days before anti-septic surgery was discovered they were common enough to cause grave apprehension.

**Stricture.**—This complication may follow any operation for piles which results in an extensive surface being left to heal by granulation. It very rarely occurs after the ligature operation, but may do so under two circumstances. It may occur if a large mass of internal piles is too freely removed, especially if the skin at the anal margin is at the same time carelessly cut away. It should never occur if the operation is properly performed, and in my experience never does so when the operation is performed by a skilled operator. The following is a good example of stricture following the operation by ligature:

*Case.*—The patient was a gentleman aged sixty-two, who was operated on by a general practitioner for large prolapsing internal piles. I was asked to see him two and a half months after the operation, as he was having considerable pain when the bowels acted, and constant actions without much relief. On examination, I found a tight stricture just above the anal orifice, which would only admit the tip of the finger, and was obviously due to the contraction of dense fibrous tissue, probably the result of too free removal of the piles, or to severe sepsis following the operation. A second operation was performed, and a cuff of mucous membrane, including the stricture, was removed from the lower part of the rectum, and the cut edge was stitched down to the skin. The patient did well after this, and has had no further trouble.

It may also occur as the result of ulceration of the rectum due to infection of the wound after an operation which has been quite properly performed. This condition of infective ulceration of the rectum used to be quite common at St. Mark's Hospital in the pre-antiseptic days, infection appearing to spread from case to case, doubtless as the result of infection being carried by instruments, nurses, etc. Since the introduction of antiseptic surgery and the careful use of antiseptics in the performance of rectal operations, this form of spreading infective ulceration has become very rare, and is now seldom met with. It often resulted in considerable destruction of tissue, followed by very severe contraction. It is, however, an entirely preventable complication.

Stricture of the rectum is, unfortunately, by no means uncommon as a complication of Whitehead's operation for piles.

In this case it generally results from the sutures cutting through prematurely and the cuff of mucous membrane retracting. As a consequence of this, a large denuded area is left to heal by granulation, and a very severe type of stricture may result. The stricture is always situated immediately at the anal orifice, and at the juncture of the skin and the mucous membrane. There is usually a dense fibrous ring, which is excessively sensitive and extremely difficult to dilate. Ulceration tends to occur above it, which causes a still further deposit of fibrous tissue, and so tends to accentuate the condition. No amount of care in the performance of the operation will entirely do away with the liability to occurrence of stricture after Whitehead's operation, though much may be done by careful attention to the after-treatment to prevent it. Most of the cases occur in patients who have been properly operated upon, but whose after-treatment has been carried out by someone other than the surgeon performing the operation, and by one who was unacquainted with the proper treatment. When it is found shortly after the operation that the cuff is retracting, an anæsthetic should be given, and the cuff again sewn into place. The treatment of these cases of stricture following Whitehead's operation is often very difficult, and great care is required to avoid damage to the sphincter muscle. The treatment will be found thoroughly described in the chapter on Non-Malignant Stricture.

**Recurrence after Operations for Piles.**—A great deal has been said with regard to the liability to recurrence after various operations for piles, and it has often been stated that recurrence is by no means uncommon in these operations, with the exception of Whitehead's operation, after which, it has been claimed by those who perform it, recurrence is impossible. This is, however, very far from being the case, and in my experience, which extends over many hundreds of cases of all sorts, I have found recurrence to be more common after the Whitehead's operation than after any other. The type of condition which is found in a case of recurrence after Whitehead's operation is shown in Fig. 35.

Usually the patient is free from symptoms for a period varying from six months to two years, and then he again presents himself with the complete recurrence of the symptoms in a rather more aggravated form than originally, and generally with a con-

siderable amount of loss of control. On examination, one finds a ring of fibrous tissue marking the scar of the original operation, and several small protruding masses of mucous membrane, which are bright red in colour and bleed very readily. They are more or less permanently prolapsed outside the sphincter, and cause much discomfort and irritation, while the bleeding is at times considerable.

I have heard it stated that this condition is not a true recurrence, in that there is some difference in the appearance between the protruding masses of mucous membrane which are seen and

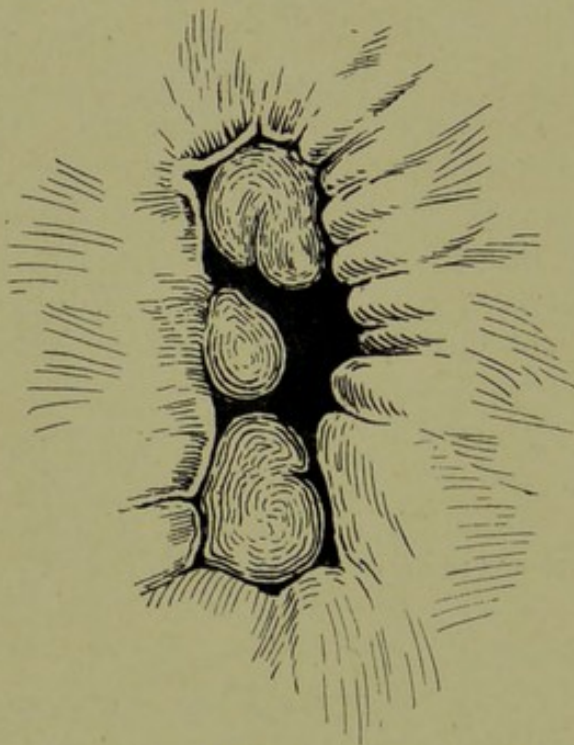


FIG. 35.—DRAWING SHOWING RECURRENCE AFTER WHITEHEAD'S OPERATION.

the original piles for which the operation was performed. One has to remember, however, that from the patient's point of view the condition constitutes a true recurrence, all the original symptoms having returned, if anything, in an aggravated form. This condition is often very difficult to treat satisfactorily, and some form of plastic operation is generally necessary. Not infrequently one finds that the external sphincter is partly involved in fibrous tissue which is preventing it from contracting and adequately closing the orifice. It is generally necessary carefully to dissect away the protruding masses of

mucous membrane and to free the sphincter in order to get a good result. These operations require considerable care, and asepsis of the parts is of the utmost importance in obtaining a good result.

*Case.*—C. S., aged sixty-nine, was operated upon for piles by Whitehead's operation at one of the London hospitals. He came up to St. Mark's Hospital twelve years later with a well-marked recurrence. There was prolapse and severe bleeding; no stricture. He was admitted for

further operation, and two large piles were removed by ligature.

*Case.*—H. J., aged thirty-five, was operated on, in one of the London hospitals, by Whitehead's method for piles. Following this, there was considerable contraction requiring the frequent use of bougies, and she was readmitted and operated on for stricture. A year and a half later she began to have bleeding at stool, and something prolapsed. When seen at St. Mark's two years after the operation, there was a tight stricture at the anal orifice, and a prolapsed portion of mucous membrane which came down and bled. She was operated upon by the ligature method, and cured.

*Case.*—J. S., a woman, aged thirty-four, was operated on for piles, by Whitehead's operation, at St. Mark's Hospital. Two years later she again began to suffer discomfort, with occasional bleeding and prolapse. On examination, there was a prolapsed pile, which could not be made to remain permanently within the anus. She was admitted for further operation.

*Case.*—A man, aged fifty-three, was operated on by Whitehead's method for piles, and ten years later there was complete recurrence of the symptoms, with bleeding and prolapse. On examination, two piles were found prolapsed and bleeding. The patient was operated on again.

*Case.*—A man, aged sixty-two, was operated upon for piles, by Whitehead's method, at one of the London hospitals. Eight years later he came to St. Mark's Hospital complaining of severe bleeding at stool, and on examination, two small piles were found permanently prolapsed. The anus was rather patulous. The patient was admitted for further operation.

*Case.*—A gentleman, aged forty, was operated upon for piles, in China, by Whitehead's method. Six months later the bleeding and prolapse recurred, and on examination, he was found to have several bleeding and prolapsed portions of mucous membrane, which remained permanently outside the anus. I performed a second operation, and ligatured the piles, with complete success.

These are only a few of the cases I have met with of recurrence following this operation.

Recurrence also not infrequently follows the operation of local excision of piles with suture, and this has been one of the chief reasons why this operation has been abandoned. Recurrence after the ligature operation would appear to be very rare. Though I have kept a most careful record of all such cases, I have only met with four cases of recurrence after the ligature operation, and I do not think the liability to recurrence is more than about 1 case per 1,000. This is so little that it need hardly be reckoned with, and for all practical purposes one may say recurrence will not take place after a properly performed ligature operation.

**Incontinence.**—Incontinence should never occur after an operation for piles, and, except in the case of Whitehead's

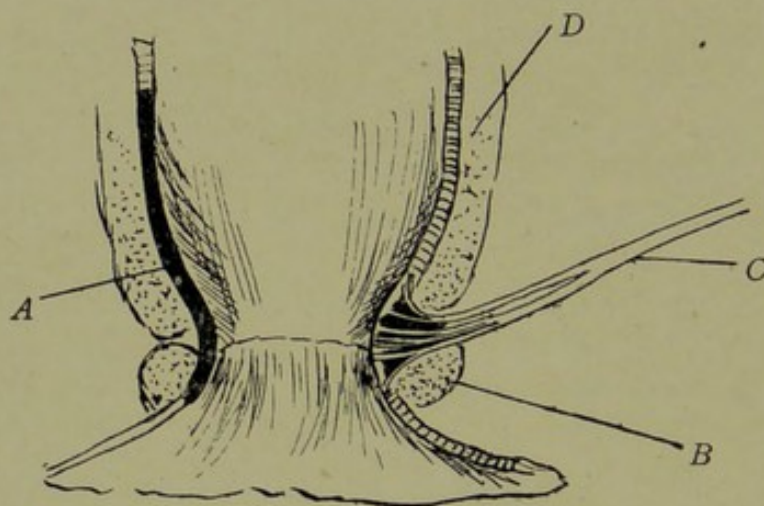


FIG. 36.—DIAGRAM OF CROSS-SECTION OF THE ANAL CANAL.

*A*, Area of mucous membrane (in black) removed in Whitehead's operation; *B*, external sphincter; *C*, branch of pudic nerve to mucous membrane of anal canal; *D*, internal sphincter.

operation, practically never does so. Of course, after any operation on the rectum which is so carelessly performed that a portion of the external sphincter is cut away, incontinence may result. Apart from this, however, it is impossible after the ligature operation. It is occasionally seen after Whitehead's operation. It may then occur because the sphincter muscle has become involved in the fibrous tissue resulting from the operation, and the muscle has been rendered inefficient in consequence. Unfortunately, incontinence sometimes results from Whitehead's operation, owing to the fact that the sensitive portion of the mucous membrane which lines the anal canal, and which acts as a sort of sentinel to the rectum, is removed in this

operation; and, although sensation should return at the anal orifice, it does not always do so, and cases are occasionally met with where, although the sphincter is perfectly intact and there is no stricture, the patient complains of inadequate sensation, with the resulting partial incontinence. I have met with several cases of this condition, which causes the patient great distress, and is most difficult to treat. The illustration in Fig. 36 will explain how this condition arises.

**Abscess and Fistula.**—Abscess and fistula may rarely occur after an operation for piles, as they may after any injury to, or operation on, the rectum. When they do, it is generally in consequence of careless operating, and the muscular coat of the bowel having been injured. But with the performance of operations upon the rectum under proper antiseptic conditions, any such complication becomes extremely improbable.

**Fissure.**—Fissure sometimes results after an operation for piles, and where pain following defæcation is found to persist for a considerable time after such an operation, I should always be suspicious of this cause, and make a very careful examination. It is not at all a common complication after a properly performed operation, and if the patient is carefully watched during the healing stage, the condition can easily be corrected by the use of dilators or local applications to any portion which is not healing properly.



## CHAPTER VII

### *STRETCHING OR DIVULSION OF THE SPHINCTERS*

STRETCHING or divulsion of the sphincter muscles is not only an important and useful means of treating a number of different conditions of the anus and rectum, but is also sometimes a necessary preliminary to several operations upon these parts.

Divulsion of the sphincters is often all that is necessary to cure many cases of painful fissure of the anus. It is also a valuable method of treatment in some cases of recurring external piles. In cases of strangulated and sloughing internal piles, stretching the sphincter is often the best means of giving immediate relief, and it will sometimes afford permanent relief in slight cases of internal piles where there is occasional prolapse accompanied by hæmorrhage. The fact that many cases of piles can be temporarily relieved, and in some cases apparently cured, by simple divulsion of the sphincters was pointed out years ago by Mr. Pridgin Teale\* and M. Verneuil of Paris, and for some time this method of treating piles had a considerable vogue, but it has not proved as useful as was at one time expected, and is now but little used.

Divulsion of the sphincters is a surgical manipulation deserving of much greater care and delicacy than is usually afforded it, and I have considered it sufficiently important to deserve a separate chapter to itself.

A considerable amount of the pain which sometimes follows the operation for piles is due to the careless way in which the sphincters have been stretched before commencing the operation. I believe, too, that the formation of external piles, which often occurs after an operation for the internal variety, is due to careless preliminary stretching of the sphincters.

It is only reasonable to ask what actually happens when the sphincters are stretched, and why this procedure should produce

\* *Brit. Med. Jour.*, August 17, 1889.

temporary paralysis of the muscle, for that it does so there can be no doubt. When the sphincters are stretched, the muscular resistance can be felt very gradually to give way. The external sphincter, from being a hard ring, becomes a flaccid band quite indistinguishable from the surrounding tissues. It has been supposed that the stretching temporarily paralyzes the nerve endings, but I am certain that this is not the true explanation. If it were, it is inconceivable how stretching the muscle could in any way benefit otherwise than temporarily a hypertrophied sphincter, and yet we know that the hypertrophied condition does not return if the muscle is properly stretched. I believe the explanation to be that in stretching the muscle the individual muscle fibres are pulled out and increased in length, while the muscle as a whole is thinned and elongated. Thus, when contraction occurs again, the muscle can no longer diminish its internal diameter as before, since each individual muscle fibre can only shorten itself a limited amount, which remains the same after it has been stretched. The sphincter is thus only able to diminish its diameter by the same amount as before, while its total actual diameter has become very much greater. That this is the explanation, and that it is not due to any nerve paralysis, is proved by the fact that immediately after stretching, the muscle can be seen to contract, but is unable to close the anus.

It is not strictly correct to speak of the sphincters as being paralyzed by stretching. There is no paralysis in the proper sense of this term. It is true that, if thoroughly stretched, the muscular ring does not at once return to its original contracted condition, but in a very short time—usually in a few minutes—the anus will be found to be again closed by the muscle, though not to the same extent as before.

Overstretching the muscle will sometimes result in more or less permanent incontinence, and there have been several cases in which this unfortunate result has followed. It has sometimes been supposed that this permanent incontinence is the result of paralysis of the muscle induced by the stretching; but when permanent incontinence follows stretching of the muscle, it is always due to the muscle having been completely torn by careless and forcible stretching, and such an accident never occurs with an experienced operator.

### Method of Stretching the Sphincters.

There are several different ways of stretching the sphincters, but the following is that which I use, and which I believe to be the best :

The patient should be prepared for the operation by the administration of an aperient the day before, and by an enema, which should be given about four hours previous to operation. The patient should, in fact, be prepared in the same way as described in the case of the operation for piles.

The best anæsthetic is ether. Chloroform, unless very skilfully administered, is often dangerous; for, in order to perform the operation properly, very deep anæsthesia is required, and during the time that the sphincter is being stretched, the patient's respiration usually becomes very deep and full, and there is a characteristic crowing sound, which is, I believe, due to a reflex spasm of the laryngeal muscles. That the effect of stretching the sphincter is a very profound one is shown by the fact that its effect upon respiration is not entirely abolished by even deep anæsthesia. In fact, stretching the sphincter has been suggested as a means of stimulating respiration in cases of persons whose respiration has stopped as the result of an overdose of chloroform. If, therefore, chloroform is being administered, this very deep breathing may easily result in the giving of an overdose of the drug, and although I have never seen a death from this cause, I have several times seen very unpleasant consequences. As ether is not a poison in the same sense as chloroform, there is not the same danger in its use.

It is important not to commence the divulsion until deep anæsthesia has been obtained, as, in the first place, the patient is almost sure to move considerably if the anæsthesia is light; and, secondly, much more force will be required in overcoming the sphincters, and tearing of the mucous membrane, or even of the sphincter, is more liable to result.

The best position for the patient is the left Sims' position, with the knees well drawn up and the buttocks just over the edge of the table. The surgeon should stand opposite the patient's back, with his left side touching the middle of the patient's back, so that in stretching the anus he can pull his hands apart. Standing in this way, the surgeon can exert much more power for stretching the sphincters than if he is standing

opposite the anus and separating his hands. Having more force at his disposal, he will also have more control over it, and there is, therefore, less danger of his damaging the muscle.

There is no necessity for the exertion of much force, but it is most desirable that a steady and even force should be exerted.

The fingers should be well lubricated, and for this purpose I prefer a solution of soap, as it can be more easily washed away afterwards than ointment or vaseline. Anyone who has had to wash vaseline off his hands will know how difficult it is to get all grease entirely off the skin. If vaseline—or, indeed, any greasy substance—is used to lubricate the anus for the purpose of stretching the sphincters previous to the performance of an operation upon the rectum, the vaseline will greatly interfere with the process of cleaning the mucous membrane after the sphincters have been stretched. I have for some considerable time entirely given up using vaseline, and now always use spirit soap. This readily washes off, and facilitates the cleaning process.

The two first fingers should be introduced into the anus, and the parts stretched until the opening will admit the first and second fingers of each hand. The muscle should then be slowly and steadily stretched, first from side to side, and then from before backwards. The stretching should be done quite slowly, the force being at once relaxed if the muscle is felt to give suddenly. If properly stretched, the muscle should show no signs of contracting again when the fingers are removed, but should remain quite relaxed. In an ordinary individual it should take quite five minutes to obtain complete relaxation of the sphincters, and in a strong muscular man it may take ten minutes. If properly done, no tearing of the mucous membrane should result, though slight superficial tears are not uncommon. Too rapid stretching often results in the formation of several small fissures round the anus, and sometimes in the formation of a hæmatoma at the anal margin from rupture of some small blood-vessels. In women much less force is required in stretching the sphincters, and it is well to bear this in mind, as the muscle yields much more quickly, and tearing may result.

After the muscle has been fully stretched, the operation can be proceeded with, or if nothing else is going to be done, a little sterilized vaseline or ointment should be smeared over the anal mucous membrane, and a piece of lint soaked in lead and opium

lotion applied over the anus and kept in place by a T bandage. The patient should be kept in bed for twenty-four hours. There is little or no pain after this operation, though momentary stabbing pain may occur for a few hours. The patient can usually be allowed to get about again the next day.

Some surgeons believe in keeping the anus dilated, after stretching the muscle, by introducing a plug or a Pennington tube for twenty-four hours. This is, however, seldom necessary, and it is often the cause of a considerable amount of pain and discomfort, and not infrequently leads to the formation of external piles.

As a rule, the fingers are much to be preferred to any mechanical appliance for stretching the sphincters. Mechanical appliances are much more liable to cause injury to the mucous membrane, and the muscle is apt to be torn rather than stretched.

In some cases where the muscle is very much hypertrophied it is a help to start the stretching with an instrument and finish

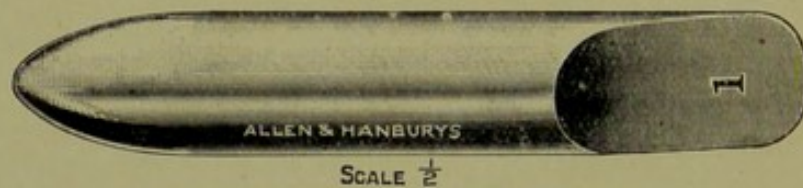


FIG. 37.—METAL DILATOR.

it with the fingers. A Ricord's bivalve speculum may be conveniently used for this purpose, but there is great danger of tearing the parts if any mechanically opening dilator is used. The author's rectal dilators (Fig. 37) are, however, much safer and dilate more evenly than any of the mechanical dilators. These dilators are made on the same principle as Hegar's uterine dilators. They are made of metal, and have a perfectly smooth surface. The sides are parallel, and only rounded up to a blunt apex in the last  $\frac{1}{2}$  inch. They can be readily sterilized, and it is almost impossible to do any harm with them. They increase in size by  $\frac{1}{16}$  inch up to the largest size, which is 2 inches in diameter. The smallest size is first well lubricated, and then pushed through the sphincters. As soon as it is loose, the next size is introduced, and so on, until the requisite amount of dilatation has been obtained. Each dilator, and especially the larger sizes, should be left in for a minute or two until quite loose and no longer gripped by the sphincters. In using these

dilators, the muscle stretches itself in trying to push them out. They dilate equally in all directions, and there is no fear of damaging the mucous membrane with them provided they are not used too quickly.

They are very useful in starting the stretching in cases where a powerfully acting sphincter has to be dilated previous to the performance of an operation, as if the fingers alone are used, the surgeon's hands are apt to be rendered shaky before commencing the operation, which is not desirable.

Divulsion of the sphincter cannot be properly performed under light anæsthesia, or local anæsthesia. One feels very much tempted to stretch the sphincter under nitrous-oxide gas or ethyl-chloride anæsthesia, as the operation is a very short one, requiring only a very brief anæsthetic period such as may be obtained by these means. Much time, too, and a certain amount of inconvenience and discomfort to the patient are saved by not using ether or chloroform. Nevertheless, I am quite certain that proper divulsion of the sphincter cannot be carried out unless full, deep anæsthesia is induced by ether or chloroform. Under gas anæsthesia, the sphincter muscle violently resists stretching, and real relaxation of the muscle is not obtained without tearing the fibres across. With ethyl chloride it is the same, as absence of rigidity, especially while the muscle is being stretched, cannot be obtained with any certainty.

I have several times performed simple divulsion under gas or ethyl chloride, but have been so dissatisfied with the results and the uncertainty of properly performing the operation, that I now always insist upon ether or chloroform if the sphincter has to be stretched.

It has been claimed by some surgeons that divulsion can be performed under local cocaine or water anæsthesia. While it must certainly be admitted that the sphincter can be stretched under such circumstances, I do not think it can be properly done, and, even if it is, there is considerable danger of tearing the muscle or producing a hæmatoma. In the first place, it is extremely difficult to produce a sufficient degree of local anæsthesia to allow of divulsion, without either injecting a very large quantity of fluid or using very strong solutions, neither of which is advisable. In most cases the anæsthesia is only very partial, and the operation causes a considerable degree of pain. In cases where a general anæsthetic is contra-indicated, divulsion under

local anæsthesia may be performed, but with this exception it should not be attempted. When divulsion has to be performed under local anæsthesia, it is better to do the stretching very slowly and gradually, using the author's rectal dilators, and leaving each instrument in for a considerable time before introducing the next largest size.

Cases have been occasionally recorded where partial incontinence of fæces has resulted from divulsion of the sphincters, and this is by some supposed to be a possible result of the procedure. I believe that in all such cases the sphincter muscles have been torn across from too violent and rapid dilatation while the patient was under light anæsthesia. Under such circumstances, the muscle will give way at its weakest point—that is, posteriorly, or possibly anteriorly in women—and if the tear is a big one, it is quite possible for incontinence to result. Incontinence cannot possibly follow if the sphincters are stretched and not torn. I should like firmly to emphasize the fact that divulsion is not the simple and easy procedure it appears to be, but requires care and practice to perform properly.

## CHAPTER VIII

### *PROLAPSE*

PROLAPSE of the rectum is the term used to describe any condition in which part of the bowel is protruded or everted through the anal orifice. There are a great many varieties and degrees of the condition, varying from the eversion of a small portion of mucous membrane just within the sphincters to the complete eversion of the entire rectum.

An attempt has sometimes been made to distinguish between "prolapse" and "procidencia." The two words, however, mean the same. "Prolapsus ani" is often distinguished from "prolapsus recti," but the conditions are essentially the same, and the difference is only one of degree.

Very slight degrees of prolapse are quite common temporary conditions, and may accompany any state associated with tenesmus or violent straining. The condition is generally seen in two varieties—prolapse of the rectum in children from the age of about six months up to eight or nine years, and in adults over the age of twenty. It is also quite a common condition in old age. In adults, prolapse is not often met with except in the slight degree which is commonly associated with internal piles. It is commoner in women than in men. This is accounted for partly by childbirth, which often results in damage to the pelvic floor in women. It is also partly due to the fact that in men the muscles attached to the pelvic bones are, as a rule, better developed, and thus the rectum is better supported. Another very important factor is that in women the peritoneal cavity descends lower, and consequently the intra-abdominal pressure is exerted more directly upon the orifice of the bowel.

ÆTIOLOGY.—The primary cause in all cases of prolapse is the separation of the mucous membrane of the bowel from the muscular coat, and any condition which tends to separate these two coats is liable to result in prolapse of the mucous membrane.



Thus, slight prolapse is common in inflammatory conditions of the rectum—such, for example, as acute proctitis—owing to the fact that there is œdema in the submucous cellular tissue, which separates the two bowel coats, and so enables the mucous membrane to be protruded by the action of the muscles in defæcation. For the same reason, prolapse of the rectum often occurs after wasting illnesses, owing to the fact that the fatty tissue lying between the two coats and outside the rectum is absorbed.

Violent straining from any cause, cholera, dysentery, summer diarrhœa, etc., especially when accompanied by tenesmus, may result in prolapse. Another cause is the presence of some tumour, polypus, neoplasm, or a bunch of piles, which drags upon a portion of the bowel wall. The tumour tends to be extruded when the bowels act, and so drags down the mucous membrane behind it.

Rectal prolapse is a comparatively common affection among children, especially in that class which attends hospitals. Among the better classes, prolapse of the rectum certainly occurs in children, but is not so common, the reason being that the children are better looked after, better nourished, and more quickly attended to if ill. Among children, the condition is about equally common in the two sexes. Thus, out of fifty cases collected from my own records, I find twenty-two were males and twenty-eight females. The average age was two and a half years, the youngest child being three months old. The commonest antecedent cause was diarrhœa. Other common causes were nasal obstruction due to adenoids, and whooping-cough. In quite a number of cases the condition follows upon some illness, such as measles, scarlet fever, summer diarrhœa, etc., and an important factor in such cases is the loss of fat. A local condition in the rectum is not such a common cause of prolapse in children as is generally supposed.

The following table shows the ascertained cause in fifty cases:

Diarrhœa	..	..	..	..	..	..	14
Adenoids	..	..	..	..	..	..	13
Constipation	..	..	..	..	..	..	1
Worms	..	..	..	..	..	..	3
Polypi	..	..	..	..	..	..	2
Whooping-cough	..	..	..	..	..	..	3
Measles	..	..	..	..	..	..	3
Inflamed prostate	..	..	..	..	..	..	1
Stricture	..	..	..	..	..	..	1
Non-ascertainable causes	..	..	..	..	..	..	9

In a normal infant the rectum is well supported by the surrounding fatty cellular tissue, which forms a firm support over the lower portion of the bowel. As age advances, this fat, to a large extent, disappears, and the cellular tissue takes on the form seen in the adult. In the child, however, the cellular tissue supporting the rectum consists mainly of fat. The first effect of malnutrition in an infant is absorption of fat, and the removal of fat surrounding the rectum predisposes to prolapse of the bowel wall from very slight causes. The exciting cause of prolapse, however, is the unnatural method of defæcation usually adopted in civilized countries. Prolapse of the rectum is practically unknown in animals and among the uncivilized races of mankind. The natural position for defæcation is the squatting position, with the abdominal wall in contact with the front of the thighs. There are two important anatomical factors which aid in preventing prolapse in this position: the glutei and perineal muscles are firmly contracted, and all the muscles and fascia of the pelvic floor are in a condition of tonic contraction, which tends to support the rectum. The coccyx, too, is firmly flexed, and a sharp angle given to the terminal portion of the alimentary canal. As the result of this, the force tending to extrude the rectum is exerted against the front of the coccyx rather than directly upon the anal orifice.

In the case of prolapse in adults the causes are not so easily ascertained. The condition is a comparatively rare one, and although there is generally an antecedent history of illness, accompanied by diarrhœa, this is not always the case, and I have not been able to find that there is a history of prolapse in infancy in any definite proportion of the cases.

The factors tending to produce prolapse in adults naturally fall into several groups. Conditions associated with severe straining and tenesmus may produce prolapse, just as they may produce hernia. Thus, stricture of the urethra, chronic cough, proctitis, and the bad habit of sitting at stool for long periods, all tend to produce prolapse. Tumours of the bowel, such as polypi, are often causes of prolapse. Traumatism, too, may cause prolapse. Thus, we find it sometimes after operations which have left a patulous condition of the sphincter ani, and after severe laceration of the perineum in child-birth. It may also result from mere loss of muscular tone in the parts, or from paralysis of the sacral nerve trunks. Once a prolapse has been

established, it tends to increase in size each time it comes down, and to drag more and more bowel into its walls. The sphincter, from constant stretching, soon loses its tone and becomes patulous. As the support of the sphincter is lost in this way, the prolapse tends to come down more and more easily, so that after a time it comes down on the slightest effort, such as sneezing or blowing the nose.

A new theory of the ætiology of rectal prolapse has recently been propounded by Dr. A. V. Moschcowitz, of New York.\* He asserts that prolapse starts as a hernia of the small intestine from the bottom of Douglas's pouch, through the anterior rectal wall above the anal canal. He also states that a sulcus of the depth of about an inch can always be found between the sphincter and the anterior wall of the prolapse. I cannot agree with him that this sulcus is present, except in a very small percentage of cases. Nor can I believe that this theory will explain more than a small percentage of cases of rectal prolapse. It will not explain prolapse of the rectum in children, nor in the majority of males.

My experience does not confirm Dr. Moschcowitz's contention that the earliest stage of prolapse is a hernia of the anterior rectal wall above the level of the anal canal. Those of my readers who are interested in this subject will find it worth while to consult Dr. Moschcowitz's interesting paper.

**PATHOLOGY.**—The prolapse may involve only that portion of the mucous membrane lining the anal canal, in which case it is frequently referred to as "prolapsus ani." This condition is usually, if not invariably, a complication of internal piles, and, apart from the piles which cause the condition, is of comparatively little importance (Fig. 38).

After this one may find almost any degree of prolapse. A distinction must, however, be made between what are sometimes called the first and second degrees of prolapse. In the former and common form of prolapse the mucous membrane covering the outside of the prolapse is directly continuous with the anal margin of the skin (Fig. 39); in the second degree of prolapse there is a definite sulcus between the prolapse and the anal margin (Fig. 40).

A prolapse which protrudes for more than about  $2\frac{1}{2}$  inches may contain a portion of the peritoneal cavity between its

\* *New York State Journal of Medicine*, vol. xii., No. 11, November, 1912.

coats. The peritoneum is first dragged down in the front portion of the prolapse, and as the prolapse becomes larger, more of the peritoneal cavity becomes involved, so that in a large prolapse

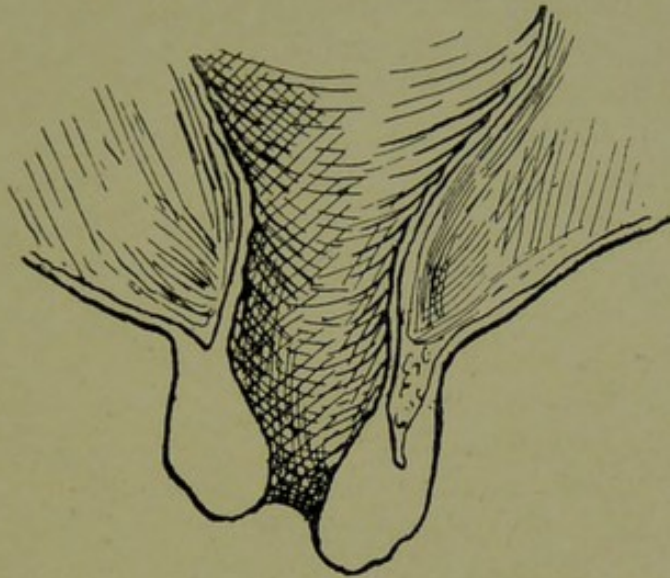


FIG. 38.—PROLAPSE OF MUCOUS MEMBRANE ONLY.

the inner layer may be completely surrounded by peritoneum. Owing to the fact that the peritoneum extends much lower on the anterior wall of the rectum in the female than in the male,

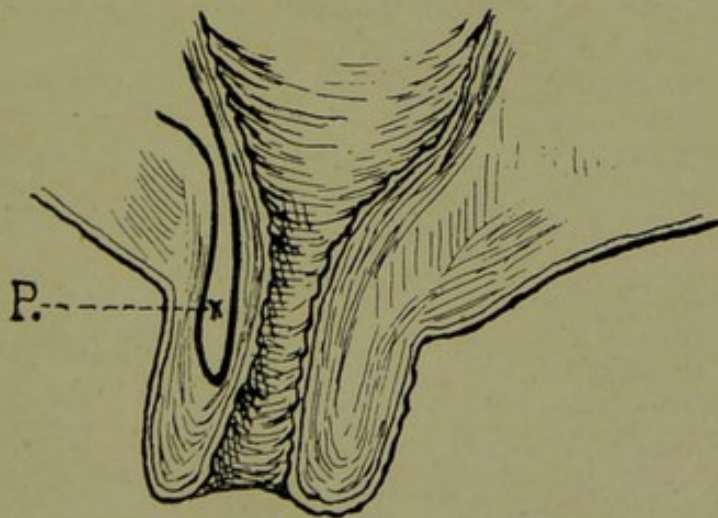


FIG. 39.—COMPLETE PROLAPSE OF FIRST DEGREE.

*P.*, Peritoneum present in anterior layers of prolapse.

the peritoneal cavity is involved with a lesser degree of prolapse in women than in men.

Intestine may, of course, come down into the peritoneal

cul-de-sac contained in the prolapse. After a prolapse has existed for some time, secondary changes may occur. Thus, the mucous membrane may become very much thickened from constant irritation, and œdematous ulceration may follow; the sphincter, from being constantly stretched, will become completely patulous, and the muscle apparently paralyzed.

The colour of the prolapse is at first that of the normal mucous membrane of the bowel, but later it becomes a vivid scarlet colour or purple, from congestion and interference with its blood-supply.

COMPLICATIONS.—There are several complications which may occur in severe cases of prolapse. Thus, a loop of intestine may

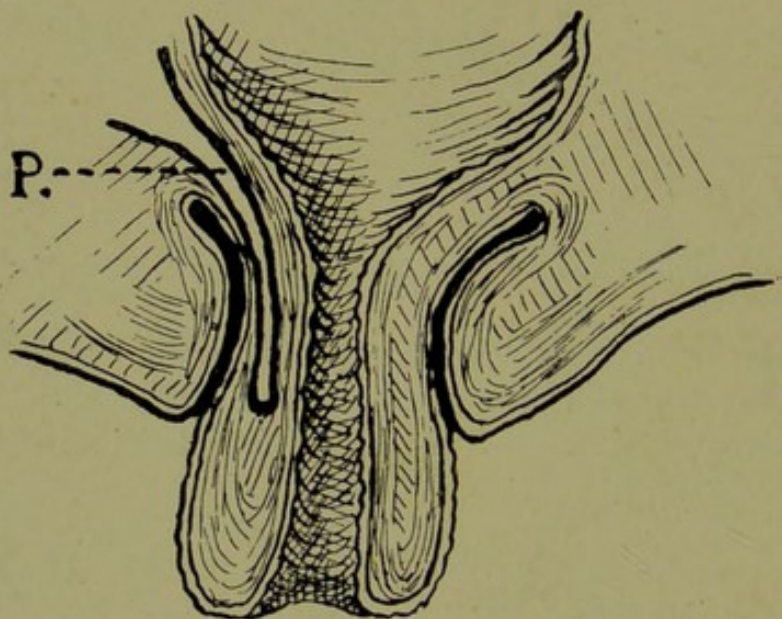


FIG. 40.—COMPLETE PROLAPSE OF SECOND DEGREE.

Note there is a sulcus between the skin at the anal margin and the wall of the prolapse.

*P.*, Peritoneum present in the anterior walls of prolapse.

come down into the peritoneal cul-de-sac, which has been dragged down by the prolapse, and become strangulated there in the same way as it would in a strangulated hernia. Rupture of the walls of the prolapse with the protrusion of intestine is a rare and dangerous condition, which has been known to result from forcibly attempting to reduce an inflamed and œdematous prolapse. Severe ulceration of the protruding portion, with possible perforations of the peritoneal cavity, is another rare complication.

Greiwarik\* narrates the case of a man, thirty-five years of age,

\* *Gaz. Hebd. des Sci. Méd. de Bordeaux*, 1912, xxxiii.

who had suffered for three years from prolapse of the rectum. Ulceration, followed by a rupture of the wall involving the peritoneal cavity, occurred, and the small intestine protruded. Taxis failed to reduce the protruding bowel, and, owing to the condition of the patient, operation was not performed. The patient died three hours afterwards; no autopsy was performed, but the author thinks death was due to hæmorrhage from a mesenteric vessel.

**SYMPTOMS.**—At first the prolapse only comes down while at stool, and is easily replaced, or, more often, returns of itself in the course of a few minutes, or after the patient has lain down. After a time, however, the prolapse will not go back unless replaced, and this may sometimes be quite a difficult thing to do. In course of time, as the sphincters give way, the prolapse comes down so readily that the patient is unable to hold his breath without forcing down the prolapse. Thus, it will come down on the least attempt to blow the nose, sneeze, or cough, and some patients are unable to walk about without promptly bringing it down. A certain amount of bleeding often occurs, but is never serious. Pain of a bearing-down character usually accompanies the condition; difficulty with micturition and other symptoms, due to dragging upon the pelvic organs, are generally present in severe cases.

The condition is one which causes the most profound misery to the unfortunate patient, and, although it is not dangerous, it is exceedingly incapacitating.

**REDUCTION OF THE PROLAPSE.**—As a rule the reduction of the prolapse is not a difficult matter. The patient should be placed in such a position that the drag of the intestines tends to reduce the prolapse. The knee-elbow position, where this is possible, is the best; failing this, the left Sims', or semi-prone, position should be adopted. The apex of the prolapse should first be pressed inwards, and then succeeding parts of the bowel, until the base is reached. The method which I have found to be most satisfactory is the following: A small piece of dry cotton-wool is placed upon the apex of the prolapse, and then pressed up with one finger. Before this finger is removed another piece of cotton-wool is placed on the next portion to be returned, and with the other finger this is pressed up, while the first finger is withdrawn. This process is repeated until the entire prolapse has been replaced, the pieces of cotton-wool being left. Another

similar method is one in which cigarette-papers are used instead of cotton-wool.

The reduction should be carried out slowly and gently, and on no account should any force be used. If the prolapse is found to be swollen and œdematous, and great difficulty is experienced in reducing it, the patient should be placed on the side, or, better still, on the face, with the buttocks well raised, and cold-water compresses or ice applied to the prolapse for an hour or longer, after which an attempt should again be made to reduce it. If it is still found impossible to reduce the prolapse, a general anæsthetic should be administered, and the sphincter carefully stretched until the prolapse can be replaced quite easily. The anæsthetic should not be made an excuse for the exertion of force in reducing the prolapse, but merely given for the purpose of stretching the sphincter. It must always be borne in mind that there may be intestine, and there certainly is peritoneum, in the anterior portion of the prolapse. If the prolapse has a curve bending backwards towards the sacrum, and especially if, with one finger in the prolapse and the other outside, a thickened mass can be felt in the front portion of the prolapse, it is probable that intestine is present in the wall. The prolapse can always be replaced, though there may be considerable difficulty in doing it. If, however, the prolapse is already gangrenous when first seen, very careful consideration will be required, and it is not safe to return the prolapse in such a condition, as it may easily cause fatal peritonitis. The best treatment in such cases is immediate amputation of the entire prolapse, but it must be borne in mind that the peritoneal cavity is going to be opened, and proper drainage must be provided.

TREATMENT.—In discussing the treatment of prolapse of the rectum, it is necessary to distinguish three types of cases: first, cases of prolapse of the rectum accompanied by piles; secondly, prolapse of the rectum in children; and thirdly, prolapse of the rectum in adults. With regard to the first—prolapse of the rectum accompanied by piles—the treatment for this condition is that for the piles which have given rise to it, and will be found fully described in the chapter on that subject.

*Treatment of Prolapse of the Rectum in Children.*—As has already been said, by far the commonest causes of prolapse in infants and young children are carelessness and malnutrition.

If these are corrected—that is to say, if the child is given proper food, healthy and hygienic surroundings, and tonics, such as *syrupi ferri phosphatis comp.*, combined, if necessary, with a little strychnine, cod-liver oil, etc.; and if, in addition, great care is taken to prevent the prolapse coming down—most cases of prolapse of the rectum in children will rapidly get well without any operative treatment.

The mother or nurse must be given instructions on no account to allow the child to sit on any receptacle for the purposes of defæcation. At first the child should pass all its stools lying in bed on the side, the bowels being opened by means of an enema; and later, for some months, the stools should be passed in the squatting position into a shallow pan, placed on the ground, upon which the child cannot sit. In the case of very young children a large piece of inch-wide strapping should be fixed across the buttocks just behind the anal orifice, so as to support the buttocks during defæcation.

Careful attention to these points and to the general well-being of the child will, in the vast majority of cases, lead to a complete cure of the condition in quite a short time.

If there is any definite cause for straining, such as whooping-cough, adenoids, etc., this must be attended to before proceeding to the treatment of the prolapse. Of course, if there is a polypus in the rectum, this will require removal, but my experience has been that this is very rarely the cause of prolapse in children.

In a few cases, either because the prolapse has existed for a long time, or because the treatment recommended is not properly carried out, or for some other reason, the prolapse continues to come down. Under these circumstances operation will be necessary. Simple linear cauterization, which will be described presently, is all that is required in such cases of prolapse in children, and in only a few cases have I known this to fail. As an alternative, my operation will be found to give complete satisfaction in these cases.

*Treatment of Prolapse in Adults.*—This is a very much more difficult matter than treatment in the two types of cases already mentioned. The difficulty of curing a case of prolapse of the rectum, when the prolapse is of any size, has become proverbial, and one has only to look at the numerous operations that have been described to see what a difficult matter it is. I know of no method of treating prolapse in adults, short of opera-



tion, that has the slightest prospect of success, nor have I ever seen a case really cured apart from operation. Unless the patient is willing to submit to an operation, the best that can be expected is that the condition may be to some extent alleviated by the wearing of an apparatus for preventing the descent of the prolapse. This will, however, result in considerable discomfort, and probably in incontinence. The type of apparatus that I have found to be the simplest and most effectual for keeping up the prolapse consists of an india-rubber tube about  $\frac{1}{2}$  inch in diameter, which is attached to a waist-belt behind, and comes forward between the legs, where it is fixed by a strap and buckle to the front part of the waist-band. The rubber tube should lie over the anus, and will generally give sufficient support to prevent the prolapse from coming down.

In elderly patients who do not get about much, it is inadvisable to operate, and the best treatment in their case is non-operative. The apparatus just described should be worn to keep up the prolapse, and the bowels should be carefully regulated so as to prevent straining, and to produce that type of stool which is the least irritating. The bowels should always be opened while the patient is lying down, and astringent injections into the bowel should be used.

In the case of old people, too, relief is often to be obtained from the use of the faradic electric current, which improves the tone of the muscles and increases the circulation in the part. Among other so-called non-operative methods of treating prolapse, mention must be made of the injections of paraffin wax and of solutions injected into the submucous layer with the object of producing adhesions. The treatment of prolapse by the injection of paraffin wax has happily died an early death. At one time it became quite popular, and undeniably it was often effectual in curing the prolapse in the sense that the prolapse did not again come down; but the results have since been found to be far more serious than the prolapse. The worst case of stricture which I have ever seen was due to this method of treating a prolapse. In another case I saw an enormous ischio-rectal abscess result from the treatment. The treatment is unsound both in theory and practice, and should, in my opinion, never be used.

Much the same may be said of the injections of irritant solutions into the submucous space. If sufficient solution is used to have any serious chance of curing the prolapse, there must be

considerable danger of abscess and other complications. The treatment cannot be as safe as operation, and it is certainly not as effectual.

**OPERATIVE TREATMENT—*Linear Cauterization.***—The patient is prepared for operation in the usual way. A large wire rectal speculum is then passed into the bowel (Fig. 41), or in place of this any fenestrated speculum can be used. The mucous membrane is dried with mops as far as possible. Then, with a Paquelin's cautery with a broad point, heated to a dull red, longitudinal lines are burnt on the mucous membrane down to the anal margin. Three or four of these longitudinal lines are made in the bowel wall, the number depending upon the size and length of the prolapse. The depth of the burning should be sufficient to cause adhesions between the

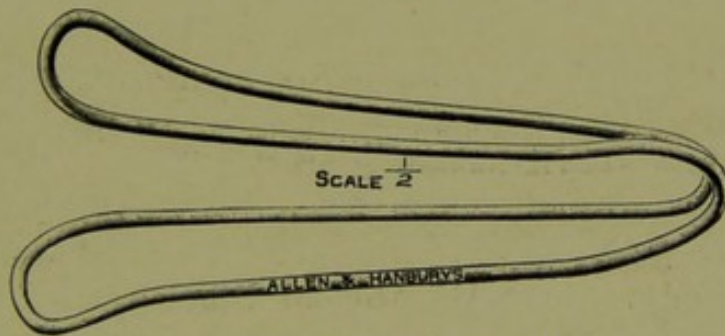


FIG. 41.—WIRE SPECULUM.

mucous and muscular coats of the bowel in the process of healing; but care must be taken not to make the burning too deep, or serious abscess and even inflammation of the peritoneal cavity may result.

The bowel should be dressed with a small plug of gauze thoroughly soaked in sterilized vaseline, and the patient should be kept recumbent for three weeks at least, the bowels being opened by means of enemata. This operation often gives very satisfactory results in cases of slight or very early prolapse, and is also all that is usually necessary when operation is required for prolapse in children. In severe cases of prolapse in adults it is, however, practically certain to fail, and is not worth trying.

***The Ligature Method.***—In this operation, which is only suitable for quite slight cases of prolapse, portions of the mucous membrane of the bowel are caught up in forceps; a shallow groove is nicked with a pair of scissors round the base of each portion of

mucous membrane held by the forceps, and the mucous membrane is then ligatured with a stout silk ligature in a similar manner to that used in the operation for piles. The amount of mucous membrane caught up and the number of places in which it is ligatured must, of course, depend upon the size and nature of the prolapse. This operation acts in a similar manner to the cautery—namely, by the production of adhesions between the two coats of the bowel, and also by causing a certain amount of narrowing of the lumen. It is only of use in cases to which the cautery method is also applicable—that is to say, in cases of prolapse of the first degree before hypertrophy or thickening has occurred, and when the condition is only of very recent origin. It is unlikely to succeed in cases of a large prolapse which has existed for some time. The presence of a pouch of peritoneum in the prolapse negatives this operation, or that by means of the cautery.

The operations for prolapse of the rectum in adults may be roughly divided into two classes—those which aim at suspending the bowel from above, including all the different forms of colopexy, and those which aim at fixing the rectum itself into the hollow of the sacrum and to the pelvic fascia—that is to say, at restoring the bowel to its original condition by the aid of adhesions or stitches. These operations are usually called “proctopexy.”

With the exception of cases of prolapse of the third degree, which are really cases of intussusception of the upper end of the rectum, and not of prolapse, the latter type of operation is the most satisfactory, and is likely to be followed by the best results. It has the additional advantage that it does not necessitate opening the peritoneal cavity, and there is therefore less risk attached to the operation.

The object of all forms of proctopexy is to anchor the rectum, by adhesions, to the sacrum and surrounding pelvic fascia. Many different operations have been devised for the purpose of obtaining this; some by means of stitches passed around the sacrum, as in Tuttle's operation, others by the excision of portions of the bowel, or by the use of clamps, etc. The operation, however, which I have found by far the most satisfactory in all cases of prolapse of the first and second degree, is one which I first performed some eight or nine years ago, and which was described in the *Lancet*, March 5, 1910. It has the advantage of being

both simple and effectual, and of restoring the bowel to its normal condition previous to the presence of the prolapse. The following is a description of the operation :

*The Author's Operation.*—The patient is very carefully prepared for operation in the manner already described on pp. 30 and 31. This is of great importance, for it is essential to insure that no action of the bowels shall take place for at least four or five days after operation; in fact, until steps are taken to that end.

The length and degree of the prolapse must first be ascertained by seeing the bowel in the prolapsed condition. If at the time of operation the prolapse is down, it should be carefully returned. The patient should be placed in the lithotomy position, with a small sandbag under the sacrum. The lower part of the rectum is then thoroughly washed out with spirit soap and water by the aid of flat swabs. It is then douched out with lysol, 1 drachm to the pint, and any excess of the solution removed by dry swabs. The external skin around the anus and over the coccyx should previously have been painted with 2 per cent. iodine solution. It must now be thoroughly cleaned up by means of acetone, and again painted with iodine solution.

A transverse incision about 2 inches long is then made at a point about half-way between the tip of the coccyx and the posterior margin of the anus (Fig. 42). This incision is deepened, keeping slightly backwards towards the coccyx, and in it the attachment of the external sphincter to the coccyx should be completely divided. The incision is carried down, a knife or blunt-pointed scissors being used, towards the tip of the coccyx until the posterior rectal space is opened up. Great care must be taken on no account to open the rectum in making this incision. A gloved finger is then inserted into the posterior rectal space through the incision, and this space is thoroughly opened up to each side of the rectum and up along the hollow of the sacrum. As a rule the space strips very easily, as the cellular tissue is very loose as the result of the prolapse. The amount to which the posterior rectal space should be separated must depend upon the extent of the prolapse. Roughly, the extent upwards to which separation should be carried out is about equal to the length of the prolapse when down. The separation should be done entirely by blunt dissection with the finger, or with blunt-pointed scissors, so as not to cause hæmorrhage, and the greatest care must be taken to preserve complete

asepsis during this stage of the operation. If necessary, the surgeon may keep the first finger of the gloved left hand in the bowel to guide him in the separation (Fig. 43). The separation should be carried round the sides of the rectum as well as up along the posterior wall, so that the subsequent adhesions shall hold as much as possible of the rectum, and not merely one small part of it. This done, a long strip of sterilized bismuth gauze—it must be ribbon gauze with a selvedge—should be care-

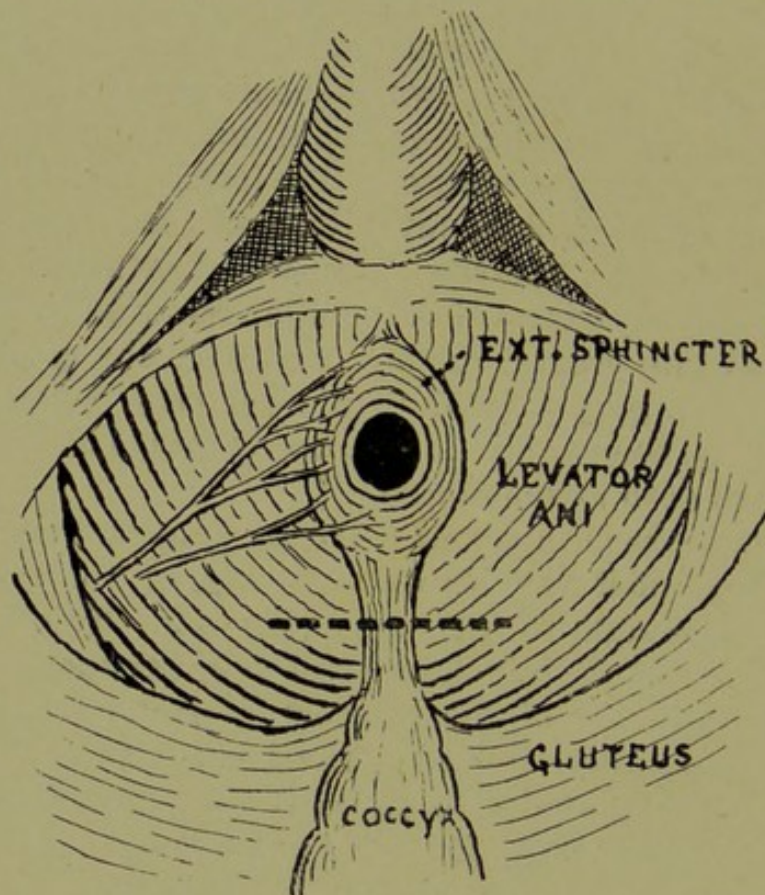


FIG. 42.—ANATOMICAL DIAGRAM OF ANAL REGION.

The dotted line shows the incision.

fully packed into all the separated area of the posterior rectal space, the object being to leave sufficient gauze to prevent primary union between the rectal wall and the sacrum, but to avoid using so much gauze as would cause pressure upon the rectum or be likely to produce sloughing. When the prolapse is large and of old standing, the separation should be carried into the space above the levator ani and between this muscle and the rectal wall on each side. Two or three strips of gauze should be used, and the ends left hanging out of the posterior wound.

A portion of the anterior wall of the mucous membrane of the rectum just within the anus should be seized in forceps, and a ligature tied round it so as to prevent any tendency to prolapse of this small portion of mucous membrane, which is otherwise liable to prolapse into the patulous anus after the posterior wall has been fixed. As a rule it is not necessary to perform any operation on the anus, as recovery of the action of the muscle will usually take place in course of time. If it is very patulous,

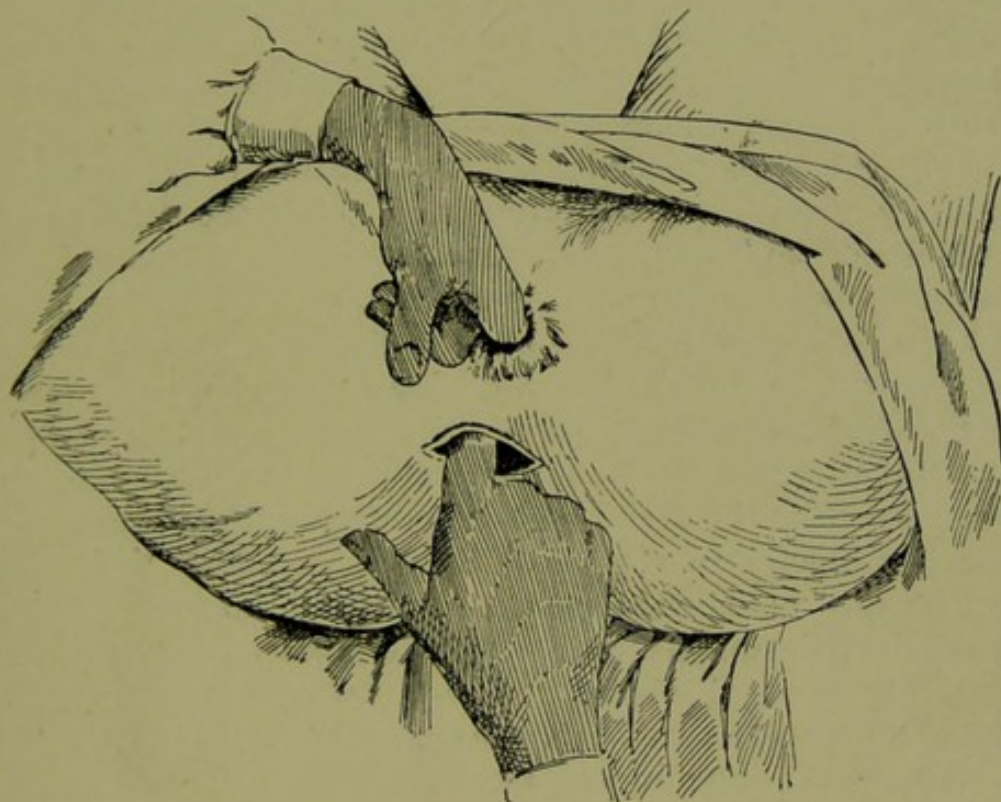


FIG. 43.—DRAWING TO SHOW THE METHOD OF OPENING UP THE POSTERIOR AND LATERAL RECTAL SPACES, WITH ONE FINGER IN THE RECTUM AND ONE IN THE WOUND. (AUTHOR'S OPERATION.)

however, some form of plastic operation may be performed at the same time.

A plug of sterilized gauze soaked in ointment is passed into the anus to prevent any leakage, and the parts carefully dressed with antiseptic gauze. After the operation the patient must be kept lying flat in bed, and not allowed to sit up for any purpose. He should be given a very light and easily digested diet until the bowels have been opened. The gauze should be left in place until about the sixth or seventh day, and then parts of it should be slowly removed each day, fresh gauze being lightly packed

into the space left. The object of the packing is to make the whole of the space opened up behind the rectum heal by granulation so as to produce the maximum number of adhesions in this area. After this the dressing should be done daily, and the total time for the posterior wound to close should not be less than three weeks. The bowels are opened by means of oil enemata about the sixth day, and great care must be taken to prevent infection of the posterior wound previous to this. After that time granulation will have already occurred, and no serious results will follow infection of the wound.

The patient should be kept lying flat for at least a month after the operation, and in cases of a bad prolapse it is wise to insist on the bowels being opened while the patient is in the recumbent position, for another month after this. After the sixth day the bowels should be kept acting by means of daily oil enemata, and care should be taken to prevent straining.

After the wound has healed, if a finger is passed into the bowel, it will be found that the whole posterior rectal wall is densely adherent to the hollow of the sacrum, and it is practically impossible for the posterior and lateral walls of the bowel to come down. Further, the division of the posterior attachments of the external sphincter to the tip of the coccyx allows the anus to move forward a slight amount, and while in no way damaging the power of the muscle, puts a slightly greater bend on the end of the rectum, and this in itself tends to prevent further prolapse.

I have now performed this operation a number of times for severe cases of prolapse, and have so far had only one case of recurrence after the operation, and this case was cured by a second operation. It has proved so successful that I have entirely discarded any other operation for the condition, with the exception of those slight conditions which occur in children, which I treat by the cautery method, and the cases of prolapse, accompanied by piles, which are best treated by some form of Whitehead's operation, or by the ligature.

The following cases will serve as examples of the results that may be expected from this operation:

*Case.*—A woman, aged forty-two years, had had prolapse of the second degree for three years. The bowel came down when the patient walked, and caused great misery. About 5 inches of bowel prolapsed. The anus was patulous.

An operation was performed in 1904. The patient had no return of the prolapse after the operation, and when last heard of was quite well.

*Case.*—A woman, aged fifty-seven years, had had prolapse for fourteen years. She was operated on five months before I saw her, Whitehead's operation being performed. This, the patient said, did no good, and the prolapse had been worse since. On examination, the upper part of the rectum prolapsed through the anus. My operation was performed in 1907; the posterior wall of the rectum was anchored by producing adhesions to the sacrum, and some loose mucous membrane on the anterior wall, just within the anus, was ligatured. The patient was cured, and has had no recurrence up to the present time.

*Case.*—The patient was a man, aged thirty-eight, who had had a prolapse almost as long as he could remember, certainly for twenty years. All the coats of the bowel came down, and the prolapse projected for over 6 inches from the anus. The peritoneal reflection was dragged down in the anterior part of the prolapse. My operation was performed in January, 1910. The wound took from three weeks to a month to heal, and the patient was then allowed to get up, but was told to let his bowels act while in the recumbent position, for another fortnight. Since that time the prolapse has never come down, and the sphincter has entirely returned to its normal condition.

*Amputation of the Prolapse.*—This operation has been advocated by several well-known surgeons, but it has the serious objection that it is by no means free from risk, and there is the possibility of fatal results owing to the fact that the peritoneal cavity has to be opened, and that infection is liable to occur both during and after the operation, and may lead to septic peritonitis. Recurrence, too, very frequently takes place after this operation. In my opinion it should therefore be reserved for those cases in which the prolapse is irreducible, and these, if proper care is taken, will be very few. In cases of this kind, however, there will frequently be a considerable amount of sepsis, and even of gangrene of the prolapse. This is a serious complication in an operation which involves the opening of the peritoneal cavity. The prolapse should be cleaned up very thoroughly with strong



antiseptic lotion as far as is possible before the operation is commenced, and great care must be taken to avoid handling the septic parts during the operation.

The operation is performed by making a circular incision at the base of the prolapse—that is to say, where the mucous membrane joins the skin. This incision should cut through mucous membrane alone at first, and a cuff should be turned down. The wound having then been rendered as clean as possible, should be deepened anteriorly until the peritoneal cavity is open. The serous cuff covering the intussuscepted portion of the bowel should then be dissected up, and the two serous layers sewn together so as to close the peritoneum as effectually as possible. The wound is then gradually deepened, first towards one side and then towards the other, each section of the peritoneal cavity being closed immediately after it has been opened. When this has been done, and the incisions extend beyond the limits of the peritoneum, the remainder of the bowel can be cut completely through, and the edges of the mucous membrane seized with forceps. The wound having been again thoroughly washed with strong antiseptic lotion, the mucous membrane lining the bowel is carefully and accurately sutured to the divided edge of skin. A series of single sutures should first be put in at regular intervals all the way round the bowel, and care should be taken to see that these have a good grip of the tissues. Mattress sutures are the best. Lastly, using these as retractors, a continuous suture of catgut should be put in so as to obtain accurate apposition of the two edges of mucous membrane. If the surgeon has any doubt as to the asepticity of the deeper tissues of the wound, a small drain should be provided in the anterior portion, which leads down to the shut-off peritoneum. A large tube should be passed up into the bowel, the parts should be carefully dressed, and the bowels should be kept confined for five or six days. It must be remembered that intestine may be met with in the front portion of the prolapse on opening the peritoneal cavity. To prevent this, the operation is best performed with the patient in the half Trendelenburg position.

*Sigmoidopexy.*—This operation has a certain amount of popularity in the treatment of severe cases of prolapse. It consists in stitching the sigmoid colon to the anterior abdominal wall, after pulling up the rectum and getting rid of the prolapse. This operation, although excellent in theory, is unfortunately often

very disappointing in practice. The adhesions between the sigmoid colon and the abdominal wall are very prone to stretch and elongate in course of time, thus allowing the prolapse to recur. Indeed, in some cases they entirely disappear in a comparatively short period. Further, fixation of the sigmoid colon may give rise to obstruction at some later period, either from kinking of the bowel, or from the twisting of some portion of the small intestine around the stretched adhesions. This latter accident recently occurred in a case at St. Mark's Hospital, the patient having had sigmoidopexy performed some two years previously. A prompt operation saved her life.

Sigmoidopexy is performed as follows:

A vertical incision is made at the outer edge of the left rectus, the abdominal cavity is opened in the usual way, and the pelvic colon is drawn up. The lower portion of this is dragged upon until the rectum has been rendered taut. Suitable points in the left iliac fossa and on the gut having been selected for attachment to each other, the peritoneum is carefully reflected over an area of about 2 inches by turning up a serous flap both on the bowel and in the iliac fossa. Stitches are then inserted so as to fix the raw area on the bowel firmly to the raw area in the iliac fossa. These stitches should obtain a firm grip of the parts, and on the bowel side should take up one of the muscle bands. They must, however, be so inserted that when tied they will not cause kinking, or contraction of the bowel lumen (Fig. 44). After the bowel has been satisfactorily fixed in position, the abdomen is closed. Some surgeons fix the bowel to the anterior abdominal wall instead of to the iliac fossa.

Various methods have been adopted to produce firm adhesions. Thus Mr. Swinford Edwards\* recommends that a strip of peritoneum, 1 inch wide and 2 inches long, should be dissected away from the inner surface of the abdominal wall so as to allow the peritoneum covering the gut to come into direct contact with the fascial layers of the abdominal wall. The suturing must be done very carefully and over a fairly large area; two or three stitches put in close together cannot be expected to retain in position a large loop of bowel like the pelvic colon. The patient should be kept in a recumbent position for several weeks after this operation.

In my opinion this is not a satisfactory operation, and is only

\* "Diseases of the Anus, Rectum, and Sigmoid Colon."

suitable for cases of prolapse of the third degree which cannot be dealt with in any other way.

*Operation to close Douglas's Pouch.*—Mention must be made of this operation, as it has recently been revived by Dr. Alexis V. Moschowitz of New York. It is based upon the theory that rectal prolapse is due to a hernia of the small intestine through the anterior rectal wall at the bottom of Douglas's pouch, and following on this, that if intestine is prevented from prolapsing into Douglas's pouch by the obliteration of this portion of the

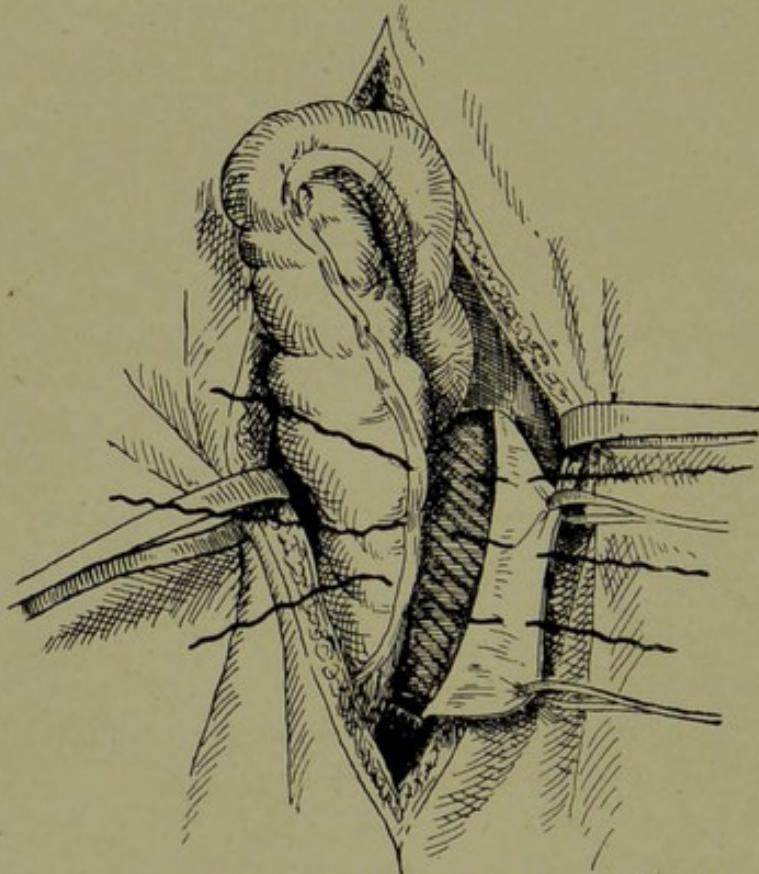


FIG. 44.—DRAWING TO ILLUSTRATE THE OPERATION OF SIGMOIDOPEXY.

peritoneal cavity, cure of the prolapse will result. This was originally suggested by Sonnenschein (Bardenheuer),\* and later by Quénu and Duval, who described a method of placing circular sutures in Douglas's pouch.† Last year this method was revived by Dr. Moschowitz.‡ The operation is performed from the abdomen with the patient in the Trendelenburg position, and

\* *Zentralbl. f. Chir.*, 1902, p. 1129.

† *Rev. de Chir.*, vol. xli., p. 135.

‡ *New York State Journal of Medicine*, vol. xii., No. 11.

consists in passing circular sutures around Douglas's pouch until this pouch of peritoneum has been obliterated. It is necessary to take great care to avoid the ureters and the internal iliac vessels which are lying along the wall on each side. This method of closing Douglas's pouch would seem somewhat dangerous owing to the possibility of subsequent hernia of portions of the small intestine between the stitches, particularly as a good hold for the stitches is not easy to obtain. A better method of obliterating Douglas's pouch seems to me to be by packing it with gauze through an incision in the posterior vaginal fornix, and by compelling the space so packed to heal by granulation, and so obliterate Douglas's pouch by adhesions.

## CHAPTER IX

### *PROCTITIS*

It is a curious fact that both acute and chronic inflammatory affections of the mucous membrane lining the rectum bear a close resemblance to similar affections of the throat and pharynx. Thus, one sees the ordinary appearances of chronic pharyngitis exactly reproduced in the rectum in many forms of chronic proctitis. In cold temperate climates, such as that of Great Britain, the commonest forms of simple catarrh of mucous membranes occur in the throat and nose; while in tropical climates—in India, for example—they more frequently occur in the rectum and colon. This is a well-known fact, for which at present we have no adequate explanation.

Until quite recently little was known about proctitis and allied conditions, except in the more obvious and specific types, for there was no means of adequately examining the mucous membrane and observing its appearance, except occasionally under an anæsthetic. Since the introduction of the electric sigmoidoscope, however, we have learnt a great deal in regard to the chronic inflammatory affections of the rectum and colon, and among other things we have learnt that the rectum is seldom alone involved, but that the pelvic colon almost invariably participates when there is an inflammatory condition in the rectum. We are now able to examine the whole area of the rectal mucous membrane with ease, and without putting the patient to any serious inconvenience, and thus we can watch the progress of the inflammatory changes.

Proctitis, or inflammation of the rectum, is characterized by redness and injection of the mucous membrane, an increase in the secretion of mucus, and swelling of the submucous layer, which causes an increased folding and œdematous appearance of the mucous membrane. We are able to recognize a considerable number of different types of proctitis, both acute and chronic,

although at present we do not know the significance of all the different types, and there still remains much work to be done by careful observation.

### Simple Catarrhal Proctitis.

This is generally an acute condition with a sudden onset, and is in many ways similar to the so-called cold in the head, which is such a common affection in large communities.

**SYMPTOMS.**—The onset is usually sudden, and as a rule the first sensations are localized to the bowel. Occasionally, however, the patient experiences prodromal symptoms, such as acute pain in the body, and a feeling of chilliness similar to what is often experienced with the onset of a coryza. There is generally a feeling of heat or weight in the rectum, accompanied by a sudden desire to go to stool, and often diarrhœa. Tenesmus is characteristic of proctitis, and if the condition is at all acute, will be of a severe type. If the condition is accompanied by a colitis, as is frequently the case, diarrhœa will be a prominent symptom; but if the inflammation is localized to the rectum itself, there will be tenesmus, but with no accompanying action of the bowels beyond a little mucus, and perhaps blood. The ordinary attack of acute diarrhœa is due to simple catarrhal colitis and proctitis. Pain in the back and pelvis is often complained of, and in severe cases there may be frequent micturition, due to the sympathetic effect upon the bladder. During the acute stage of the attack blood may be passed in the stools, and this is especially marked when there is tenesmus. Mucus is always present in excess; the anus and rectum become exceedingly tender, and examination is rendered extremely difficult. The erect position accentuates the symptoms, and the recumbent position is always the most comfortable. The patient feels ill and weak, and there is often gastric disturbance, with pain after meals, and possibly sickness. If the mucous membrane is examined during the acute stage, it will be seen to be red and inflamed, somewhat swollen, and with much glairy mucus.

**ÆTIOLOGY.**—In most cases the cause appears to be some bacterial infection of the mucous membrane, the exact nature of which we do not know. Probably many different kinds of bacteria are capable, under favourable conditions, of causing proctitis. Owing to the large number of micro-organisms which are

habitually present in the rectum, even under normal conditions, the difficulty of ascertaining which is the specific cause in any individual case of proctitis is very great; and we are still in the dark as to the exact nature of the infection, except in a few exceptional cases, where some particular micro-organism is found to be present in almost pure culture. The only cases of this which I have observed have been those of pneumonic proctitis, which is, fortunately, a very rare disease.

Certain drugs, if taken in excess, will cause proctitis; moreover, some patients are very susceptible to one or other of these drugs, and will get an attack of proctitis from quite small doses which would cause no inconvenience to a normal individual. Among the more important of these drugs may be mentioned calomel, and all the preparations of mercury, the more violent purgatives, arsenic, and nux vomica; the latter drug, even in quite small doses, will sometimes cause violent diarrhoea in particularly susceptible individuals. I have seen two cases where an acute, and for a time intractable, diarrhoea was traced to the administration of quite ordinary doses of nux vomica which had been prescribed in a tonic.

Exposure to cold or wet, or sitting on cold stones, is often the apparent cause of proctitis, although it can, of course, only be an exciting cause, and some other factor, such as an infection, must be present. Ptomaine-poisoning and the eating of certain fruits seem to cause the condition in some persons. Thread-worms are a not uncommon cause in children.

Local irritation of any sort may set up a proctitis, and it is usually present in cases of impacted fæces in the rectum, and may occur as a sequel to severe constipation due to local irritation caused by the undue retention of solid material. Injections into the rectum may cause proctitis, and rectal feeding, if not carefully managed, is liable to induce the condition.

Apart from the fact that proctitis is much commoner in hot than in temperate climates, certain individuals have a special tendency to attacks of proctitis on very slight provocation. I shall have occasion to mention this again when speaking of chronic proctitis. Foreign bodies in the rectum may be the cause of proctitis, and it is always advisable to make a digital examination of the rectum to ascertain whether this cause is present. I know of one case where the patient was treated for three weeks for severe septic proctitis before it was discovered that

there was a broken egg-cup impacted in the lower part of the rectum.

**TREATMENT.**—The first obvious necessity is to ascertain the cause of the condition, if possible; at any rate, to exclude those conditions which are purely local, such as impacted fæces, the presence of a foreign body, etc. The following case will serve to show the importance of a local examination:

*Case.*—Mrs. A., a lady of fifty-two years of age, was much troubled with rectal irritability and almost constant diarrhœa, with some bleeding from the rectum. She consulted her local doctor, who gave her bismuth and other astringent medicines, and prescribed an ointment to be applied to the rectum. He did not, however, make a local examination. After three weeks, as she was still no better, and was getting weak owing to the constant diarrhœa, she came up to London and consulted a London doctor, who made a local examination. He discovered a hard mass of impacted fæces in the rectal ampulla, and called me in in consultation. I found a mass in the rectum as large as an orange, and as hard as concrete. It took three-quarters of an hour to remove the mass with chisels, under an anæsthetic. Needless to say, the lady was quite well a few days after the removal of this mass.

If a foreign body is found, its removal is obviously the first necessity. This cause being eliminated, the bowel should be cleared out so as to remove any infective material it may contain, and for this purpose we may use either a saline draught or a simple enema. As a rule enemata made up with weak gruel are the least irritating, and the most easily retained. The patient should be confined to bed and kept warm. A hot-water bottle applied over the sacrum and buttocks often gives considerable relief from the constant tenesmus. Irrigation of the rectum with cold water, to which  $\frac{1}{2}$  ounce of hazeline has been added, gives much relief, if the parts are not too tender to allow of the passage of an irrigator. With care, it will usually be possible to pass a soft rubber Jacques catheter No. 12, to which a tube and funnel have been attached, and by means of this the bowel may be irrigated quite easily without causing the patient any pain, the fluid being allowed to flow in slowly, and then siphoned out through the same tube. Another method



of irrigating the bowel is to use a two-way rectal tube of soft rubber (Fig. 45). In severe cases any of the following astringent injections may be tried: Glyco-thymolin, 10 per cent.; argyrol,  $\frac{1}{2}$  to 1 per cent.; hazeline, 2 drachms to the pint.

In addition, suppositories of morphia and belladonna often give great relief, and enable the patient to sleep at night. An injection into the bowel of starch 4 ounces, opium 1 grain, is very soothing.

The diet should be simple and free from cellulose or other ingredients which will leave a hard residue. Milk, on account of its liability to cause fermentation and gas, and to leave hard scybala in the colon, is best avoided. Soups and gravies are also bad. The diet should consist of rice pudding, custard, fish, jelly, eggs, etc., after the more acute symptoms have passed off. Liquid petroleum, in teaspoonful doses three times a day by the mouth, is very useful in acting as a dressing to the inflamed mucous membrane, and in preventing the formation of hard

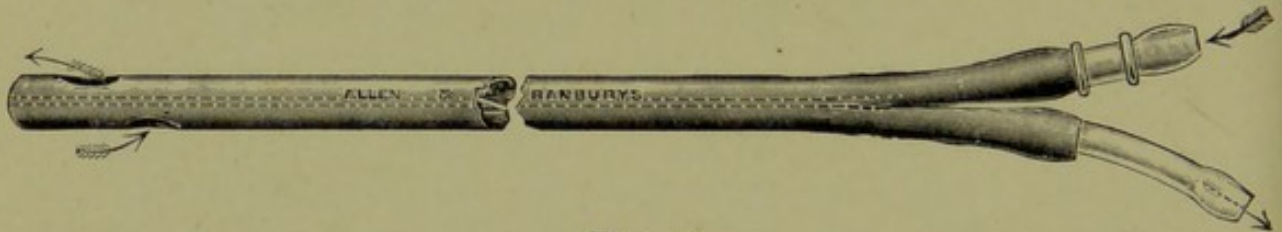


FIG. 45.

scybala. The patient should be kept in bed, or in a warm room, for some time after all the symptoms have subsided, and should be careful with regard to diet for some months.

### Chronic Proctitis.

Chronic proctitis may follow an acute attack, but it often makes its appearance quite insidiously, and without any traceable cause. Not infrequently it occurs as the result of an acute colitis, or as the terminal feature in ulcerative colitis. I have also frequently seen it as the result of an attack of dysentery contracted in India or some other tropical climate. It appears sometimes to occur in association with chronic suppurative appendicitis, and to be only cured by the removal of the appendix. Doubtless in such cases the appendix is constantly discharging organisms into the colon, which keep reinfecting the bowel.

**SYMPTOMS.**—These are much the same as in the acute forms, but tenesmus is not usually a prominent feature, except during

acute attacks. Commonly there is a feeling of weight in the rectum, and the patient is always conscious of this portion of his anatomy, and feels as if the bowel were not empty. The patient usually suffers from chronic diarrhœa, with loose, watery evacuations; and any slight cause, such as a hot cup of soup, or even a cup of tea, will often bring on an immediate attack of diarrhœa. I have seen a case in which a single glass of wine, or a cup of coffee, would immediately produce a call to stool. Mucus is always present in the stools to a greater or lesser degree, and blood is seen occasionally. The anus is often very tender, and attacks of eczema and pruritus may occur. I have seen cases in which extensive warts round the anus have resulted from a chronic proctitis.

Special mention must be made of those cases in which a chronic proctitis appears to be an hereditary condition. I have met with several cases in which there was a well-marked family history of chronic diarrhœa in nearly all the members of the family to which the patient belonged. The following case is the best instance I have come across of this hereditary condition:

*Case.*—The patient was a lady, aged twenty-two. For over a year before I saw her she had suffered continuously from diarrhœa, the stools varying from two to eight during the twenty-four hours. Previous to this the bowels had been more or less normal, but she had always been subject to diarrhœa from very slight causes. She also suffered severely from chronic nasal catarrh. A younger brother had suffered from the same condition for six years, and an elder brother had suffered in the same way ever since he was twenty. A younger sister suffered from the condition intermittently. The father had been subject to attacks of diarrhœa all his life. The father's mother had suffered severely from diarrhœa during two periods of seven years. The great-grandmother had also suffered from diarrhœa intermittently throughout her life. The father's younger brother had died from diarrhœa at the age of thirty-two. The patient, on examination, was found to have well-marked granular colitis. She got better as the result of treatment, but is still subject to intermittent attacks of diarrhœa on slight provocation.

These cases of hereditary proctitis are very difficult to treat, and success depends entirely upon their being very carefully and thoroughly treated when the disease first makes its appearance, for they are very difficult to get right when once the disease has become well established.

In the ordinary forms of chronic proctitis the mucous membrane of the bowel is seen to be somewhat thickened, and is usually granular on the surface, this being due to the enlargement of the follicles. It is redder than usual, and quite frequently there are well-marked varices to be seen in the rectum. Ulcers are not usually found, but may occasionally be present, especially in the more severe types. The lower part of the rectum is generally more affected than the upper portion, and the most characteristic appearances are usually to be seen on the valves of Houston. The condition bears a very close resemblance to pharyngeal catarrh.

There are some special forms of chronic proctitis which require separate mention.

**Atrophic Proctitis.**— This is met with particularly in old people, and is seen in its most chronic form in cases of tabes dorsalis and disseminated sclerosis. It is also met with in chronic alcoholics and in patients who have suffered severely from chronic constipation. The late Dr. Tuttle, in his book on "Diseases of the Rectum," says that he believes the condition to be very commonly due to syphilis, either acquired or hereditary; but from my own experience I am not inclined to agree with him. The appearance of the rectal mucous membrane in this form of proctitis is quite characteristic. It is pale, shiny, and smooth. It can be seen that the mucous membrane is thinner than normally, and there is an absence of secretion which gives it a dry-looking appearance. There are often areas of pigmentation, and varices are frequently seen. The appearances are largely due to the formation of fibrous tissue in the submucous layer.

**Hypertrophic Proctitis.**— This condition often accompanies a chronic colitis. We know little as to its causes. It is not infrequently found associated with severe pruritus ani, and appears under such conditions to be the cause of the pruritus. On examination, the mucous membrane is seen to be much paler than usual, and to be markedly oedematous, this being really due to oedema of the submucous layer. As a result, the mucous

membrane bulges into the lumen of the bowel in a series of concentric rings, giving rise to an appearance of there being too much mucous membrane, and of the upper part of the bowel being invaginated into the lower. The appearances are well shown in Fig. 46. There is generally a considerable amount of sticky mucous secretion associated with this condition.

**Hæmorrhagic Proctitis.**— This is a rare condition, which appears to be confined to young adults, usually women. It is distinguished by profuse hæmorrhage from the rectum, which is always brought on by an action of the bowels, though it frequently occurs independently of defæcation. The patients are nearly always young women between the

ages of twenty and thirty, and I do not remember having seen a case in a male, or in a woman over thirty years of age. The bleeding is often considerable in quantity, and the patients become seriously anæmic, unless it can be stopped. The ætiology is at present unknown, but the condition appears to occur in otherwise healthy individuals—in fact, the patients are often in excellent health apart from the bleeding and its consequences. In one or two cases there has been a history of bleeding in other members of the family. In one case the patient had a sister who suffered from constant metrorrhagia, and in another case a sister of the patient had died from hæmorrhage from the rectum some years before. I have been unable to trace any family history of hæmophilia, or of undue tendency to bleeding among the males in these patients' families.

It is particularly important that this condition should be recognized, as it is frequently mistaken for piles, and in several cases I have known of the patient being operated upon for piles without any relief to the symptoms. One patient had been operated upon twice without the hæmorrhage being cured. The condition can only be satisfactorily detected by examining the interior of the rectum with a tubular speculum or electric proctoscope. It will often be seen that the mucous membrane is spongy

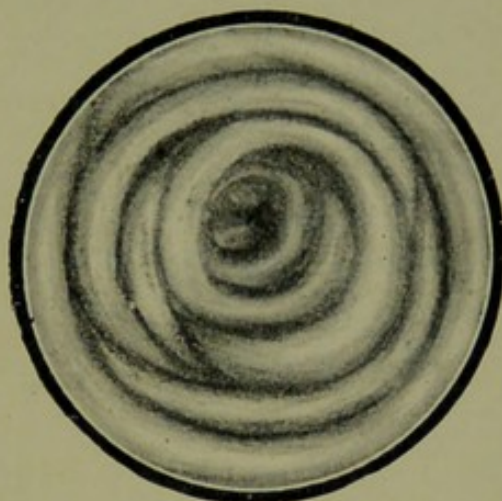


FIG. 46. — HYPERTROPHIC CATARRHAL PROCTITIS.

in appearance and dark red in colour. It frequently looks as if the surface had been sand-papered. Blood can be seen oozing from the entire surface, and there is often an accompanying excess of mucus. Occasionally there are definite ulcers, but never of any large size or depth. The exact appearances will depend very much upon the stage the disease has reached when the examination is made. Blood oozes from the surface on the slightest provocation, and the passage of a stool is usually sufficient to cause quite free hæmorrhage. In some cases there is free bleeding apart from defæcation. The other symptoms are those of a mild chronic proctitis—that is to say, there is often frequency of stools, some of the patients having to go to stool four or five times a day. Sometimes there is no increased frequency of the stools, but in all cases there is frequent bleeding. The blood is usually bright in colour, and resembles that of an ordinary case of bleeding piles.

It is sometimes possible to detect this condition by an ordinary examination with the finger, as the mucous membrane has a curious gritty sensation, like rather coarse plush, which appears to be more or less characteristic of the condition. It would, however, not be detected by anyone unaccustomed to examine such cases, and the proper method of making a diagnosis is by means of a tubular speculum, when the curious, spongy, bleeding mucous membrane is readily recognized. It is seldom that more than the last three or four inches of the rectum are involved. In none of the cases I have met with has the patient shown any tendency to undue bleeding from other parts. The stools generally contain large quantities of blood, and the condition closely resembles that of hæmorrhagic colitis, which is generally due to infection of the bowel with the pneumococcus, and which also occurs in young females. I have not, however, been able to prove that these cases of hæmorrhagic proctitis are due to any definite infection. The condition is not accompanied by any rise of temperature or febrile disturbance, and in this respect it differs markedly from its prototype in the colon, hæmorrhagic colitis.

The following cases will give a good idea of the condition:

*Case.*—A lady, aged twenty-one, was brought to me by her doctor, with a history of bleeding from the rectum for the last six months, a considerable quantity of blood

being lost each time the bowels acted. Several different applications had been tried, but no treatment had controlled the hæmorrhage. The patient was perfectly healthy otherwise, and had had no serious illness. She was rather anæmic, and felt weak and unable to get about. She had suffered for some time from constipation, but latterly there had been some diarrhœa accompanying the bleeding. There was a good deal of pain and discomfort in the rectum. The family history was good, but one younger sister suffered from chronic metrorrhagia. Examination of the bowel showed typical hæmorrhagic proctitis. There was some ulceration present, but it was superficial in nature. The disease was confined to the lower 2 inches of the bowel, and the mucous membrane above this was healthy. There were no piles nor any other lesion.

Under an anæsthetic the affected portion of the rectum was swabbed over with pure nitric acid. This treatment stopped the bleeding, and the patient appeared to get quite well. Four months later, however, she got a recurrence of the old symptoms following upon a cold, and the previous treatment was repeated, again with success. She then remained well for nearly a year. The bleeding then recurred again, and the treatment had to be repeated.

*Case.*—A young lady, aged twenty-three, was perfectly well and healthy until two years ago, when she began to have bleeding from the rectum after every stool. She was operated upon for piles. The bleeding ceased for a month or two, and then recurred. A year later she was operated on again, with the same result. After this the bleeding was worse than ever. She lost a considerable quantity of blood every day, and often had five or six stools, consisting mainly of blood and mucus, in the course of the twenty-four hours. There was no pain or discomfort, nor any other symptom apart from the bleeding. She was rather anæmic, but otherwise healthy. Examination with the sigmoidoscope showed a typical hæmorrhagic proctitis involving most of the mucous membrane of the rectum. A sister had died from chronic hæmorrhage from the bowel.

The patient was admitted to St. Mark's Hospital and treated by ionization with zinc sulphate. Four treatments in all were given at intervals of four days to a week. After

this the bleeding entirely stopped, and the mucous membrane resumed a normal appearance. The patient was heard from four months later, when she stated that she had had no further hæmorrhage, and was in perfectly good health.

*Case.*—A girl, aged twenty-nine, a shop-assistant, was admitted to St. Mark's Hospital, with a history of constant bleeding from the rectum for a year. Her general health was good, and she was a full-blooded, stout young woman. On examination of the rectum, the mucosa was seen to bleed profusely on the slightest touch, and the surface had a granular, spongy appearance. There were no hæmorrhoids. Only the lower half of the rectum was involved. Under an anæsthetic the affected mucous membrane was swabbed over with pure nitric acid, and subsequently nitric acid injections were used, at first  $\frac{1}{2}$  grain to the ounce, and later 10 grains to the ounce. As the result of this treatment the patient got rapidly better, and the hæmorrhage ceased.

*Case.*—A girl, aged twenty-nine, a teacher, had suffered from constant bleeding from the bowel for three years. She was operated on for hæmorrhoids three years ago, and a year later was said to have been treated by cataphoresis. The patient was markedly anæmic, and her general health had suffered to some extent, the menses being very scanty for some time. On examination, the mucous membrane of the rectum was granular and spongy, and bled readily. She was given zinc sulphate cataphoresis on eight occasions, 40 milliampères for ten minutes, and left the hospital with the mucous membrane in a normal condition, and the bleeding stopped. She returned two months later for further treatment, as the bleeding had recurred.

*Case.*—A young married woman, aged twenty-five, had been suffering from profuse hæmorrhage from the bowel. There was a history of bleeding for the last three months, and of some pain after defæcation for the same period. An examination showed that she was perfectly healthy except for well-marked anæmia. The rectal mucosa was granular and spongy, and there were several superficial erosions. The bowel wall bled directly it was touched. This case was treated by silver nitrate injections, commencing with

$\frac{1}{2}$  grain to the ounce, and increasing in strength as the bowel was able to tolerate it. When seen a month later, the patient was very much better, and the bleeding had entirely stopped, although the anæmia had not yet disappeared.

*Case.*—A servant-girl, aged twenty-one, was sent into St. Mark's Hospital, supposed to be suffering from internal piles. There was a history of severe bleeding at stool during the previous six months. Examination of the rectum before the operation showed a typical hæmorrhagic proctitis, involving the lower half of the rectum. The mucous membrane was gritty to the touch, and bled freely. The affected surface was swabbed over with pure nitric acid, and the bleeding stopped in about three days. The patient left the hospital at the end of a fortnight quite well.

*Treatment of Hæmorrhagic Proctitis.*—The condition is a very difficult one to cure, as, although it is generally possible to stop the hæmorrhage without much difficulty, there is a marked tendency to recurrence. The patient should first be thoroughly examined, and for this purpose it is usually advisable to administer an anæsthetic. It is then possible to make certain that there are no polypi or adenomata responsible for the bleeding.

I have obtained very good results in these cases by swabbing over the hæmorrhagic area, under an anæsthetic, with fuming nitric acid. This requires to be done very carefully so that the acid may not burn too deep, and on no account should pools of acid be left in the bowel. Any excess of acid should be swabbed away immediately after each application, while only a comparatively small area should be treated at a time. The rationale of this treatment is to produce a superficial scar and fibrosis on the surface of the mucous membrane, which will toughen it, and prevent the constant abrasion which appears to be the cause of the hæmorrhage.

Very good results have been obtained in several cases by rectal injections of silver nitrate. At first these injections should not be stronger than  $\frac{1}{2}$  grain or 1 grain to the ounce, but should be gradually increased in strength as toleration is obtained.

Irrigating the bowel daily with strong solutions of hazeline and cold water will also frequently succeed in controlling the bleeding. Perhaps the best method of treatment is electric



ionization of the bowel with zinc sulphate. One or two applications of this treatment usually control the hæmorrhage, though further treatment at increasing intervals is necessary to prevent a recurrence of the bleeding. Calcium lactate taken in large doses occasionally is also useful.

As already mentioned, there is a marked tendency to recurrence, and it is most important that these cases should be kept under careful observation, as the hæmorrhage is often severe, and in a short space of time the patient becomes seriously anæmic.

**TREATMENT OF CHRONIC PROCTITIS.**—The successful treatment of cases of chronic proctitis, whether ulcerative or simple, is often a matter of considerable difficulty. It is always wise to give a somewhat guarded prognosis as to the results of treatment in these cases. As a rule, however, the treatment is satisfactory if thoroughly carried out. The best results are obtained by local application when this is possible, but it necessitates a skilled use of the electric proctoscope. The best preparations for local applications are the compounds of silver, more especially protargol, argyrol, and nitrate of silver. Silver nitrate, while very useful, has the serious objection that, as a rule, it causes considerable pain, which may last for some hours after the application. The albuminates of silver appear to be equally effectual, and have not this objection. They should, therefore, always be used in preference to silver nitrate when possible. Silver nitrate may be used in strengths of 20 or 30 grains to the ounce, and argyrol and protargol in 10 per cent. solutions for local application; but the exact strength has to be varied according to the requirements of the case, and the condition found. Applications are best made on pledgets of wool applied through the instrument to the diseased areas. This should be done every two or three days, the results being watched through the instrument at regular intervals.

Irrigation of the bowel with astringent solutions is not nearly so effectual, as it is not possible to use solutions in sufficient strength without causing pain and other unpleasant symptoms. If, however, local applications through an instrument are not possible, it is always worth while trying the effect of irrigation. This should be done as follows:

The bowel should be washed out with a simple enema containing carbonate of soda, so as to render the mucous membrane

as clean as possible. The injection, which should consist of about a pint of fluid, should then be administered slowly with a glass funnel and tube. The patient should then sit on the night-stool and try and retain the fluid as long as possible, up to about five minutes. This allows the fluid to distend any pockets or crevices in the rectum, and brings it more directly into contact with the diseased area. For this purpose the best injections are argyrol or protargol, 1 per cent.; lysol, 1 drachm to the pint; and hazeline, 1 ounce to the pint. There are numerous other preparations which may be used, but as a rule they will not prove of any use if those already mentioned fail to relieve the symptoms.

By far the best method of treating chronic proctitis or ulcerative proctitis of the rectum at the present time is the introduction of drugs by electric cataphoresis. This method has proved itself undoubtedly superior both to local applications through an instrument and to injections of fluids into the bowel, and personally, I should not now think of treating cases, apart from most exceptional ones, in any other way. The results are very much better than those obtained by the older methods, and the patient recovers much more quickly. In order to be successful, however, this treatment must be carried out properly, and it is usually necessary for the patient to be in a nursing home for the purpose.

#### **Cataphoresis in the Treatment of Rectal Proctitis.**

The treatment of rectal ulceration and chronic proctitis by "ionization" or "cataphoresis," as it is more usually called, was first brought before the notice of the profession by the late Sir Frederick Wallis and by Dr. Ironside Bruce.\* The principle of this treatment is to introduce the salt of some metal having an antiseptic or astringent action right into the diseased cells by means of the electric current. Solutions injected into the bowel in the ordinary way often have but little effect in cases of chronic proctitis, as only the surface of the mucous membrane is reached; whereas the infective process is usually going on in the submucous layers of the mucous membrane, and in the follicles and deep-lying cells. By means of the electric current, however, we can drive the solution into the deeper cells of the rectal wall, and so bring it into direct contact with the infected area.

\* "Treatment of Ulcerative Proctitis by Zinc Cataphoresis," *Proc. Roy. Soc. Med., Surgical Section*, vol. i., p. 176.

There are several different solutions which may be made use of, but the most valuable appears to be zinc sulphate in a strength of 4 grains to the ounce. In the presence of the current this salt is broken up in the neighbourhood of the positive pole, and the zinc "ions," as they are called, travel towards the negative pole, and are thus forced, as it were, into the tissues in the neighbourhood of the positive pole.

The earlier form of rectal electrode used for this method of treatment consisted of a zinc rod with a terminal at one end, and covered with several layers of lint soaked in a solution of zinc sulphate, 4 grains to the ounce, in distilled water. This electrode was not entirely satisfactory, as it was impossible to be sure that the whole of the rectal wall was equally acted upon; the action tending to concentrate itself at the points of contact between the electrode and the rectal wall, and so cause too much action at these parts and not enough at others. A much im-

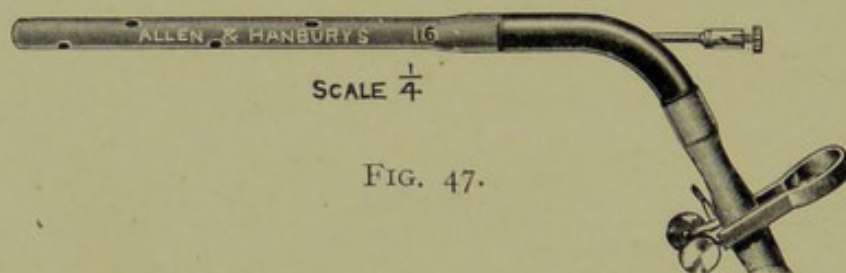


FIG. 47.

proved form of electrode was introduced by Dr. G. Herschell, and this, or rather a modification of it, is the one I now employ. It is made by Messrs. Allen and Hanbury (see Fig. 47), and consists of a piece of flexible rubber tube, about 6 inches long, closed at one end, and terminating at the other in a straight vulcanite tube. The rubber portion of the electrode has lateral holes, and inside it there is a flexible metallic spring made of zinc or silver. This terminates in a wire, which passes through the side of the vulcanite tube, and is shaped so that a terminal can be attached to it. Before using the electrode, a special bag of animal membrane is passed over the end of it, and closed at the base by fixing it firmly on to the vulcanite portion with a piece of india-rubber band. The outside of the membrane is thoroughly lubricated with soap, and it is passed into the bowel through a speculum, the best speculum for this purpose being the St. Mark's pattern of Kelly's tube, illustrated on p. 20. The electrode is passed in until the whole of the membrane bag is lying within

the bowel, with only the vulcanite tube projecting. The speculum is then withdrawn over the base of the electrode, so as to leave it in place. A little cotton-wool is packed round the ends, to make everything water-tight, and to prevent any possibility of contact between the terminal on the electrode and the skin. A solution of zinc sulphate, 4 grains to the ounce, is next injected with a glass syringe, or with a funnel and tube, through the tube of the electrode, so as to distend the bag within the rectum. The latter should be distended until it is in contact with the whole of the rectal wall, but not enough to burst the membrane or to cause the patient serious discomfort. The positive pole is then attached to the terminal on the electrode. The negative electrode usually consists of a large flat piece of lead covered with several layers of lint soaked in a warm saline solution, care being taken to see that there is a sufficient thickness of lint between all parts of the metal and the skin. This electrode should be as large as conveniently possible, and should be applied over the back of the patient, and kept in place by several towels. This electrode is attached to the negative pole.

The connections having been made, the current is turned on until the metre shows about 20 milliampères. After the current has been passing for a few minutes, the resistance decreases, and it will be found that the metre is showing about 30 milliampères. The current should not be increased above this, and should be allowed to pass for about ten minutes. It should be kept as steady as possible, anything in the way of sudden alterations in the current being particularly avoided, as they will cause the patient unpleasant symptoms. Personally, I often use a much smaller current than this, and allow it to pass longer; 8 to 10 milliampères for about twenty minutes is often just as effectual, and does not cause so much discomfort.

When the time for the application has expired, the current should be slowly reduced to nothing, and the switch should never be thrown out suddenly. The fluid should be allowed to run out of the membrane bag, which can then be withdrawn.

A little ointment squeezed into the bowel will complete the treatment. The treatment causes no pain, but not infrequently sets up a somewhat violent tenesmus, with the result that the patient gets an almost uncontrollable desire to void the contents of the rectum.

When this treatment was first introduced, it was usual to administer an anæsthetic. I have, however, found this to be unnecessary, and now I generally administer a hypodermic injection of morphia about twenty minutes before the treatment, and I find it is usually possible to carry out the treatment quite effectually without causing the patient any inconvenience whatever. Morphia has the advantage that it delays the spasm, and the patient is not bothered with an urgent desire to evacuate the rectum after the treatment, which is otherwise not at all unusual. The patient should lie perfectly quiet for about three-quarters of an hour after each treatment, as any attempt to move about tends to produce tenesmus; this soon passes off, however, and no further inconvenience is felt.

The applications are best made at intervals of about a week or ten days, the time depending, of course, upon the appearance of the rectal mucosa, which should be examined from time to time with the proctoscope.

The results of this treatment in suitable cases are very satisfactory. In cases which are seen in an early stage it often results in a cure of the condition after one or two applications, and in the more severe and chronic cases excellent results follow a series of treatments extending over some weeks. The mucous membrane rapidly begins to take on a normal appearance and the symptoms to subside. As a rule, there is marked improvement after each application, with a tendency to relapse at the end of a week or ten days, and another application should, if possible, be made before this relapse occurs. No doubt this tendency to relapse is due to the fact that some of the foci of infection have escaped the action of the drug, and tend to restart the condition. On each successive treatment more and more of these outlying foci are affected, until, after several applications, the disease is entirely eradicated. This treatment is so much better than the tedious washing out of the rectum with drugs hitherto used that, whenever possible, it should be undertaken. It is quite useless to attempt this treatment with inferior apparatus, and without a knowledge of the use of the galvanic current. If not carried out properly, the only result will probably be to cause the patient a great deal of pain and discomfort, and possibly to cause blisters in the bowel.

Where an apparatus is worked from the main current supply, special care should be taken to see that there is proper precaution

against the breakdown of the resistance, or dangerous results may follow if such a breakdown occurs suddenly while the current is passing, and allows a heavy current to be discharged through the patient. If it is found impossible to keep the current steady through the treatment, the apparatus is not working properly, and no good will result from the application. There is no object in using very powerful currents, and, on the other hand, they are apt to cause lesions in the mucous membrane.

There are two forms of apparatus commonly employed in this treatment. One is that worked from the main current supply, which is made safe, owing to the fact that the current passing through the patient is an induced current, and not part of the main supply. The other apparatus is suitable where it is desired to have a portable apparatus, and the current in this case is supplied by a number of dry cells. As this apparatus is rather apt to get out of order if not constantly in use, it should be carefully tested before each treatment, or it will be found that there is not sufficient current available.

Another solution which may be used in this treatment is that recommended by Dr. Curtis Webb, which consists of silver nitrate,  $\frac{1}{10}$  per cent. The objection made to the use of silver solutions is that they often cause more pain. Moreover, silver nitrate is a salt which is not so easily split up by the electric current as is zinc sulphate.\*

The following two cases will serve as typical examples of the results of this treatment:

*Case.*—E. B., a gentleman, aged fifty-one, consulted me for symptoms of chronic proctitis, which had been worrying him for about three years. He had been resident in India for many years, and had had dysentery on two occasions. Ten years ago he had been operated on for liver abscess. The last attack of dysentery took place three years before he saw me, and his symptoms seemed to have dated from that attack, although they had been most severe during the last year. He was in fairly good health, but he had about five or six loose stools a day, with a certain amount of rectal irritation and tenesmus. Various treatments had been tried in order to control the diarrhoea, but without any permanent effect.

\* See paper by Dr. Curtis Webb, *Brit. Med. Jour.*, November 4, 1905; also "Electric Ions," by Leduc.

On examination with the electric proctoscope, the mucous membrane was seen to be ulcerated for about 5 or 6 inches above the anus. The ulceration was only superficial, and the appearance was rather as if the surface of the mucous membrane had been excoriated. Above this the bowel was apparently normal. He was treated by zinc ionization, and felt considerable benefit after each application. The current was passed for from ten to fifteen minutes, from 6 to 8 milliampères being used, and the treatment was given at intervals, first once a week, and later once every fourteen days. After eight applications, the symptoms entirely cleared up; the bowel returned to a normal condition, and he had no further trouble. He has remained well since.

*Case.*—E. T., a medical man, aged forty-three, consulted me on account of a constant tendency to diarrhœa, with tenesmus and loss of blood. He had a history of acute ulcerative colitis, which had started suddenly about three months previously. For six or seven weeks he was very seriously ill, and then the symptoms gradually cleared up, leaving him, however, with a tendency to frequent stools, accompanied by a good deal of tenesmus. He was afraid to go out or to go anywhere, and was exceedingly worried by his condition. An examination with the electric proctoscope showed a good deal of superficial ulceration in the rectum, but the bowel above this was comparatively clear. The ulcerative colitis had, in fact, cleared up, but left an ulcerative proctitis, which had become chronic. Treatment with silver injections, douches, etc., was given a preliminary trial, but with no success. Electric ionization was then tried, and after three applications, the first two being given at the interval of a week, and the third a month later, the patient had completely got rid of his symptoms, and was able to resume an ordinary life.

5

## CHAPTER X

### ULCERATIVE PROCTITIS AND INFLAMMATORY CONDITIONS OF THE ANUS

ULCERATIVE proctitis is the most serious type of proctitis that we have to deal with, and may be the terminal condition in an acute or chronic proctitis, if either of these is neglected or fails to respond to treatment. Most of the specific forms of proctitis are of the ulcerative type, and in addition to these there are a large number of ulcerative conditions of the rectum which require consideration. Nearly all the different kinds of ulceration which are found in different parts of the body, may also be seen in the rectum, and with the electric proctoscope we are able to distinguish many different kinds of ulceration in the lower bowel. Our knowledge is still somewhat deficient with regard to many of these types of ulceration, but much work has recently been done in this direction.

**ÆTIOLOGY.**—There are a great number of different causes of rectal ulceration, and the following classification, which is that adopted by Dr. Tuttle, is, I think, as good as any. He divides ulceration of the rectum into the following varieties: Traumatic, catarrhal, varicose, hæmorrhoidal, follicular, strictural.

*Specific Forms of Ulceration.*—Tubercular, venereal, dysenteric, diphtheritic, and carcinomatous.

*Systemic Forms of Ulceration.*—Nephritic, diabetic, trophic, hepatic, marasmic.

Unfortunately classifications are not of very much practical value, and many of the types of ulceration actually met with are



FIG. 48.—GRANULAR AND ULCERATIVE PROCTITIS AS SEEN WITH THE SIGMOIDOSCOPE.



a mixture of several of the varieties mentioned. By far the commonest cause of ulceration of the rectum is infection of the tissues by pyogenic micro-organisms. The lesion through which the infective material obtains an entrance is often some minute crack or abrasion, and is frequently untraceable. The condition of the patient's general health is also an important factor, and naturally patients who are weakened by disease, starvation, hardship, etc., are more liable to contract ulceration when infection occurs.

In the pre-antiseptic days ulceration of the rectum was a common and serious disease, but since the scientific use of antiseptics has become universal, it is far less often seen. In the pre-Listerian days infective ulceration of the rectum was a common complaint at St. Mark's Hospital for Diseases of the Rectum, and was one of the most dreaded after-complications of operations in that institution. One patient would get ulceration of the rectum after an operation for piles, or would come into the hospital with ulceration, and the disease would often spread until almost all the patients in a ward had ulcerative proctitis, and operations could hardly be performed without this dreaded complication occurring. So serious did these epidemics at times become that the hospital had to be temporarily closed, as this was found to be the only way in which it was possible to prevent the cases which came into the hospital for treatment from becoming infected after operations. The infection was doubtless spread by dirty instruments in the operating theatre, and dirty enema nozzles, etc., in the wards.

With the advent of antiseptic surgery ulcerative proctitis ceased to be a common complication after operations upon the rectum, and at the present day is almost non-existent. But there are still some surgeons who think that antiseptic measures are of no use when operating upon the rectum for such conditions as piles and fistula, as they consider it impossible to obtain surgical cleanliness during such operations, and in consequence take none of the ordinary precautions they would when dealing with other parts of the body. As a result of this they sometimes have cases of ulceration following some simple operation. Quite apart from this, however, antiseptic methods occasionally fail even when the utmost care is employed, and a case of ulceration may occur after quite a simple rectal operation. The spreading of such infection from one patient to another is

fortunately no longer a possibility in a properly conducted modern hospital.

Cases of infective ulceration following some operation upon the rectum are still occasionally met with in hospital practice, and must be attributed to accidental infection of the wounds with pathogenic bacteria. I have seen a few cases where a patient has left the hospital with the wound almost healed and in quite a healthy condition, but has returned in a week or two with well-marked infective ulceration, which has often taken weeks to heal. In such cases the probability is that the wound has become infected after leaving the hospital; another factor no doubt being that in spite of advice to the contrary the patient has returned to work too soon. The ulceration in these cases is usually confined to the last 2 inches of the rectum. On examination this part of the bowel will be found in an acutely ulcerated condition, with a profuse septic discharge and some bleeding. The parts are exceedingly tender, and examination, except under an anæsthetic, is difficult and painful.

Ulceration of the rectum may follow any traumatism of the bowel, and is occasionally seen after child-birth, especially if septic complications in the genital tract have occurred. The following is a good instance of this form of ulceration of the rectum:

*Case.*—Mrs. S., aged twenty-nine. After the birth of her second child she had fever lasting about three or four weeks, and was very ill. At this time she suffered with pain in the rectum, which began soon after the confinement, and was accompanied by discharge and pain on defæcation. About four months after the confinement she became an in-patient at St. Mark's Hospital, and on examination I found a considerable area of ulceration in the lower part of the rectum, with much fibrous-tissue formation. After residence in the hospital and regular rectal douches the ulceration healed, and she was discharged and went to the

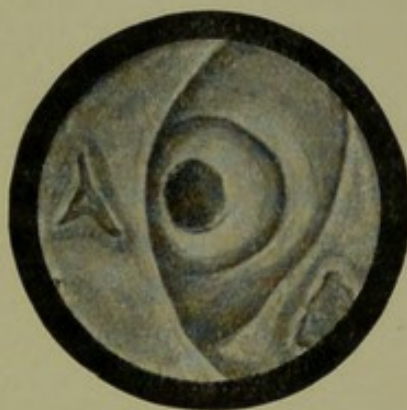


FIG. 49. — TRAUMATIC ULCERATION OF THE RECTUM, ASSOCIATED WITH STRICTURE DUE TO POISONING WITH POWDERED GLASS. (SIGMOIDOSCOPIC.)

country. A month later she was re-admitted, and a mass of fibrous tissue, which was causing considerable stricture at the lower end of the rectum, was excised, and the mucous membrane brought down to the skin. The wound healed well, and she left the hospital in a most satisfactory condition, but returned again about three weeks later with a large area of ulceration in the lower rectum. This was induced to heal with some difficulty, and she ultimately recovered, but was obliged to use dilators for some time.

As in this case, the ulceration is very apt to become chronic when once it has started, and is most difficult to heal.

As already stated, the actual cause of ulceration of the rectum is nearly always a septic infection, but there are certain constitutional diseases which predispose to ulceration of the rectum, doubtless by lowering the vitality of the tissues and enabling micro-organisms to obtain a hold. Thus chronic Bright's disease may be accompanied by severe ulcerative proctitis. The most serious forms of anæmia also predispose towards this condition. Ulceration of the rectum may be met with, too, in cases of diabetes; it is also by no means uncommon among the inmates of lunatic asylums. In both acute and chronic dysentery severe ulceration of the rectum is found.

**SYMPTOMS.**—The symptoms are generally those of severe chronic proctitis. Diarrhœa is usually the most prominent symptom, but is chiefly of a spurious character. Most of the patients complain of discharge. Pain varies very considerably; in some cases it is entirely absent, while in others it may be very severe. Much depends on the situation of the ulceration. As a rule, if the sphincter area is involved, there will be severe pain, whereas if the ulceration is higher up in the rectum and does not involve this area, pain may be entirely absent. The discharge is usually of a characteristic salmon pink colour, and sometimes offensive. The patient gets febrile attacks, and occasionally metastatic septic foci are produced in other parts of the body. These may take the form of subacute joint lesions.

#### **Follicular Ulceration of the Rectum.**

This is a peculiar form of ulceration in which the ulcers are discrete and vary in size from minute ulcers as big as a pin's head to those the size of a pea. The ulcers are round or oval

in shape, and look almost as if they had been punched out (Fig. 50). They are due to the breaking down of the solitary follicles in the mucous membrane. A small abscess forms in the follicle, which at first only opens on the surface by a minute opening. Later the overlying mucous membrane sloughs, and a pit, or deep ulcer, is left in the situation formerly occupied by the solitary follicle. I have often seen this condition through the electric proctoscope. I have sometimes met with it below a malignant stricture of the bowel, and similarly in cases of simple stricture. The condition does not always produce prominent symptoms. As a rule there is intermittent bleeding and discharge; pain is not usually present. This form of ulceration is said to be the cause of the summer diarrhoea of children, and is met with in a great many conditions. Its exact pathological significance is not yet very well known, but I am inclined to think that, as a rule, it is a secondary form of ulceration rather than a primary one. It is, however, at present very difficult to be certain whether the more severe types of ulceration do not originate in this condition.



FIG. 50.—FOLLICULAR ULCERATION OF THE RECTUM, AS SEEN THROUGH THE SIGMOIDOSCOPE.

#### **Ulceration accompanying a Stricture of the Rectum.**

This type of ulceration is commonly found immediately above a stricture. It never extends below a stricture, and the area of ulceration is generally confined to the dilated portion of the bowel just above the constriction, although in old and neglected cases it may extend for some considerable distance above this. The mucous membrane is often completely destroyed, and abscesses may form in the perirectal tissues, or adhesions may form to other organs where that portion of bowel completely surrounded by peritoneum is involved. This type of ulceration is due to the traumatism produced by retention of fæcal material above the stricture, associated probably with the traumatism which results from efforts to pass this matter through the constriction. A similar type of ulceration is found associated with cases of fæcal impaction in the rectum.

### Herpes.

Herpes pustules sometimes form at the edge of the anus just as they do round the lips, and apparently from very similar causes. Thus they are often seen after acute fever, and in some individuals as the occasional result of indigestion. They also occur sometimes as a complication of pregnancy. Owing to the fact that traumatism of the part tends to occur from the constant contact of clothes, there is usually abrasion of the vesicles, and the skin becomes sore and ulcerated. There is a thin serous discharge; the parts become very irritable, and cause the patient a great deal of discomfort. As a rule it is not difficult to recognize the condition, as it bears a close resemblance to the same common type seen on the face.

**TREATMENT.**—Strong antiseptics should never be applied, as their irritating effect renders the condition worse. The important thing is to protect the parts from friction as much as possible, and for this purpose thin layers of gauze or butter-muslin, soaked in some mild alkaline lotion such as glycothymolin (10 per cent.) or *lotio rubra*, are best. The patient should be kept as quiet as possible so as to avoid friction to the parts; the general hygiene should be attended to; the diet should be made as simple as possible, alcohol and condiments being cut off; and the bowels should be kept acting easily. Later, astringent powders should be applied in order to dry up the parts. These should be zinc and starch powder, *aristol*, or *dermatol*.

### Eczema of the Anus.

This is a very tiresome and painful condition which is not uncommonly met with in stout people, and also, as a complication, in patients suffering from *pruritus ani*. It may occur as part of a general eczema, but more generally it is found as an isolated affection. It usually takes the form of what is ordinarily described as a weeping eczema, and there is generally considerable serous discharge. I have often seen it result from the use of unduly strong antiseptics, or ointments, applied for the relief of *pruritus ani*. It generally comes on as an acute attack, which lasts about ten days or a fortnight. The appearance of the parts is quite characteristic. There is usually redness of the skin, with superficial abrasion and a slightly serous discharge. Crusts form on the surface, especially at the edges, and there is a ten-

gency for the affection to spread over the perineum, buttocks, and inner surfaces of the thighs. The parts become extremely irritable and painful, and the patient is unable to sleep or get any comfort. The condition seems to be much more common in gouty subjects.

**TREATMENT.**—When the condition is in the acute stage, treatment should be directed towards the protection of the parts and the improvement of the patient's general health. The bowels and kidneys should be made to act properly by suitable means, and the diet should be regulated, alcohol and spiced foods being forbidden and the nitrogenous diet cut down. If there is insomnia, a sleeping draught must be given each night. Local treatment consists at first in protecting the skin and in allaying the irritation and soreness. All irritating applications should be avoided, and for this reason antiseptics are objectionable. Hot soda-baths will often give great relief, and assist materially in cleaning up the anus. Frequent hot fomentations or compresses are also useful. A very good plan is to apply a thin layer of gauze soaked in some mild alkaline lotion, such as glycothymolin (10 per cent.), and then a hot compress over this. In very severe cases hydrogen peroxide (10 volumes per cent.) makes a good application. Ointments are best avoided during the acute stage, as they tend to lock up the secretions and render the parts sodden. They may, however, be used with advantage in the healing stages to protect the new surface of the skin. Bismuth and lanoline ointment, emollientine ointment, zinc oxide made up with lanoline, are all excellent applications in these stages. It is sometimes better to avoid the use of ointments altogether, and to attempt to keep the parts dry by a frequent application of powder. For this purpose zinc and starch powder, subnitrate of bismuth, and talc powder are useful.

#### **Tubercular Ulceration of the Rectum.**

There seems to be very little doubt that tubercular ulceration of the anus may occur as a primary affection. More usually, however, it is found as a complication of pulmonary tuberculosis. It is always very difficult to be sure whether the condition of the anus is primary or secondary, but I have seen several cases in which I was personally convinced that the ulcerative condition of the anus was primary, and that subsequent pulmonary disease was secondary to it. One also meets with cases of tubercular

ulceration in which neither at the time nor later is there any evidence of tubercular disease elsewhere. This type of ulceration is most often seen just at the edge of the anus, involving the skin rather than the mucous membrane, although the mucous membrane is often secondarily involved. There may be more than one ulcer, and in some cases there are several. The tubercular abrasion starts as a number of small nodules of tubercle, with a greyish colour. These break down and form ulcers, which coalesce to form one or more large ulcers. Such ulcers have a very characteristic appearance. The edges are ragged and undermined, often to a considerable extent. The ulcers are generally quite shallow, with an unhealthy claret-coloured base, and, owing to the undermining of the edges, there is usually a

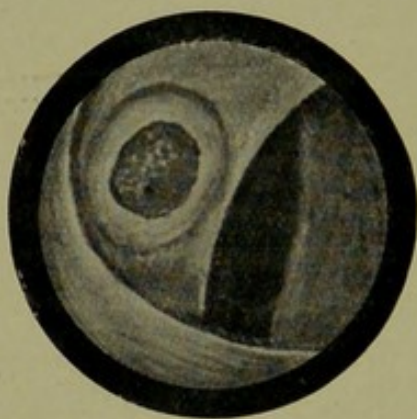


FIG. 51.—TUBERCULAR  
ULCER ON THE MIDDLE  
HOUSTON VALVE. (SIG-  
MOIDOSCOPIC.)

bluish appearance in the skin round the ulcers. In most cases there is practically no induration such as is usually met with in other forms of ulceration. In bad cases these ulcers become very extensive, and may be seen completely surrounding the anus and extending for some considerable way up the bowel. The discharge from them is serous rather than purulent, and often blood-stained. As a rule, they are not marked by any great amount of pain or tenderness, except when they involve the actual

anal margin, in which case they cause a great deal of pain when the bowels act. But as compared with some other forms of ulceration pain is not generally a marked feature. In bad and neglected cases the ulceration may spread to an amazing extent, and the muscular tissues of the perineum may be exposed as if by dissection. Cases have been recorded in which the whole of the lower part of the rectum and anus have been completely destroyed, and even the ureter has been exposed. Cultures made from the pus may show tubercle bacilli. More frequently, though, they do not, and in order to find the bacilli it is necessary to take some portion of the edge of the ulcer and cut sections of it, in which case tubercle bacilli will be found in large quantities in the subcutaneous layer if suitable methods are employed to demonstrate their presence.

**TREATMENT.**—The treatment of this condition is exceedingly difficult, as the patient's power of resistance to the invasion of tubercle is usually very poor. Everything, in fact, depends upon the patient's general condition of health. If the patient is in fairly good health and in suitable hygienic surroundings, these ulcers can often be made to heal with careful attention. As with so many other forms of tubercle, conservative surgery is the right treatment. Anything like extensive cauterizing or curetting of these ulcers is more likely to do harm than good, as there is but little tendency to repair. All that is usually necessary is to cut away the undermined edges of skin, and to insure that there is free drainage in the whole of the ulcerated area. The patient should then be treated by frequent antiseptic douches and the application of mild antiseptic dressings. Strong antiseptics are particularly to be avoided, and in some cases it is better to avoid the use of antiseptics altogether. The parts should be dressed frequently in order that there may be no collection of the discharge. In the early stages frequent fomentations are often very useful in increasing the blood-supply and in encouraging the formation of healthy granulations. Later, stimulating lotions or ointments are beneficial. Most importance should, however, be attached to improving the patient's general condition. If it can be managed, the patient should be placed in a sanatorium; at any rate he should be kept in the open air as much as possible, and encouraged to eat plenty of good food. If the lungs are not seriously involved and these measures can be carried out properly, healing of the ulcers can often be obtained, but when the patient is losing weight and there is progressive disease in the lungs, it is very seldom that any improvement takes place in the anal condition.

#### **Lupoid Tubercular Disease of the Anus.**

This is a rare form of tubercle, and appears to be not infrequently a primary infection. In the early stages it appears as a small, round, raised patch at the edge of the anus, elevated about  $\frac{1}{8}$  inch above the surrounding skin, and with a whitish, papillomatous surface. It very closely resembles an early epithelioma, and may easily be mistaken for the latter. There is no ulceration in the early stages, but considerable tumour formation (Fig. 52). It causes but few symptoms at first; later on it breaks down in the centre, and a chronic ulcer,



with thick indurated edges, is formed, which is often extremely painful. The true diagnosis in these cases is often missed owing to the unusual appearance of the parts. The following case is a good instance of this rather rare form of ulceration of the anus :

*Case.*—The patient was a mechanic, aged twenty-eight, who consulted me on account of great pain in the region of the anus, especially after an action of the bowels. On examination, there was a small ulcer on the left side of the anus, with thick warty edges of a greyish-white colour. The ulcer was quite small, but absolutely refused to heal when treated with local applications. Relief from pain could only be obtained by the use of cocaine, and that only for a short time. There were no signs of tubercle in the lungs or elsewhere. The patient was admitted to the hospital, and the ulcer was cut out. The wound healed quite well, but the original condition soon began to be reproduced in the scar, and in the course of two months there was another similar ulcer in the same place, which again refused to heal. At this stage—three or four months after the

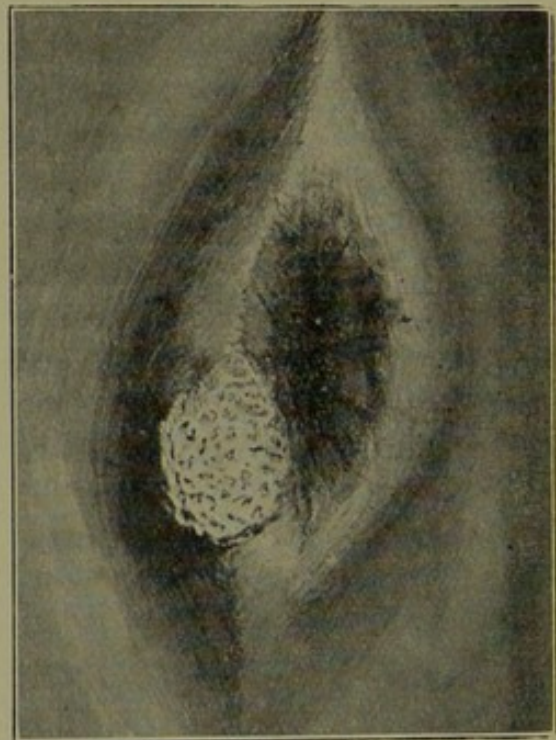


FIG. 52.—TUBERCULIDE OF ANUS.

original operation—there were early signs of tubercle in the lungs, and the patient began to lose weight rapidly. He was sent to a sanatorium, where he remained for about two months, but on his return it was found that he had gone down considerably in weight, and the pulmonary disease had increased. The condition of the anus at this time was much the same as before; there was an ulcer about the size of a sixpence, with thick edges and just a little serous discharge. It was still very painful, the pain

having to be relieved by ointments containing anodynes. The patient continued to go downhill, and died shortly afterwards from an acute phthisis.

The proper treatment of this condition, when it is diagnosed, is free and prompt excision of the tissues, and I have had excellent results where the patient had no other tubercular focus. I have seen at least two cases in which, after free excision of the tissues, there has been no recurrence nor any sign of tubercle elsewhere.

### **Gonorrhœal Proctitis.**

This is fortunately a rare disease. It is due to direct infection of the rectum with the gonococcus. The symptoms are those of an acute purulent proctitis, with severe tenesmus and aching in the sacrum and perineum. There is much yellow, purulent discharge, which is usually blood-stained. This condition is a difficult one to treat, and the inflammation and discharge may last for many months.

**TREATMENT.**—This consists in douching out the rectum at frequent intervals, at first with bland solutions, and, later, in the more chronic stages, with 1 per cent. protargol, or nitrate of silver, 10 grains to the ounce. As there is usually severe pain and tenderness, it is necessary to give sedatives to allay the pain, either in the shape of belladonna and morphia suppositories, or, better, hypodermic injections of morphia, as the introduction of the suppository is often a painful process.

If the condition is diagnosed at an early stage, it may be worth while to attempt to kill the disease by strong injections of potassium permanganate.

### **Syphilis of the Rectum.**

Primary chancres are sometimes met with on the anal margin, and occasionally in the rectum itself. Chancres of the anus are more often seen in women than in men. A chancre of the anus does not differ in appearance from one in the more usual situation, but the diagnosis is more easily missed.

**Secondary Syphilis of the Anus.**—The commonest syphilitic lesions met with in the neighbourhood of the rectum are condylomata of the anus. This is, after the mouth and throat, the commonest situation for mucous patches or condylomata. They occur as soft, whitish, raised papules around the anus and on the

skin of the buttocks. There is usually contact infection of the skin of the opposite buttock. It is most important that the rectal surgeon should make himself thoroughly acquainted with the appearance of the lesions of primary and secondary syphilis of the rectum, for unless he is able to detect, or at any rate suspect, these lesions at sight, he runs a serious risk of infecting himself with the disease, when consulted by a patient suffering from this condition. Quite a number of surgeons, in my experience, have infected themselves in this way.

Tertiary syphilitic lesions of the rectum are very rare, and I have never met with an undoubted case of tertiary syphilis of the rectum.

In many textbooks of surgery it is stated that syphilis is a common cause of rectal stricture, but I have never met with a case, and there is no record of an undoubted syphilitic stricture of the rectum at St. Mark's Hospital for Diseases of the Rectum. It must be supposed that, were the condition at all common, it would be seen at this hospital, and although it would not be safe to say that the condition does not exist, we may safely assume that it is a very rare manifestation of syphilis.

## CHAPTER XI

### ABSCESS

ABSCESSSES in the perianal region are not at all uncommon, and may occur in a great variety of forms and as the result of many different conditions. Except in relation to their situation, they differ in no important particular from abscesses in other situations. They are chiefly of importance because they very frequently result in the formation of a fistula, a subject which will be further treated of in the next chapter. Like all other abscesses, they are due to the infection of the tissues by micro-organisms, which have obtained an entrance either through some wound or abrasion, or via the blood-stream. The micro-organisms causing infection are naturally of many different kinds, but the *Bacillus coli* is most frequently present, though this does not necessarily mean that it is the primary cause of the suppurative process. How often it is the primarily infective organism, and how often it is only a secondary infection, it is very difficult to ascertain. It is occasionally found in practically pure culture in ischio-rectal abscesses, and it then seems justifiable to assume that it is the infecting organism. Such cases are, however, very uncommon, and it is much more usual to find it associated with staphylococci, or, occasionally, streptococci. In many cases it would seem probable that the *Bacillus coli*, though present, has no pathogenic importance, for it is nearly always to be found as a complicating organism. | No

Gas-forming organisms are not uncommon, and may easily give rise to the impression that the abscess communicates with the bowel, when it does not really do so. It must never be assumed that the presence of gas in an ischio-rectal abscess is evidence of communication with the bowel.

The bacteriological examination of the pus from abscesses in this region is a matter of the very greatest difficulty. Organisms are seldom found in pure culture; a great variety are generally

present, and it is very difficult to draw any conclusions with regard to the particular organism which is causing the infection. I have often seen patients being treated with *B. coli* vaccine because an examination of the pus from an abscess had revealed the presence of this organism. This is absurd, for *B. coli* is nearly always present both in the abscess and in the fæces, and there is no reason to suppose that it is the cause of the trouble.

It is often asserted that most abscesses in the neighbourhood of the rectum are tubercular in origin. I think, however, this is far from being the truth. The majority of abscesses are certainly due to the ordinary infective micro-organisms, and only a comparatively small percentage are due to the tubercle bacillus. A tubercular abscess may be the primary manifestation of tubercular infection in the patient, and then, no doubt, is due to direct accidental infection with tubercular bacilli. More frequently, however, a tubercular abscess in the neighbourhood of the rectum is a secondary infection from the alimentary canal, either from infected sputum swallowed by the patient, or from a tubercular lesion in the alimentary tract itself.

**CAUSES OF ABSCESS FORMATION.**—One of the commonest causes is some slight abrasion, either on the skin in the anal region, or more frequently in the mucous membrane just within the anal canal. This, by allowing micro-organisms, which are nearly always present, to find an entrance to the tissues, is the starting-point for the formation of an abscess.

Injuries due to fish-bones or other hard substances present in the fæces, or to the careless use of enemata, are very common causes.

Many abscesses in this region result from the neglect of a fissure at the posterior margin. Piles, when they become strangulated and gangrenous, may give rise to the formation of an abscess. Abscesses also occasionally occur as the result of operations performed in this neighbourhood, especially if proper care is not taken in regard to antiseptics.

It is usual to classify abscesses in this neighbourhood according to the tissue in which they arise. Thus there may be skin abscesses, such as boils or carbuncles; these differ in no way from similar lesions in other parts of the body, except that they are often extremely painful.

**Subcutaneous Abscess.**—Subcutaneous abscesses occur just round the margin of the anus, and do not involve the ischio-

rectal space, and it is this which distinguishes them from the next variety. The abscess forms just within the anal canal and inside the external sphincter. Many of the tuberculous abscesses are of this subcutaneous type. This form is more painful than any other, the pain being mainly proportional to the degree to which the abscess is in the grip of the sphincters. It is surprising how much pain can be caused by even small abscesses just within the anal canal. The swelling in these abscesses is not so great or so obvious as in other abscesses; there is some œdema of the parts, but the parts are so deformed and displaced that it is easy to look straight into the anus without noticing anything abnormal. The best way to detect such abscesses is to pass a finger into the bowel, and another finger over the skin outside the anus. An indurated area is found, which is tender, and a spot can be felt where the sensation conveyed to the examining finger is different from that on the opposite side. This does not apply to tubercular abscess, one of the characteristics of which is that it is comparatively painless, though tubercular ulceration around the anus is often very painful. Tubercular abscesses develop slowly as compared with the more acute forms of abscess; there is less induration in the surrounding tissues—in fact, in many cases there is no induration at all. The discharge is a thin yellow fluid quite unlike the pus of an ordinary abscess, and where the abscess has approached close to the skin, the latter is thin and bluish in appearance.

**Ischio-Rectal Abscesses.**—These are abscesses occurring in the loose cellular tissue enclosed in the ischio-rectal space. They are limited on the inside by the rectum itself and the lower surface of the levator ani, and on the outside by the obturator fascia covering the lower part of the obturator internus muscle. The levator ani muscle practically surrounds the rectum behind, so that there is a space at the back by which the two ischio-rectal fossæ can communicate with each other. When the abscess has formed, it spreads in the areolar tissue before causing obvious swelling outside. But it may spread from one side to the other by means of this posterior passage. Above the levator ani there is another space containing areolar tissue, between this and the peritoneum, inside the pelvic fascia. Abscesses here are very serious, owing to their proximity to the peritoneum, as they may track up into the iliac fossæ before becoming obvious from outside. On passing the finger into an ischio-rectal abscess, one

finds that it is not single, but loculated or honeycombed, the abscesses apparently communicating with one another. This is owing to the areolar tissue being burrowed through between the denser bands of the connective tissue.

These abscesses often attain a considerable size, and what appears to be a comparatively small abscess may be found at the operation to contain nearly a pint of pus, and will leave a huge hole, which will take many weeks to heal.

Ischio-rectal abscesses always start on one side of the bowel, but owing to the fact that the pus very readily finds its way round posteriorly to the opposite side, the abscess is frequently found to be on both sides when first detected. It is remarkable how small an amount of external evidence of abscess there may be in these cases, although both ischio-rectal fossæ may be full of pus.

The SYMPTOMS of ischio-rectal abscess are the same as those of a deep abscess in any other situation. There is generally a sense of pain or discomfort, specially marked on sitting; and the premonitory symptom is often a chill, not infrequently a definite rigor, and the temperature is raised. It is not unusual to find the general symptoms well marked before there is any local discomfort. Pain is not usually severe, but is often of a dull throbbing character. The patient should be examined in the knee-elbow position, when it will more easily be seen that there is a swelling on one side of the buttock. If the abscess has reached the skin, there will be a red blush over the whole of one side, and considerable induration of the skin itself. When these abscesses point, they generally do so at the inner edge of the buttock, close to the anus. Fluctuation can be obtained with one finger in the rectum and one on the buttock, but it is often difficult to elicit, and is not to be depended upon. The diagnosis of an abscess in this situation is best made from the general appearance.

**Submucous Abscesses.**—These are abscesses occurring beneath the mucous membrane, and between it and the muscular coat. They are of considerable interest as they often give rise to mistakes in diagnosis. These abscesses are generally chronic, and cause vague symptoms of discomfort, rather than any actual pain, so that they not infrequently remain undetected for long periods. Their commonest situation is just within the anal margin, where they can be felt as elastic swellings, very often more or less movable, on the deep tissue. They are often mistaken for thrombosed piles, and even for malignant disease.

They may sometimes imitate sarcoma so closely that a diagnosis can only be made by exploring them with a hollow needle. They often exist for a considerable time, sometimes for years, without causing more than a slight amount of discomfort. Under such circumstances the walls become exceedingly thick. Fig. 53 is taken from a specimen which I removed from a patient. The abscess had been present for three years, and the condition when detected was thought to be one of malignant disease. I found, however, a small track passing into the centre of it. The whole abscess was dissected out, and it was then found to have fibrous walls  $\frac{1}{4}$  inch in thickness, and with just a small abscess cavity in the centre.

Sometimes instead of a single localized abscess there is an indurated track running up beneath the mucous membrane for some inches, with other branching tracks running transversely round the bowel.

*rectal.* **Perirectal Abscess.** — This is the term usually applied to a very serious form of suppuration involving the tissues around the rectum. It is generally a streptococcal infection, accompanied by considerable sloughing, and not infrequently by actual gangrene of the perirectal tissues.

Perirectal abscess may also result from a psoas abscess tracking down into this neighbourhood from necrosis of the pelvic bones, tubercular disease, abscesses associated with the urethra or bladder, and occasionally appendix abscesses.

Fortunately this type of abscess is very uncommon, but it is very serious, and the symptoms are obscure. The patient may complain of some discomfort on going to stool, or pain in the back, which is referred to the sacrum, or to the front over the bladder. It may be possible to feel a boggy mass in the rectum, or to detect fluctuation in the abdominal wall above. The patient will be in a condition of profound toxæmia, with a high temperature and occasional rigors. Disturbance of the urinary function is often an early symptom.

This form of abscess may, in a woman, follow perimetritis due to a split cervix, and it is not uncommon after stricture of the rectum. Tubercle occasionally causes it, and it may occur from

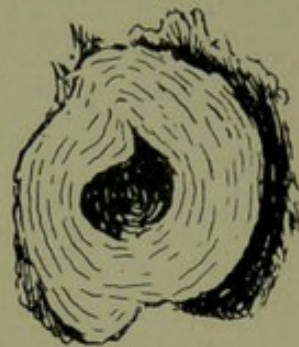


FIG. 53.—DRAWING OF A SUBMUCOUS ABSCESS WITH THICK FIBROUS WALLS, REMOVED FROM A PATIENT THOUGHT TO BE SUFFERING FROM MALIGNANT DISEASE.



sloughing of the bowel. I know of one case in which sloughing of the bowel resulted from a nurse administering an enema of almost boiling coffee, the whole pelvis becoming a mass of slough in consequence. The patient ultimately recovered, but with such a bad stricture that the hospital in question had to pension her for the rest of her life. In one case I have seen the rectum slough from putting silver nitrate into a fistula which was not healing satisfactorily. The only good treatment for this kind of abscess is free drainage, after opening up the space through the ischio-rectal fossa. If that is not sufficient, an opening must be made through the levator ani, on both sides. The abscess should be sought for by blunt dissection with forceps or with the finger, as otherwise there is a serious risk of opening the peritoneal cavity, with possibly fatal results. A transverse incision through the fibres of the levator ani is advisable, as otherwise the drainage is apt to be incomplete. It is essential that the abscess should be found and opened at the earliest possible opportunity, for these abscesses are very serious, and the pus tends to travel upwards, with the result that the abscess sometimes bursts into the peritoneal cavity or one of the pelvic organs.

These abscesses should never be opened through the rectum if this can be avoided. The largest possible drainage-tube should be used, and everything done to insure adequate drainage. If the temperature remains up, it is a sign that there is not free drainage. Many surgeons advise irrigation of the abscess cavity with antiseptics or sterilized water, but personally I am content to trust to drainage alone for at least the first forty-eight hours. Nothing is to be gained by using antiseptic irrigation, and there is the very possible risk of spreading the infection. Local heat, in the shape of frequent large fomentations or poultices, is most useful in increasing the local blood-supply, besides having a marked effect in diminishing the pain. Very hot baths at frequent intervals are invaluable if the patient is not too ill. A smart purge should be administered, and everything possible done to support the patient's strength by food, stimulants, etc.

**Rare Forms of Abscess.**—Abscesses originating in the genito-urinary tract may find their way towards the rectum and be mistaken for ischio-rectal abscesses. The permanganate test will generally clear up the diagnosis in a case of doubt. These abscesses generally result from a neglected urethral stricture or from a prostatic abscess of gonorrhoeal origin.

A case is recorded by Kalet and Gotte\* of a woman in whom a pyosalpinx opened at one side of the anus, and pus discharged freely from the fistula. The patient was found to have a double uterus and vagina. Dr. Ralph Jackson† records a very rare case of a man, aged thirty, who for years had suffered from chronic tubercular hip disease, in whom an abscess from the joint had burst into the rectum about three centimetres above the internal sphincter.

TREATMENT.—There is only one way in which to treat an abscess in the neighbourhood of the rectum—namely, to open it as soon as it is suspected. A very common mistake is to temporize for a few days, and treat the case with fomentations and hot baths in the hope that the abscess will subside. This treatment will, of course, make the patient much more comfortable and relieve the pain, but the chances that the abscess will subside are so small as to be practically negligible; while, on the other hand, such treatment nearly always results in a considerable increase in the size of the abscess, with the consequent delay in the later healing process. It cannot be too emphatically asserted that the proper treatment is to open the abscess at once, immediately its presence is suspected, and not even wait for fluctuation or other positive evidences of pus.

An incision should be made into the most prominent and indurated area, careful antiseptic precautions being taken. Fomentations should then be freely applied, and the patient treated with frequent soaking in hot baths. It often happens that no actual pus is found on making an incision at an early stage; all that comes out is a small quantity of blood-stained serum. It should not be assumed that the incision was not therefore necessary. On the contrary, the relief of tension will often prevent the formation of pus, and will insure that the abscess never reaches any large size. I should not hesitate to cut into one of these abscesses before any pus had formed. It is said that incisions in this neighbourhood should be made in a radial direction from the anus, but there is no particular advantage in this; the important point is to make an opening which shall remain patent. Some surgeons make only a small opening, and push gauze into it with a probe; this is very painful, and under such circumstances there cannot be good drainage. According

\* *Lyon Méd.*, June 23, 1907.

† *Boston Med. and Surg. Jour.*, August 22, 1912.

to some books on the subject, the incision should be made over the entire length of the abscess. This allows of good drainage, but causes an unnecessary amount of mutilation; and all that is required is adequate drainage. Having made a good incision and established drainage, there is no advantage in washing the abscess out. It is better to leave it to drain into dressings, which should be frequently changed. If gauze is put into the cavity, healing is delayed, and a drainage-tube is far better. The tube should be a large one, and should be fastened to the skin by one or two small stitches. The after-treatment consists in letting the patient sit in a hot bath morning and evening. Boracic acid may be added to the bath, but it is not of very great value. The parts should afterwards be bathed with 1 in 40 carbolic, or lysol, and the wound dressed with a damp dressing. The patient is kept lying down, preferably on the sound side, and in the course of a week it will be found that the abscess has contracted into a small cavity communicating with this opening. If it seems to be getting adequate drainage, it is advisable to leave it a little longer. It is always well to warn the patient that the condition may become a fistula, and that a subsequent operation may be necessary to cure the fistula. The abscess should be kept open until it has thoroughly drained; the tendency is for the skin to heal too soon. If this occurs, the patient must be given an anæsthetic and the wound freely enlarged. This, in many cases, will prevent a fistula. I do not believe in syringing during the first forty-eight hours. It is a serious mistake to syringe such an abscess with peroxide of hydrogen, as the amount of gas generated is very great, and the pressure exerted by the gas will do harm and tend to force pus into fresh and hitherto undamaged tissues.

I have seen surgeons open an ischio-rectal abscess in an acute stage when it contains pus, and proceed to perform a radical operation for fistula. They justify their action by saying a further operation would have been necessary, and it might as well be done at once. I do not agree with this, because if the radical operation is done at once, an enormous hole is made, and the patient is left quite unnecessarily mutilated; moreover, this procedure does not as a rule prevent the necessity for a subsequent operation. As the result of leaving it for a fortnight or three weeks, there will be a very much smaller wound, which will not require nearly so extensive an operation for its cure, and the resulting

wound will heal more easily and quickly, with less risk of permanent disability of the parts. It is never advisable to perform a radical operation for fistula in an acute case. After a large proportion of ischio-rectal abscesses one has to deal with a fistula, and this is mainly because most of these abscesses are not opened early enough. Patients come to the Out-Patient Department of St. Mark's Hospital with the whole buttock bright scarlet; and they have perhaps walked some miles. If such cases were to come early, and the abscesses were opened before any large quantity of pus had formed, there would be fewer fistulæ.

## CHAPTER XII

### *FISSURE IN ANO*

**FISSURE** of the anus, or, as it is sometimes called, irritable ulcer, is one of the commonest of rectal troubles, and at the same time certainly one of the most painful. It is not in itself a serious affection, and in appearance the lesion, especially to the uninitiated, often appears so trifling as hardly to be worth considering; and yet the pain which it may cause is so severe and prolonged that it often entirely incapacitates the sufferer and renders life a burden.

The records of St. Mark's Hospital show that fissure is rather more common in men than in women, the proportion being about four to three. The lesion consists in a small crack or ulcer, situated at the anal margin, at the lower end of which there is usually a small tag or fold of skin. As a rule the fissure is single, and only in exceptional cases is more than one met with in the same patient. The fissure may be found at any part of the anal margin, but by far the commonest position is at the posterior margin; the next commonest position is anteriorly, and only very exceptionally is it found situated laterally. In men it is very exceptional to find a fissure in any position other than posteriorly.

Fissure of the anus almost always results from traumatism of one sort or another, such as stretching of the anus from the passage of hard fæces, a scratch from a fish-bone or some other foreign body in the fæces, careless cleaning of the parts with hard paper after defæcation. Small polypi or hypertrophied anal papillæ, if they are so situated that they can get caught in the grip of the external sphincter, may, by the irritation which they set up, give rise to a fissure. In some cases such a condition of affairs may be seen to exist; a small polypus is found lying in contact with one portion of the anal margin, and on lifting this up a fissure is seen beneath it.

Sir Charles Ball\* asserts that the majority of fissures result

\* "The Rectum."

from the tearing down of one of the small anal valves, or "valves of Morgagni," which are situated in the anus at the mucocutaneous junction. There are several of these little valves or pouches, and Sir Charles Ball has pointed out that if one of these becomes torn down by the passage of a hard mass of fæces, it gives rise to a crack or fissure in the skin, similar to the little cracks which are so commonly seen round the finger-nails, and which are usually called "torments."

There is little doubt that this is the method of formation of a few cases of fissure, though it is undoubtedly not the cause of most; for in many cases of fissure the valves can be seen on examination to be intact.

It is not easy to see why the great majority of all fissures are situated at the posterior anal margin. An attempt has been made to explain this in accordance with Ball's theory by saying that the most posteriorly situated anal valve is generally well developed. This, however, seems hardly satisfactory.

It has always seemed to me that the explanation is to be found in the structure of the external sphincter. This muscle is not, as has often been supposed, a circular muscle, but consists of a band of muscle fibres arising from the coccyx, which passes forward and splits to surround the anus; in front it is partly inserted into the perineal point and partly continuous with the opposite side. The external sphincter muscle is therefore not really a circular muscle, but consists of two lateral halves (Fig. 54). In front these halves are almost continuous, but posteriorly the fibres do not join end to end with those of the other side, but are for the most part placed parallel with each other. From the arrangement of the fibres of the external sphincter, it will be seen that the mucous membrane and skin of the anal canal are best supported at the sides, and least supported at the posterior com-

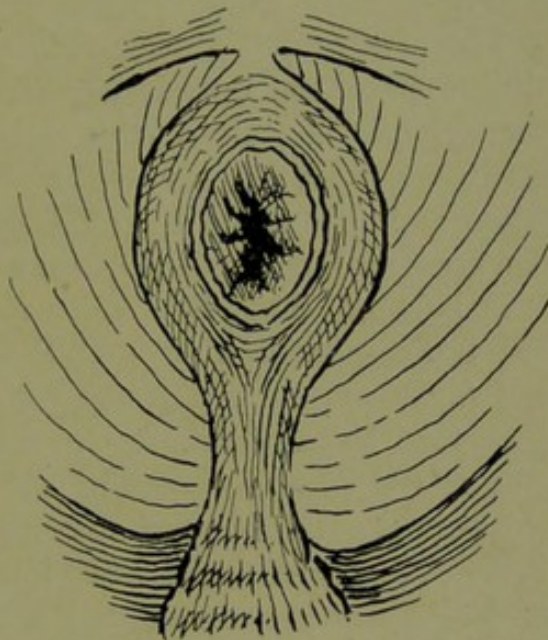


FIG. 54.—DIAGRAM SHOWING THE ARRANGEMENT OF THE FIBRES OF THE EXTERNAL SPHINCTER.

missure, the next weakest place being the anterior commissure. In women, owing to the presence of the vagina, the anterior commissure receives less support than is the case in men.

A woman recently attended the Out-Patient Department at St. Mark's Hospital who was suffering from an anterior fissure. She had also a partially ruptured perineum, the result of a severe labour twenty-four years previously. In her case the anal canal was hardly supported at all in front owing to the torn condition of the perineum, and as the result of passing a hard stool, a fissure had formed at the anterior commissure—that is, at the weakest point.

The levator ani muscle also assists in supporting the sides of the anus, as the muscle passes on each side to be inserted into the coccyx and sides of the rectum. The two halves of the levator ani muscle give considerable support to the anal canal when it tends to be over-distended, but this support is chiefly confined to the lateral aspects.

It is clear, then, that the weakest point of the anal orifice to any uniform stretching is at the posterior commissure, since here the fibres supporting it are not parallel to the bowel wall. If, therefore, the anus is stretched unduly, the point at which it gives way is the posterior commissure, and the next weakest place is the anterior commissure, since only some of the fibres are circular here. Nearly all fissures are found to occur either at the anterior or posterior commissure of the anus, and the great majority are posterior. Goodsall estimated that only 1 per cent. of fissures are anterior in men, and 8 per cent. in women. This greater tendency to anterior fissure in women is what one would expect.

The theory that a fissure results from a tear of the mucous membrane occurring at the point which has least support, also accounts for the extreme rarity of multiple fissures. There cannot be more than one weakest point, and one would not expect the mucous membrane to give way at more than one point.

I have become quite convinced from a careful observation of numerous cases that this is the true explanation of the formation of a fissure, and that nearly all fissures are, to begin with, simple traumatic lesions resulting from over-distension of the anal canal by the passage of a hard mass of fæces. A further proof that this is the true explanation of the formation of a fissure is afforded by the fact that when the mucous membrane of the anal canal gives way during the process of stretching the sphincter—an accident

that may easily happen if the stretching be done too quickly—it always does so at the posterior commissure, showing that this is the weakest point of the muscle. If the sphincter ani is forcibly stretched in the cadaver, it will be found that tearing always occurs posteriorly.

In the great majority of cases a fissure arises without the patient being able to give any very definite cause for it. He often says he first noticed it after an attack of constipation, or he may be quite unable to account for it. In a certain number of cases, however, a fissure is found to have arisen secondarily to some other lesion, such, for instance, as an attack of proctitis, or after an attack of acute external thrombosed piles. In some cases, again, the fissure may be said to have a specific origin. It may be syphilitic, and then it is usually associated with the presence of condylomata round the anus, and there is more than one fissure. Or it may be tubercular, in which case it soon extends and develops into an ulcer, spreading over the anal margin on to the skin.

The skin at the lower end of an ordinary simple fissure tends to become swollen and œdematous from the lymphatics being blocked by the inflammatory changes in the base of the fissure. This results in the formation of a tag of skin at the lower extremity of the fissure, often called a "sentinel pile." This small swelling at the lower end of the fissure has no relationship to piles, but, as already explained, is merely an œdematous skin tag at the anal margin. The tags or sentinel piles are not always present, but are generally to be seen in fissures of old standing.

**SYMPTOMS.**—The chief symptom in the majority of cases is pain coming on after an action of the bowels. The pain is often extremely severe, and, indeed, it is quite astonishing how much pain may result from a minute fissure. It is quite common to see patients incapacitated from following their usual occupations, and rendered miserable by the pain which follows any action of the bowels. The pain may come on immediately after the bowels have acted, or it may not come on for half an hour, or even longer, in some cases. It often lasts for several hours, and sometimes for the rest of the day. Many patients are almost unable to sleep at night on account of the shooting pain caused by involuntary spasm of the sphincters, which occurs just as they are falling off to sleep.



The severity of the pain varies considerably in different cases; it is often most acute in fissures which have only existed for a comparatively short time. After a fissure has existed for a long time, the edges become much indurated, and the fissure itself assumes more the character of a chronic ulcer with a granular base. In fissures of old standing the muscular fibres of the sphincter can often be seen exposed in the base. A fissure frequently gives rise to pain in the lower part of the back and in the thighs, which is described by the patient as being of a dull, aching character. Pain of this kind is perhaps more often associated with an old-standing fissure.

Pruritus ani is frequently present in cases of fissure, and may sometimes be the only symptom complained of.

Patients with fissure often say that they have noticed that the fæces are streaked with blood. The quantity of blood, however, seldom amounts to more than a drop or two.

*Reflex Symptoms.* — The reflex symptoms associated with fissure are curious, and may be very misleading. They are most usually associated with the genito-urinary organs; in some cases, however, the pain may be referred down the thigh, and a case of fissure has sometimes been diagnosed as one of sciatica. A patient was recently under my care at St. Mark's Hospital whose chief complaint was difficulty in passing urine. He had all the symptoms of a urethral stricture, and could only micturate after considerable straining. A catheter passed quite easily, and there was no sign of any urethral stricture; but on examining the rectum I found a small, acute fissure of the anus, situated anteriorly. On this being cured, the whole of the urethral symptoms disappeared.

In women pain referred to the uterus or vagina is a common accompaniment of anal fissure; dysmenorrhœa and other uterine symptoms may easily lead to a wrong diagnosis, and much time may be wasted in futile treatment for supposed uterine trouble when the real cause of all the symptoms is to be found in an anal fissure.

On account of the pain which results from defæcation, many patients with fissure put off relieving the bowels as long as possible, and the resulting constipation often greatly aggravates their condition, besides resulting in much increase of the pain when defæcation ultimately takes place.

A fissure may be complicated by polypi or hæmorrhoids, and

no examination should be considered complete without investigation of the rectum above the fissure, as the presence of such complicating conditions has an important bearing upon the treatment of the fissure. In some old-standing cases of fissure very little pain is complained of, and with a little care the patient is able to keep himself free from discomfort, and consequently he is often very unwilling to undergo any operation for the cure of his trouble.

It is nevertheless a mistake to leave such fissures, as in course of time they are very liable to set up a chronic pruritus, which may be difficult to cure. In one or two instances I have known a fistula develop as the result of an old and neglected fissure, and I believe that chronic fissures are a not uncommon starting-point of fistula (Fig. 55).

Fissure of the anus, or irritable ulcer, can be conveniently divided into two classes—acute and chronic.

In the acute cases the fissure is of recent date and is frequently very small. The pain, however, is out of all proportion to the severity of the condition, and is often extreme. The fissure in these cases amounts to little more than a crack in the mucous membrane.

In the chronic cases the fissure is of long standing; it may have been present for months or even years. The fissure in these cases is of some size, and is more of the nature of an ulcer. The edges are hard and indurated, and not infrequently the fibres of the external sphincter can be seen exposed in its base.

The amount of pain and general discomfort which may be caused by a simple fissure of the anus is sometimes quite extraordinary, and I have seen patients who have suffered tortures from an insignificant-looking fissure of the anus, which could have been cured by a surgeon in a couple of days or less.

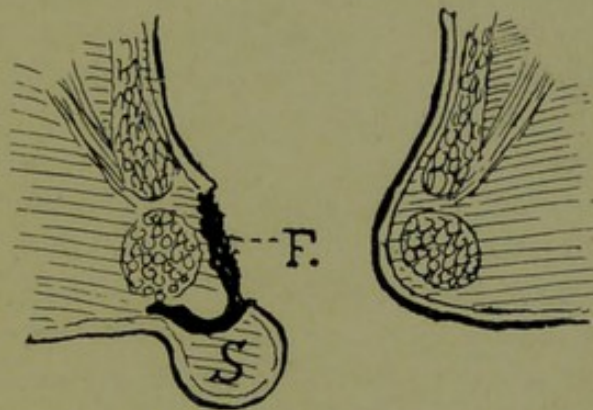


FIG. 55.—DIAGRAM SHOWING IN SECTION A FISSURE WITH A FISTULOUS TRACK PASSING FROM ITS LOWEST END AND TRACKING TOWARDS THE PERIANAL SKIN.

*F*, fissure; *S*, sentinel pile.

EXAMINATION OF A CASE OF FISSURE.—Patients suffering from painful fissure are naturally very loth to be examined, and unless special precautions are taken against causing pain, it will generally be found impossible to carry out the examination properly on account of the extreme pain set up by the least attempt to handle the parts. It is, nevertheless, of considerable importance to make an adequate examination in order to ascertain whether there is any complicating condition, such as piles, a sentinel pile, etc., before proceeding to treat the case. It is well to remember in dealing with such cases that a fissure is excessively painful, and that if one causes the patient a great deal of pain, one is not likely to gain his confidence, or his respect for one's surgical ability.

The best position for examination is the left lateral, semi-prone position. The buttocks should first be gently separated to enable one, if possible, to see the fissure. The lower end, at any rate, can generally be seen quite easily, and if care is taken to use the utmost gentleness, no pain should be caused. The next thing is to pass a finger into the bowel in order to ascertain the conditions above the fissure. This may sometimes be done without causing pain by keeping the pulp of the finger towards the fissure and pressing in the opposite direction. Very frequently, however, it is not possible even with great gentleness to do this on account of the pain caused. I have found that a little anæsthesin powder blown on to the fissure from an insufflator (of course, before any vaseline has been applied) will, after about two minutes, produce sufficient anæsthesia to allow an adequate examination to be carried out. This, in my experience, is far more effectual than the application of cocaine.

As a rule it is possible to introduce a small speculum, the best type for this purpose being the speculum illustrated on p. 20 (see also Fig. 56).

It not infrequently happens that even with the greatest care and the use of anæsthesin powder it is not possible adequately to examine the patient, and in these circumstances, if a fissure has been seen, it is advisable to make a thorough examination under a general anæsthetic, any condition found being treated at the same time.

TREATMENT.—Fissure in ano is a condition which can almost invariably be cured both readily and effectually, and I know of no more grateful patients than those who have been cured of this painful affection.

A very large number of all cases of fissure can be cured without operation, but it is important to know which are the cases where a cure can be reasonably expected without any operative interference. As a rule it may be said that fissures situated anteriorly or laterally can be cured without operation. Fissures of recent origin can usually be successfully cured by palliative means—that is to say, fissures which have only existed for a short time, which have not indurated edges, and in which the fibres of the underlying sphincter muscle are not exposed. Such fissures will generally heal readily without surgical operation. Again, fissures in children or young adults are almost always curable by palliative means. On the other hand, fissures which have existed for a considerable time, and the edges of which are thick and indurated, or which have a small polypoid growth at their upper extremity, or in the base of which the fibres of the sphincter muscle can be seen, most usually require an operation for their cure.

Fissures, too, which are complicated by much hypertrophy of the external sphincter, so that the latter muscle feels almost like a ring of cartilage beneath the skin, are best treated either

by divulsion or excision of the fissure. Cases of fissure complicated by hæmorrhoids or fistulæ always demand operation.

It is not to be supposed that such cases of fissure as are here mentioned as requiring operation can never be cured by palliative means; undoubtedly a certain number of them can, but operation is the most satisfactory method of treatment, as complete failure or a rapid recurrence of the trouble will most commonly follow attempts at palliative treatment in such cases.

*Non-Operative Treatment.*—A certain number of fissures will heal by means of simple remedies. Care should be taken to

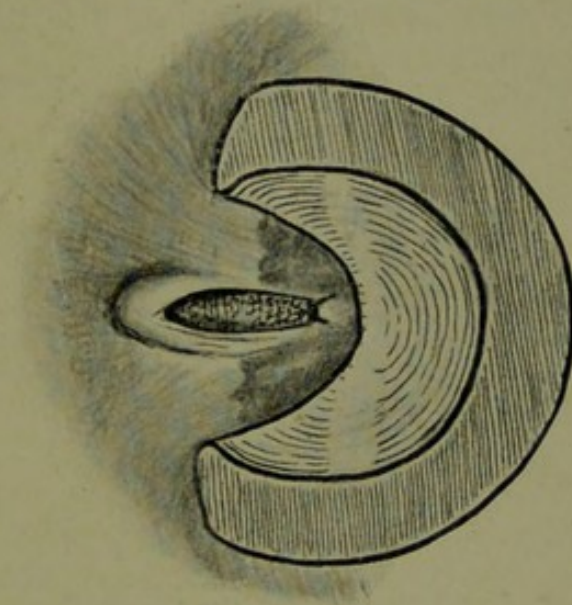


FIG. 56.—DRAWING OF A FISSURE AS SEEN WITH THE AUTHOR'S ANAL SPECULUM IN PLACE.

Note small polypus at upper end, and oedematous tag at outer end.

regulate the patient's bowels so that the stools are soft and unirritating. Some suitable sedative application should be employed to relieve the pain and spasm after defæcation. The bowels are best regulated by a small dose of senna, cascara, or one of the numerous aperient waters, combined with either a small injection of warm oil into the bowel every morning, or with the use of one of the petroleum jelly preparations taken by the mouth, of which there are now several on the market. The patient should be told not to walk about more than is absolutely necessary, and if he can do so, he should remain in a recumbent position during a large part of the day. One of the following ointments should be introduced, either with an ointment introducer or with the finger, in the morning and after each action of the bowels.

## I.

R	Subnitrate of bismuth	..	..	..	2 drachms.
	Cocaine	..	..	..	10 grains.
	Subchloride of mercury	..	..	..	15 "
	White vaseline	..	..	..	1 ounce.

## II.

R	Anæsthesin (Ritsert)	..	..	..	70 grains.
	Lanoline	..	..	..	3 ounces.

## III.

R	Subchloride of mercury	..	..	..	4 grains.
	Powdered opium	..	..	..	2 "
	Extract of belladonna	..	..	..	2 "
	Vaseline	..	..	..	1 drachm.

Frequent warm baths and extreme attention to cleanliness should also be enjoined.

Although this treatment will generally quickly allay the pain and make the patient very much better, my experience has been that it is only in exceptional cases that it results in a cure of the fissure. More frequently, after a period of immunity from symptoms, lasting from a few weeks to two months, the old pain recurs and something further has to be done.

Another method of treating fissure, which is sometimes effectual, is that of daily local applications through a speculum, carried out by the surgeon. For this purpose a conical, fenestrated speculum, of the type shown on p. 20, should be passed daily. This will have the advantage of gradually dilating the hypertrophied sphincter, the necessary amount of anæsthesia being

produced by the application of the anæsthesin powder already mentioned.

I have tried various applications to the fissure; in some cases a very little pure nitric acid applied in the first instance is effectual; in others the best results are obtained by the application of pure ichthyol, or solution of nitrate of silver. In any case, the patient will have to be seen almost daily until the fissure is healed, and it is generally a question of three or four weeks before complete healing is obtained. It is unnecessary to point out that it is useless to try this method if there is a sentinel pile, a polypus, or any other complicating condition.

This method of local applications through a speculum is much the best of the non-operative methods of treating fissure, and I have certainly obtained excellent results from it in some cases. It is, however, not so certain as operation, and the time required is often longer.

*Operative Treatment.*—The patient is prepared for operation in the same way as in the case of the operation for piles, and placed in the lithotomy position so as to give a good view of the parts. The sphincter is then carefully stretched and the bowel washed out with soap and water, and subsequently with an antiseptic, a little iodine or pure carbolic acid being applied to the fissure itself. If small, the fissure is then completely excised, care being taken, however, not to cut deeply into the external sphincter, nor to remove more tissue than is absolutely necessary. Or the more usual method is to make an incision starting at the upper end of the fissure downwards and dividing it well out on to the skin. If a sentinel pile is present, this should be simply cut off. The edges of the wound thus made are then trimmed off with scissors, together with any thickened edge of the fissure and the œdematous tag, which often exists at the lower end. The base of the fissure should be scraped with a Volckmann spoon so as to remove any granulation tissue. One's aim should be not to leave a slit-like wound, but rather a flat, open, oval wound, two-thirds of which should be on the skin outside the anus and only one-third within the bowel (Fig. 57). This will often necessitate making what appears to be an unnecessarily large incision. The object of the incision is to provide adequate drainage to the whole of the fissure, not only immediately after the operation, but until such time as the fissure is completely healed. It will be found that the skin part of the incision almost always heals more rapidly than

that part of the wound which lies within the anal canal. Unless, therefore, that part of the incision which lies in the skin is considerably larger than the anal portion of the wound, drainage will become ineffective during the latter part of the healing stage, which may easily result in the fissure failing to heal entirely.

Great importance used to be attached to dividing the external sphincter in operating for fissure, and it was supposed that the fissure healed owing to rest being given to it by division of this muscle. I believe that this is entirely erroneous, and that adequate drainage is the only important factor. I, personally, think that the sphincter should never be cut more than is absolutely necessary to allow drainage, and in the majority of cases I think

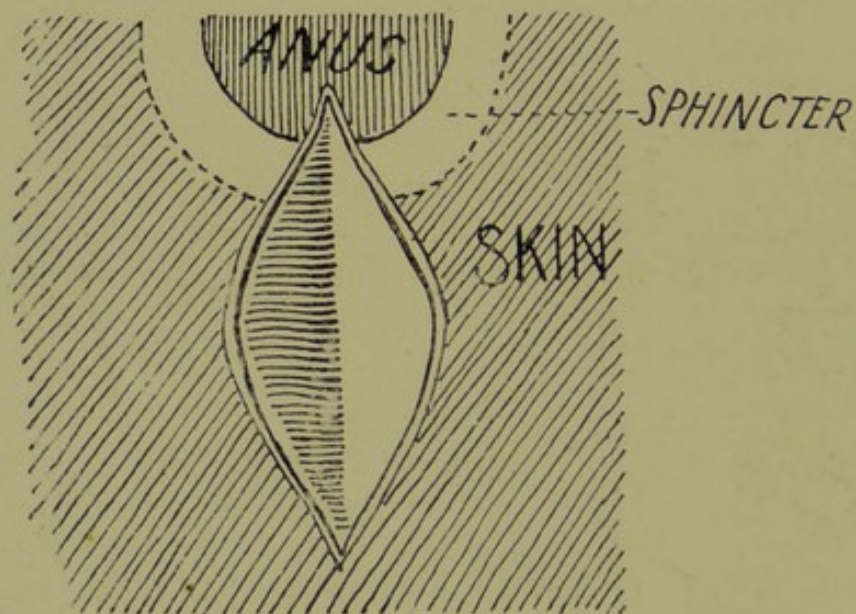


FIG. 57.—DIAGRAM TO SHOW WOUND LEFT AFTER OPERATION UPON A FISSURE.

it quite unnecessary to cut even the most superficial fibres of the muscle. As a rule no bleeding-points have to be ligatured.

A small piece of wool soaked in sterilized vaseline is placed in the wound so that its upper end lies in the bowel, and the ordinary dressings and T-bandage are then applied.

*After-Treatment.*—The wound should be dressed twice daily after the first twenty-four hours. The patient should sit in a hip-bath and soak the parts, and then the wound should be dressed with a small piece of cotton-wool soaked in sterilized olive oil. The patient should be kept in bed or on a sofa until the wound has quite healed. The bowels should be kept acting daily by some mild aperient.

As a rule healing takes place in about a fortnight to three weeks. If the patient is allowed to walk about before healing is complete, it is more than likely that the time before the wound has healed will be very much prolonged.

**Excision of the Fissure.**—In this operation the fissure is completely excised, and the resulting wound is carefully stitched up by chromic gut sutures passed deep to the wound, and in such a way that when they are tied the wound will be completely closed, and no dead spaces will be left.

The supposed advantage of this operation over incision is that healing is more rapid. I have tried this operation a number of times, but I have found that although primary union does occur in some cases, it cannot be depended upon, and that quite frequently, in spite of the greatest care, the wound breaks down and has to heal up by granulation. This of itself would not much matter, but unfortunately, in not a few cases, after the wound has apparently healed there is a track or pocket in some part of it, which refuses to heal until the whole wound has again been opened up. This causes great disappointment to the patient, besides considerably prolonging the period of treatment. I have for these reasons entirely discarded this method of operating for fissure in favour of incision, which is much more certain and requires only a few days longer to obtain sound union.

**Causes of Delayed Healing.**—Cases are occasionally met with, where, although the wound looks quite healthy, healing does not occur, or occurs extremely slowly. There are several causes which may be responsible for this, such as too firm plugging of the wound, or the application of strong antiseptics. The frequent application of stick nitrate of silver with the object of stimulating the wound I have often seen cause considerable delay in healing. Syphilis may be responsible for delay in healing, as may other constitutional conditions, such as gout and Bright's disease. In such cases treatment should be directed to the general condition, and a change to the seaside or country will often assist healing. By far the commonest cause of the non-healing of a fissure wound is inadequate drainage during the final stages. This often results if the surgeon does not make a sufficiently large incision in the skin at the initial operation.



## CHAPTER XIII

### *FISTULA*

By a fistula we generally understand a granulating track opening into the rectum or on to the skin surface. As the term is applied in rectal surgery, a fistula means an abscess opening either into the rectum or anal canal, or on to the surface of the skin in the immediate neighbourhood of the anus.

Fistulæ are, of course, common enough in other portions of the body besides the anus and its immediate neighbourhood ; but for certain reasons, which are worthy of careful consideration, that particular part of the human body associated with the termination of the alimentary canal is very liable to the occurrence of fistulæ.

There are several reasons which predispose to the formation of fistulæ around the anus. There is a large amount of loose cellular tissue surrounding the anal canal and lower portion of the rectum, and filling up the spaces called the "ischio-rectal fossæ." The object of this large amount of cellular tissue is to allow of the variations in the calibre of the rectum which are necessary for the expulsion of the solid excreta, and also to allow it and the other pelvic organs free movement. This cellular tissue, like, indeed, all cellular tissue, has a somewhat low vitality as compared with other tissues; but it is not so much this fact as the almost complete absence of any natural boundary to the spread of the products of inflammation, which the cellular tissue affords, that makes it so easy for abscesses to spread in this region. The fact that we are most of us constantly sitting on this part of our anatomy further tends to interfere with the blood-supply. It is also true that the skin around the anus does not, in most individuals, receive as much attention as regards cleanliness as most other parts of the body, although it certainly requires it no less; and this, combined with the fact that the skin in this part is liable to slight injuries from sitting

upon hard substances, and from other causes, renders abscess formation common.

At St. Mark's Hospital, where we possess the best facilities for judging of the frequency of different forms of rectal disease, we find that nearly one-third of the total number of cases met with at the hospital are fistulæ. The following figures show the admission to St. Mark's Hospital of fistula cases in proportion to the total for three consecutive years, 1909-1911.

1909	..	..	168 cases of fistula out of 627 cases.
1910	..	..	157 .. .. " 430 ..
1911	..	..	178 .. .. " 643 ..

Previous figures taken by Mr. Allingham from the same source showed 1,057 cases of fistula out of 4,000. The latter figures, however, are taken from out-patient figures, and not from admissions to the wards.

Fistula is not as common a disease as piles if we may judge by the figures at St. Mark's Hospital, for, during the three years 1909, 1910, 1911, the number of cases admitted to the wards for piles was 762 as against 503 for fistula.

ÆTIOLOGY.—The common causes of fistula are—Fissure or ulcer, ischio-rectal abscess, tubercle, stricture, foreign bodies, and necrosis of the pelvic bones.

A fistula always results from an abscess; the abscess, by bursting into the bowel, or on to the skin, or both, produces a fistula or sinus. Most abscesses in the neighbourhood of the rectum result in a fistula, which, if left alone, becomes chronic, and which in course of time extends and forms new branches and ramifications until quite a complicated condition results.

It used to be taught that most fistulæ are tubercular in origin, but this is very far from being the case. At St. Mark's Hospital we have unequalled opportunities of studying the condition, and the statistics clearly show that the proportion of tubercular fistula is between 10 and 12 per cent. In considering this statement, however, it must be remembered that fistula in tubercular subjects is common; but this is, of course, quite a different thing from most fistulæ being tubercular. The probable reason why nearly all fistulæ used to be considered tubercular was that fistulæ were found to be very difficult to heal, and the surgeon, in attempting to find a reason for his failure, concluded that it was because the lesion was tubercular. Further belief was lent to this view by the fact that fistulæ which are tubercular are

very difficult to heal, no matter how skilfully they are operated upon. As a rule there is no difficulty in distinguishing a tubercular fistula from one of the more usual type, and it is quite wrong to assume that because a fistula is difficult to heal it must therefore be tubercular. If tubercle were the commonest cause of fistula, we should expect to find tubercular ulceration of the rectum or anus accompanying it. This, however, is not the case, and, moreover, we find that very few patients with fistula have any signs of tubercle.

It is a very difficult matter to obtain accurate statistics, even at a hospital like St. Mark's, as to the proportion of tubercular fistulæ to the total number of cases. Microscopic examination of the discharge, and scrapings from the fistula, are quite unreliable, and the only method that can be depended upon for proving a fistula to be tubercular (apart from its appearance, which will not often deceive a skilled observer) is to make sections from the wall of the fistula after it has been cut out, and to examine them microscopically for tubercle bacilli. This method cannot be carried out over a large number of cases, and therefore we cannot arrive at any certain conclusions. Allingham estimated that 14 per cent. of fistula cases he saw were tubercular. My own experience would lead me to assert that this figure is about correct for those cases which have come under my observation. Hartman, on the other hand, in a study of over 600 cases, stated that 30 per cent. were tubercular. I am inclined to think, however, that the St. Mark's Hospital figures are on the whole more reliable, as there is always a risk of over-estimating the number of cases due to tubercle in hospitals where tubercular cases are being treated out of proportion to the total, and fistula is certainly very common among tubercular patients. With regard to the proportion of tubercular patients who develop fistula, the records of the Brompton Hospital for Consumption show that 4 per cent. of the cases admitted to that institution are suffering from fistula.

Many textbooks give one the impression that tubercular fistulæ are the most common, but this is certainly not the case. These tubercular fistulæ may be primary—that is to say, there may be no other discoverable tubercular lesion in the patient. This statement has been disputed by many, but I have no doubt such primary tubercular fistulæ do occur, and I have myself seen cases in which there seemed to be no doubt of the fistula

being the primary lesion. Probably the primary tubercular infection occurs in consequence of the organisms getting through from the gut owing to some abrasion; it is unlikely that it occurs from the outside. It is found by bacteriological examination that the tubercle bacillus is present in normal fæces. Of course, the reason why more people do not suffer from tubercle is that they are able to resist it, not because they do not get the bacillus into their body. Most tubercular abscesses in the rectum are the result of the organisms having reached the part via the blood-stream; the parts may also be infected by the patients' swallowing tuberculous sputum from their own lungs.

One of the commonest causes of fistula is a neglected fissure or ulcer in the anus. I have, on several occasions, seen a typical

fissure with a small fistula leading from it, and commencing to track towards the skin (Fig. 58). And I have also, on one or two occasions, had the opportunity of observing cases where a patient has come for advice with a painful fissure, and has ceased to attend as soon as the pain was re-

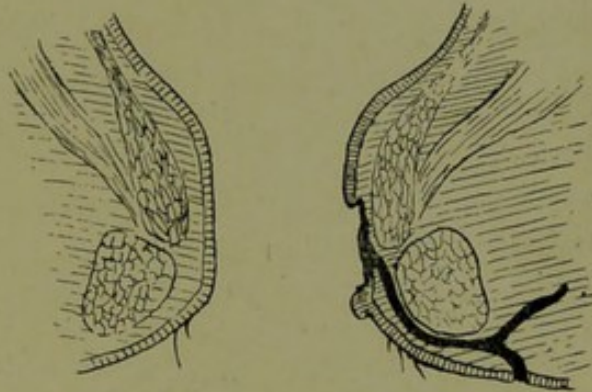


FIG. 58.—DIAGRAM SHOWING HOW A FISSURE MAY GIVE RISE TO A FISTULA.

lieved, but some months later has come to see me, and, on examination, I have found a typical fistula, the internal opening of which was situated at the base of the old fissure.

Foreign bodies, such as fish-bones, etc., are often stated to be common causes of fistula, but though such cases are occasionally met with, they do not appear to be common. I have on several occasions removed fish-bones from fistulæ, and occasionally other foreign bodies, such as the hard scaly portions of some fruits. But when a foreign body is found in the fistula, it does not necessarily follow that it has been the cause.

One of the commonest causes of fistula is an abscess at the anal margin or in one of the ischio-rectal fossæ. A fistula may result from necrosis of the pelvic bones, either due to periostitis or tubercle. In such cases the fistula often tracks towards the anus, and may easily be mistaken for a rectal fistula. In a few cases such a fistula may even have an opening into the bowel. Fistulæ

in connection with the urethra may also track back into the perianal region.

**Simple Fistula.**—The simplest form of fistula is one having an internal opening just within the anus posteriorly and an external opening on the skin behind the anus, with a straight track connecting the two. A fistula of this type not infrequently results from a neglected fissure. Such fistulæ do not pass deep to the external sphincter, and laying open the fistula will not involve division of the sphincters. This form of fistula is shown in Figs. 58 and 59, A).

**Fistulæ with Multiple Openings.**—However many external openings there may be on the skin, it is very exceptional to find more than one internal opening, and the late Mr. Goodsall was the first to point out that the internal opening and the external ones usually bear a definite relation to each other. He maintained that all fistulæ with their external openings behind a line drawn transversely through the anus have their internal opening in the middle line behind, while those fistulæ whose external openings are in front of such a line have the internal opening opposite to the external one. This is often a very useful rule to bear in mind, and will be found of much help in defining the exact formation of a fistula; but there are, of course, numerous exceptions to the rule, and it must not be depended upon too implicitly. In fistulæ of old standing there are often a number of external openings, five or six being not uncommon. Some of the external openings may be at a considerable distance from the anus, and the tracks may be very tortuous and complicated. In the majority of cases they will be found to communicate at some point behind the anus, and from this communication a track will be found passing into the bowel posteriorly.

**Horseshoe Fistulæ.**—A very common form of complicated fistula is what is usually called a "horseshoe fistula." The internal opening is generally situated in the mid-line posteriorly, and there is a track passing forward on each side of the anus to external openings at the sides. From the point of view of treatment, it is most important to know exactly how the track of a fistula passes from the internal to the external opening, as most of the failures to heal a fistula are due to some track, or part of one, being missed. Anterior horseshoe fistulæ are also met with, but are not so common as the posterior variety. Fistulæ completely surrounding the anus are occasionally met

with, and are usually associated with a posterior internal opening.

There are some points in connection with the anatomical relationship of a fistula which are most important from the point of view of treatment (Fig. 60). It is frequently taught that the commonest arrangement of a fistula is that in which the external and internal openings communicate by a track, which passes between the two sphincters, as in the diagram (Fig. 59, *B*), and this is the arrangement usually shown in the illustrations in books on the subject.

This is not, however, the commonest arrangement, and it is fortunate that it is not so. The internal opening is usually situated posteriorly at the mucocutaneous junction, but the track as a rule does not pass deep to the external sphincter, but superficial to it (Fig. 59, *A*).

It is quite obvious that, if the fistula passed deep to the external sphincter, the latter would be divided in laying open the fistula. I have made careful observations of the parts cut in a great many cases when operating for fistula, and have found that it is quite the exception to find any of the fibres of the sphincter

to have been cut. If, when operating for fistula, one divides the track to the internal opening by cutting down on to the director with an ordinary scalpel, instead of, as is more usual,

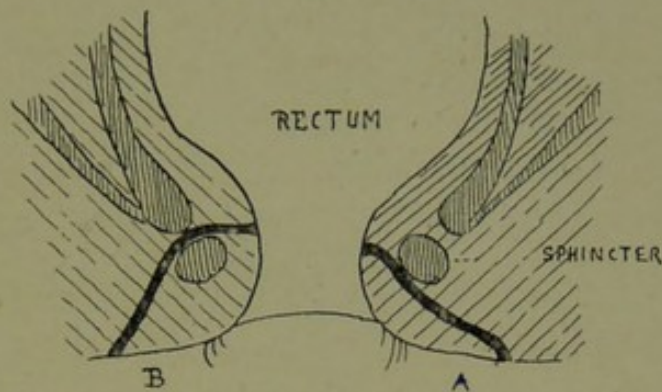


FIG. 59.—DIAGRAM OF RECTUM, SHOWING, *A*, USUAL RELATIONSHIP OF A FISTULA TO THE INTERNAL SPHINCTER, AND *B*, LESS USUAL, BUT COMMONLY DESCRIBED RELATIONSHIP.

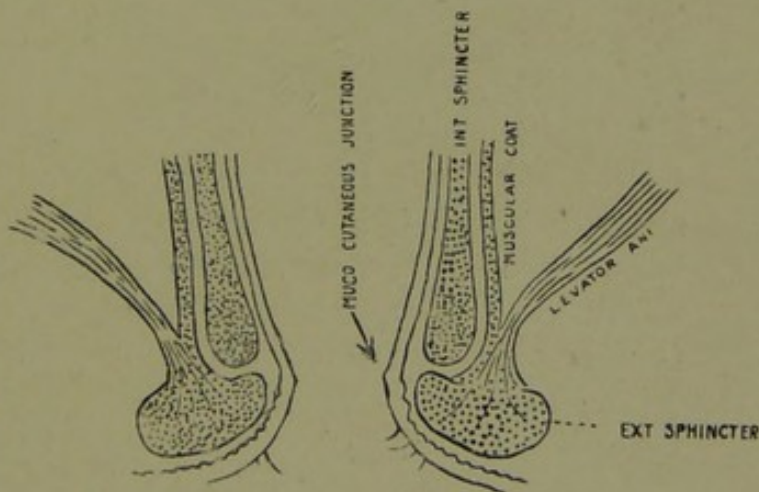


FIG. 60.—DIAGRAM TO SHOW ARRANGEMENT OF THE MUSCLES SURROUNDING THE ANAL CANAL.

transfixing it, it is quite easy to observe whether or not one cuts the fibres of the external sphincter. This has been my practice for a number of years now, and I have been surprised to find in how few cases the muscle has been cut.

Sir Rickman Godlee, several years ago, investigated this point in post-mortem subjects with fistula at the Brompton Hospital, and found, as I have stated, that the track of the fistula passes superficial to the external sphincter in most cases, and it was he who first drew my attention to this point.

The appearances are often most deceptive, for when a probe is passed through the fistula, there is a considerable thickness of tissue transfixed by the probe, and it seems as if the external sphincter must be included. The reason for this is, that there is a certain amount of inflammatory thickening at the anal margin, which causes the deceptive appearance, and leads one to suppose that the external sphincter muscle is superficial to the fistulous track. It has for long been supposed, if we may judge from textbooks of surgery, that division of the external sphincter is necessary to obtain healing, and some writers have even stated that the external sphincter must be divided in order to give rest to the parts. The belief that the track of the fistula usually passes between the external and internal sphincter muscles is a common one; but I am persuaded, from careful observation over a number of years, that such is not the case. While undoubtedly the track does pass between the sphincters in some cases, in the majority of cases it passes superficial to the external sphincter. After all, this is what one would expect. The inflammation which has caused the fistula tends to spread by the path of least resistance, which is along the subcutaneous cellular layer. There is no reason why a fistula should pass between the two muscles which are firmly connected together, rather than by the loose tissue overlying the external sphincter.

The track of a chronic fistula is usually a firm, hard, fibrous tube, lined with soft granulations, the amount and density of the fibrous tissue depending upon the length of time during which the fistula has existed. In tubercular fistulæ, on the other hand, there is often little or no fibrous tissue around the track, and the fistula consists of a tube of unhealthy granulations.

A fistula is often much more extensive than it appears to be from an examination of the outside skin; there are frequently tracks of considerable length running in different directions up

and around the bowel. It is always advisable to bear in mind that, with very few exceptions, the internal opening of the fistula is situated low down and within  $\frac{3}{4}$  inch of the skin margin. The fact that a track can be detected running up the bowel for some considerable distance does not mean that the internal opening is at the upper end of this track; it will probably be found low down near the anus.

### Rare Forms of Fistula.

One occasionally meets with cases of fistula with an external opening in the neighbourhood of the anus, in which there is either no communication with the bowel, or in which the starting-point of the fistula is in some other organ.

**Urethral Fistulæ** sometimes track backwards into the perineum, and may open at one side of the anus, in which case they occasionally imitate rectal fistulæ, and the mistake may be made of dividing them into the rectum, whereas, of course, they should be laid open in the other direction, though sometimes they do open into the rectum as well as into the urethra.

**Fistulæ in Connection with the Coccyx.**—Fistulæ are sometimes met with over the coccyx, due to necrosis of the bone. In such cases the proper treatment is to lay open the fistula and remove the terminal portion of the coccyx.

Fistulæ are also sometimes met with in this neighbourhood, due to a dermoid cyst between the coccyx and the rectum.

The following are two good instances of this rather rare condition:

*Case.*—The patient was a man, aged thirty-two, who consulted me on account of two small fistulous openings over the tip of the coccyx; these had been present for ten years, and there was a slight discharge of pus intermittently from the sinuses. Examination revealed two minute canals lined with epithelium, passing down to the apex of the coccyx, where they terminated blindly; they were evidently congenital relics of the neurenteric canal. I carefully dissected out the whole of these sinuses, together with a piece of surrounding tissue. The wound healed up well, and the patient has had no further trouble.

*Case.*—The patient was a man, aged twenty-seven. He complained of pain and tenderness over the coccyx and of



frequent discharge in this neighbourhood. He had had two previous operations for fistula, neither of which, however, had cured him, the fistula re-opening after a few months. On examination, there was a small discharging fistula, which passed down towards the apex of the coccyx; it obviously had no communication with the bowel. Under an anæsthetic I divided the fistula and traced it carefully backwards. It was found to terminate in a dermoid cyst about the size of a hazel-nut, situated on the anterior aspect of the coccyx. The cyst and sinus were completely dissected out and the wound healed rapidly. The cyst, on being opened, was found to be lined with epithelium.

Fistula is usually a disease of adult life. It may, however, occur at any age, and cases are not uncommonly met with in quite young children. I have met with one case in a child aged four months.

*Case.*—A boy, aged four months, had a history of discharge in the anal region for six weeks. He also had a double otorrhœa. On examination there was the external opening of a fistula just in front of and to the left side of the anus, and from this a track passed across in front of the bowel, and had an opening situated anteriorly. It healed rapidly after being operated upon.

*Case.*—A boy, aged five and a quarter years, had had a fistula since he was twelve months old. The external opening was situated anteriorly. There was a family history of phthisis.

*Case.*—A boy, aged six and a half years, had suffered for four years from a discharge from the rectum and frequent formation of abscess. He was otherwise a healthy child, with no history of tubercle. On examination, there were two external openings, one situated on the left side, and one on the right, and with a posterior horseshoe track communicating with a posterior internal opening.

**SYMPTOMS.**—The first stage of almost all fistulæ is an abscess near the anus. The abscess may only cause inconvenience for a few days, and then apparently heal up. If it were the practice to open all abscesses in this situation directly pus began to form, I believe many patients would be saved from the trouble of a

fistula. Unfortunately, when an abscess forms near the anus, it is a common practice for the doctor to advise the use of poultices or fomentations with the object of reducing the pain and inflammation. In the course of a day or so the abscess bursts, the patient is relieved of his discomfort, and the treatment therefore appears to have been quite successful. But it is often found that the abscess has tracked in different directions in the loose cellular tissue as the result of the fomentations and poultices, and a fistula is the consequence. This would have been avoided had the inflamed area been incised in the first instance. Abscesses round the anus and rectum do not afford much local evidence in the way of swelling until they have reached a considerable size. This is doubtless due in large measure to the loose character of the cellular tissue of the ischio-rectal fossæ, which readily allows the products of inflammation to spread without pushing out the skin. The external opening of a fistula is generally quite small, and very often there is a little protruding piece of skin guarding the opening, or a button-shaped granulation. At other times the external opening only appears as a pink depression on the skin, or can only be discovered by the oozing of pus from the opening when pressure is exerted upon the tissues in the neighbourhood.

The amount of pain which a fistula causes varies very considerably. As a rule there is very little pain, and all that is complained of is an occasional dull ache or sense of discomfort. It is usually only when a fresh track or an abscess is forming that the patient suffers any inconvenience, for at other times pain is usually absent. There is generally a certain amount of discharge, though this is never large in quantity except in very extensive fistulæ. Usually the discharge is thin and watery; when, however, the fistula is increasing or active, the discharge becomes definitely purulent. The discharge often ceases for a time, only to recur again later, generally after a period of discomfort. Bleeding seldom occurs from a fistula unless it is interfered with by probing, etc.

The usual symptom complained of by the patient is a more or less constant discharge, which stains his clothing. At intervals of a few weeks, or possibly months, the part becomes very painful for a day or two; this is followed by a copious discharge, after which the pain subsides. Often the wound appears to heal, and there is little or no evidence of its presence

for long periods. Such periods of quiescence are again followed by acute inflammatory symptoms and pain. Each time that a fresh abscess forms, the fistula tends to make fresh tracks and to increase in size.

Some patients who have quite large fistulæ seem to suffer extraordinarily little inconvenience. Occasionally pain in the back and pain after sitting for some time are complained of.

Tubercular fistulæ cause very few symptoms unless accompanied by ulceration of the anal margin or rectum.

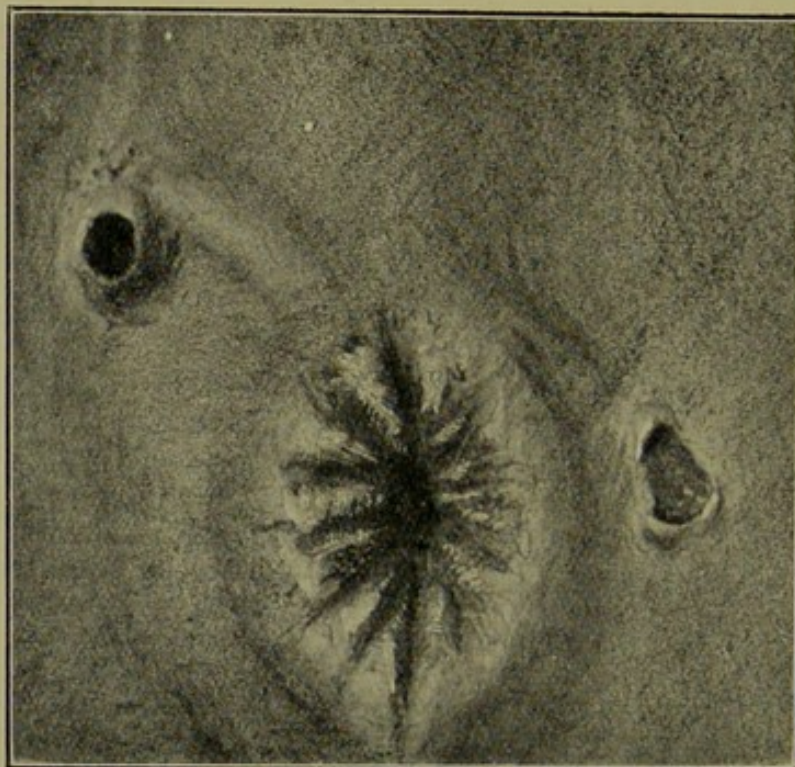


FIG. 61.—FISTULA WITH TWO EXTERNAL OPENINGS.

SPONTANEOUS HEALING OF FISTULÆ.—One is frequently asked by patients what the result will be if a fistula is left untreated, or, at least, unoperated upon, and whether there is any chance of its healing up without operation. The proper answer to such a question is that a few fistulæ, mostly small or simple ones, do heal without any treatment at all, but that the chances of any particular fistula doing so are small; and that, on the other hand, it is much more likely that the fistula, if left alone, will track and become more extensive.

In a somewhat considerable experience at St. Mark's Hospital I have known a fistula heal spontaneously some three or four

times. In each case the fistula was a small one of fairly recent date, and it was superficial.

*Case.*—A. B., a working man, aged thirty-two, came to the hospital with a semi-horseshoe fistula on the left side. The fistula was complete and was draining fairly freely. He was a healthy man, and there was no evidence of tubercle. Operation was advised, but he had to wait some weeks before his turn came for admission to the hospital. In the meantime he continued his ordinary work, and nothing was done to the fistula beyond keeping it clean. Three weeks after he was first seen he came up for admission, and, on examination, it was found that the fistula had entirely healed up, and it has not since broken down.

*Case.*—The patient was a shoemaker, aged twenty-eight. He was a patient in the Out-Patient Department at St. Mark's Hospital. When he first came to the hospital he had a small complete posterior fistula, the internal opening of which was just within the anus. The fistula was a small one and not complicated, though there were two external openings. It drained freely. The patient was given some carbolic lotion, and told to keep the fistula as clean as possible, until we were able to admit him for operative treatment. He was kept waiting about a month, and in the meantime went on with his ordinary occupation. When he came up for admission and was examined, the fistula had quite healed. A year later it had not broken down.

These cases are two typical instances of spontaneous healing of a fistula; it is a very rare event, and, as far as my experience goes, only occurs in small simple fistulæ where there is free drainage. For a fistula to heal superficially is quite a common thing, but real healing is rare. What generally happens is that the fistula, if left alone, continues to discharge for some time, and then the discharge gradually stops and the external opening heals over. Under such circumstances the patient often congratulates himself that he has avoided an operation, but a careful examination at this stage will show that the internal opening of the fistulous track is still patent and is discharging. In the course of a few weeks or months pain is again felt in the part, and a tender lump forms. Another abscess has, in fact, formed, and when this opens on the surface, a fresh track to the old fistula

is formed, and in old neglected cases of fistulæ this continues, till the whole perineum, and sometimes the buttock, is riddled with fistulous tracks. The healing after operation of such old neglected fistulæ is always a long and tedious process.

The following case, which recently came under my care, is a good example of the time a fistula will persist without healing:

*Case.*—The patient was a gentleman aged seventy-nine, whom I was asked to see because he had a chronic cystitis, and *Bacillus coli* had been found in his urine. He had a rectal fistula, and there seemed little doubt that the fistula was the cause of the infection of his bladder. He informed me that the fistula had been present for fifty years, sometimes being healed up for a few months, but always breaking out again. It had, with the exception of occasional attacks, caused him remarkably little inconvenience, and when I examined him I found a comparatively simple fistula, which communicated with the bowel by a minute opening. There was not a great deal of scar tissue, and he did not suffer from any loss of control or from faecal escape. As the fistula had accompanied him through such a large portion of his life, he not unnaturally refused to part with it.

TREATMENT OF TUBERCULAR FISTULA AND OF FISTULA IN THE TUBERCULOUS.—It is necessary to emphasize the distinction between these two conditions. A patient with phthisis may have a fistula which is not tuberculous, and by no means all the fistulæ met with in tuberculous subjects are due to infection with tubercle. The edges of a tubercular fistula are undermined and thin; the surrounding skin is bluish in colour, and the whole fistula looks callous and unhealthy. The treatment in these cases requires careful consideration. If the patient has well-marked phthisis, and if the fistula is not causing much pain or discomfort, and there is free drainage, so that the pus is not locked up, it should be left alone until the lung condition has been improved. If, however, the fistula is causing much pain and discomfort, or there is much ulceration and discharge, it should be operated upon, for, besides being a constant source of reinfection, it may seriously interfere with the patient's recovery by the discomfort which it causes. The operation should be done with the object of establishing free drainage rather than

with the object of curing the fistula, and there should be as little cutting as possible.

The question of administering an anæsthetic is a difficulty, and some surgeons advise using local anæsthesia in such cases. Personally, I have never seen any harm result from careful chloroform anæsthesia, provided that the operation is a short one. Ether is certainly contra-indicated in view of the condition of the lungs. The advisability, or otherwise, of administering a general anæsthetic is a question, however, which should be left to the physician in charge. As soon as possible after the operation the patient should be sent away to fresh country air, and live an out-of-door life, or should go direct to a sanatorium. Great improvement in the condition of the fistula results, but healing is often very slow.

It is important, when operating upon a tubercular fistula, to do so in such a way that there is no danger of causing metastatic tubercular infection or a general tuberculosis, by setting free tubercular organisms in the tissues at the time of operation; this is particularly important if, apart from the fistula, the patient is free from tubercular disease. If a tubercular fistula is laid open with a knife and scraped, it may result in a general tubercular infection, which is more serious than the original condition. Some three or four years ago I had a good example of this. The patient was an apparently healthy man, who was suffering from a fistula, which, at the time, I had no reason to suppose was of a tubercular nature. I operated upon him in the ordinary way. About a week after the operation the patient developed swelling and pain in the left knee-joint, which gradually got worse, in spite of treatment. The fistula, in the meantime, healed up, but the condition of the knee became worse, and it was soon evident that he had developed tubercular disease of the knee-joint. I think there can be little doubt that, in this case, the fistula was tubercular, and the operation set free organisms which infected the joint. In order to avoid such complications, the fistula should either be laid open with a Paquelin's cautery instead of the knife, or pure carbolic acid should be freely applied to all the raw surfaces after laying open the fistula. In this way any risk of causing a general infection can be avoided.

*Diabetes.*—In the case of a diabetic suffering from fistula we must be guided by circumstances. If the fistula is causing much pain and discomfort, and the amount of sugar in the urine is

small and has been stationary for some time, there is no reason why the operation should not be performed. I have several times operated for fistula in such cases, and, although healing was somewhat slow, the results were quite satisfactory, and there was no increase in the diabetic symptoms.

**THE TREATMENT OF FISTULA BY INJECTIONS OF NITRATE OF SILVER.**—The treatment of fistulæ by injecting strong solutions of nitrate of silver into the track is quite old, and has been practised by many surgeons. The principle of this treatment is to destroy the granulations lining the fistulous track, and so to promote healing and the filling up of the track with firm fibrous tissue. The usual method is to inject nitrate of silver (10 grains to the ounce) along the fistulous track by means of a special syringe; this is repeated every two days. The result is at first some pain and an increase in the discharge, but in favourable cases healing follows, and may sometimes be complete.

Some fistulæ can certainly be healed up by this method, but the result is always very uncertain, and healing, when successful, is very slow. This method of treatment is, moreover, by no means free from risk. In some cases severe sloughing of the tissues has followed the injections, and one cannot but believe that operative treatment is both safer and more effectual. The following case, which is taken from the records of St. Mark's Hospital, is certainly somewhat exceptional, but is an example of what may result from this treatment:

*Case.*—The patient was a working man, aged about thirty. He was suffering from a very troublesome fistula; this was operated upon, but one of the tracks re-formed and refused to heal. To save him the inconvenience of a second operation it was thought advisable to try if the injection of silver nitrate would heal up this track. A few minims of silver nitrate (10 grains to the ounce) were injected into the track of the fistula. On the first occasion the patient complained of considerable pain after the injection. A second and similar injection was made three days later. Immediately after the injection the patient complained of intense pain, which continued for many hours. The same evening his temperature rose to 106° F., and his condition became very alarming. The next day he still had a high temperature, and the parts were tender and swollen. Deep cellulitis,

accompanied by sloughing of the greater part of the lower end of the rectum, occurred, and the patient's condition became so desperate that his life was despaired of. He eventually recovered after months of illness and suffering, with a serious stricture of the rectum. There seemed no possible reason to doubt that the silver nitrate injection caused the sloughing and cellulitis in this case, though it is difficult to see why so very serious a condition should result from such a simple measure.

TREATMENT OF FISTULA BY THE INJECTION OF BISMUTH PASTE.—This consists in injecting an emulsion of bismuth subnitrate into the fistulous tract. The emulsion recommended by Dr. Rawson Pennington of Chicago is as follows:

Bismuth subnitrate	..	..	..	..	1 part.
Sterile vaseline	..	..	..	..	2 parts.

The paste is liquefied in a water-bath, and injected into one of the openings with a glass or metal syringe, the other openings being kept closed meanwhile. An icebag is then applied to the parts to hasten congealing of the paste in the tissues.

This treatment, though sometimes successful, often fails, and, although it enjoyed a brief popularity, there were many failures, and it is now little used except for diagnostic purposes.

(For further particulars on this subject, see a paper and discussion in *Trans. Amer. Proc. Soc.*, 1910, p. 81.)



## CHAPTER XIV

### *OPERATIVE TREATMENT OF FISTULA*

It is still often taught that the non-healing of a fistula is due to the movements of the sphincter muscle, and that, on this account, it is essential that the muscle should be divided in order to obtain healing of the fistulous track. While I do not deny that the movements of the sphincter muscle are a factor in preventing healing, I am sure, from my own personal observation in numbers of cases, that the movements of the muscle are a very small and unimportant factor. The really important hindrance to the spontaneous healing of a fistula is inadequate drainage. If the track of the fistula is thoroughly drained by carefully planned incision of the parts, healing will take place, even if none of the muscular structures have been divided. It is essential, however, not only to provide adequate drainage at the time of the operation, but so to plan the wound that there shall be adequate drainage of the deeper parts of the track until these deeper parts are healed. It is a peculiarity of wounds involving the anal canal that the part of the wound which lies in the bowel and involves the mucous membrane does not heal so fast as the cutaneous portion of the wound. It is, I am persuaded, a lack of recognition of this important fact that is often the cause of failure to obtain sound healing of wounds in this neighbourhood. When possible, the wound should be so planned that the portion of it involving the skin is considerably wider and larger than the portion involving the mucous membrane and the bowel; this will often require what at first appears to be an unnecessarily large wound. When operating at St. Mark's, I have often found that onlookers have been surprised at the amount of skin which I have cut away, no less than at the fact that the sphincter muscle has not been cut at all. The object of cutting away so large a proportion of skin is to provide a free

opening to the fistulous track, which will remain a free opening until the track itself is healed. The maxim to insure success in operating for fistula is, "Provide free drainage to all parts of the track." I feel sure that the reason why many surgeons have failed to obtain proper healing after operating on fistulae is not that they did not provide adequate drainage of the fistulous track at the primary operation, but that they did not appreciate the importance of providing adequate drainage during the whole period of healing. This is shown by the fact that healing is generally rapid at first, but when the fistula appears to be almost healed, the healing process seems to stop and further healing fails to occur. The explanation is that the drainage has become inadequate.

Where a fistula is very large and its tracks are deep, we cannot always "provide free drainage to all parts of the track" without danger of producing incontinence, and it is here that experience is of the utmost value. A happy compromise provides the best course in such cases, for it must always be remembered that it is both easier and better to perform a second operation for the purpose of re-establishing good drainage, when the wound has shown signs that it will not heal further, than to have to perform a second operation for incontinence. If the surgeon is not satisfied that he has provided adequate drainage, he should tell the patient that a further slight operation will be necessary; for if the patient is not so warned, he will naturally suppose that something has gone wrong to require a second operation.

OPERATIVE TREATMENT OF FISTULA.—There are several methods of operating for fistula, each of which will be described here. Thus, the fistula may be excised and the wound sewn up; the fistula may be simply excised and the wound left open; or the fistula may be incised and the wound left open. Obviously, the ideal method is to excise the fistula and completely sew up the wound, so as to obtain primary union; but this method, while ideal on paper, is seldom satisfactory in practice. As has already been mentioned in connection with the operation for piles (Chapter VI.), wounds at the anal margin which are stitched up seldom heal satisfactorily. Primary union of the wound rarely takes place, and when it fails to do so, pockets and channels form, which interfere with the healing of the wound and often necessitate its being laid open again; the stitches, too, are very liable to cut out. Nor is this method applicable to complex

and horseshoe fistulæ, which are particularly the cases where primary union would be of the most value.

Excision of the whole fistulous track, leaving the wound open, is a very satisfactory method when it can be carried out without sacrificing valuable tissue or leaving too large a wound; but this method is also not applicable to the more complicated fistulæ. One has always to remember that one must not leave the patient with a damaged anus or a mass of scar tissue, as this will cause more trouble than the fistula itself.

Simple incision of the fistulous track still remains the best operation for the majority of cases. As it is the operation most frequently applicable and most successful, it will be described first and at greater length than the other methods.

*Preparation of the Patient.*—The patient should be carefully prepared for operation, the object being to insure that the rectum is empty and will remain so for a reasonable period after operation. The patient should be prepared in the same way as has been described in the case of the operation for piles (p. 30). Careful preparation is most important, for though we cannot obtain an aseptic field of operation, owing to the infective material in the fistula itself, we can at least prevent further infection of the wound, and, moreover, we can thus prevent fæcal material from coming in contact with the wound until granulation has commenced. Attempts have been made by injecting carbolic acid or some other antiseptic along the fistulous track to render the latter aseptic, but my experience has been that there is little to be gained by this plan. Anyone, however, who doubts the value of rendering the parts as clean as possible has only to observe the difference between a fistula operated on in this way and one where fæcal material has been allowed to come in contact with the wound either during or immediately after the operation. A few days after the operation it will be seen that, whereas in the former case the wound is clean and already granulating, in the latter it will be sloughy, and healing will not have begun.

The skin round the anal margin should be shaved and painted over with iodine solution, consisting of 2 per cent. iodine in 75 per cent. rectified spirit. Strong antiseptics in this neighbourhood are apt to cause considerable irritation, and are therefore best avoided.

It is a great mistake to operate upon a fistula when there is

acute inflammation; when much pus is being discharged or a large abscess is present, the operation should not be performed. The proper treatment in such a case is to insure that there is free drainage, if necessary enlarging the existing openings for the purpose, and to have the tracks and pockets frequently irrigated with peroxide of hydrogen or some suitable antiseptic solution. Frequent fomentations and hot baths will also assist in the process of cleaning up a fistula; this often means delay, which is irksome to the patient, who naturally desires to get the operation over as soon as possible. It is, however, of considerable importance in obtaining a good result, and saves time in the end, as it much reduces the size of the wound which has to be made when the fistula comes to be operated upon.

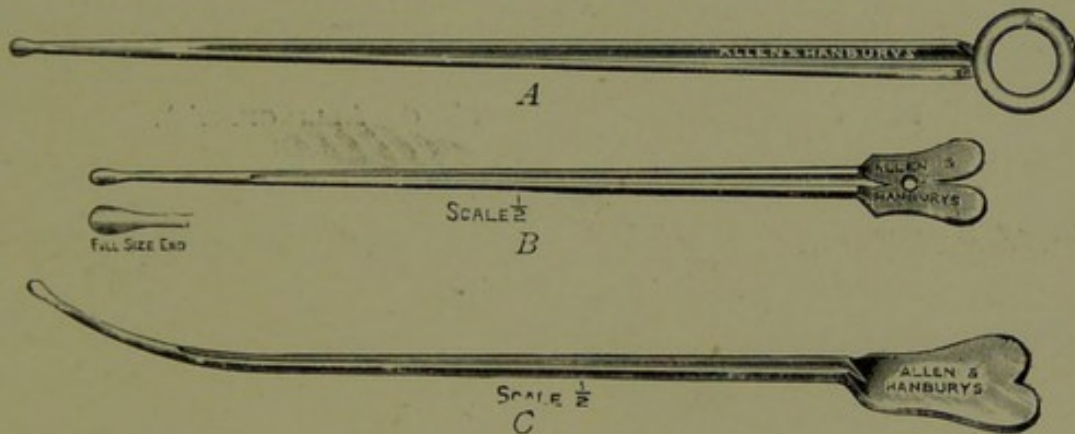


FIG. 62.—FISTULA DIRECTORS.

A, Allingham's pattern; B, silver probe director pattern;  
C, St. Mark's Hospital pattern.

*Position.*—The best position for operating upon a fistula is the lithotomy position. This may be obtained either by the use of the crutch or by foot-rests attached to the table; the latter is preferable when the proper table is available. The lower end of the table can be tilted up, or a small hard cushion placed under the sacrum; this gives a much better view of the parts and renders them more accessible.

The patient should be in a good light in front of a window; or a good artificial light should be used, which will illuminate the parts and show up the deeper portions of the wound. A good light is particularly important when a difficult fistula has to be operated upon.

The semi-prone position on the side may be preferred in some cases, and the patient should then be placed on the same side

as the fistula—that is to say, with the fistula on the lower side. This position is not so convenient where a horseshoe fistula has to be dealt with.

*Instruments.*—It is very necessary that the surgeon should be provided with the proper kind of probe directors; these should consist of several straight and curved steel probe-pointed directors (Fig. 62) and one or two flexible silver ones. A probe-pointed knife is also a very useful instrument (Fig. 63). A pair of Salmon spring scissors, with moderately fine blades, should also be provided (Fig. 64); while yet another useful instrument is a straight steel-grooved director in which the groove is taken to the end of the instrument.

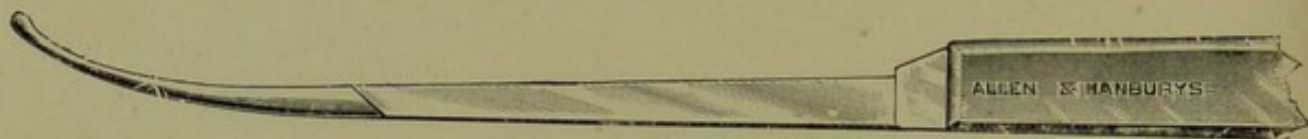


FIG. 63.—BISTOURY (CURLING'S OR ALLINGHAM'S).

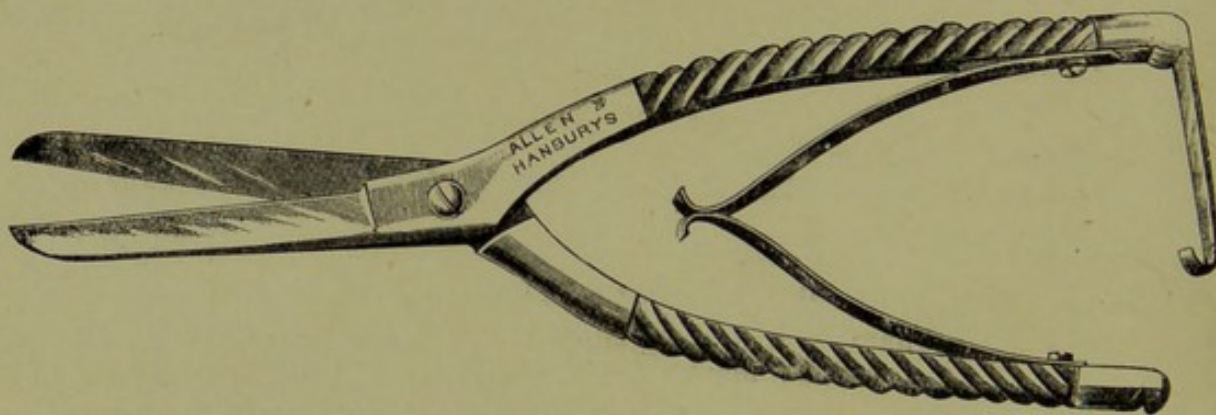


FIG. 64.

**Operation in the Case of a Simple Fistula.**—The simplest kind of fistula to operate upon is that in which there is one straight track between the external and internal openings. Before proceeding to deal with the fistula, it is most important, in all cases, to make a very thorough examination with a view to ascertaining that there are no other tracks or complicating conditions. One is often able to find out considerably more about a fistula when it is examined under an anæsthetic than it was possible to discover when the fistula was examined in the consulting-room. Not infrequently it will be found that a fistula which was previously thought to be quite a simple one will prove, on examination, to be a complicated one, there being deep tracks hitherto

undetected. Supposing, however, it has been found that the fistula is a simple one, a curved steel director, similar to the one shown in Fig. 62, with a fairly thick point, should be passed up the track of the fistula through the external opening and made to emerge through the internal opening of the fistula and out at the anus. If a director with a very fine point is used, it may easily be pushed through the wall of the fistula and part of the track will thus be missed. The director being in place, all the

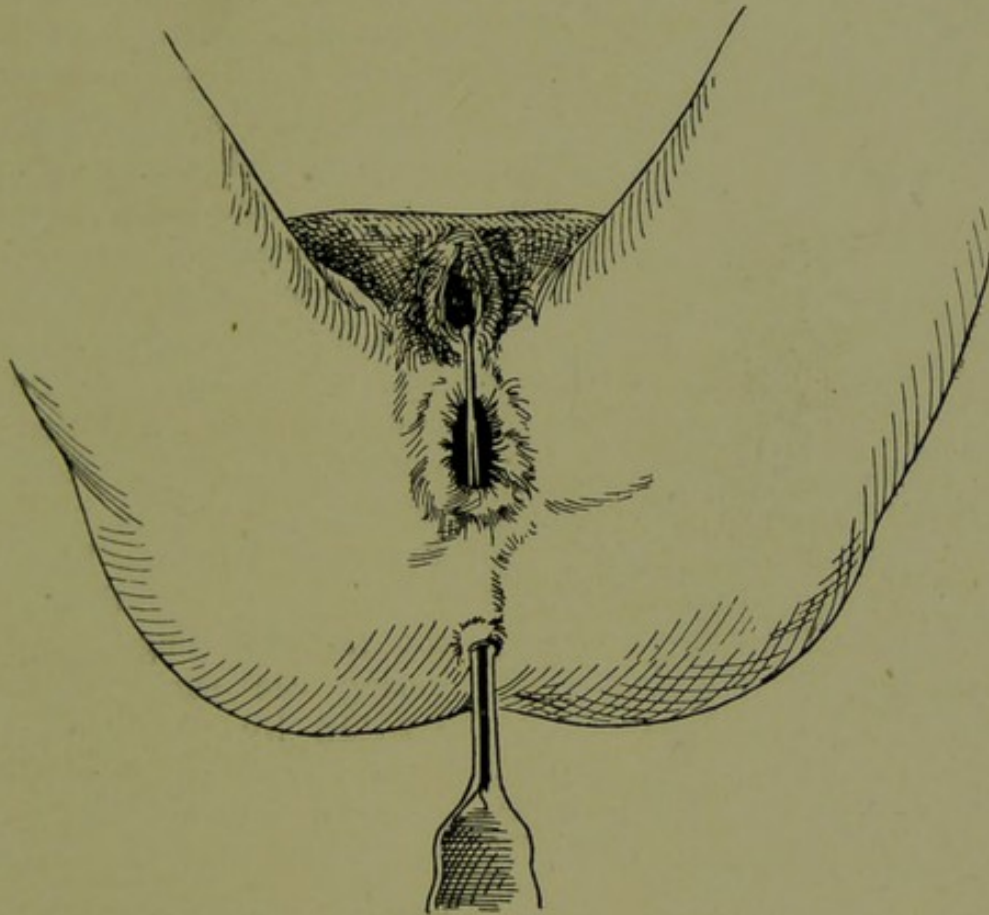


FIG. 65.—METHOD OF LAYING OPEN A SIMPLE POSTERIOR FISTULA.

tissues overlying it should be divided with a knife, either by passing a curved bistoury along the groove of the director and slitting up the tissues by transfixation, or by cutting down on the director with an ordinary scalpel (Fig. 65). The director is then free and may be removed. A clip is next fixed to the skin at either side of the wound to act as a retractor, and the wound is held open by the assistant. All granulation tissue lining the fistulous track is then scraped away with a Volckmann spoon, and the fibrous track left is carefully examined in a good light

to make sure that there are no other tracks, the openings of such tracks, where they exist, being generally seen as dark holes lined with granulation tissue. If there is a large amount of very dense fibrous tissue, it is a good plan to cut into it in one or two places; this was originally pointed out by Mr. Salmon, and has since been known as "Salmon's back-cut." Lastly, the edges of the wound must be freely cut away so as to leave an open wound without overhanging edges. Healing occurs much more quickly

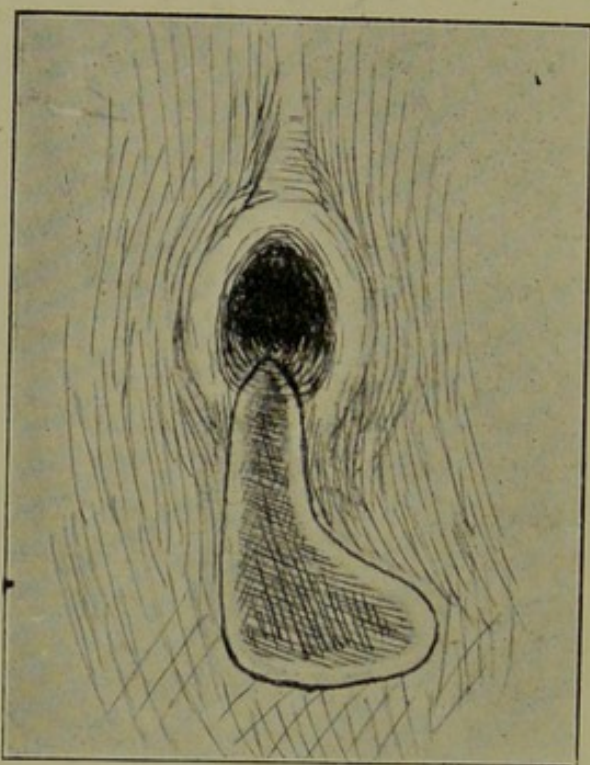


FIG. 66.—DRAWING TO SHOW THE TYPE OF FLAT, OPEN WOUND WHICH IT IS DESIRABLE TO LEAVE AFTER OPERATING FOR FISTULA.

in a wound which is open than in a narrow slit with thick, overhanging edges, and, moreover, the resulting scar is smaller and less unsightly (Fig. 66). After all the cutting has been finished, the wound should be examined for bleeding-points; any vessels that spurt should be caught in clips and tied off with fine silk. It should, however, be borne in mind that the fewer the ligatures left in the wound the better for rapid healing. General oozing can easily be controlled by plugging the wound with pieces of wool. In the case of a fistula where there is a deep wound and much oozing which it is difficult

to control, a large vulcanite tube can be placed in the rectum after plugging the wound; this will usually efficiently control any free oozing.

**Complicated Fistula.**—When the fistulous track is not straight, or there are other tracks communicating with the same internal opening, as in Fig. 67, the external tracks should first be carefully laid open, and last of all the track passing to the internal opening should be divided in the way already described, care being taken to make the incision into the bowel in an antero-posterior direction, or, in the case of a fistula with a lateral internal opening, radially to the anus. Oblique incisions through

the anal margin should always be avoided, as they are apt to result in loss of control and to leave a badly shaped and unsightly scar. It is well to bear in mind that, with very few exceptions, there is only one internal opening to the fistula, and that in all cases the anal margin and external sphincter, if involved, must only be divided in one place. All islands or promontories of skin and tissue left after the tracks have been laid open should be cut away. Nothing is gained by preserving them, and they seriously interfere with healing. The diagrams given here, in which the track of the fistula is shown as a dotted line and the wound which should be left after its division by a thick black line, will serve to illustrate the manner in which the operation should be performed. Several typical forms of fistula are shown (see Figs. 68 and 71).

In the rare case of a fistula having a lateral opening above the external sphincter, where the division of the fistula will involve complete division of the external sphincter laterally, it is necessary to be very careful, or most serious incontinence may result from the operation. It is a matter for serious consideration in such cases whether it is not better to avoid dividing the external sphincter laterally, even at the risk of the fistula not healing; a second operation being preferable to an incontinent anus. In some cases it is a good plan after division of the track to bring the ends of the sphincter together by deep traction sutures of silkworm gut or silver wire. By enlarging the opening of the fistula and draining the deep part of the track with drainage-tubes, one can usually obtain healing of a fistula with a high lateral internal opening without laying open the track into the bowel. Fistulae with high lateral internal openings should, if possible, only be

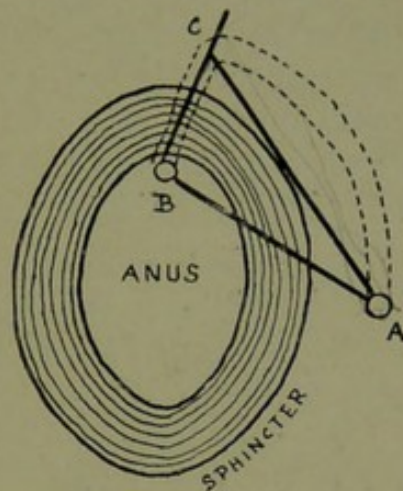


FIG. 67. — DIAGRAM OF ANUS, SHOWING THE METHOD OF DIVIDING A FISTULA SO AS NOT TO CUT THE SPHINCTER OBLIQUELY.

The dotted lines show the fistula. If a probe is passed from the external opening, *A*, through the fistula and out of the internal opening, *B*, and the fistula then divided, the muscle will be cut obliquely as at *AB*. The fistula should first be laid open along *AC*, and the director then passed through from *C* to *B*; the muscle will then be cut at right angles.



operated upon by specialists. I have seen quite a number of patients who have been rendered permanently incontinent by inexpert operations for this type of fistula. I cannot too strongly insist upon the importance of treating such fistulæ with the greatest caution. The great majority of cases of incontinence resulting from fistula operations are those in which the fistula had a lateral opening.

**Horseshoe Fistula.**—In dealing with a horseshoe fistula one may proceed in either of the following ways: The external tracks on each side of the bowel are first laid open by passing a grooved director through one of the external openings along the track, and slitting up the tissue over it with a curved bistoury passed along the groove of the director. (For this purpose, unless there are numerous external openings, a director grooved to the

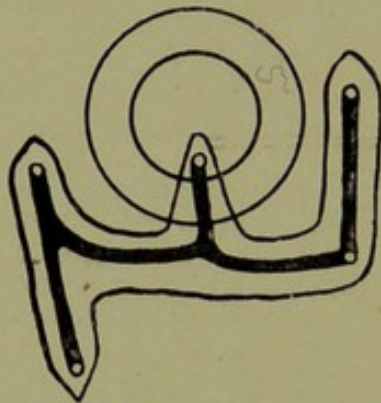


FIG. 68.—HORSESHOE  
FISTULA.

end will be required.) Or one may use a probe-pointed fistula-knife, such as that illustrated in Fig. 63. In this way the tracks not involving the bowel are laid open, one after another, until only the fistulous track which passes forward to the internal opening remains uncut. This is then divided on a grooved probe-pointed director passed through the track from the centre of the posterior wound (Fig. 68). An alternative method, which will some-

times be found easier, is first of all to expose the internal opening (which, as already mentioned, will in most cases be found posteriorly in the mid-line) by dilating the sphincter, and, if necessary, passing a speculum. A steel director is then passed into the opening from the bowel, and pushed straight backwards till its point can be felt or seen beneath the skin posteriorly in the mid-line. The end of the director is then cut down upon, and its point made to emerge through the wound posteriorly. The tissues overlying the director are then laid open by passing a bistoury along its groove. The side tracks are next divided by passing the director from the back part of the first incision along the director and out of the external opening, first on one side and then on the other. This being done, any subsidiary tracks are looked for and divided in the same way.

When there is a very large horseshoe fistula which surrounds the anus on three sides, it is often preferable to do the operation in two stages, the external tracks being laid open at the first operation, and when these are nearly healed, the posterior track communicating with the bowel being laid open at a second operation. The objection to performing the operation in one stage is that, owing to the skin supports of the lower end of the bowel being cut away and the bowel divided, a certain amount of retraction is likely to occur, with resulting deformity of the anus; and also that, for the same reason, the ends of the sphincter, where this muscle is divided, will very possibly not heal in good position, and as a result there may be loss of control after healing is complete. This can be avoided by doing the operation in two stages, as by the time the sphincter is cut the neighbouring parts are well supported by new tissue formed after the healing of the wound. By carefully planning the operation in two stages, a good rectal surgeon will be able to avoid the risk of incontinence following an operation for fistula, even when dealing with the most extensive fistulæ.

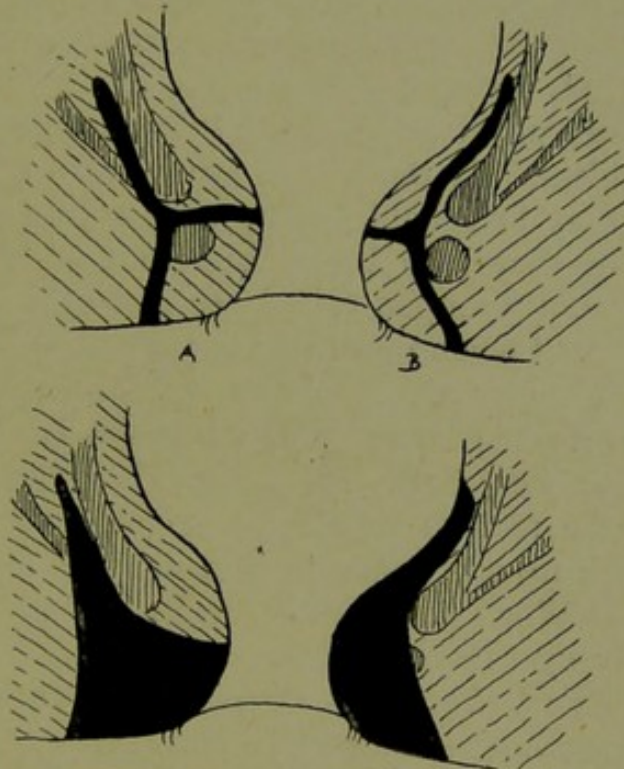


FIG. 69.—DIAGRAM SHOWING HIGH-LYING FISTULOUS TRACK, *A*, DEEP TO INTERNAL SPHINCTER AND, *B*, SUPERFICIAL TO IT.

The lower diagram shows, by the black areas, the parts which must be incised to secure adequate drainage.

It is always well to bear in mind that the worst possible result which can follow an operation for fistula is incontinence.

**Tracks running up the Bowel.**—It often happens that on investigation of the fistula after some of the tracks have been laid open, it is found that one or more of the tracks run up the bowel and parallel with its walls. Some rectal surgeons think these tracks should be laid open freely into the bowel, but personally I am not of this opinion. As my colleague, Mr.

Swinford Edwards pointed out many years ago,\* these tracks, even when they run a considerable way up the bowel, can be made to heal without being laid open. Such tracks should be thoroughly dilated with the finger, and a small piece of drainage-tubing passed up to their extremities, the end of the drainage-tube being cut off at the outer edge of the wound in the skin. If there is more than one track of this kind, each should be separately drained in the same way. These tubes are useful in enabling the tracks to be irrigated, as well as to be drained, and they should be shortened from time to time as the tracks heal up. If great trouble is experienced in keeping the tubes in place, a thin strip of ribbon gauze can be passed up each track instead of a drainage-tube, but this is not so effectual in keeping the tracks clean. If the tracks are found to be healing very slowly, they may be stimulated by nitrate of silver (30 grains to the ounce), or they may be swabbed out with pure ichthyol on a piece of wool wrapped round the end of a probe; this is the best treatment when the tracks pass up outside the muscular coat. When, however, the tracks are submucous, they can be safely laid open into the bowel, and the edges trimmed off with scissors, so as to leave flat, shallow wounds in the rectal wall. If this is done, the rectum should be irrigated twice daily to keep the wound clean, and healing will usually be found to occur quite rapidly.

When submucous tracks extend far up the bowel, it may be very difficult to control the hæmorrhage which will probably result from their division, and as the parts cannot be properly reached, this must be considered carefully before dividing them. If it is considered dangerous on this account to lay the tracks open into the bowel, the best treatment is that described for tracks outside the muscular coats.

**Fistulæ with a Lateral Internal Opening.**—As already stated, such fistulæ are rare; nevertheless they are occasionally met with, and require very careful treatment, as they are particularly liable when operated upon to result in incontinence. In cases where it is necessary to divide the sphincter muscle, great care must be taken to cut it cleanly at right angles, and to leave a straight wound which will heal up so as to bring the ends of the sphincter well into accurate contact when the wound is healed (Fig. 70). Such fistulæ are often best treated by excision and suture, although very good results can be obtained by incision,

\* *Brit. Med. Jour.*, July, 1887.

provided care is taken not to divide the muscle obliquely. The sphincter should never be cut through laterally unless this is absolutely necessary, and in the case of a large fistula with multiple external openings and a lateral internal opening, the operation should be done in two stages, so as to make the wound resulting from the incision of the sphincter as small as possible. It has already been pointed out that the track leading to the internal opening passes superficial to the external sphincter in most cases, and it will be possible to lay open the fistula without cutting this muscle. The old idea that healing will not occur without division of the muscle is erroneous, and on no account should the muscle be divided unless this is necessary to obtain proper drainage.

**Fistulæ in which the Internal Opening is above the Internal Sphincter.**—

There has been much discussion at different times as to the advisability in such cases of laying open the whole of the fistulous track, owing to the liability to incontinence which exists as the result of division of both sphincters. I have seen many cases, in which both sphincters have been cleanly cut through posteriorly, where the wound has healed up quite satisfactorily and the control has subsequently been normal. It is certainly advisable, if possible, to avoid dividing the internal sphincter; but one need not hesitate to divide it should this become necessary for the purpose of healing the fistula. Good healing can sometimes be secured by cutting down upon the upper part of the fistulous track from outside the external sphincter and without dividing it. If good drainage can be established to that part of the track in immediate relation to the internal opening, and care is taken by frequent dressings and irrigation of the wound to keep the parts clean, the upper part of the track and internal opening can often be made to heal. If it is then found that the lower part of the track is not healing, the external sphincter may be carefully divided at a second operation. There are few things worse than to leave a

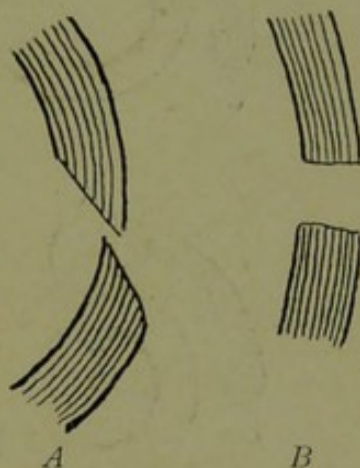


FIG. 70.

*A*, Diagram to show the result of dividing the sphincter obliquely. Good union between the muscle ends will not take place; while in *B*, where the muscle is cut transversely, the union will be good.

patient after an operation for fistula with an incontinent anus ; it is far better to leave him with an unhealed fistula.

**Blind Internal Fistula.**—In this type of fistula the sphincter should be well stretched, and a speculum, preferably of the

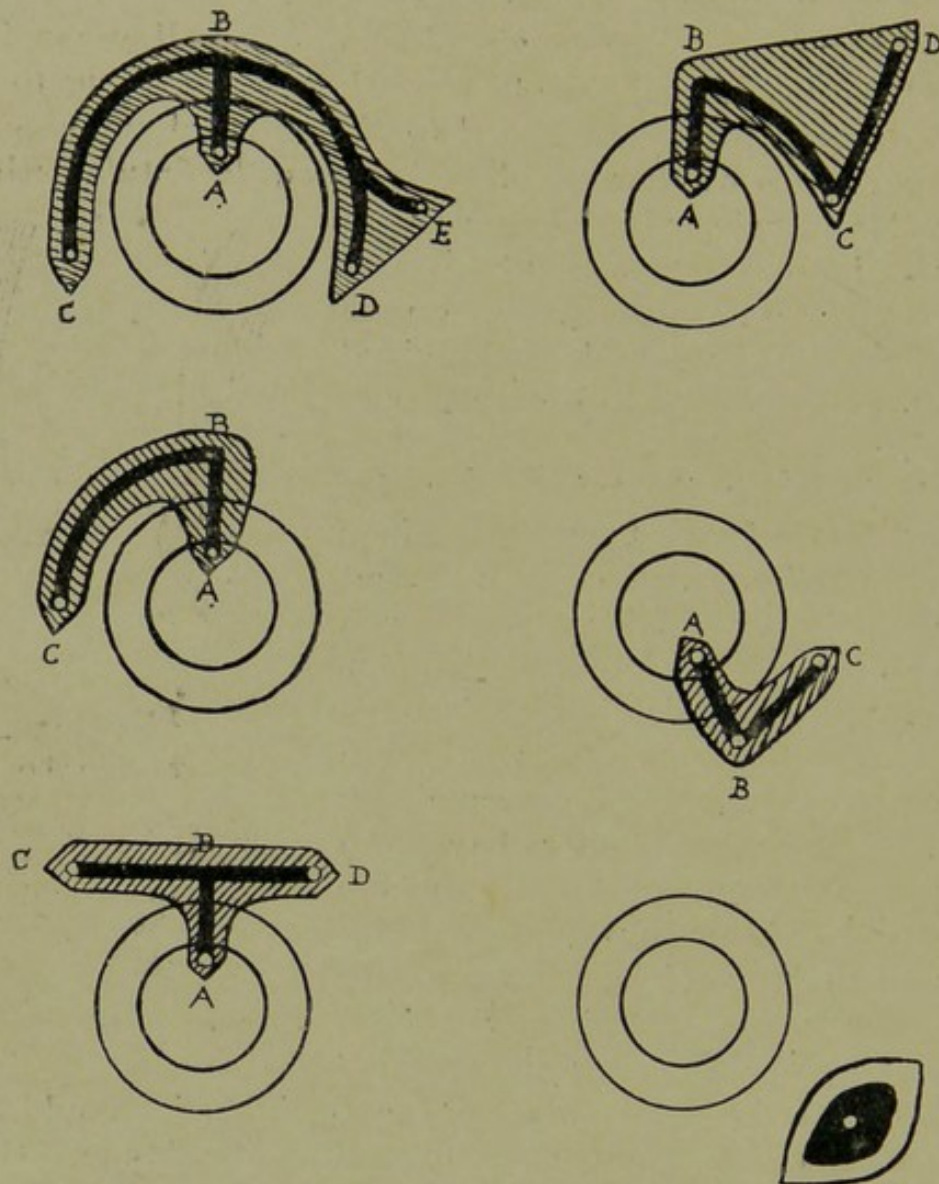


FIG. 71.—DIAGRAMS TO SHOW THE METHOD OF INCISING DIFFERENT FORMS OF FISTULÆ.

*A*, Internal opening; *B*, nearest point of fistula radially from *A*. The incision from *B* to *A* is made after the remainder of the fistula has been divided. In each diagram the fistula is shown as a black line, the openings as white dots, and the shaded areas show the shape of the wound left after operation (the upper end of each diagram is posterior).

“duck-bill” type, put in the bowel so as to give a good view of the internal opening. A probe-pointed director should then be passed into the fistula from the bowel opening, and its point

made to press up against the skin at the extremity of the fistula. This should be cut down upon so as to make the fistula complete and the tissue overlying the director slit up. The rest of the operation is the same as for an ordinary complete fistula.

**Blind External Fistula.**—There may be two, or even three, external openings having no communication with the bowel; or, more frequently, there is an abscess communicating by one of several openings with the surface. The tracks, or abscess, should be opened by a crucial incision, and the skin and tissue cut away so as to produce a shallow wound, the superficial or skin part of which is considerably larger than the deep part. If no communication with the bowel is discovered, it is quite unnecessary to lay the wound open into the bowel. Such fistulæ heal very rapidly if well opened up by free incision. They should subsequently be treated in just the same way as an ordinary fistula.

**Fistulæ with Two Internal Openings.**—When there are two internal openings, they should not be divided at one operation. The best plan is to lay one open, and to leave the other until the wound resulting from the first operation has healed.

**Operation with Suture of the Wound.**—Nearly every rectal surgeon has at some time or other attempted to close a fistula wound by suture, and a great many methods have been described. This practice is only suitable for comparatively simple fistulæ, and even then it is seldom that anything is gained by it. It is, however, valuable in cases of fistulæ with lateral openings and in cases of very complicated, extensive fistulæ, in which part of the track may often be sewn up with advantage.

It is essential that the operation should be carried out under the strictest antiseptic precautions, as everything depends upon primary union of the wound. If possible, the fistulous track should itself be sterilized by the injection of iodine solution, carbolic acid, or some other form of antiseptic, into the track previous to operation. Many surgeons use bismuth solution, and this has the advantage that, owing to its colour, it renders the track of the fistula very easily recognizable. The track of the fistula should be cut down upon and the fistula excised, its lumen being interfered with as little as possible. When it is certain that all the fistulous track has been removed, the wound should be thoroughly cleansed with a weak antiseptic solution, either lysol (1 drachm to the pint) or perchloride of mercury

(1 in 2,000). The sides of the wound must be brought into accurate position by sutures passed well through the tissues on both sides and beneath the bottom of the wound (Fig. 72). The wound should, in fact, be sewn up in the same way as in sewing up a ruptured perineum by Lawson Tait's method. Everything depends upon accurate apposition of all parts of the wound.

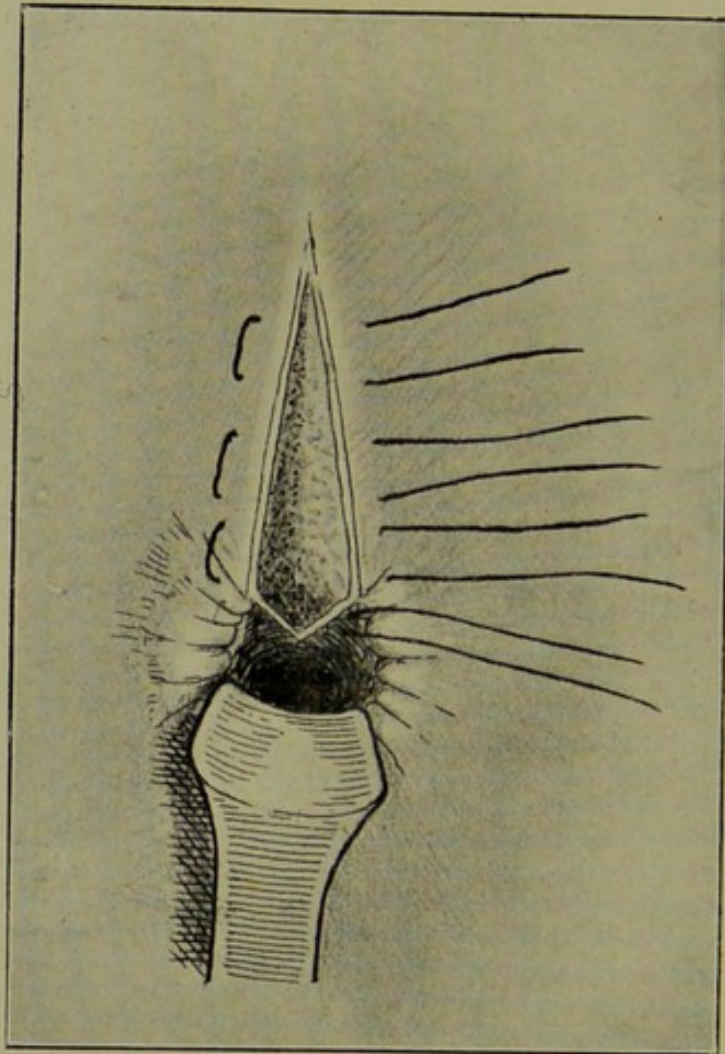


FIG. 72.—METHOD OF SUTURING THE WOUND AFTER EXCISING A SIMPLE FISTULA.

If the wound is large, one or two traction sutures of silver wire or stout fish-gut may be used to support it. Personally I prefer to use medium-size fish-gut as the suture. A very good plan, when it can be carried out, is to raise a small flap of mucous membrane opposite the inner surface of the wound, and to bring this down and stitch it over that portion of the wound which is exposed in the bowel. If the stitches are tied too tightly, they

will cut out prematurely, and a great deal of the success or otherwise of the operation depends upon the care and accuracy with which the stitches are inserted. Needless to say, the wound must be kept aseptic as long as possible, and absorbent sutures must not be used, as they will act as wicks in carrying infection to the deeper parts of the wound.

One of the great difficulties of this method is that very often the tissues in which the wound is made consist of little else than fat and loose connective tissue upon which it is difficult to obtain any hold with the sutures. Sir Charles Ball has described a method of sewing up fistulæ which is designed to overcome this difficulty. Instead of excising the fistulous track, he scrapes it thoroughly, and attempts to sterilize it with pure carbolic acid. The sutures are then passed deep to the fibrous tissue forming the wall of the fistula, and the wound is closed by accurate suturing, each suture passing deep to what is left of the track. The objection to this would seem to be that what is left of the original fistulous track is almost certainly infected tissue, and there will be a tendency to the re-formation of the fistula along what is left of the fibrous track.

**Excision of Fistula.**—Where the track is not very deep or very extensive, healing is often much more rapid if the fistulous track is entirely dissected out. In the case of deep fistulæ, however, this will often necessitate cutting into the fatty tissue and making a very extensive wound, which is not advisable. It is best to dissect the track out, starting at the internal opening. The fibrous tissue forming the track can be picked up in Vulsellum forceps, and the track dissected out by a few touches with the scalpel. If it is not proposed to sew up the wound, the edges should be cut away in the manner already described in the treatment of fistulæ by incision.

### Special Forms of Fistula.

**Recto-Urethral Fistula.**—In this condition there is an abnormal communication between the urethra and the rectum, and obviously the condition can only occur in men. It may result from a number of causes, such as traumatism, wounds, and operations upon the urethral tract or perineum. It may also be due to an abscess originating in the urethra and bursting into the rectum. It sometimes results from abscess of the prostate, and may occur as a secondary consequence of neglected urethral



stricture. Occasionally it may have its origin in the rectum, and the track may secondarily ulcerate into the urethra. The condition is an exceedingly annoying one, owing to the constant passage of urine along the track into the rectum, or on to the skin of the perineum. Occasionally gas from the rectum may pass into the urethra, though this is far less common.

The diagnosis is not usually in much doubt, but if there is any question as to whether there is complete communication between the two canals, the injection of a little methylene blue or milk into the urethra will generally make the diagnosis certain, as the fluid can be watched escaping at the anal orifice.

This condition is often an exceedingly difficult one to cure, and the only chance of putting it right is by means of a carefully planned plastic operation after all urethral obstruction has been removed. A catheter should be tied into the bladder for ten days after the operation. The track should be dissected out by an incision in the perineum, and the urethra carefully repaired by turning down and stitching flaps in place over the gap. The opening in the rectum should be similarly repaired. Part of the wound in the rectum may be stitched up, but it is advisable to leave free drainage into that portion of it near the urethra. A tube should be kept in the rectum to prevent any accumulation of flatus. For further details with regard to the operation for recto-urethral fistula, the reader is advised to consult a larger work on operative surgery.

**Recto-Vesical Fistula.**—This differs from recto-urethral fistula in the fact that the urine escapes constantly into the rectum, whereas in the case of recto-urethral fistula the escape occurs only during micturition. This condition is apt to be serious, as sooner or later a septic cystitis is usually set up owing to the passage of flatus and débris into the bladder along the fistulous track, and considerable trouble may be experienced in getting the fistula to heal. As in the case of recto-urethral fistula, the only chance lies in a carefully planned operation after all obstruction both to the rectum and the urethra has been removed.

**Recto-Vaginal Fistula.**—This condition frequently results from injuries connected with parturition, badly fitting pessaries, or venereal ulceration. It may be met with in cases of tuberculous or carcinomatous ulceration of the rectum or vagina. Where the condition is due to extensive disease, no attempt at curing the condition is admissible unless the primary disease can be got rid

of. In any case, no attempt should be made to operate upon the condition as long as there is inflammation or ulceration present. Recto-vaginal fistulæ not connected with extensive disease are fairly easy to cure if they are operated upon in the right way. The exact operation which it is necessary to perform will vary with the position and extent of the fistula, and with its relation to the rectum and vagina. The best method in many cases is to separate the rectum and vagina so as to get at the fistula, to repair the opening in the vagina, and also that in the rectum, and then to perform perineorrhaphy. In any case pressure in the rectum should be prevented for some time by keeping a tube in the bowel, and the patient should be kept in bed until the wound is absolutely healed.

**Fistula connected with Bone Disease.**—Fistulæ due to caries of the sacrum or coccyx may track down into the neighbourhood of the rectum and closely imitate rectal fistulæ, or may open into the rectum so that they become secondary rectal fistulæ. Such cases are not at all common, but if they are to be cured, it is necessary that they should be recognized. A case was reported by Dr. Ralph Jackson (American Proctological Society's Transactions, 1912, p. 126) in which a man, aged thirty, had a fistulous track opening into the rectum as the result of an abscess of the left hip-joint which had tracked in this direction, the fistula communicating with the left hip-joint.

Fistulæ are sometimes met with over the coccyx which are due to caries of that bone, or to disease in the sacro-coccygeal joint. In such cases the best treatment is usually to excise the coccyx. Another type of fistula over the coccyx is due to a dermoid. In such cases the dermoid is generally situated on the anterior aspect of the coccyx, and it will usually be necessary to remove this bone before the cyst itself can be reached and removed. I have twice removed a small dermoid containing hair from the front surface of the coccyx, and so cured a fistula which had previously failed to heal in spite of several operations, the presence of the dermoid cyst not having been previously suspected.

**COMPLICATIONS—Hæmorrhage.**—Serious bleeding is seldom met with in operations for fistula. Careless division of a high-lying fistula may result in hæmorrhage which it is difficult to control; but in such a case long pressure forceps can be placed on the bleeding-point, and if it is found difficult to tie the bleeding-point off, they can be left on for twenty-four hours. Free oozing

from the cut surfaces soon stops, and this can be hastened by irrigating the wound with hot hazeline solution. In the unfortunate event of the patient being a hæmophiliac, fatal hæmorrhage may occur. We have had one such case at St. Mark's Hospital, in which all efforts to control the bleeding were ineffectual.

*Retention of Urine.*—This not infrequently occurs, especially if there is much tight packing in the bowel; and before using a catheter it is advisable to remove any such packing and see the effect. In any case retention will pass off in a day or two.

*Incontinence.*—A certain amount of incontinence almost invariably occurs for a time after any extensive operation for fistula, but this should entirely disappear when the wound has healed. It is as well to warn the patient that there will be a certain degree of incontinence during the process of healing, or he may be unduly concerned about it. Permanent incontinence should never result from a properly performed operation for fistula, but unfortunately cases are met with in which this very serious complication has resulted. The only treatment in such cases is another operation for the repair of the anus. A description of the various operations for this purpose will be found in the next chapter. If the wound is healed and there is bad incontinence, it is quite useless to tell the patient to wait in the hope that continence will return. No material improvement is to be expected, and the best result from a plastic operation will be obtained if this is done immediately. The following case is a good example of incontinence following an operation for fistula where the operation was carelessly performed.

*Case.*—The patient was a wealthy and busy City merchant, fifty-two years of age. Six years before I saw him he had been operated upon by a well-known rectal surgeon for a bad "*fistula in ano.*" The wound had taken a long time to heal, and when he began to get about he found he had lost control over his bowel. Ever since that time he had been in constant fear of an accident owing to the loss of power to control his evacuations, and he had had to wear a pad. A subsequent operation, performed with the object of restoring his control, failed to give any relief. During the year before I first saw him he had been getting more uncomfortable, and accidents had been more frequent, so that he was almost afraid to leave his house. On examining

the parts, I found that the anus was simply a patulous opening, three-quarters of which was composed of fibrous tissue, and that there was a large prolapsed mass of mucous membrane protruding partly through it. There were no signs of any muscular tissue surrounding the anal opening, and it appeared that the muscle had been so damaged at the original operation that what was left of it had completely atrophied. As the patient was very anxious to have something done to improve his miserable condition, I operated upon him again. On exposing the parts I was quite unable, after a most careful search, to find any traces of the external sphincter muscle, and I therefore narrowed the patulous opening as much as I dared by a plastic operation, and removed the mass of prolapsed mucous membrane. This operation gave the patient considerable relief, and enabled him to control his evacuations much better than before. But in the absence of any sphincter muscle, it was impossible to give him complete control.

AFTER-TREATMENT.—In my opinion, no surgeon should undertake an operation for fistula unless he is able and willing to supervise the after-treatment himself. Too often the surgeon operates upon a case of fistula, and then never sees the case again, or not until the wound has refused to heal. Most of the failures to heal in the case of fistula are due to the fact that those responsible for the after-treatment of the case do not understand what is necessary. In proof of this I may here state the fact that the average period before healing is complete after an operation for fistula at St. Mark's Hospital is under four weeks, in spite of the fact that probably the practice of this hospital includes most of the worst cases of fistula in London. The actual figures for over 200 of my own cases at St. Mark's are as follows: Average period of healing in days, males, 25·1; females, 17·7. Judging from the inquiries I have made, the average period before healing is complete after a fistula operation at some of the large general hospitals is nearer two and a half months.

It is most important that the wound should be kept as clean and as free from discharge as possible, and for this purpose the dressing should be changed frequently. In the case of a large fistula wound where there is much discharge, the dressing should be changed every six hours, or even oftener; and in the case of

an ordinary fistula wound which is clean, it should be changed at least twice a day. It is never sufficient to dress the wound only once in twenty-four hours, or, as I have known to be the practice sometimes, once every two or three days. For the first three or four days the wound should be dressed with hot fomentations, changed as frequently as possible. The fomentations should be applied over the wool which is in the wound, and the latter should be left *in situ* for the first thirty-six hours, and then changed as soon as it is soiled. The bowels should be opened on the third or fourth day by an aperient dose, aided by a small quantity of olive oil injected into the bowel. After this the patient should be allowed to sit in a hot antiseptic bath night and morning. The cotton-wool will soak out of the wound while he is in the bath, and fresh wool should be carefully laid in the wound after the bath. The wound is best dressed with flat strips of wool, which should be of the best kind, and not the cheap fluff which is so often supplied in these days. A narrow, thin strip of this wool should be wrapped around a dressing-

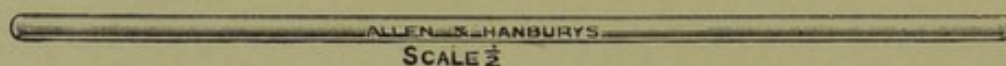


FIG. 73.—DRESSING PROBE. (ST. MARK'S HOSPITAL PATTERN.)

probe (Fig. 73), and, by means of the probe, passed up into the deeper part of the wound until it enters the lumen of the bowel. If the probe is then gently pressed against the wound, it can be removed, leaving the wool in position in the wound. The first finger of the left hand passed into the bowel will often assist in placing the wool accurately in position where the track is a deep one. With the end of the probe the strip of wool should next be adjusted carefully so that it lies evenly along the floor of the wound. Then a few, small, flat strips of wool should be laid in any side tracks or superficial portions of the wound. On no account should the wound be firmly plugged with dressing. Plugging of the wound is a mistake unless one wishes to prevent it from healing, and for this purpose I know of no more effective method. The following case affords a good example of the evils of plugging the wound.

*Case.*—I was consulted by a young Army officer who had had the misfortune to develop a fistula. He had been operated upon by a country medical man for this condition,

but the wound had refused to heal. Two further operations had been performed at intervals in the hope of getting the wound to heal, but without success; and the patient had had the mortification of watching the spring become summer, and the summer fade into autumn, while he was still laid up with his fistula. Altogether he had been laid up for six months. At first I was rather puzzled as to the cause of this, for the patient was a thoroughly healthy young man, and the wound was apparently quite superficial and healthy. Moreover, the operation appeared to have been correctly done, the most careful examination failing to reveal any unopened side tracks or complicating conditions. On careful inquiry, however, I ascertained that the wound had been most energetically plugged, and I came to the conclusion that this was the cause of the trouble. Accordingly I kept him in bed and had the wound very lightly dressed twice a day with a small strip of wool soaked in sterilized olive oil, with the result that in three weeks the wound was soundly healed.

When once the surface of the wound is covered with healthy granulations, it is important to protect these and the growing edge of the skin from damage each time that the dressing is changed, and for this purpose there is nothing better than a dressing of wool soaked in olive oil or vaseline. At this stage antiseptics should be avoided, as they tend to damage the delicate granulations and to delay healing. Peroxide of hydrogen, though useful as an application to clean up a sloughy wound, should not be used once the wound has cleaned up, as it tends to produce exuberant and unhealthy granulations. The wound always requires careful watching to see that healing is progressing satisfactorily. Occasional stimulation is often required. For this purpose *lotio rubra* applied on wool for a day or two, or Friar's balsam applied once, is very useful. Weak silver nitrate (10 grains to the ounce) may sometimes be used with advantage, but strong silver nitrate should not be used except to destroy unhealthy granulations, as it usually does more harm than good. Scarlet red ointment is sometimes useful, but it is a mistake to use stimulating applications often. The wound must be carefully watched for signs of bridging or the formation of new tracks. The latter may always be suspected if the discharge from the wound increases in amount or fails to stop. If a pre-

viously healthy wound suddenly begins to discharge, it is an almost certain sign that a new track has formed. Any bridges of tissue that are discovered should be broken down with a steel probe or cut through with scissors, and new tracks must be at once laid open. When the wound is quite healthy and nearly healed, it is best to apply no dressing at all, but to keep the parts clean and apply a little vaseline to protect the surface.

The patient should be kept in bed, or at least in the recumbent position, until healing is quite complete; and after this for a week he should not walk about more than is absolutely necessary, so as to allow the scar to get firm before it is subjected to much movement. It is a great temptation to both doctor and patient to allow the latter to get about a little when the wound is nearly healed; but this wastes time in the long-run, and often results in considerable delay in the final healing of the wound.

During the whole process of healing care must be taken to insure that the stools are quite soft, as a hard stool may delay healing for a week or more.

**Causes for Non-Healing of the Wound after an Operation for Fistula.**—(1) Inadequate operation. (2) Insufficient drainage. (3) Too tight plugging of the wound. (4) Bridging of the wound. (5) Some constitutional condition of the patient.

One of the most common causes of the wound refusing to heal is that some deep track or pocket has been missed at the operation. In such a case one part of the wound will be found not to heal, and on investigation a deep track will be found opening into this part of the wound. In such circumstances the only thing to do is to operate again, and freely lay open the deep track. Frequently it is the communication with the rectum that is missed at the operation, and the fact that a fistula refuses to heal is generally a safe indication that some part of the original fistula has been missed, and that further operation is essential. Very often the patient is told that the reason why the fistula does not heal is that his constitutional condition is poor, or that the fistula is tubercular in origin, whereas the real cause is that the fistula has been inadequately operated upon. At St. Mark's Hospital fully one-third of our cases have been previously operated upon elsewhere, and on examination, we find that some track has been missed.

Another not uncommon cause is insufficient drainage owing to the external part of the wound not having been made large

enough, so that the outer part of the wound heals up before the deeper part, and the latter, being insufficiently drained, refuses to heal.

Bridging of the wound will also prevent healing (Fig. 74). This ought not to happen if the wound is properly dressed; but should it occur the bridge of tissue must be cut through, or broken down with a probe.

Healing is rarely delayed by some constitutional condition of the patient, such as tuberculosis, diabetes, alcoholism, etc. Sometimes, when a fistula refuses to heal, a change to the country or the seaside will result in rapid improvement; but in the vast majority of cases in which a fistula refuses to heal the cause is inadequate operation or improper after-treatment.

It is often assumed on quite insufficient evidence that when the wound refuses to heal there must be something wrong with the patient—that he is the subject of some constitutional disease, such as syphilis, tuberculosis, or Bright's disease, or that some particularly malignant type of micro-organism has infected the wound. Personally, I have never believed in this doctrine, and although I do not

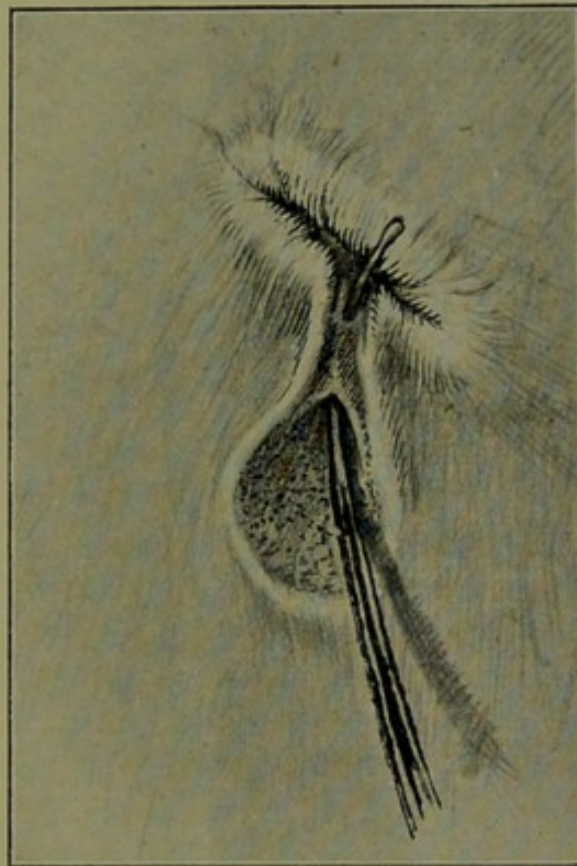


FIG. 74.—BRIDGING OF A FISTULA WOUND, SHOWING CURVED PROBE PASSED BENEATH BRIDGE.

deny that occasionally cases are met with in which the constitutional condition of the patient prevents or delays healing, I believe that in the great majority of cases of delayed healing the fault lies in the fact that the surgeon has missed some deep track, or has not laid the fistula open freely enough to provide adequate drainage. If tubercle or syphilis is the cause of the non-healing of the wound, the obvious conclusion is that the patient was not in a sufficiently good condition to be operated upon at all.



## CHAPTER XV

### *RECTAL INCONTINENCE*

RECTAL incontinence is one of the most distressing conditions for which the surgeon is consulted, and although most books on rectal disease dismiss the subject in a couple of pages, it deserves our most careful consideration, both on account of its importance and the difficulty which is frequently met with in curing it. When there is complete incontinence, the condition renders those who suffer from it chronic invalids; and patients who have been cured will be grateful to the surgeon for the rest of their lives.

One meets with every degree of incontinence, from the slight degree present in practically normal persons, when they get an attack of diarrhoea, to the condition in which the patient has no knowledge of and no control over the passage of his stools. But fortunately complete incontinence is comparatively rare.

*ÆTIOLOGY.*—There has been much vague writing as to the relative importance of the two sphincters and the exact mechanism of the anus. There are supposed to be two sphincters, an external and an internal; and different powers have been attributed to them in regard to the power of securing continence. Some surgeons assert that, no matter what happens to the external sphincter, there will not be incontinence unless the internal sphincter is interfered with. But that is quite untrue; it is the external sphincter which is entirely responsible for complete continence. The internal sphincter is only an enlarged circular bowel-coat; it is merely an exaggeration of the muscular coat at the lower extremity of the rectum. The external sphincter, on the other hand, is an entirely separate muscle, and has a definite nerve-supply. There is also a considerable voluntary control over this sphincter; a person can contract his external sphincter as he can other muscles in his body. The difference between the external sphincter and other voluntary muscles is that normally it is contracted to a point about half-way between

full contraction and full relaxation. No one has voluntary control over the internal sphincter. Therefore the external sphincter is the all-important factor in maintaining continence. If a person has only an internal sphincter, continence will be only partial, though the internal sphincter will give sensation as to whether anything is present in the rectum. Sensation at the anal orifice is a delicate and important matter; not only does it indicate the presence of flatus or gas in the rectum, but it also differentiates between flatus and liquid. So for delicacy of sensation it is comparable with the sensation at the tip of the tongue or the finger. But the sensation at the opening of the anus is not entirely tactile. There are two senses: one is tactile, produced by contact of the contents of the bowel with the mucous membrane of the anal canal; and the other is the muscle sense, which may be described as the sensation caused by the stretching of the muscle owing to the presence of something within its grip.

**Partial Incontinence.**—Any degree of incontinence will cause considerable annoyance. Diarrhœa, and especially dysentery, may cause some incontinence. In this case the patient knows when the bowel is going to act, but cannot retain control for more than half a minute. Prolapsed piles are sometimes the cause of partial incontinence, indeed a fairly common cause, but one that may be easily missed. Recently a patient was brought to me who had been living out in the East, and who had been operated upon out there for piles two years previously. He said that six or eight months after the operation he began to suffer from slight incontinence, by which he meant that while walking about a slight amount of material escaped and stained his clothes. This happened about once a day, sometimes oftener. One doctor whom he consulted said he had epithelioma, and others considered that he needed his sphincter repaired, as it had been damaged by the pile operation. Examination showed that he had a large recurrence of the piles, and that one large pile came down on one side through the anal orifice. This was the cause of his symptoms. The pile came down each time the bowels acted, and when he blew his nose or strained in any way. It was caught in the external sphincter and prevented the anus from closing, acting much in the same way as grit in a water-tap does, causing leakage. This is a common cause of partial incontinence, especially in connection

with pruritus ani; the leakage due to a small pile keeps the part damp; and I have seen cases where the removal of the piles has stopped the pruritus.

Another cause of incontinence is prolapse of the rectum, or procidentia. If there is a large prolapse, 2 inches or more in length, coming through the sphincters, considerable incontinence must ensue. The presence of the prolapse stretches the sphincters and renders the anus patulous; the contents of the bowel no longer come into contact with the sensitive anal orifice, and therefore incontinence results.

Fistula is also a cause of incontinence. Those who have a large complete fistula opening on to the skin always have partial incontinence, for some fæces pass by the fistula, and the patient cannot keep himself completely clean.

Healing of wounds in the rectum may be accompanied by some incontinence for a time. After Ball's operation for pruritus, which consists in cutting the nerves passing to the skin, complete anæsthesia of the whole anal canal and skin results for a time, so that the patient has no means of knowing whether a motion is there or not; but sensation returns in from ten days to a fortnight.

When one has to examine a patient who complains of incontinence, it is obviously very important to approach the case in the right way. One of the first things to ascertain is the group of causes under which the case of incontinence comes, and it is well to bear in mind that weakness of the sphincter is a very uncommon cause of incontinence. It is necessary to see whether the sphincter is there, and, if so, whether it acts. The easiest way is to pass the end of the finger into the rectum and ask the patient to nip the finger or strain down. If, when he does so, the muscle is felt to contract, one knows the sphincter is present. The next thing is to ascertain whether the orifice is closed all the way round. I recently saw a case of partial incontinence in which, when the patient attempted to contract her sphincter muscle (she had had a bad rupture of the perineum due to child-birth) the effect was to push the anus forward, with a dimpling of the skin just in front of the anus and incomplete closure of the orifice. The muscle had been split in half, and the ends of it were adherent to the skin on each side at the anterior part of the anal orifice. It is also necessary to see whether there is fibrous tissue round the anus, which may have caught up the

sphincter and prevented it from acting. If there is a patulous anus, one must make sure it is not a simple case of prolapse. It is easy to miss prolapse, for if a prolapse is not down, it cannot be noticed; but if the patient is sent to the closet and examined afterwards, a large prolapse, right out of the anus, may be found. A patulous anus should make one very suspicious of prolapse, as it is one of the commonest causes of this condition. In such cases there may be no muscular power in the sphincter; but it is wrong to assume that the sphincter is paralyzed or absent. It may have been so persistently stretched by the prolapse that for the time being it is paralyzed. Patients are very vague about symptoms in the rectum. Some time ago a gentleman came to me, who had suffered from prolapse of the rectum ever since he could remember. When it was down it projected 4 inches out of the anus; but he had never told his doctor that he suffered from prolapse, and he himself said he did not know that this was not the normal condition of a rectum.

Of course, complete incontinence results from any severe illness; for instance, it is to be found in people who are dying, in patients at an acute stage of typhoid or some other acute fever. Partial incontinence is not infrequently present in old age. Paralysis will also produce incontinence. If the paralysis is of the nature of paraplegia, the most marked effect is constipation, but the patient has no control of his motions and no knowledge of the action of the bowels.

Diseases of the central nervous system may be associated with incontinence. I recently saw a small boy, aged eight years, whose mother said she had taken him to many children's hospitals, but they had not done him any good. He was normal in every respect, except that he could not be prevented from passing his motions in his trousers, and yet they were ordinary solid motions. She had tried punishing him and every means of prevention possible. I examined him carefully. His rectum seemed to be quite normal, and he had ordinary tactile sensation over it; he was also an intelligent boy. I concluded it must be a matter of habit, just as enuresis is common in children. I was puzzled what to do, but finally advised her to give him an enema every morning to make certain he had an action of the bowels soon afterwards, and to try gradually to get control over his motions.

One of the most common causes of incontinence is damage of the sphincter; stricture of the rectum is also a frequent cause.

Where there is stricture right at the anal orifice, one would naturally expect there would be considerable incontinence, because the sphincters cannot act, owing to the fibrous tissue interfering with the action of the muscle; but stricture a couple of inches up the rectum also causes more or less complete incontinence. The incontinence in the latter case is similar to that associated with cancer of the bowel; there is a spasmodic action of the bowel, over which the patient seems to have no control. Stricture of the rectum causes diarrhœa, and the patient has very little control when the bowels act.

Apart from operations, damage to the sphincter is due to two main causes; one is ruptured perineum, the other, accidents involving damage to the sphincters. Fortunately, the latter is very rare; but I have seen two cases both due to the same kind of accident—falling off a step ladder. In one case the patient, a man, fell on an umbrella, the handle of which came off in his rectum and was rescued from the transverse colon. In the other case the patient fell on a broom handle, which went through into the peritoneal cavity; he was operated upon, and the rupture stitched up. Both patients recovered. Ruptured perineum is a fairly common cause of incontinence, and at St. Mark's we see one or two cases a year. The rupture need not necessarily be right through the cavity of the rectum, but merely into the anterior fibres of the sphincter. The best treatment is to repair the perineum, and at the same time to dissect out the muscle ends and try to bring them into contact. Needless to say, aseptic healing of the wound is of paramount importance.

**Operative Incontinence.** — One of the commonest forms of incontinence is that resulting from operations. Where the sphincter is completely or partially removed, there is almost complete incontinence; such is the case, for instance, after operations for cancer of the bowel. Where the sphincter is completely removed, the patient has no control over his evacuations, and they simply fall out. My own practice in cases of epithelioma of the anus, or cancer of the rectum involving the anus, in which it is necessary to sacrifice the sphincters, is to do a preliminary permanent colotomy, subsequently removing the growth, and closing the upper end and shutting up the perineum entirely. With colotomy a very fair degree of continence can now be obtained.

Apart from this, we have cases where the sphincter is either

caught up by the fibrous tissue or allowed to heal in an incorrect position. This occurs chiefly in operations for fistula, sometimes even in operations for fissure, and with Whitehead's operation for piles. After Whitehead's operation, a ring of fibrous tissue is left around the anus, especially if there has been much suppuration in healing, and this involves the sphincter muscle, and, to a large extent, prevents its acting.

I have seen two cases of complete incontinence resulting from Whitehead's operation, and in neither of them was the sphincter damaged at all; in both cases the muscle was prevented from acting by fibrous tissue. One of the patients was a society man. He was operated upon for piles by a well-known London surgeon by Whitehead's method. When I saw the patient four years later, he had considerable incontinence. During the next two years it became so bad that he was obliged to have something done, as it was not safe for him to go out, and he was in constant fear of an accident. I operated upon him, dissecting out the muscle carefully until I got it free, and cutting away all the fibrous tissue in which it was caught. The wound was then stitched up accurately, and primary union

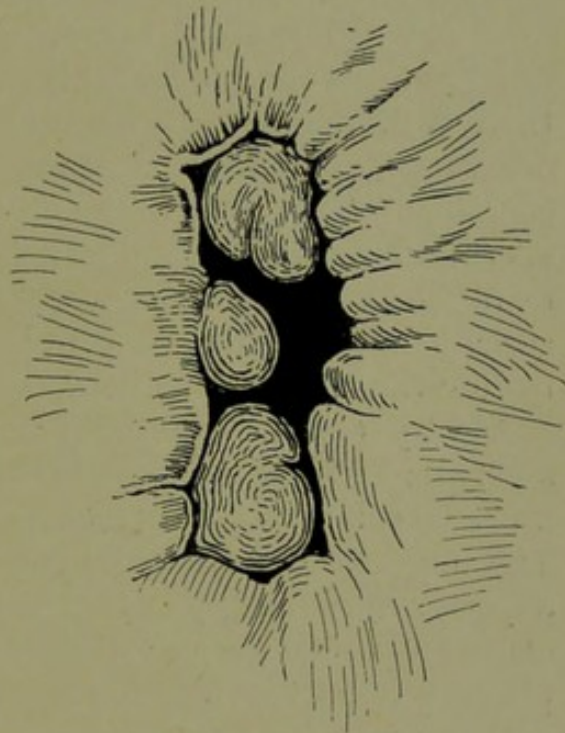


FIG. 75.—DRAWING SHOWING RECURRENCE AFTER WHITEHEAD'S OPERATION.

of the wound, with complete restoration of function, was obtained. It is now six years since this operation was performed, and at the present time the patient has as good control as anyone else.

There is much difference of opinion as to whether the sphincter should be cut in one, two, or three places when operating for fistula. My own opinion is that it should not be cut in more than one place, and that in most cases it should not be cut at all. The sphincter need only be cut in bad cases of fistula. In cases of fissure it should certainly not be divided at all. It is often said that the sphincter should be cut to give it rest; but

as it is impossible to breathe without moving the anus, it is not necessary to give rest to the sphincter in order to get a fissure to heal.

Another cause of incontinence is due to the sphincter being cut obliquely, which results in the outer fibres of one portion coming into association with the inner fibres of the other. If one must cut the sphincter, it is better to divide the muscle transversely.

TREATMENT.—There are several methods of treatment. Much has been said about electrical treatment of incontinence, because many think incontinence is due to weakness of the sphincter muscle, which is not the case. My experience of electrical treatment in these cases is that it is waste of time and money. Where there is fibrous tissue tying up the sphincter, some good may be done by applying electrical stimulation and by passing bougies occasionally to stretch the fibrous tissue; but in most cases operation in some form is necessary. In almost all cases of rectal incontinence a properly performed operation will enormously improve the condition, and in most cases completely restore the original function.

A very careful examination of the patient is necessary to ascertain exactly the condition of affairs, and the operation must be carefully planned and carried out with the utmost care. The success or otherwise of operations for this condition depends very largely upon careful technique; experience in similar cases and close attention to detail are also factors of primary importance.

*Operations for Incontinence.*—These are not operations to be lightly undertaken, and should only be attempted by surgeons who have had a good deal of experience in rectal operating. The success of these operations often depends upon securing primary union in the wound, and this again depends upon securing antiseptic conditions for the operation and upon careful after-treatment.

The patient must be very carefully prepared for operation to insure that no soiling of the field of operation will occur, either at the time of the operation or soon afterwards. The field of operation and the rectum above should be thoroughly cleaned with soap and water and antiseptics (see Chapter III.). The patient should be placed in the lithotomy position, and in as good a light as possible.

*Sutures.*—Buried silk or thread sutures are quite inadmissible, and the best are catgut, reinforced with silkworm gut or silver wire, or silkworm-gut sutures inserted so that they can be withdrawn. I have found iodine catgut the most suitable material in the majority of cases. All suturing must be done very carefully, and round-bodied needles should be used when possible, as the sutures have less tendency to cut out. The sutures should be placed close together, and should all pass deep to the wound and not through it. Great care must be taken entirely to close the cavity of the wound and not to leave any pockets or cavities between the sutures.

*Where the Sphincter has been divided, and has united in the Wrong Way.*—In such cases there is usually a triangular gap or deficiency on one side of the anus, which the contraction of the muscle is unable to close. An incision is made through the skin over the muscle on the affected side, and as far as is convenient from the bowel. The skin and mucous membrane should then be dissected up until the damaged portion of the sphincter muscle is fully exposed, care being taken to avoid buttonholing the inner flap. The divided ends of the muscle should then be freed and cut squarely across, so that the muscle is divided transversely. The ends must then be sewn together with fine iodine catgut, tension sutures of silkworm gut or silver wire being inserted to hold the muscle ends firmly in contact. Lastly, the skin flap is sewn down into position again. The best dressing is a piece of sterilized gauze, thoroughly saturated with sterilized vaseline; this should be lightly plugged into the bowel and spread out over the wound.

*After-Treatment.*—The buttocks should be strapped together to maintain the parts at rest and to prevent movements of the patient from disturbing the wound. The patient should be kept lying down in bed until the wound is firmly healed. The bowels should be kept confined for five or six days, and then opened with enemata. After each action of the bowels the parts should immediately be syringed with 1 in 40 carbolic, or some other antiseptic, and a fresh vaseline dressing be applied. The wound should be carefully examined each day, but if the patient's temperature rises and the wound becomes painful, or there are other signs of its having become septic, the wound should not be opened up if it can possibly be avoided. Should a small abscess form, this should be opened through a separate incision.



With proper antiseptic precautions, however, sepsis should not complicate matters. It is essential that the surgeon should always superintend the after-treatment of these cases himself.

The results of this operation are usually most satisfactory when the case is a suitable one and the operation has been carefully performed.

*When there is a Large Gap on One Side of the Anus due to a Previous Operation for Fistula, and it is not possible to find the Divided Ends of the Sphincter.*—The best plan in such circumstances is to make an incision parallel with the sides of the gap

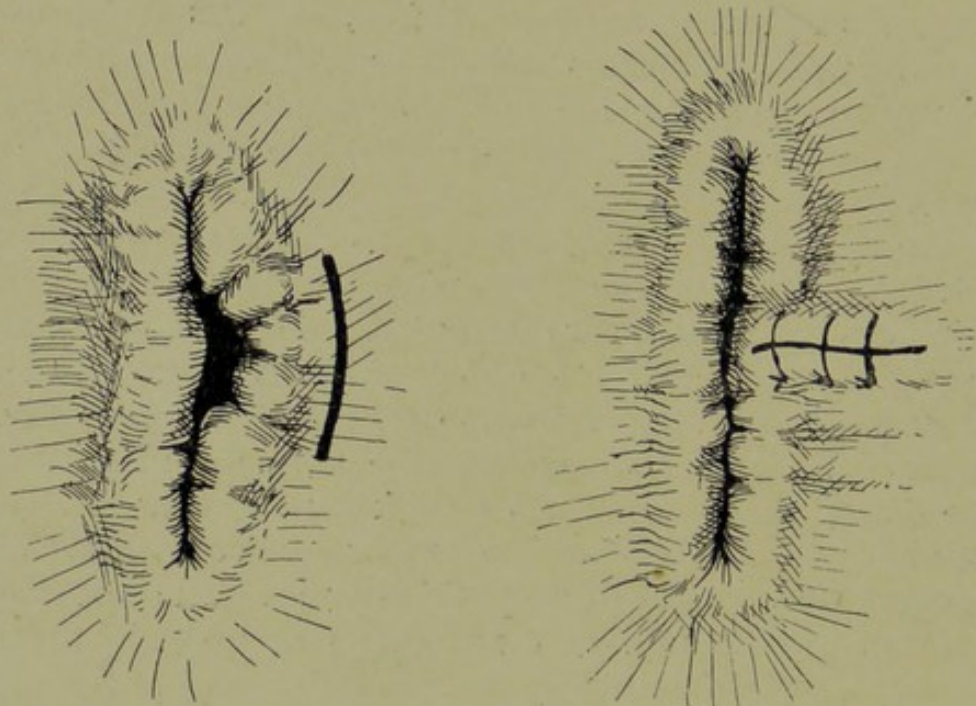


FIG. 76.—METHOD OF CLOSING A TRIANGULAR GAP AT ONE SIDE OF THE ANUS.

and about the same length, and to deepen this until its upper extremity is above the uppermost limits of the anal deficiency. The wound so made should then be sewn up with fishgut sutures in the opposite direction; this will be made clearer by a reference to Fig. 76. The result will be to narrow the anal orifice and to convert the gap into a projection into the anal canal. Rather nice judgment is, of course, necessary to secure the best results. The remaining portion of the sphincter muscle will be able to close the opening much more effectually when there is a projection than was the case when there was a gap. If the gap is a very large one, considerable modification of this method may

be necessary, but the operation will usually enable a good result to be secured. The after-treatment is the same as in the last case.

*Where the Incontinence is due to a Thick Scar on One Side of the Anus.*—One occasionally meets with cases, where, owing to some previous operation for fistula, there is a thick, firm scar on one side which, by its rigidity, prevents the anus from closing tightly. As a rule, the scar, in course of time, gets more supple, and the patient's control returns. Occasionally, however, this is not the case, and something has to be done. In such cases the best treatment is carefully to excise the scar, taking care to secure good union in the wound, if possible, without granulation.

*Operation to close a Patulous Anus.*—It sometimes happens that the anus is patulous without there being any actual deficiency or loss of continuity in the sphincter. In such circumstances the sphincter may be shortened by cutting portions of it out and joining the ends together again.

Another method is to make a semilunar flap, starting at opposite points on each side of the anus, and with the apex of the flap posteriorly. This flap is then dissected up so as to expose the sphincter posteriorly. Sutures of catgut are then inserted, so that when they are tied they will bring the posterior ends of the sphincter into contact and so diminish the total orifice surrounded by the muscle (Fig. 77). Lastly, the flap is sewn back into position.

*Loss of Control following Whitehead's Operation for Piles.*—In a few cases loss of control after a previous Whitehead's operation is due to loss of sensation in the parts, and in such cases very little can be done to improve matters. More usually, however, the loss of control is due to the sphincter muscle being involved in scar tissue, and when this is the case the patient's control can be restored by freeing the muscle.

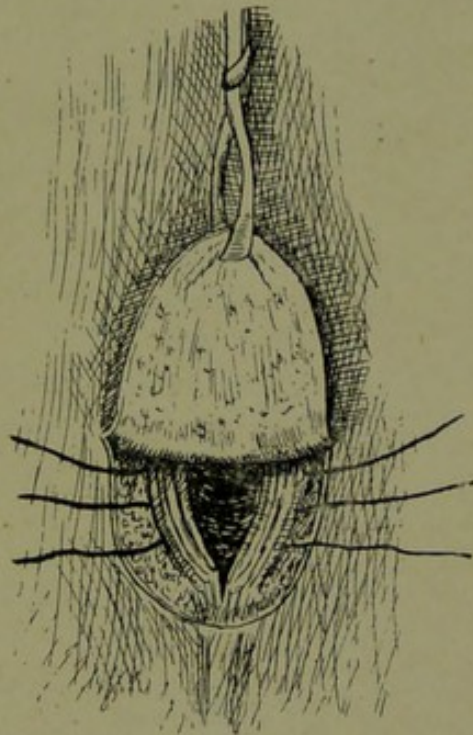


FIG. 77.—OPERATION FOR PATULOUS ANUS.

Everything in this case depends upon securing rapid healing in the wound without the formation of more than the minimum amount of scar tissue. The patient must therefore be very carefully prepared for operation, and everything possible must be done to secure aseptic conditions ; otherwise the patient is not likely to be benefited by the operation. The operation consists in carefully exposing the external sphincter, and dissecting it loose from the surrounding fibrous tissue. If possible, the incision should be so arranged that the resulting scar in the skin does not come in contact with the muscle, and consequently cannot heal to it. The results of this operation are very satisfactory, and the control becomes quite good.

The following two examples will illustrate the results in such cases:

*Case.*—A. H., a gentleman, aged sixty, had been operated upon six years ago for internal piles by Whitehead's method. The wound had healed slowly, and with a considerable amount of fibrous-tissue formation. The contraction of this fibrous tissue, in course of time, had so crippled the sphincter muscle that it was not able completely to close the anal orifice. The patient had lost control to such an extent that he dared not go into society, or even for a walk, unless he had taken opium. I operated upon him and carefully dissected out the fibrous tissue, so as once more to free the external sphincter. The skin was sewn back accurately in place, and great care was taken to insure primary union of the wound. The result was a complete success, and the patient returned home in three weeks with good control. Six years later he had perfect control over the anal orifice, and was not afraid to go anywhere.

*Case.*—C. N., a man, aged thirty-four, had been operated upon nine months previously for piles by Whitehead's method. After the operation he found that he had lost control over his evacuations, and went in constant dread of accidents. He was intending to emigrate to Canada, and wished to have this distressing condition put right before he went. On examination, I found there had been considerable fibrous-tissue formation in the process of healing from the previous operation, and that the muscle was so caught up by this that it could not act properly. I operated

upon him and freed the muscle. The wound healed by primary intention, and he obtained immediate control. He subsequently went to Canada, and wrote to me later to say that he had had no further trouble from incontinence.

*When the Sphincter is completely absent.*—Such cases are fortunately rare, but congenital absence of the muscle is occasionally met with, as in the case related below. The best operation under such circumstances is to narrow the anus considerably by means of the plastic operation described on a previous page, and, at the same time, to treat any prolapse which may be present.

*Case.*—A servant girl, aged twenty-four, was sent to me by her doctor, with a history that she had been born with imperforate anus, and an operation had been performed to establish an opening. The opening thus provided had persisted satisfactorily, but there had never been much control, and recently a prolapse had developed and rendered her much worse. On examination, I found no trace of any muscular structure resembling the external sphincter; there was a patulous anus and a large prolapse of mucous membrane. I cured the prolapse by ligaturing several portions of mucous membrane, and, by a plastic operation similar to that described on p. 228, I narrowed the anus considerably, until it would only just admit the tip of my index-finger. Tension was taken off the stitches by a stout catgut ligature inserted subcutaneously round the anal canal and tied on the finger. The wounds healed well, and the patient returned home greatly improved and able to keep herself clean with very little difficulty. I have since heard from her doctor that she is much improved.

*Chetwood's operation* has sometimes been advocated as a means of restoring the function of the anus in cases where the external sphincter is absent or has been destroyed. The operation consists in exposing the lower end of the rectum and the lower edges of both glutei by a semicircular flap, with its base towards the anus. Two strips of muscle, about  $\frac{1}{4}$  inch wide, one from each gluteus muscle, are separated except for this coccygeal attachment. These strips are crossed and their ends then brought down, one on each side of the anus, and sutured together

in front, so as to form a new sphincter muscle. This operation is quite unsound; it attempts to substitute voluntary muscle tissue, which is normally in a state of relaxation and voluntarily contracted, for the sphincter muscle, which is normally in a state of contraction. Moreover, the nerve-supply of the new sphincter is that proper to the glutei muscles; this is quite wrong in theory, and the operation cannot be considered seriously. The few successful results which have been recorded may, I

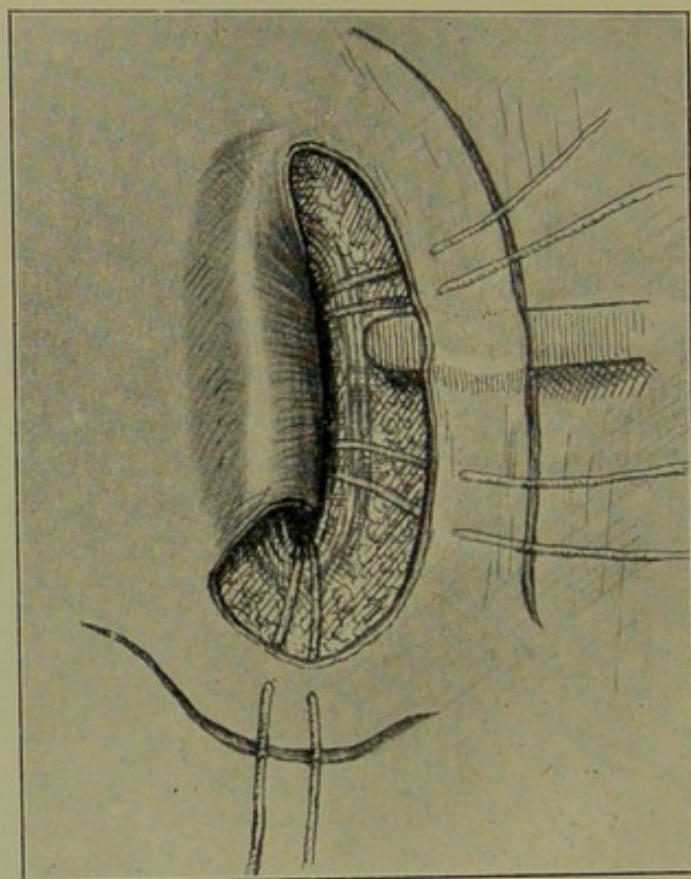


FIG. 78.—PLASTIC OPERATION FOR RESTORING THE ANUS.

think, be attributed to narrowing of the anus as the result of scar tissue from the operation rather than to any supposed function on the part of the transplanted muscle.

In a case recently reported by Dr. Alfred Newman\* it was stated that, although as a result of the operation the patient was much improved, when the portion of sphincter still present was contracted by the patient, there was no sign of contraction in the glutei or transplanted strips of muscle.

\* *Proctologist*, June, 1912.

The suggestion of Brun\* that a strip of fascia should be transplanted to act as a ligature and narrow the anus seems a much more reasonable procedure.

*Incontinence associated with Stricture.*—Most patients suffering from stricture of the anus are considerably troubled with incontinence; in fact, curiously enough, incontinence may be said to be the chief symptom of stricture. In such cases the proper treatment is that for the cure of the stricture.

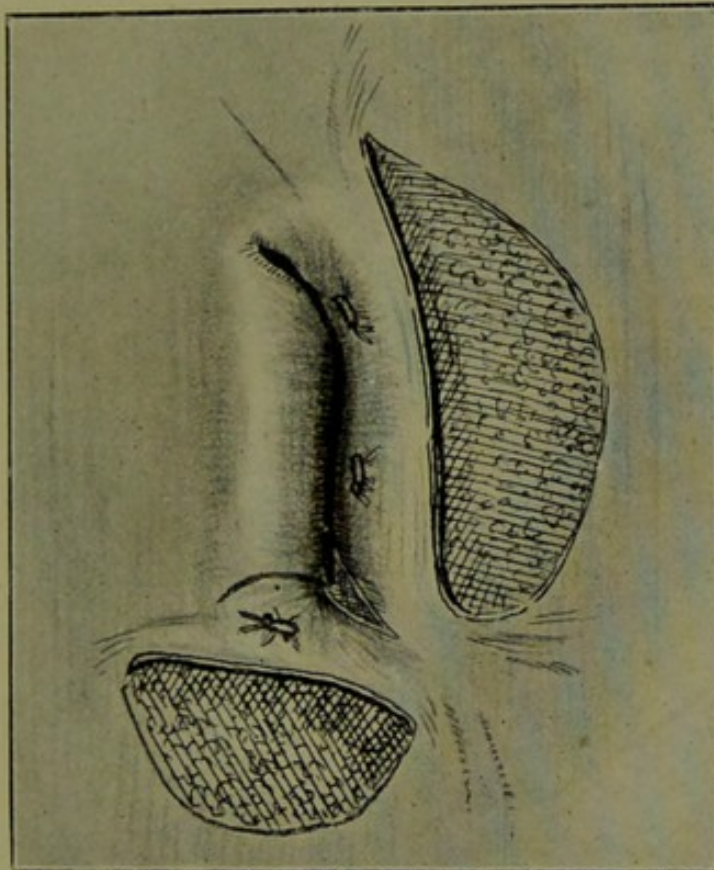


FIG. 79.—PLASTIC OPERATION ON ANUS COMPLETED.

*Plastic Operation for Restoring the Anal Margin after Extensive Removal of Skin.*—It sometimes happens that after the removal of a tubercular lesion or an epithelioma at the anal margin, a considerable raw surface is left, and, to prevent serious stricture, it is advisable to cover in this denuded area. In such a case I have performed the following operation with excellent results: Incisions are made parallel with the outer edge of the denuded area and about an inch wide, and these are carried down into

\* *Beiträge zur Kin. Chir.*, vol. lxxvii.

the fatty tissue (Fig. 78). The flaps so formed are raised by dissection with a knife, aided by a flat spatula, care being taken to leave sufficient attachment to insure a good blood-supply to the flaps. Stout mattress sutures of silk are then inserted through the stump of mucous membrane and through the inner edge of the flaps. When these are tied up, the flaps are drawn into the anal orifice and cover over the denuded area, leaving raw surfaces out on the buttocks. It is advisable not to stitch the flaps too accurately, but merely to insert sufficient sutures to keep them in place. The condition of affairs when the sutures are tied up is shown in Fig. 79. The raw areas left will heal with very little scarring or contraction, and an excellent result can in this way be obtained.

## CHAPTER XVI

### *PRURITUS ANI*

PRURITUS ani is without doubt one of the most troublesome affections met with in rectal surgery; it has become almost a byword for unsuccessful treatment, and for many years has been one of the happy hunting-grounds of quacks and charlatans. The treatment of this condition is most difficult, and frequently unsatisfactory. Patients go from one doctor to another, and from one surgeon to another, seeking relief and often getting only temporary amelioration of their trouble. This is all the more disappointing, because the patient's complaint is a simple one. He has itching of the anus and only wants something done to stop it; the very simplicity of the request renders failure of the treatment the more annoying.

The real reason for this unsatisfactory state of affairs is that we know very little about the true causes of the condition. The different causes for pruritus that have been described would fill a volume; many of them are merely the results of the condition, many have no relation at all to it, and again, many are predisposing or accessory rather than true causes, and so can help us but little in the treatment.

Pruritus is certainly much more common in men than in women, though it is by no means rare in the latter. Dr. Adler of Philadelphia stated that he found the patients suffering from pruritus ani in his practice to be men in 95 per cent. of all cases. My own experience would not point to so large a preponderance of the male sex.

Pruritus occasionally occurs in children, but is uncommon in young people. It is most often seen in otherwise healthy individuals in the prime of life, and frequently in those who lead a sedentary life.

The sufferer complains of an intense itching just at the margin



of the anus. The itching may be localized to quite a small area, or may spread to all the perianal skin. The most intense irritation is generally just at the opening of the anus and along the median raphé in front and behind. Sometimes the itching is more or less continuous, while at other times it only comes on in bouts. It is usually much worse at night, the itching coming on as soon as the patient has become warm in bed and is just about to go to sleep. I have seen patients who for weeks had hardly had a proper night's rest on this account. The patient invariably scratches himself to try and stop the itching, but only the most temporary relief results. Many patients complain that their lives are rendered quite miserable by this complaint, and they are willing to undergo any form of treatment that will give them freedom from the itching. Many have told me that the intense irritation is more difficult to bear than pain, and I believe this to be true.

The examination of a case of pruritus ani generally reveals a somewhat wrinkled or corrugated condition of the skin at the anal margin. In cases of old standing there is a warty condition of this skin, and on close examination, it can be seen to be much thickened, the thickening chiefly affecting the horny layer of the dermis. The surface of the skin usually has a moist, wash-leathery appearance, the tops of the ridges especially being sometimes quite white. There is generally a certain amount of redness of the surrounding skin, and well-marked abrasions, which have resulted from scratching, can usually be seen.

Sometimes the wash-leathery appearance of the skin extends for a considerable distance around the anus, and there is frequently a small patch of it just over the tip of the coccyx and between the buttocks. Much, if not all, of the appearance seen around the anus in old cases of pruritus is to be attributed to the scratching which has resulted from the irritation rather than to any result of the condition itself. In some cases the skin may show marked changes over a considerable area, the skin over the buttocks, sacrum, and scrotum being involved; in such cases the condition closely resembles eczema.

Pruritus ani is no more a disease than is headache or vomiting; but, like these, is a symptom which may complicate many diseased states, and it has only earned the distinction of being sometimes called a disease because, in many cases, we have failed to find the true cause. Pruritus ani has no pathological existence,

and the only lesions associated with it are the results of scratching or of the condition which gave rise to it.

I am convinced that the exciting cause of pruritus is a local one in all cases, and that constitutional states have merely a predisposing or secondary influence in causing the itching. It must be admitted that, in some cases, the most careful search fails to discover any local cause; but this is because our knowledge is insufficient to enable us to discover it, or, perhaps, to recognize it when seen.

There has been much discussion as to whether pruritus ani should be considered merely as a symptom or as a disease in itself. Matthews considers it to be a definite disease of the skin characterized by itching; others, again, consider that it is always a symptom, and that some cause, either constitutional or local, can be found for it. Malcolm Morris believes it to be sometimes a symptom and sometimes an essential disease. I think Morris's view is the correct one, and that pruritus ani usually starts merely as a symptom of some malady, but that after it has existed for some time changes take place in the skin and in the nerves supplying it, which result in a true sensory neurosis, and this may continue after the original cause of the trouble has been cured.

**ÆTIOLOGY.**—Pruritus is very likely to occur in persons of the plethoric type, who habitually indulge in excessive eating and drinking, and it is an undoubted fact that when such patients are put upon a strict regimen the condition is always improved, if not entirely cured; or, in other and simpler words, there is a close association between pruritus and dyspepsia.

Among the constitutional conditions which are frequently ascribed as the cause of pruritus must be mentioned gout, rheumatism, nephritis, diabetes, and disease of the liver. With regard to gout and rheumatism, I am inclined to think that they are characteristic of the type of patient who suffers from pruritus rather than causes of the disease.

There are some patients who undoubtedly get attacks of pruritus as the result of indulgence in certain forms of food. Such patients say that they always have an attack of pruritus after eating shellfish, or it may be strawberries; others, again, say that indulgence in alcohol, or tea, or coffee, will bring on an attack, and excessive smoking has the same result in some cases.

Some medical men believe that excessive fermentation in the

intestinal tract is a potent cause of pruritus, and insist upon the importance of prescribing remedies which are aimed at the prevention of this condition in all cases of pruritus.

The anal skin and mucous membrane have certain peculiarities which have an important bearing upon the cause of pruritus. The mucous membrane lining the anal canal and the skin at the anal margin is richly supplied with sensory nerves, which act as the sentinels of the rectum, and these nerves are some of the most sensitive in the body to tactile influences. As a rule the most intense sensation is at the muco-cutaneous junction, which is also the point at which the largest number of nerve endings are congregated. Any source of irritation within the anal canal, or at either end of it, may be the cause of the itching, and one of the first things to be done in examining a patient suffering from pruritus is thoroughly to search this area.

*Local Causes.*—The local causes of pruritus are the most important, and in the majority of cases some definite local cause can be found which, if treated, will cure the condition. In children, a local cause may be said always to exist, and I have never seen a case of pruritus in a child where the pruritus did not disappear after the local condition had been properly treated. The most frequent local causes in children are condylomata and worms.

One of the common causes of pruritus is a constantly damp condition of the anal skin; this is due to some leakage, which allows the rectal mucus to escape and keeps the skin at the anal margin in a constantly damp condition. The causes of this leakage are numerous. Internal piles, or small polypi, by partially prolapsing into the sphincter, cause mucus leakage, and I believe that this is the usual manner in which piles cause pruritus. Fissure, fistulæ, partial procidentia, worms, and several other conditions may be the cause of pruritus by causing leakage in a similar manner.

That leakage of moisture from the anus may cause pruritus is, I think, proved by the fact that a certain degree of temporary pruritus is not uncommonly complained of by patients during the healing stage after an operation for fistula, in which a certain amount of leakage is inevitable.

Of the causes within the rectum itself, which may give rise to pruritus, one of the commonest is catarrhal proctitis; this is a cause which is frequently overlooked, owing to the surgeon's

being unacquainted with the proper methods of examining the rectum, or owing to his not having the proper instruments at his disposal. The commonest form of proctitis which I have observed in association with pruritus is the hypertrophic catarrhal form. This is characterized by hypertrophy and œdema of the mucous membrane, accompanied by an excessive secretion of acid mucus. There is another form of proctitis, in which the mucous membrane appears congested and granular on the surface. Both these forms of proctitis are chronic, and are usually unsuspected until an instrumental examination of the rectum is made. In both of them there is an excessive secretion of acid mucus, and it is the constant presence of this irritant material, in contact with the sensitive mucous membrane of the anal canal, which causes the itching.

I have seen several cases in which the cause of the pruritus could be definitely traced to the accumulation of this irritating mucus in the upper part of the anal canal. In one case the patient had himself discovered that this was the cause of the irritation, and was in the habit of stopping the itching by removing the mucus from his rectum. On examining this patient with the sigmoidoscope, I found that he had typical hypertrophic catarrhal proctitis, and when this was cured by suitable injections, the pruritus ceased.

Glycosuria is a well-known cause of pruritus, and in all cases the patient's urine should be tested for sugar.

There are some cases of pruritus ani associated with a special tendency to perspiration around the anus and between the buttocks, and it would seem as if the pruritus in some cases resulted from the damp condition of the skin induced by the constant perspiration. At any rate, attempts to keep the parts dry and prevent perspiration seem to alleviate the itching.

I have, during the last few years, been very much struck by the fact that a damp condition of the perianal skin is present in the great majority of cases of pruritus ani which come to me for treatment, and I am convinced that this is the exciting cause of the irritation in a very large number of cases. If this dampness can be got rid of, the irritation generally subsides.

Although the warty and rugose condition of the anal skin is the result of the pruritus rather than its cause, there is no doubt that in cases of old standing the fissures which form between the ridges on the skin have a great deal to do with keeping up

the irritation; consequently, attention must be paid to getting the perianal skin back to its normal condition. This is best done by painting it occasionally with carbolic acid or with a strong solution of silver nitrate, and by the frequent application of weak carbolic fomentations.

Hypertrophied anal papillæ are sometimes the cause of pruritus (Fig. 85), and when present they should be removed. I am not satisfied, however, that they are at all a common cause.

A good deal of importance has been attached by some writers to reflex causes of pruritus. Such conditions as phimosis, stricture, hypertrophy of the prostate, and diseases of the female genitals have been assigned as the cause of pruritus ani, and one author goes so far as to say that gall-stones may produce pruritus. It is, I think, extremely doubtful whether pruritus can be the result of a purely reflex cause.

Dr. Dwight Murray,\* having made a bacteriological examination in a number of cases of pruritus ani, has come to the conclusion that a streptococcal infection of the perianal skin is the cause of the irritation in a large number of cases. He believes that the excessive moisture and the infiltrated condition of the skin in these cases are due to a low form of inflammation caused by streptococcal skin infection. Out of thirty-two cases of pruritus ani in which no definite cause of the irritation could be found, and which were examined bacteriologically, he discovered streptococcal skin infection present in all, while in a series of control cases, in which no pruritus was present, he found no streptococcal infection of the anal skin. He claims good results for treatment with autogenous vaccines, but states that the ordinary stock vaccines are not to be depended upon, and that a special vaccine should be prepared for each case. In a series of very carefully recorded cases, marked improvement was shown in all treated in this way. But one cannot help thinking that, if the streptococcal infection was alone the cause of the trouble, the number of real cures was a little disappointing. Dr. Murray's investigation is, however, a valuable piece of work, and his methods well worth trying in suitable cases. The following is the technique he advises for the treatment by this method:

The perianal skin is first thoroughly cleansed with liquid soap and water, then with sterile water. The parts are next lightly dried, after which a swab is rubbed over the skin, particularly

\* Proc. Amer. Proct. Soc., 1912.

in any place where fissures exist. It is occasionally advisable to scrape the skin slightly with a curette, especially if bacteria fail to be obtained in the ordinary way. These swabs are then sent to the bacteriologist, who places them on endomedium. The growth is examined after twelve hours, and usually a pure culture of streptococci (generally *Streptococcus fæcalis*) is discovered.

The differentiation between streptococci and other germs can be made by growing them in liquid media; streptococci are then found in chains of three or four. For a more accurate differentiation, to ascertain to which branch of the streptococcus family the particular organisms belong, Dr. Murray advises they should be grown on Gordon's series of carbohydrates. A concentrated vaccine is made by transferring a colony from the petri plate and allowing it to grow on slant agar for twenty-four hours, washing it off with an average 1 c.c. sterile salt solution, and then draining into a homœopathic phial through cheese-cloth. An equal volume of 1 per cent. carbolic solution is then added, and the resulting solution allowed to stand at room temperature for twenty-four hours before using. Dr. Murray advises that this vaccine should be injected subcutaneously, beginning with 2 to 4 minims, to test the susceptibility of the patient. If no reaction occurs within twenty-four hours, a double dose should be given the next day. After a reaction has been obtained, the injection should be repeated as soon as the last reaction has disappeared, injections being given into different parts. Dr. Murray particularly insists upon the importance of repeating the treatment directly there is recurrence of the pruritus.

I have tried this treatment in several cases with a certain amount of success. It seems to me, however, that if the streptococcal infection of the skin, which is undoubtedly present on testing in many of these cases of chronic pruritus, is the cause of the itching, the best method of getting rid of the infection is direct local application rather than the use of an autogenous vaccine. We are not in the habit of using autogenous vaccines to sterilize a patient's skin before operating, as we have other and more effectual methods. Acting on Dr. Murray's theory that a streptococcal infection is sometimes the cause of pruritus, I have recently tried the following method:

A patient's skin is tested for the *S. fæcalis* by Dr. Murray's method, and if this is found to be present, the patient is treated

by painting the anal skin with a 2 per cent. solution of iodine in 75 per cent. rectified spirit, and this solution is then driven into the tissues by cataphoresis in the same way as ionization is carried out in the rectum (pp. 142, 143). A moderate strength of current applied for fifteen or twenty minutes is generally sufficient to drive the iodine well into the skin; several applications are given at intervals varying according to the resistance of the patient's skin. If the treatment is given too frequently, the skin will be made sore, and may even become blistered; one must therefore go cautiously at first. This method appears to be the most effectual for sterilizing the skin in this neighbourhood; it does not cause any pain, nor does it necessitate the patient's lying up. I have not yet used the method in a sufficient number of cases to make any authoritative statement as to its efficacy; so far, however, in the cases in which it has been used, it has given immediate relief, although there has often been a recurrence one or two months afterwards, necessitating a repetition of the treatment. The method is certainly one that is well worth trying. It appears to be more effectual than any other local method in use hitherto.

EXAMINATION OF THE PATIENT.—The external parts should first be examined, but one must not be misled into thinking that the obviously abnormal condition of the perianal skin is the cause of the itching. On the contrary, it is invariably the result of scratching, or of applications which have been made to relieve the irritation. The anal canal itself must be most carefully examined, first with the finger and then with a small anal speculum. Every portion of the mucous membrane should be examined, and it is important to examine carefully each of the little anal pockets, or valves of Valsalva, which are to be seen just above the muco-cutaneous junction. Sometimes a minute ulcer is found at the bottom of one of these pockets, or a small fistulous track opening into one of them is discovered. The best way of examining these valve pockets is with a small bent probe. I have seen several cases in which pruritus had resulted from a small fistulous track at the bottom of one of these valves, and in which it was cured by division of the valve and laying open of the fistulous track. After the anal canal has been thoroughly searched, a short proctoscope tube should be introduced, and the upper portion of the anal canal and the lower portion of the rectum examined, and, lastly, the rectum itself should be

examined up to, and above, the recto-sigmoidal junction with the electric sigmoidoscope. Of the lesions in the anal canal which may cause pruritus, the most common are fissure, a submucous fistula, ulceration in one of the anal valves mentioned above, and small polypi.

**TREATMENT.**—It may be said at once that there is no royal road to the successful treatment of pruritus ani, and no method of treatment which is successful in all cases. Most, if not all, cases of pruritus can be cured if the patient is willing to place himself entirely in the hands of his medical adviser and to carry out his instructions religiously. A considerable amount of patience is, however, often required, and there may be one or two failures before success is obtained. The patient's general health should be inquired into, and a careful examination made to ascertain if there is any local cause for the condition.

*General Treatment.*—If the patient is somewhat over-indulgent in the matter of food, he should be placed on a strict regimen. A good, simple diet should be prescribed. Meat should be cut down, and, at the most, only allowed once a day, while all fancy and highly seasoned dishes should be forbidden. The patient should be advised to eat plenty of fruit and vegetables. If possible, it is better to stop entirely all alcoholic drinks; ginger beer, coffee, and strong tea should also be forbidden. The bowels should be kept acting regularly with some simple aperient, or by the internal administration of petroleum.

If obtainable, a regular course of sitz baths is a good thing; or if this is impossible, the anus should be well bathed with cold water night and morning. It is most important that the parts should be kept scrupulously clean, and for this purpose the anus and surrounding skin should be carefully washed night and morning with a sponge and castile soap or spirit soap. The parts should be most carefully cleansed after the bowels have acted, and paper must on no account be used for the purpose. After the parts have been cleansed they should be dusted over with starch powder. Care should be taken to see that the clothes do not rub against the anal skin. I attach very great importance to scrupulous cleanliness in the treatment of many forms of pruritus ani, especially careful washing before retiring to bed.

Opium in any form should be carefully avoided in the treatment of pruritus, as there is grave danger of producing the opium habit, and it also tends to aggravate the condition. In nervous and



excitable patients hypnotics in the shape of trional or sulphonal should be given, and sedatives, such as bromides and hyoscyamus, are often useful.

In very gouty patients the appropriate treatment for that condition should be prescribed.

*Local Treatment.*—The obvious indication, if any definite local cause of the pruritus exists, is first of all to treat this cause. Thus if a fissure or ulcer is discovered, it should be treated by suitable means, and the same applies to internal hæmorrhoids if they are present, especially if they prolapse when the bowels act. It is a mistake, however, to operate upon one or two little hæmorrhoids, which have not given rise to any symptoms, merely on account of the pruritus.

Unfortunately, the removal of the cause is by no means always sufficient to cure the pruritus, though it is necessary to get rid of the cause before one can expect to treat the pruritus successfully.

There is no certain remedy for pruritus, and it is often largely a matter of guesswork to find the right one. Sometimes, after almost exhausting the pharmacopœia, one hits upon something which acts like a charm; and yet in the very next case this remedy may be useless. I recently had a patient suffering from pruritus for whom I prescribed almost every ointment and lotion I knew of, but all without giving him permanent relief, until one day I ordered him some boracic powder. Curiously enough, this at once relieved the itching, and by using it he has entirely got rid of his trouble.

I have had much the best results from using local applications designed to keep the skin dry, and I believe that as a rule ointments and greasy preparations are best avoided. When, on examination, the parts round the anus are found to be damp, powders or lotions will give the best results. Carbolic acid lotion, 1 in 40, applied after washing, often gives immediate relief, and is a very popular remedy. Probably this is largely due to its acting as a local anæsthetic, but it may also be due in some cases to its antiseptic properties, for it seems probable that in some cases pruritus ani is caused by microbic infection of the skin.

Painting the skin with silver nitrate, 30 grains to the ounce, is very effective in some cases. This should be repeated at intervals of a few days.

The application of dusting-powders after carefully washing and drying the skin often gives permanent relief. The parts

should first be washed with warm water and castile soap or oatmeal, then dabbed dry with a soft towel, and the powder afterwards applied with a powder-puff. The following powder I have often found very efficacious, especially when the parts were moist or cracked:

R	Anæsthesin powder	..	..	..	..	1 part.
	Starch powder	..	..	..	..	2 parts.

Calomel, bismuth and dermatol powders, either alone or in combination, are also sometimes effectual.

Even more effective than powders, and useful in the same type of case, are paints which leave a protective covering over the skin. These are generally made up with a glycerine basis, and should be applied with a soft brush after washing, and allowed to dry on.

The following, which is recommended by Dr. Jamieson, is a good preparation:

R	Talc					} .. Each 100.
	Starch powder					
	Dilute solution of lead subacetate					
	Boric lotion, 1 per cent.					
	Glycerine	..	..	..	..	40.
	Camphor-water	..	..	..	..	250.

Another useful paint is—

R	Picis carbonis	..	..	..	..	5i.
	Benzol	..	..	..	..	5iv.
	Acetone	..	..	..	..	5ii.

This must not, however, be applied when the skin is broken, as it will cause severe smarting.

In some cases ointments seem to be the best. They should be applied after cleansing the skin. The following are among those which I have found the most effective:

#### I.

##### R Chloroform Ointment.

This is made by rubbing as much chloroform as possible into an ounce of lanoline.

#### II.

R	Bismuthi subnitratris	..	..	..	..	5ii.
	Tinct. opii	..	..	..	..	5i.
	Cocainæ hydrochloridum	..	..	..	..	gr. xx.
	Acidi carbolici	..	..	..	..	ʒv.
	Acidi hydrochlorici dil.	..	..	..	..	ʒxx.
	Lanoline	..	..	..	..	5ii.

## III.

R	Bismuthi subnitrat	..	..	..	..	ʒii.
	Cocaine	..	..	..	..	gr. x.
	Hydrarg. subchloridi	..	..	..	..	gr. xv.
	Vaseline	..	..	..	..	ʒi.

## IV.

R	Pure hydrogen dioxide	}	..	..	20 grs. of each.
	Anhydrous lanoline				
	Petroleum				
	Powdered talc				

Another good remedy, which should be carefully smeared over the parts after they have been bathed and then dried with cotton-wool, is the following:

R	Acidi carbolici	..	..	..	..	ʒii.
	Acidi salicylici	..	..	..	..	ʒi.ss.
	Sodium biborate	..	..	..	..	ʒi.
	Glycerini	..	..	..	..	ʒi.

This should be used at bedtime.

In some cases, especially where there is an accompanying proctitis, injections into the bowel will stop the irritation. The injections should be made after the bowels act and before retiring for the night. Three or four ounces of the solution should be injected with a bulb syringe, and retained for a few minutes.

I have found the following solutions the most efficacious:

R	Glyco-thymolin	..	..	..	..	20 per cent
R	Extract witch-hazel	..	..	..	..	1 ounce.
	Water	..	..	..	..	2 ounces.

The following is recommended by Dr. Adler:

R	Fluid extract of hamamelis	..	..	..	ʒi.
	Fluid extract of ergot	..	..	..	ʒii.
	Fluid extract of hydrastis	..	..	..	ʒii.
	Compound tincture of benzoin	..	..	..	ʒii.

In cases of old-standing pruritus, where the skin is hard and like wash-leather, it is important to remove the thick horny layer of the skin before applying any remedy. There are several ways of doing this. One way is to paint the parts over with nitrate of silver, 60 grains to the ounce, at intervals of a day or so. Two or three applications are usually sufficient to get the skin into a more healthy condition. Or the frequent application of very hot fomentations will soon induce the thickened skin to peel off.

In very bad cases of pruritus, in which all remedies have failed to cure the condition, and where the patient is rendered utterly miserable by the intolerable itching, operation is the only thing which can give relief.

Before deciding to operate in cases of pruritus ani, careful examination of the case in all its bearings is necessary.

If there is any obvious lesion, such as fissure, polypus, or prolapsed piles, it is useless to attempt to cure the irritation until this local lesion is first cured by operation.

Quite apart from this, however, operation may become necessary in cases of pruritus where the most careful search fails to demonstrate any lesion. Indeed, some of the worst cases of pruritus which I have had to treat, have, on examination, shown nothing wrong with the anus or rectum.

Several different operations have at various times been practised for intractable cases of pruritus. Burning the skin round the anus with the actual cautery and dissecting parts of it away have been tried and have given relief; but these are crude methods, and often result in serious stricture.

The best operation, and one which, in my experience, has usually given complete and permanent relief, is that described by Sir Charles Ball. The object of this operation is to divide all the sensory nerves to the affected area of skin. It is on the same principle as the operation for trigeminal neuralgia. It seems probable that in the worst cases of pruritus there is some disease of the nerve endings in the skin, and after the nerves are cut fresh nerve endings are formed. This seems to be the most satisfactory explanation of the beneficial results of the operation.

The following is Ball's description of the operation: "The skin having been cleansed as completely as possible and shaved, a curved incision is made on each side of the affected area (Fig. 80), enclosing the entire ellipse with the exception of a narrow neck in front and behind: these incisions are carried down to the sphincter muscle, and the flaps raised by careful dissection with scissors from the surface of the muscle, round its anal margin, and up the anal canal to above the muco-cutaneous junction, the dissection extending round the entire circumference, all connections with the subjacent tissues being divided (Fig. 81). The pedicles in front and behind are now undercut to a point well beyond the area of irritation, and the outer concave edges

of the incision also undercut to a distance of at least  $\frac{1}{4}$  inch free of the involved skin all round. Care must next be taken to stop all bleeding, and the flaps should not be replaced until it is completely arrested, as the formation of a hæmatoma in the wound might compromise the vitality of the flaps. The flaps are finally replaced and retained by sutures, a few intervals being left between them for drainage. The immediate result of this operation is to render the entire ellipse between the incision,

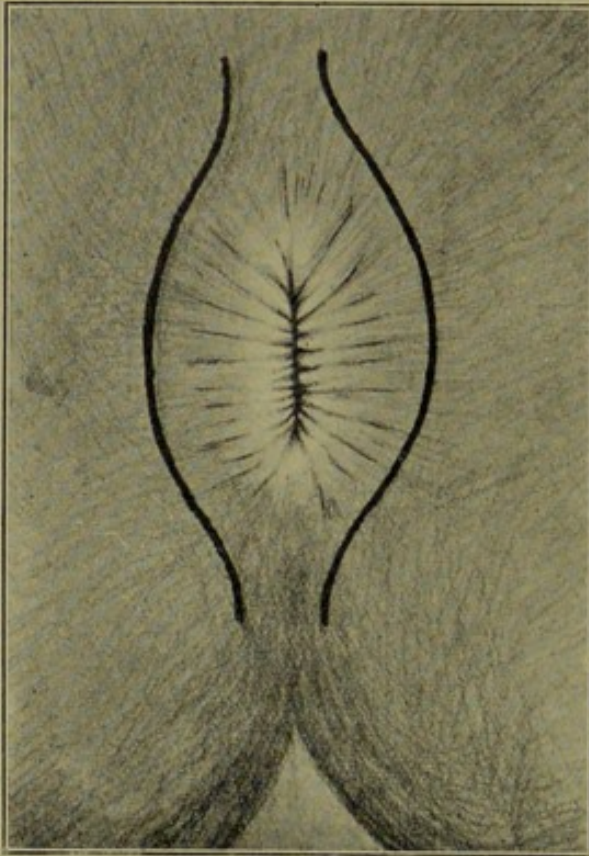


FIG. 80.—INCISIONS FOR BALL'S OPERATION.

the pedicles, and outer edges, as far as they have been undercut, superficially anæsthetic, and the itching is at once relieved."

As an alternative to the incisions described above, some surgeons make four or more radial incisions, and undercut the skin between in the same way. Personally, I prefer Ball's original incisions, as the line of suture is thus kept farther from the anus, and is consequently less easily infected.

This operation is not so easy as it seems from the description, as the flaps are rather complicated when raised, and their separation just within the anal canal is often rather difficult. It is

important that the bowel should be very carefully prepared beforehand, and the anal canal, lower rectum, and skin thoroughly cleansed before commencing the operation. Care must be taken to keep inside the external sphincter, as otherwise this muscle or its nerve-supply may easily be damaged. It is also most important to avoid buttonholing the flaps. The bleeding should be stopped as carefully as possible before sewing down the flaps, and drainage should always be provided for the first twenty-four hours. The flaps, too, must be well supported with the dressing so as to keep them pressed down into place. The

dressings should be renewed twice a day, and the parts washed over with a weak solution of carbolic acid.

One would suppose that there would be a serious risk of the flaps sloughing, but I have never seen this complication.

The immediate effect of the operation should be complete anæsthesia of the area of operation; unless this is secured, the result is not likely to be satisfactory. In the course of ten days to three weeks, however, the normal sensation in the parts returns without being in any way impaired. A numb sensation is first noticed, and then a feeling of pins and needles, followed in a few days by normal sensation. I have never had a case in which the anæsthesia was permanent.

The irritation is immediately relieved, and does not return with the restoration of sensation in the parts. My first case was done six years ago, and the patient, who had been a martyr to pruritus for fourteen years, has had no recurrence of the trouble. I have performed this operation a considerable number of times, and have been very much pleased with the results.

*X Rays.*—Recently good results have been reported from the treatment of pruritus ani by the exposure of the parts to a pastile dose of X rays. I have several times tried this treatment, but have not so far seen much benefit from it. As, however, it puts the patient to very little inconvenience, it may be worth a trial in cases where patients object to having an operation.

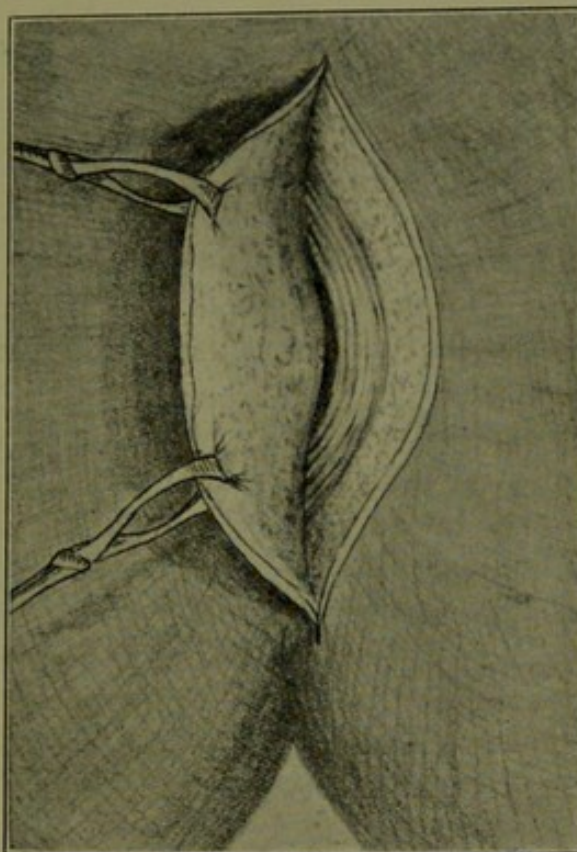


FIG. 81.—BALL'S OPERATION, SHOWING FLAP ON ONE SIDE RAISED.

## CHAPTER XVII

### *RECTAL NEURALGIA OR HYSTERIA*

THIS name is sometimes given to a condition in which the patient complains of rectal symptoms without there being any adequate cause to be found on examination of the parts. It is necessary, however, to be very careful in calling a case "hysteria" or "rectal neuralgia," for too often this is done because the surgeon has been unable to discover the cause, which is nevertheless present.

In the great majority of such cases there is a local lesion to account for the symptoms, but it is often very slight, and may easily be overlooked unless the examination is conducted with great care and thoroughness. In any case the symptoms complained of by the patient are often apparently out of all proportion to the severity of the lesion.

Frequently the patients come under the term "neurotic"; they are nervous, excitable, very much afraid of being hurt, and seem to attach quite an undue amount of importance to their symptoms. The symptoms complained of are usually vague and somewhat indefinite in character. The patient often describes a number of other extraneous symptoms which a healthy man would not think of, or at any rate consider abnormal, and which are simply evidence of a morbid state of mind. Such a patient may frequently be known by the fact that he brings a long written statement with him, describing his symptoms in detail. It is, however, a grave mistake for the surgeon to label such patients at once as neurotic, and to make only a cursory examination, during which he expects to find nothing. On the contrary, a most careful and painstaking examination is advisable, and will often result in the discovery of some little-suspected lesion, which, if properly treated, may make a new man of the patient. Such patients not infrequently, from long brooding upon their

condition, have become a nuisance to themselves and their friends, and it is worth any effort to restore them to a healthy state of mind again.

Some of the worst cases of rectal neuralgia occur in medical men. The patient, when he is a medical man, invariably believes that he is suffering from cancer of the bowel, or that cancer will supervene upon his present condition. His medical knowledge aids him in inventing symptoms and prognosing horrors. He is often run down and overworked, and what is required is a complete change of scene and occupation rather than any local treatment.

The female type of pure neurasthenic is well known. I cannot do better than quote Dr. Macnaughten-Jones's description:\*

"The indolent, lethargic woman, fanciful of ailments, superficial to childishness in conversation, dull of comprehension, readily open to flattery, even to her own self a bore. . . . Sexually voluptuous, with a defective metabolism, and an abdomen loaded with fat, she becomes the registered dual property of the pure specialist for nerves on the one hand, or the expert in cotton-wool gynæcology on the other. . . . She is a source of income to the *francs-tireurs* of medicine—the ubiquitous masseuses and electricians who hover around its outposts."

The symptoms vary considerably in different cases. Sometimes the patient can give no definite symptoms, and is merely continually conscious that he has a rectum; it is hardly ever absent from his thoughts, and though no definite pain is experienced, he is always uncomfortable; or the complaint is that there is a frequent desire to go to stool, but that, on attempting to pass anything, only a little mucus, often described as looking like spittle, is passed. This is often mentioned as occurring every morning on getting out of bed, and such patients have frequently to go to stool immediately on rising, but without much result. Pain or discomfort in the pelvis is a common complaint, and some patients attach much importance to a feeling of discomfort in the testicle or "drawing up" of that organ.

Some of these patients also suffer much at times from pruritus. In other cases the complaint is of a sharp, stabbing pain, often called "intolerable," in the anus. This pain has no relation to the action of the bowels, and comes on without apparent cause.

\* *Practitioner*, August, 1906.



Other patients complain of a sense of fulness and discomfort, accentuated on sitting down.

In all such cases a very careful examination should be made of the rectum and colon; these patients are often hypersensitive, and the examination is difficult to carry out properly, so that it is frequently advisable to administer an anæsthetic for the purpose of examination.

Sometimes, after a most thorough examination, or repeated examinations, no cause can be found, and, in spite of the symptoms, the bowel appears to be quite healthy. In a considerable number of cases, however, a local lesion or cause can be found.

CAUSES.—One or other of the following causes is often present, and they should always be looked for:

*Proctitis or Sigmoiditis.*—A mild chronic proctitis or sigmoiditis is frequently the cause of these symptoms, and this will be revealed on examination with the sigmoidoscope. The most common form is a chronic hypertrophic proctitis, accompanied by the discharge of thick, gelatinous mucus. There is some thickening and oedema of the bowel wall, and bleeding readily occurs if a hard stool is passed; this bleeding much alarms the patient, and often results in his being repeatedly operated upon for piles by unskilled practitioners. These patients are also frequently chronic dyspeptics, or suffer from wind, and show other signs of a disordered digestion.

The following is a good instance of this condition:

*Case.*—The patient was a young man who for some years had been resident in the East. He had never had dysentery, but had on one or two occasions suffered from bad diarrhœa. About three years before I saw him he was laid up with pain, which came on after defæcation and lasted for many hours; he also had bleeding at stool. This continued for some time. He was repeatedly under treatment for about a year. The pain was of a dull, aching character, and continued almost all day and sometimes kept him awake at night. Later the pain became independent of any action of the bowels, and was more of the nature of a constant discomfort; he was also continually feeling a desire to go to stool, but nothing passed, and he was in no way relieved. The bowels usually acted once a day, and the stools were normal. He consulted various surgeons, and

was three times operated upon during three years, but always without any relief, the operations only making him worse.

When I saw him, he was a healthy-looking man, but was quite incapacitated by the pain and discomfort from which he suffered. A careful examination under an anæsthetic revealed the presence of chronic proctitis. He was treated by rest and injections into the rectum, and in the course of about two months was quite cured of his condition. He had a slight relapse some months later, but eventually got quite well, and ceased to be aware that he possessed a rectum.

*Internal Fistulæ.*—A not uncommon cause of these neuralgic pains in the rectum is the presence of a small, internal fistula. These fistulæ are often quite minute, and open at the bottom of one of the anal valves; they can be easily passed over, unless particularly looked for with a special bent probe. They may be discovered by the patient's complaining of acute pain, when the hooked probe is passed to the bottom of one of these little anal valves. Such small fistulæ may sometimes go undetected for years, in spite of repeated examinations of the rectum. A very careful description of them is given in the late Sir Frederick Wallis's book, "Surgery of the Rectum."

*Ulcers.*—In the same way small ulcers covered by the anal valves, or situated at some distance up the rectum, may be the cause of rectal pains. These ulcers are sometimes very small and lie in unsuspected places—between folds of mucous membrane—so that they are not easily detected. A touch with the electric cautery is often sufficient to cure the condition.

*Congestion of the Rectal Vessels.*—This condition was described by Allingham,\* who attributed the aching and pain to pressure upon the rectal nerves from the congested vessels, and compared it to the aching felt in varix of the leg or in varicocele.

**REFLEX CAUSES.**—When the rectum is quite healthy, the cause may sometimes be found in disease of the contiguous organs. In women uterine troubles or disease of the appendages is a not uncommon cause of rectal pain. Bladder or urethral conditions may also be the cause; or, in the male, prostatic trouble.

I have seen one or two cases in which the pain of lumbago or sciatica was referred to the rectum, and only after a careful examination was the true cause found.

\* Allingham, "Diseases of the Rectum," 7th edition, 1901, p. 272.

*Case.*—Mrs. A. B., aged fifty-nine, complained of vague pains and discomfort in the rectum and a number of other indefinable vague symptoms. Examination of the lower bowel showed it to be quite normal, but a careful examination of the uterus showed cancer of the body of this organ, and the pains disappeared after a hysterectomy.

*Spinal Disease.*—This is a most important point to investigate. Caries of the spine, locomotor ataxy, and disseminated sclerosis are all possible causes of rectal pain, and in some cases the rectal symptoms may be the earliest complained of. An examination of the spine and reflexes will assist the diagnosis.

*Epilepsy.*—Allingham\* pointed out that the aura of epilepsy may occur in the rectum, and that some of the puzzling attacks of pain in the rectum may have this cause; this may be suspected in particular if the attacks of pain occur at night. A careful investigation of the family history will be of value.

*Tabes Dorsalis.*—The subject of rectal crises due to locomotor ataxy is conveniently treated of here, though it is hardly correctly included in a chapter on neurasthenia. It is chiefly of interest on account of the liability to form an incorrect diagnosis, when one meets with a case probably sent up without any hint as to the presence of locomotor ataxy, and with only a history of rectal pain.

These cases are very rare, and I have only seen five. My experience of them has been that the rectal crises occur as an early symptom, but that definite signs of tabes can be elicited, such as exaggerated knee-jerks, Argyll-Robertson pupils, difficulty in standing with the eyes shut and the feet together, and, in one case, loss of sensation over certain nerve areas.

The following cases are good examples of this very interesting condition:

*Case.*—J. C., a cabinet-maker, aged forty-four. No history of syphilis, congenital or acquired. An attack of gonorrhœa occurred ten years ago. For twenty years (since twenty-four years of age) he has suffered with attacks of rectal pain. For two years he has had deficient control over the sphincter ani. A few months ago he had occasional diplopia. The pupils are equal, and react normally. The

\* Allingham, "Diseases of the Rectum," 7th edition, 1901, p. 273.

deep reflexes are normal. No lightning pains nor dysuria have occurred. There is well-marked loss of pain sensibility over the radial aspects of the forearms. There is a very slight Romberg's sign in one leg. No other signs of tabes present. There is no rectal abnormality to account for the attacks of pain.

*Case.*—W. B., a clerk, aged fifty-two. He came to the O.P. Department at St. Mark's Hospital complaining that for three months he had had pain and discomfort in the rectum and anus, and although he had seen a doctor several times, he was no better. The pain was worst after defæcation, but never severe. There was a "numb feeling in the anus." For some time he had been passing urine rather frequently, and had nocturnal incontinence. On examination, the anus and rectum were apparently normal. He had Argyll-Robertson pupils, and the pupils were much contracted. There was well-marked tremor of the tongue, eyelids, and fingers, the tremor becoming more intense if his attention were drawn to it. He sometimes spilt what he was drinking. There were no knee-jerks, no ankle-clonus. He swayed about, but did not fall, if he shut his eyes. There was a constant tired feeling in the legs. There was no history of syphilis. The bowels were regular.

*TREATMENT.*—It is often very difficult entirely to cure the patient if the condition has lasted a long time, as the morbid condition of the mind is liable to persist after the pain has ceased. When proctitis is present, local treatment of the bowel with glycerine, thymol comp., followed by astringents, is often most beneficial. Von Noorden's diet is also good, as, in addition to its beneficial effect upon the bowel, it aids in feeding up the patient and improving the general health.

A point of particular importance in these cases, and one which is too often overlooked, is that the patient is generally in a poorly nourished, and even anæmic, condition, and to feed up and fatten the patient is often of as much importance as the local treatment. The proctitis may also be treated by olive-oil injections *per rectum*, as recommended for ulcerative colitis. A certain, often considerable, amount of oil is absorbed by the bowel, and it is quite common to find that patients who have been for a week or two on oil injections put on a considerable amount of

fat. I have, however, found petroleum by the mouth most useful to insure easy and regular action of the bowels in these cases.

In some cases a treatment by zinc ionization of the rectum will give marked relief, and this is well worth a trial if other local means fail.

Careful investigation of the cause of the pain, and treatment of this upon rational lines, is the correct procedure; but it is also necessary to prescribe for the patient quite apart from his disease. Thus a change of occupation, a prolonged holiday, or residence at the seaside are often important contributory factors in the successful treatment of these difficult cases.

## CHAPTER XVIII

### *NON-MALIGNANT STRICTURE OF THE RECTUM*

THERE are a number of different classifications of stricture of the rectum, but the best, in my opinion, and the one which I shall adopt, is that of the late Dr. Tuttle. He gives the following classes: Congenital, spasmodic, inflammatory, and fibrous.

**Congenital Strictures.**—These most commonly occur at the point of union of the proctodeum and the hind-gut, which is represented in the adult rectum by the lower edge of the valves of Morgagni, or roughly, by the muco-cutaneous junction. The stricture may take any form, from a complete atresia to merely a slight fibrous ring at this spot. In some cases there is simply a general smallness or narrowing of the anus, while in others a membrane, usually composed of skin, covers some portion of the anal opening.

Children born with atresia ani, who have been operated upon during the first few days of life and have survived, are usually the subjects of considerable stricture at the position where the opening was established. Where only a diaphragm has been perforated, there may be little or no narrowing, but where a considerable interval existed between the two portions of gut, a very severe stricture will almost certainly result, and may be most difficult to deal with.

**Spasmodic Stricture.**—Many authorities have denied that such a thing as a pure spasmodic stricture exists, and have argued that in such cases as have been described the difficulty in the passage of a bougie was due to its end catching in some fold or angle. Since the introduction of electric proctoscopes, however, this source of error has been easily eliminated, and, further, well-authenticated evidence has recently been forthcoming to show that real spasmodic stricture may occur. Dr. Tuttle positively asserted that he had met with cases of true spasmodic stricture of the rectum. For myself, I was very doubtful as to whether

such strictures really existed, but recently I have met with an undoubted case. The patient had symptoms pointing to stricture, and on examination, I found a tight rubber-like ring of contraction in the rectum, which nipped one's finger so tightly that it was difficult to pass it through the narrowed portion. After a time this could be felt to relax, and then, at the least stimulus, such as the movement of one's finger, to contract again. With the proctoscope the ring of contraction could easily be seen. There was no change in the appearance of the mucosa, and the bowel was narrowed by a circular ring of contraction to about the size of a slate pencil.

Such conditions are, however, very rare, and it is very difficult to account for them. One would rather expect to find an ulcer or some such lesion causing irritation, but in the case I saw there was nothing of the kind. Tuttle was similarly unable to find a definite cause.

**Fibrous Stricture.**—When a local inflammation of the bowel has been sufficiently severe to cause the deposit of fibrous tissue in the bowel wall, or around it, a stricture may form. Such strictures are the result of the contraction of the fibrous tissue left by inflammation of the part. Unless the inflammation has been severe enough to cause a considerable destruction of tissue, a stricture will not form.

Fibrous strictures of the rectum may result from a great many different causes. A considerable number result from operations upon the rectum in which severe sepsis with destruction of tissue has followed, or where large areas of mucous membrane have been removed. Large fistulæ of the rectum may also result in stricture, especially if they have not been properly looked after during the healing stage. By far the commonest cause of rectal stricture is septic ulceration of the rectum, for any severe form of sepsis or ulceration of the rectum may be followed by stricture. In the pre-antiseptic days septic ulceration of the rectum was not an uncommon result of operations upon the bowel, but now, fortunately, it is very rare. I have known it occur after parturition and as a complication of severe illnesses. Parturition, I believe, to be a not uncommon cause of stricture in women; but this has certainly not received the attention it merits. I have seen quite a number of cases of severe stricture of the rectum in married women with a history of a very severe and prolonged labour some years previously. The stricture in

such cases is always in the same place—namely, about 2 to 2½ inches above the anus. I believe the cause of the stricture in these cases is sloughing of part of the rectal wall from its being nipped between the child's head and the promontory of the sacrum during the prolonged second stage of labour. I have seen stricture from this cause so complete that only a probe could be passed through the opening.

Cases of stricture of the rectum have resulted from the introduction of caustic substances or hot fluids into the bowel. I have met with one case, in which a very severe stricture was caused by the administration of an enema of boiling coffee by an over-enthusiastic nurse.

Since the introduction of Whitehead's operation for piles, quite a number of strictures of the anal orifice, or just above it, have been met with as the result of this operation.

I have seen one case of stricture of the rectum from poisoning by powdered glass administered in food.

One of the worst rectal strictures I ever saw was in a lady who, ten years previously, had been treated for prolapse of the rectum by the injection of paraffin wax into the perirectal tissues. The prolapse was cured, but in course of time a most serious stricture resulted, partly from the presence of the wax and partly from slow deposit of dense fibrous tissue around it. When I saw her, there was a tubular stricture of a most complicated nature several inches long and extending up into the sigmoid flexure. It was quite impossible to dilate it, and the patient could only relieve her bowels by means of a long rectal tube and much patience.

I have met with one case of rectal stricture, certainly due to tuberculosis; this was in a boy, aged eight.

**Syphilitic Stricture.**—At one time most strictures of the rectum were supposed to be the result of syphilis, and this is generally stated as a common cause in surgical textbooks. While I am not in a position to deny that syphilis may be a cause of rectal stricture, personally, I have never met with a case of syphilis of the rectum (excluding, of course, condyloma of the anus, and chancre), and at St. Mark's Hospital there is no reliable record of a case of tertiary syphilis of the rectum or of syphilitic stricture. Considering the very large number of cases of rectal disease, both rare and otherwise, that have passed through the hospital, one would expect that if syphilitic stricture occurred, we should have met with several cases.



I have been told by surgeons practising in India that syphilitic strictures among the natives are not infrequently met with. If syphilitic stricture does occur, it should easily be proved; but, so far, no evidence that can be considered satisfactory has been brought forward to prove it. The fact that a patient suffering from rectal stricture has a history of previous syphilis, is of no value. It is well known that antisyphilitic treatment does no good in cases of rectal stricture.

It certainly cannot be taken as proved that syphilis is a cause of rectal stricture.

**Dysentery.**—It seems probable that dysentery does not cause stricture of itself. There is ample proof that the very severe and extensive ulceration seen in the bowel in cases of amœbic dysentery may be entirely cured without any stricture resulting. One would suppose that, if dysentery gave rise to stricture, it would be a common cause of it, but as a matter of fact this is not the case. We know that dysentery is a term applied very loosely to any case of diarrhœa occurring in a tropical climate. I know of one case in which a patient, supposed for months to be suffering from dysentery, was found, on examination, to have half an egg-cup impacted in his rectum. In another case the patient had been poisoned with powdered glass. It seems probable that, in those cases in which a stricture appears to have resulted from dysentery, the original ulceration was septic and not dysenteric.

**PATHOLOGY.**—Most of the writing on the pathology of rectal stricture appears to have centred round the question of whether or not it is syphilitic, and to a large extent without any definite conclusion having been come to. Tuttle, in an exhaustive survey of the pathology, in which he quotes Hartman's and Toupet's work, brings forward histological evidence to prove the syphilitic origin of rectal stricture. This evidence cannot be considered altogether conclusive, as one cannot help being struck by the fact that, if rectal strictures are syphilitic with any frequency, there should be considerably more evidence of the fact.

As regards the histological character of the stricture itself, it is a noticeable feature of these rectal strictures that there is never any ulceration of the actual lining membrane of the stricture; the ulceration, if present, is always above or below the stricture, and often both. Cross-sections through the stricture demonstrate the fact that the ordinary cylindrical type of epithelium

has been replaced by a pavement epithelium. This can be noticed clinically by observing that, in the stricture itself, the epithelium has lost its normal glistening appearance.

In strictures of very old standing there is a tendency to the formation of curious polypi immediately above the stricture. These polypi may become very numerous, and by constant traction elongated until they may have a length of as much as 2 inches, and even more. There is a very remarkable specimen in the museum of St. Bartholomew's Hospital of an old stricture of the bowel, with a great number of long, thin, oddly shaped polypi, many of which reach to as much as  $2\frac{1}{2}$  inches below the stricture, their pedicles, however, arising from immediately above it. It is difficult to account exactly for the presence of these polypi, but they appear only to arise in strictures which have existed for a considerable time.

The deeper layers of the stricture show typical fibrous tissue involving some or all of the coats of the bowel, according to the degree of involvement of these parts by the original inflammation.

SECONDARY RESULTS—*Ulceration*.—One of the first complications that occurs when a stricture begins to cause obstruction is ulceration of the mucous membrane immediately above it. This is the characteristic stercoral ulceration, and is undoubtedly due to the presence of long-retained fæcal masses. It may extend for any distance up to several inches from the stricture, and occasionally cases have been reported in which there were ulcers in the cæcum. The serious consequences which may follow rectal stricture are attributable more or less directly to the presence of these ulcers.

Ulceration also occurs in many cases below the stricture, but this is always confined to an area just below, and is due to an entirely different cause, probably to interference with the blood-supply by the fibrous tissue causing the stricture.

*Perforation*.—Perforation of the bowel may result from an old stricture, and when it does the perforation is generally found to be through the base of one of the ulcers.

*Fistula*.—A common complication of rectal strictures of old standing is the formation of fistulæ opening on the skin around the anus. As a rule, however, it is only in the very late stages of stricture that this occurs.

DIAGNOSIS.—The diagnosis of rectal strictures is, as a rule, not difficult, once their presence has been suspected. By far the

best way of examining them is with the finger. In the case, however, of very high strictures, which cannot be reached easily, or at all, the use of a short electric proctoscope tube is often of great value. It should be of large enough calibre to enable bougies to be passed through it with the object of investigating the stricture. Soft rubber bougies of the Wales type, with a probe-shaped point, are by far the best for this purpose; but another very useful instrument is a thin flexible wire with a bulbous end of sufficient diameter just to pass the stricture. With this the limits of the stricture can be determined fairly accurately, even though it is impossible to reach the stricture with one's finger.

Usually, it is possible, with care, to dilate the stricture by means of bougies, until a proctoscope tube of the same size can be passed through it. This enables one to examine the bowel immediately above the stricture, and to ascertain whether ulceration is present, and, if so, to what extent.

It will often be necessary to give the patient an anæsthetic for this purpose. Needless to say, the greatest care must be practised in investigating a stricture for the first time, as it is impossible to know beforehand how thin the bowel may be, and any roughness may easily result in a perforation.

Where tubercle or malignant disease is suspected, a small piece, if a suitable area can be found, should be nipped off with crocodile forceps for microscopic examination. It is quite useless to test the pus from ulceration above the stricture for tubercle bacilli, as they will almost certainly not be found. Histological examination of the tissue removed is alone of any value.

**SYMPTOMS.**—As a rule a stricture of the rectum does not cause sufficient symptoms to attract the patient's attention until the narrowing of the lumen is very considerable; but for a long time before this it will be easy to demonstrate the presence of a latent stricture if the patient is examined. It is only when the stricture begins to cause definite obstruction to the passage of fæces that well-marked symptoms make their appearance. In some cases there is simply increasing difficulty in getting the bowels to act, this being only accomplished at long intervals and at the expenditure of much time and trouble. More frequently diarrhœa is a prominent symptom. There may be alternating periods of diarrhœa and severe constipation, or both conditions may exist at the same time—that is to say, the bowels may be

acting slightly several times a day, but the quantity got rid of may be quite inadequate to relieve the bowels. A very common condition is that in which there is a constant dribbling of small quantities of mucus and liquid; but the patient feels no relief, and is always straining and uncomfortable. The diarrhœa that results from stricture is spurious and most misleading, unless its true cause is recognized.

Complete obstruction never results from stricture alone, as the lumen is never entirely obliterated, but from the impaction of hard masses of fœcal material above the stricture.

Sooner or later in all cases of stricture, ulceration of the bowel above the stricture will occur from the presence of retained fœcal masses. The result of this secondary ulceration is to increase considerably the severity of the symptoms. Diarrhœa, if not previously present, now becomes a marked feature of the case, and there is much discharge of blood and pus.

Much importance is often attributed to the shape of the dejecta as a symptom of stricture. Any soft mass, however, must take its shape from the last orifice through which it has passed, and this must always be the anus. Unless, therefore, the stricture is actually at the anal orifice, the shape of the dejecta can be of no possible significance, and in the latter event the most superficial examination of the patient can hardly fail to reveal the presence of the stricture.

PALLIATIVE TREATMENT—*Dilatation*.—This consists in dilating the stricture, and, by means of antiseptic injections, healing up any ulceration which exists.

The very greatest care must always be taken in dilating a rectal stricture, for there have been a considerable number of serious accidents from this cause. The danger lies in splitting the stricture and so allowing septic material to reach the cellular tissue outside the bowel, and lead to the formation of abscess or septicæmia. The greatest danger is connected with strictures which involve that portion of the rectum above the peritoneal reflection, as the bowel wall is very thin here, and, if it is split, general peritonitis will almost certainly result. As a general rule, with the exception of strictures at the anal orifice, the dilatation of strictures of the rectum should not be attempted by anyone who has not had previous experience in the use of dilators.

There are a great number of rectal dilators, but no form of

mechanical dilator should under any circumstances be used; they are very dangerous instruments, and they have no advantage over graduated bougies, while they have many serious disadvantages. I know there are still some surgeons who use them successfully and safely, but I am convinced that, if they were to try the graduated bougies, they would never return to mechanical dilators.

The two best patterns of dilator now in use are the flexible Wales bougies and the graduated rectal dilators. Where the stricture to be dilated is situated high up in the bowel, the Wales bougie should alone be used. This is also the best instrument for anyone unaccustomed to the use of bougies, and when the patient wishes to use a bougie himself in order to keep the stricture dilated. The Wales bougie is made of soft red rubber, and has a small channel through the centre. The best pattern has a probe point. Several sizes should be at hand.

*Method of dilating a High-Lying Stricture in the Rectum.*—The patient should be on the left side with the knees drawn up. A Wales bougie of suitable size should be warmed in hot water and thoroughly greased all over with a liberal supply of vaseline. It should then be passed in until the probe end is felt to pass into the stricture. If necessary, a finger should be passed alongside the bougie to make certain that it is in the right place; then the bougie should be pressed in very slowly, only very moderate force being used. Considerable patience is often necessary, and on no account should the operator be tempted to use much force, as there is great danger in so doing. When the bougie is felt to slip through the stricture, it should be left in for a few minutes, then withdrawn, and the next size larger passed in. It is not advisable to attempt to dilate the stricture much at one sitting. It is better, after having used bougies of two or three sizes, to postpone further dilatation till next day, and then to start again with the smallest size. In the case of very obstinate strictures, it is often advisable to leave the bougies in for some hours, giving the patient a sedative, such as a morphia injection, to allay the pain.

The great advantage of using soft rubber bougies for high-lying strictures is that, should the point of the bougie catch in some fold in the bowel, it will turn to one side or double upon itself, whereas if a stiff bougie were used, it might perforate the bowel wall.

It cannot be insisted on too strongly that the dilatation of strictures high up in the rectum is a dangerous operation, which must be carried out with the greatest care and patience. I know of several cases where fatal results have followed the dilatation of such strictures by surgeons. The sigmoidoscope will often prove a valuable aid in directing the point of the bougie into the stricture.

When the stricture is low down in the bowel—that is to say, within  $2\frac{1}{2}$  inches of the anus—metal dilators may be used. These are much better than rubber or gum elastic bougies, as they are both cleaner and smoother; they should be made, like uterine dilators, with parallel sides and with all the taper in the last inch. There should not be more than  $\frac{1}{16}$  inch difference in diameter between the different sizes.

The largest size that will pass is first introduced, and left in for about half a minute; then the next size is introduced, and so on.

As stretching the stricture is a very painful process, it is generally advisable to administer an anæsthetic, or to give an injection of morphia half an hour beforehand. On no account should the stretching process be continued to such an extent as to split the stricture, or a perirectal abscess will result. Once the stricture has been dilated, the patient should be given a dilator of suitable size, and instructed how to pass it for himself. It should be passed daily at first, and then at increasing intervals, until there is no longer any tendency to recontraction.

If there is any ulceration of the bowel associated with the stricture, this should be treated by antiseptic or astringent injections until healed.

*Fibrolysin.*—This drug is supposed, when injected intramuscularly, to cause softening and absorption of abnormal fibrous tissue. While it certainly does not do all that is claimed for it, I have seen several cases in which very good results appeared to have been obtained by the use of this drug. It seems to cause some softening of the fibrous tissue, and to allow strictures to be more easily dilated. It should be administered in 3-grain doses every two or three days by injection into the buttocks. The patient must be kept under observation, for, as I know from experience, very unpleasant symptoms sometimes result from it, such as high temperature and a kind of erysipelatous rash, with headache and vomiting.

OPERATIVE TREATMENT.—The following methods have been used, and the choice of any particular one must depend very largely upon the type of stricture which is found to be present:

1. Internal proctotomy.
2. Complete proctotomy.
3. Excision of the stricture or of the rectum.
4. Colotomy.

1. *Internal Proctotomy*.—This operation is an operation comparable to that of internal urethrotomy. The stricture is usually divided posteriorly with the blunt-pointed bistoury passed along the finger; or, as a modification, the stricture may be incised in three or four places, and then forcibly dilated with bougies. The operation is completed by the insertion of a large rectal vulcanite tube to keep the parts stretched, which is tied in by means of tapes attached to the flange outside the anus. Bleeding is, as a rule, not serious, and is arrested by the introduction of the tube. The tube should be removed daily, and the bowel thoroughly washed out with some lotion. A bougie of the requisite size is then passed in order to keep the stricture dilated. After a time, the bougie is passed at less and less frequent intervals, according to the manner in which it is found that the stricture remains dilated.

Although this operation has given quite good results in some cases, it is open to very serious objection, and should only be used in selected cases, in which the stricture is situated very low down. When the stricture is situated at some distance from the anus, this operation is extremely dangerous and should never be performed. The great danger lies in the unavoidable infection of the wound and of the perirectal tissues, so that proctitis, abscess, or death may result. This operation has undoubtedly been the cause of a number of deaths in the past, especially in the pre-antiseptic days. At the present time, however, if proper aseptic precautions are adopted, and care is taken to select only cases in which the stricture is limited in extent and involves only the lower segment of the rectum, and also where there is no ulceration above the stricture, very good results can be obtained by means of this operation; but the surgeon must remember the risk of sepsis, and, unless he is fairly confident of being able to render the parts aseptic, he will be well advised not to perform this operation.

2. *Complete Proctotomy*.—This is also described as linear or external proctotomy, and consists in making a large posterior incision in the median line right through the stricture, anus, and tissues posterior to it. The advantages of this operation over internal proctotomy are that, owing to the free drainage, there is not the same danger of septic complications. Moreover, hæmorrhage is easily controlled by clipping the bleeding-points in the ordinary manner. Although one might suppose that very serious incontinence must result from this operation, this is usually not the case, and quite good control should be obtained if the after-treatment is properly carried out. The disadvantages are that a very large amount of cicatricial tissue is left, and that the wound takes a very long time to heal. Bougies have to be used in order to keep the parts dilated, in the same way as for internal proctotomy. Although permanent incontinence is not by any means a necessary result of this operation, there is complete incontinence for a considerable time—until the wound is healed—which may easily be a matter of months.

3. *Excision*.—In recent years excision of rectal strictures has become much more common, and very excellent results have been obtained in suitable cases. When the stricture is quite near the anus, a modification of Whitehead's operation is often all that is necessary in order to get rid of the stricture. The mucous membrane is dissected up, in the same way as in Whitehead's operation for piles, until the dissection has been carried well above the stricture, and the mucous membrane is then drawn down until normal mucosa can be made to reach the skin. The stricture is then cut away, and the mucous membrane stitched all round to the skin, as in Whitehead's operation.

This operation gives admirable results when properly performed, and in strictures of limited extent. It is, however, not very easy, as the fibrous tissue outside the stricture prevents the separation of the mucous membrane in the normal manner, and thus renders it difficult. When the stricture is more than 1 inch from the anus, this method is not possible, and a formal excision, similar to that performed for malignant disease, is necessary. In that case, the operation is identical with that of excision of the rectum for malignant disease. A posterior incision is made and the coccyx removed, the stricture being resected, and the bowel ends united again by sutures. The wound generally breaks down posteriorly, and free posterior drainage



should be provided, a tube of large calibre being kept in the rectum so as to drain the bowel above the line of anastomosis.

The operation of excision of a portion of the rectum for non-malignant stricture is not one to be lightly undertaken, as a stricture serious enough to warrant this operation is almost certain to be associated with a dense amount of fibrous tissue in the surrounding parts, which makes the anatomy quite abnormal, and may cause great difficulty in the separation of the rectum.

4. *Colotomy*.—Colotomy may be performed for two reasons in cases of rectal stricture:

(1) Temporary colotomy may be performed in order to deflect the fæces, to enable the stricture to be kept washed out, and to allow ulceration to heal. This is a very excellent procedure in suitable cases, especially when there is a large amount of ulceration associated with the stricture. After the parts have been thoroughly healed up by frequent irrigation, the stricture can very often be dilated, and, when a suitable calibre has once been re-established, the colotomy can be closed. It is often astonishing how much improvement can, in this way, be obtained in cases of bad stricture.

(2) A permanent colotomy may be established. Although patients naturally object to the establishment of an artificial anus, they are infinitely more comfortable afterwards than they could possibly be with a tight and non-dilatable rectal stricture. Moreover, it does away with the risk of severe ulceration and perforation, which, in the case of a bad stricture, is by no means inconsiderable.

## CHAPTER XIX

### *BENIGN TUMOURS OF THE RECTUM AND ANUS*

A GREAT variety of new growths are met with in the rectum and growing from the skin of the anus, which are not malignant in character. Most of them arise from the mucous membrane or from the skin of the anus, and are therefore epithelial in character. In addition to the more usual types of innocent growths, mention must be made of those of congenital origin, such as tumours arising from persistence of the neurenteric canal and dermoids in the neighbourhood of the rectum. These have already been described in the chapter on Congenital Malformations.

By far the commonest form of innocent rectal new growth is adenoma; less common forms are papillomata, fibromata, nævi, lipomata, and growths due to the invasion of the mucous membrane by parasites.

**Adenomata.**—These are innocent epithelial tumours consisting of an excessive overgrowth of the normal glandular elements of the mucous membrane lining the bowel. They differ from malignant adenomata in that they do not perforate the muscularis mucosæ, or basement membrane, and that they remain confined to the epithelial layer; otherwise they very closely resemble malignant growths. There are a great many different varieties of adenomata met with in the rectum. The simplest form consists of a polypus attached to the bowel wall by a narrow pedicle; this is the condition usually known as “soft rectal polypus.” Adenomata are also seen as small, branching, tree-like processes growing from the mucous membrane, in which case they are generally known as “villous tumours.” These often attain a considerable size, and villous tumours of the rectum are sometimes met with as large as an orange, or larger, so that they may fill the entire rectum. They give off a watery mucous secretion, which is usually tinged with blood, and they sometimes cause quite severe hæmorrhage. Their presence in the rectum produces a considerable amount of irritation, so that the symp-

toms usually complained of by the patient are constant diarrhoea and tenesmus, with much mucus and blood in the stools. If large, these villous tumours may also cause a good deal of pain. To the touch they feel like soft velvet. They are quite soft everywhere, and by this they are easily distinguished clinically from malignant growths. When looked at through a speculum or proctoscope, they can be seen as fine, branching tendrils, almost like delicate seaweed of a reddish-pink colour, and bleeding very easily when touched.

In another variety of the same condition the tumour is more nodular in character, though it still retains its soft feeling when examined by the finger. This variety, however, does not tend to bleed so readily as the true villous growths.

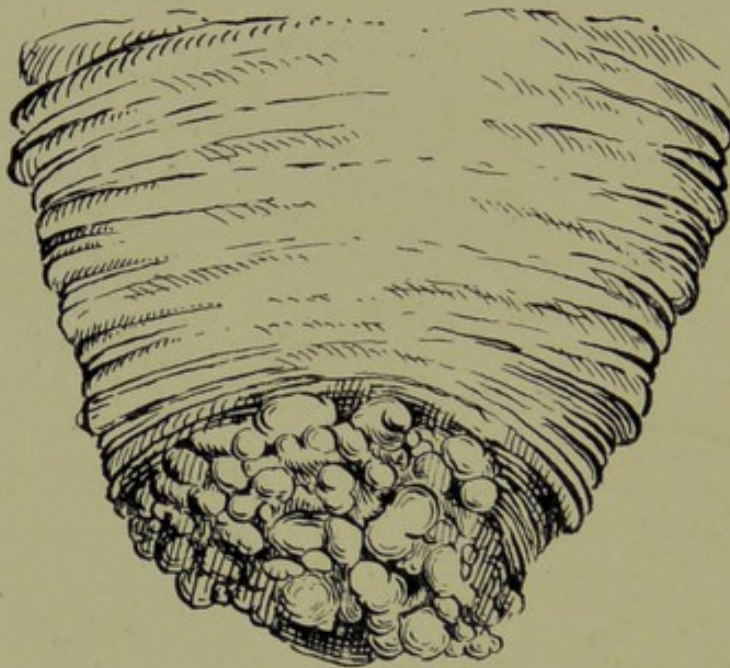


FIG. 82.—ADENOMA OF THE RECTUM AT THE APEX OF A PROLAPSE.

As soon as the tumour reaches any size, it acts as a foreign body in the rectum. The rectum naturally tries to get rid of it, and the constant dragging effect produced by efforts to evacuate the tumour tends to drag down the mucous membrane to which the growth is attached. As a result, in many cases the tumour, after a time, gets a pedicle of normal mucous membrane, and not infrequently a definite prolapse of the entire rectum is produced with the tumour at its apex. An illustration of this condition is given in Fig. 82. The smaller villous growths do not produce many symptoms, an increase in the amount of mucus in the stools and occasional bleeding being the only symptoms which indicate their presence.

There is another variety of adenoma of the rectum in which the tumours are multiple. In such cases the entire rectal mucous membrane may be covered with minute adenomata, or there may be simply a large number of adenomata scattered about

on the mucous membrane. This condition is, however, seldom confined to the rectum itself, and, as a rule, these growths will be found throughout the large intestine, and even occasionally in the small intestine. This condition of multiple polypi of the bowel sometimes arises as the result of irritation; for instance, multiple adenomata are not infrequently found below a carcinomatous stricture if it has existed for some time. They are also found associated with worms in children, and associated with inflammatory conditions; but in many cases no cause of any sort can be discovered, and apart from the few cases in which these adenomata definitely arise as the result of some irritation, we are quite in the dark as to their ætiology.

**MICROSCOPIC APPEARANCES.**—When sections are examined under the microscope, these polypi can be seen to consist of a central mass of typical adenoid tissue covered outside with the ordinary columnar-celled epithelium of the bowel. They are not, however, simple outgrowths or excrescences of the mucous membrane, as the submucous coat is represented. A careful microscopic examination shows that they originate beneath the mucous membrane, probably in the solitary follicles, and as they protrude into the bowel, become covered and surrounded by the mucous membrane.

In the pedunculated variety there is, as a rule, no adenoid tissue in the pedicle, which consists of a tube of mucous membrane, including connective tissue, continuous with the submucous layer of the bowel wall.

The most important factor in connection with simple adenomata of the rectum, whether of the single or multiple variety, is that they show a marked tendency sooner or later to become malignant—that is, for the cells to perforate the basement membrane and invade the surrounding structures. I am of opinion that all adenomata of the rectum eventually take on malignant change, and in the great majority of cases in which large adenomata have been removed, malignant change has been found to have already occurred in some part or another of the tumour. So marked is this tendency for simple adenomata to become malignant, that, personally, I look upon adenomata as merely a stage in the development of malignant disease, and regard simple adenomata of the rectum as a definitely pre-cancerous condition. It follows from this that on no account should a simple adenoma of the rectum be allowed to remain, even if

it is causing no troublesome symptoms; it should be freely removed as soon as possible.

**TREATMENT.**—On account of their tendency to become malignant, all adenomata, however small, should be promptly and thoroughly removed, and, if necessary, the patient should be warned of the risk of their being left alone. The danger of malignancy, however, is, of course, partly dependent upon the age of the patient; the older the patient is, the greater is the risk of malignant change occurring. Small polypi and adenomata can be removed easily through a speculum, either by being snipped off with a wire snare or nipped away with forceps, or, if

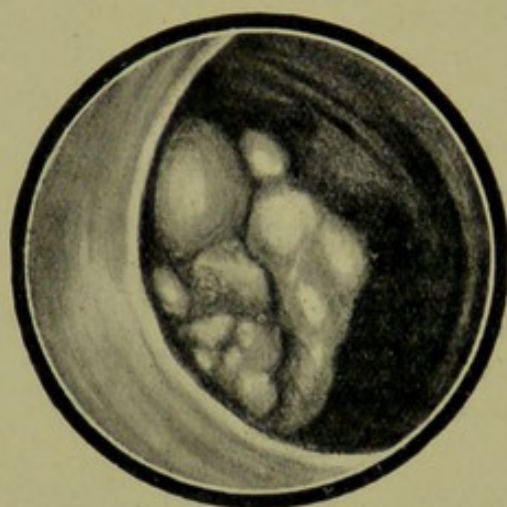


FIG. 83.—PAPILLOMA OF THE RECTUM JUST ABOVE A HOUSTON'S VALVE. (SIGMOIDOSCOPIC.)

low enough down, they can be removed by ligature. Adenomata high up in the rectum can frequently be twisted off by means of crocodile forceps passed through a proctoscope tube, the base, if necessary, being thoroughly cauterized to insure the removal of all the new growth.

In the case of large villous adenomata removal is a much more difficult matter. Some of these tumours involve two-thirds or more of the bowel circumference and a considerable portion of its length, and their removal is often only possible by excision of the rectum. The operation for their removal will therefore be the same as that for the removal of carcinoma, with this difference, that if the surgeon is thoroughly satisfied that no portion of the growth has yet undergone malignant change, all that is necessary is the actual removal of the involved bowel, and no attempt need be made to remove the parts widely or to excise the lymphatic areas. If, however, as is frequently the case, one portion of the tumour is found to be hard and nodular, the case should be treated as one of malignant disease, which it will almost certainly prove to be.

**Papillomata.**—These are warty outgrowths to the skin at the anal orifice, and are definitely epithelial structures. They are not infrequently seen as outgrowths surrounding the anus, and

appear to arise in most cases from the irritation caused by a chronic discharge. They often have a sort of cauliflower appearance, and give rise to a great deal of offensive discharge.

**TREATMENT.**—When they are not large, they can usually be got rid of quite simply by rubbing them over with copper sulphate, or even by dusting them frequently with calomel. The best way, however, is to administer an anæsthetic to the patient, and then snip the growths away with scissors. If the parts are afterwards kept clean and dry, healing will take place readily, and the papillomata will not tend to recur.

**Fibromata.**—These are usually met with in the shape of polypi, and generally have a long narrow pedicle. They most commonly arise from internal piles, which have been present for some considerable time. The probable course of events is, that at some period or another an internal pile becomes thrombosed, and fibroid change takes place in it; this fibroid change becomes progressive, and gradually a fibroid tumour is produced growing from the pile. In many cases of prolapsing piles of old standing one or other of the piles will be found to have become converted into a fibrous polypus. An illustration of such a case is given in Fig. 84. Sometimes these fibromata reach a very considerable size. They are easily removed, either by ligature or by crushing the pedicle and cutting them off.

**Nævi.**—Nævi of the bowel and rectum are very rare, but are occasionally met with. They do not differ in any important particular from nævoid growths elsewhere, except that they are often ulcerated in places, owing to the constant irritation produced by the action of the bowels. They may give rise to very severe and dangerous hæmorrhage. If large, their removal will probably necessitate a partial resection of the rectum.



FIG. 84.—LARGE FIBROUS POLYPUS ARISING FROM A NEGLECTED INTERNAL PILE.

**Lipomata.**—These tumours occur as somewhat pedunculated growths protruding into the bowel. They produce no symptoms apart from their tendency to cause prolapse, or possibly obstruction, if of very large size. It is well to remember in the case of large fatty tumours of the rectum that, as they have arisen from the fatty tissue on the outside of the bowel and beneath the peritoneum, they not infrequently have a prolongation of peritoneum into the pedicle, and their removal will therefore possibly result in opening the peritoneal cavity. Their removal by ligature is therefore advisable, as this will prevent any risk of the peritoneal cavity being infected.

**New Growths arising from Parasites.**—Infection of the rectum by certain parasites may give rise to outgrowths of the mucous membrane of an adenomatous character. The best-known example of this condition is to be found in the multiple adenomata of the rectum produced by the ova of *Bilharzia hæmatobia*. Infection of the rectum with the bilharzia parasite appears to occur as the result of bathing in Egypt. It is said that bilharzial infection of the rectum is equally common with the infection of the bladder. Cases are, however, seldom, if ever, met with outside Egypt.

A case of rectal tumour produced by *Oxyuris vermicularis* has been recorded by Ruffer.\*

**Hypertrophied Anal Papillæ.**—At the junction of the skin and mucous membrane just within the anus there is a fine fringe which marks the junction of the hind-gut with the proctodeum, and is found immediately below the valves of Morgagni. Occasionally the edges of this fringe become hypertrophied and form definite papillæ. An illustration of this condition is found in Fig. 85. There are generally five of these little papillæ to be found in the rectum, though they are not always to be seen. Any one, or all, of these papillæ may be found hypertrophied. They sometimes reach quite a considerable size, measuring  $\frac{1}{2}$  inch in length, and consist of solid fibrous tissue. Why these papillæ should sometimes become hypertrophied it is very difficult to say. When large, they can be felt with the finger, but they are best examined with a short tubular speculum, such as the one illustrated in Fig. 9, p. 20. As this is withdrawn, the little papillæ will be seen very clearly. When they are hypertrophied, they often become exceedingly sensitive, and appear to be highly

\* *Brit. Med. Jour.*, June 26, 1901.

endowed with nerve endings. In some cases they undoubtedly produce discomfort or even neuralgia in the bowel. It has often been thought that these papillæ, when present, are the cause of pruritus. I have not been able to satisfy myself that this is so, but certainly in some cases the removal of the hypertrophied

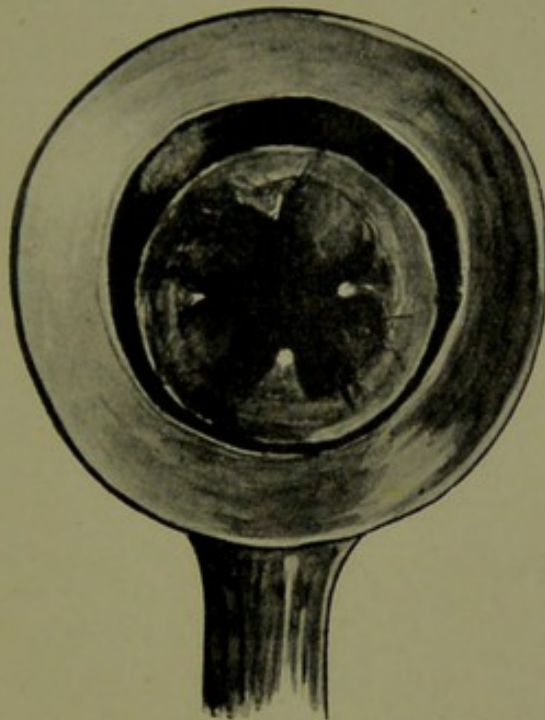


FIG. 85.—HYPERTROPHIED ANAL PAPILLÆ, AS SEEN THROUGH TUBULAR SPECULUM.

papillæ has appeared to result in a cure of the pruritus. They can be removed quite easily either by crushing them with forceps or by means of a galvanic cautery. It must be remembered, however, that they are usually highly sensitive structures, and that an anæsthetic will be advisable. The bleeding that results from their removal is quite negligible.



## CHAPTER XX

### *MALIGNANT DISEASE*

THIS dread disease is still a scourge of the civilized world; it is found in every class and country, it attacks the rich and poor, the healthy and the unhealthy. Indeed, one of the worst features of the disease is that it appears to attack the strongest and healthiest individuals quite as frequently as the unhealthy. At present we know no means of preventing it, nor any certain means of curing it. My own belief is that our disgusting habit of burying our dead has much to do with its prevalence, and this belief is, I know, shared by others who have given attention to the question; but, after all, this is little more than conjecture, and, if the truth is to be admitted, we know no more of the true cause of cancer than was known in the Middle Ages. I believe that the cause will soon be discovered, and that the time is not far off when we shall be able to prevent, even if we cannot cure, this disease by non-operative means; but at present the only way of curing the disease is by removing it in its early stages by operative methods. In this direction great advances have been made within recent years, and, although the most optimistic surgeon must fail to be pleased with the operative results in the treatment of cancer, at the same time every surgeon of experience can point to some brilliant cures which have been achieved by operation. Treatment by operation at the present day remains an unsatisfactory method of dealing with the disease, but the only one that affords any serious prospect of success.

Within recent years great improvement has taken place in the operative treatment of cancer of the large bowel, and instead of patients dying with unrelieved obstruction, or dragging on a miserable existence for a few months with a colotomy, numerous cases have now been reported in which the growth has been successfully removed and the continuity of the bowel restored. There is, however, one essential to successful operative treat-

ment, and that is early diagnosis of the lesion. The chief hindrance to operation is the fact that in the great majority of cases the diagnosis is not made until it is too late for there to be any hope of successfully removing the growth. Unfortunately cancer of the rectum usually gives rise to but few symptoms in the early stages, and unless great care is taken in examining patients who complain of bowel symptoms, the diagnosis will not be made until actual symptoms of obstruction occur, by which time, in most cases, the growth has progressed too far for complete excision to have a fair chance. When a cancer of the rectum has advanced to the stage at which it begins to cause obstruction to the bowel lumen, the symptoms are, as a rule, readily recognized, and there is not much difficulty in making a diagnosis; but unless we are content to do nothing more than tell our patients when they are going to die, this is not sufficient. We must be able to recognize the presence of cancer in the large bowel at an earlier stage than that at which obstruction is produced.

It is an unfortunate fact that even at the present day nearly three-quarters of the cases of rectal carcinoma which are sent up to or apply for admission to "St. Mark's Hospital for Cancer and Other Diseases of the Rectum," are suffering from growths in the bowel which have already reached too advanced a stage for removal to be possible. All that can be done in these cases is a colotomy with the object of relieving the symptoms and preventing obstruction. Even in private practice considerably over half the cases seen are already too advanced for operation at the time the diagnosis is made; this fact is the greatest bar to the successful treatment of cases of cancer of the rectum. The chief cause of the late diagnosis, as we have seen, is that cancer of the rectum produces very few symptoms in its early stages. It must, however, be admitted that in many instances the late diagnosis is due to the fact that the medical practitioner who was first consulted neglected to make a local examination. It is now possible to diagnose cancer of the rectum or of the lower part of the sigmoid flexure with absolute certainty, even in the earliest stages, provided an examination is made, and this being so, the proportion of cases found to be inoperable when the disease is first diagnosed should certainly be very much reduced.

**DIAGNOSIS.**—The first thing that we must know is, obviously, what symptoms should make us suspicious of cancer in the

rectum? Once we have got so far as to be suspicious of the presence of a growth in the rectum, it then only remains to apply special methods of diagnosis to confirm or refute our suspicions; but the most important step is to know when these methods should be applied.

*Early Symptoms of Cancer of the Rectum.*—One of the earliest symptoms of cancer of the bowel is a sense of discomfort in the rectum, and difficulty in getting the bowels properly relieved. The pain complained of in these cases varies considerably, and in many it is altogether absent. Pain in the sacrum or in the lower abdomen is sometimes felt. Diarrhœa is a common early symptom of cancer of the rectum, and is often most deceptive. It frequently happens that the diarrhœa only occurs occasionally, and may then be readily attributed by the patient to some error of diet. When a patient, especially an elderly one, complains that during the course of a few weeks or months he has had several attacks of diarrhœa without any very definite cause, we should view the case with grave suspicion. Slight diarrhœa on first rising in the morning is a symptom which should always give rise to a suspicion of cancer of the bowel. The fact that the diarrhœa is readily stopped by taking some simple astringent medicine is no reason for excluding cancer as a possible cause. Chronic diarrhœa, with but few exceptions, is due to some lesion of the large bowel, and in elderly patients one of the commonest causes is cancer. Chronic diarrhœa in such a patient is therefore a most suspicious symptom. The diarrhœa is never copious, but is of the characteristically irritative type. The stools are frequent and small in amount, often consisting of little more than an ounce or so of slime or watery discharge mixed with a little fœcal material. Another common characteristic of this form of diarrhœa is that it is frequently accompanied by inability to retain the contents of the bowel for more than a few minutes; thus the patient will say that he is obliged to seek the nearest lavatory directly he feels a call to stool. The real condition, in fact, is not diarrhœa, but constipation. The diarrhœa is spurious, and on careful inquiry and examination we find that the patient has not really passed a proper quantity of fœcal material for a considerable time, in spite of the fact that the bowels may have acted in this spurious manner several times a day.

Mucus in the stools is often an early symptom of cancer; it is

almost invariably accompanied by a certain amount of diarrhoea or looseness of the bowels. I have seen several cases of cancer of the sigmoid flexure in which this was the only symptom, a sigmoidoscopic examination disclosing the presence of the tumour. Mucus in the stools, of course, frequently occurs as the result of other conditions besides cancer. The mucus may be in the form of definite mucous casts, which are often supposed to be characteristic of membranous colitis, and I have seen two cases of cancer of the colon, in which such typical casts were passed.

Blood in the stools, especially when the blood is intimately mixed with the fæces, is always a significant symptom, but, unfortunately, it is often entirely absent or does not occur until quite late in the progress of the case. I have, however, recently operated on a case where the only suspicious symptom was a sudden and severe hæmorrhage from the bowel on two occasions with about a week's interval. The growth in this instance was situated in the lower end of the sigmoid flexure at its junction with the rectum.

Bleeding from the bowel is a common and often early symptom of cancer of the rectum, owing chiefly to the fact that the bowel is fixed and traumatism from the passage of fæcal material readily occurs, giving rise to ulceration of the growth at an early stage. In cancer of the more mobile colon, however, traumatism does not so readily occur, and chiefly for this reason blood in the stools is not a common symptom of cancer of the colon. Although blood in the stools is not common when the stools are examined in the ordinary way, it can often be detected if a microscopical examination of the fæces is made.

EXAMINATION OF THE PATIENT.—This may be considered under three headings, all of which are important: Examination *per rectum*, palpation of the abdomen, examination of the stools.

It is first of all essential to get the bowel empty as far as possible, as not only will this facilitate the rectal examination, but it will also render abdominal palpation much easier. A good purge, such as castor oil, should be given, and if this does not act well, it should be followed by a dose of salts next morning. It is, of course, not possible to feel directly a growth high up in the bowel by means of a finger in the rectum, but a bimanual examination with a finger in the rectum and the left hand on the abdomen will often enable a growth to be felt which is other-

wise out of reach. Another useful method of examination is to pass a finger into the rectum, while the patient assumes a squatting attitude and strains down. In this way I have on several occasions been able to feel growths in the sigmoid flexure through the anterior rectal wall. By far the most important and valuable method for the diagnosis of high growths in the rectum is examination with the electric sigmoidoscope, and whenever possible, this method of examination should be utilized. It enables us readily to examine the upper rectum; moreover, since it causes no pain and but little discomfort, and does not necessitate an anæsthetic, it can be used in doubtful cases without putting the patient to any great inconvenience. Like

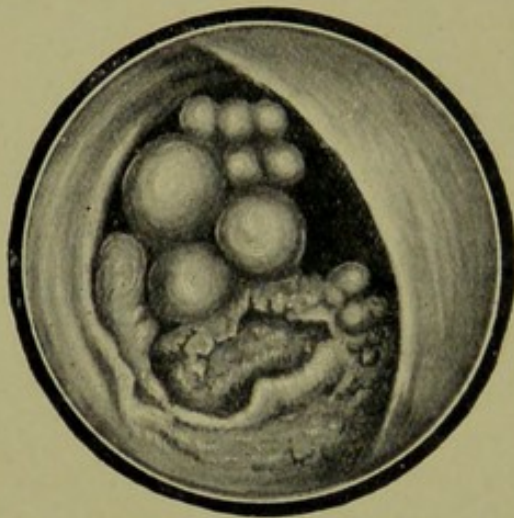


FIG. 86.—CANCER HIGH UP IN THE RECTUM. (SIGMOIDOSCOPIC.)



FIG. 87.—CANCER IN THE UPPER PART OF THE RECTUM. (SIGMOIDOSCOPIC.)

all special instruments, however, it is of little use in unskilled hands, and may even be a source of danger if carelessly used (see p. 21).

For palpation of the abdomen the bowels should have previously been well cleared. The patient's head should be supported on a pillow and the knees should be drawn up. The palpation should be carefully and methodically carried out, the colon being examined in its entire course from the cæcum to the rectum. To be effective, palpation must be carried out gently, as sudden or severe pressure will invariably defeat its object by causing contraction of the abdominal muscles. Deep palpation is greatly facilitated by making the patient take a deep breath and then pressing slowly and deeply as the muscles relax during

expiration. Special attention must be paid to the liver and the central part of the abdomen just above the pelvic brim. In palpating the sigmoid flexure the fingers should be pressed well down into the pelvis behind the pelvic brim during successive expirations.

*Examination of the Fæces.*—This method of examination has been much improved and elaborated recently, and is of very considerable value if properly carried out. An ordinary macroscopical examination of the stools should first be made, and for this purpose it is advisable first to examine an ordinary stool, and then to examine a stool after a smart purge has been administered. A few ounces of this latter stool should be placed in a bottle with some formalin for subsequent microscopical examination. No importance whatever can be attached to the size or shape of the fæces, but it is important to notice the presence or absence of blood or mucus, or any other abnormal constituent. As a rule it is advisable to entrust the microscopical and chemical examination to a clinical laboratory or pathologist. A microscopical examination should be made for blood-corpuscles, pus cells, epithelium, etc. There are several fairly reliable chemical tests for blood in fæces which should also be used. Some pathologists have gone so far as to state that microscopical or chemical evidence of blood in the fæces is always present in cases of cancer of the colon. At any rate, it seems quite certain that the presence of blood in the fæces can be demonstrated in many cases in which there is no macroscopic evidence of its presence. The mere presence of blood in the fæces is not, of course, direct evidence of cancer, but it certainly shows the presence of some ulcerative lesion, and is an important piece of evidence.

In difficult cases where a positive diagnosis cannot be made, but where there is a serious suspicion of cancer of the rectum, an anæsthetic should be given and a further examination made. Under an anæsthetic palpation can be more effectively carried out, and by passing two fingers into the rectum and making a bimanual examination, it is usually possible to feel any growth in the pelvic portion of the bowel.

*Site of the Growth.*—The commonest position for rectal cancer is at or about the recto-sigmoidal junction, the next commonest situation is the rectal ampulla, and the least common is the anus. In his book, the late Dr. Tuttle gives the following figures:

Anus, 6.7 per cent; infraperitoneal position, 26.3 per cent.; supra-peritoneal position, 67 per cent. We notice that by far the commonest situation is unfortunately the worst from the point of view of treatment—namely, high up in the rectum, and involving the peritoneal cavity. Mr. Harrison Cripps stated recently in a paper\* published in one of the journals that, in his experience, the commonest situation for cancer of the rectum was within the last 3 inches, and within reach of the finger. A discussion subsequently took place upon this point in the *British Medical Journal*, as other observers, including myself, maintained that the most common situation was really the recto-sigmoidal junction, and out of reach of the finger. The probability is that both views are right, and that it all depends upon the stage at which the growth is examined. It is well known that growths in the rectum, as they increase in size and tend to produce obstruction, gradually get pushed down, until eventually they become partially invaginated into the bowel below, so that ultimately they occupy a much lower position in the bowel than that in which they first originated. Since the introduction of the sigmoidoscope, which has enabled us to diagnose growths which are out of reach of the finger, it has been possible to detect growths in the bowel at a much earlier stage than was possible when we had to depend upon a digital examination alone, and we now know that by far the commonest starting-point for growths in the rectum is the junction of the rectum and sigmoid—that is to say, just above the peritoneal reflection.

*Age.*—Cancer of the rectum may occur at almost any age. The youngest case we have had at St. Mark's Hospital was a girl, aged fifteen years, while the oldest, I believe, was a man of eighty-three years. Statistics show that the commonest age is between forty and forty-five; but these figures are not trustworthy, as they do not take into account the numbers of population living per 1,000 at each age, and, personally, I believe the commonest age is between fifty and sixty.

*Sex.*—Cancer of the rectum is apparently slightly commoner in men than in women. Most statistics show about 60 per cent. men.

These figures, again, are probably not accurate, as it must be remembered that nearly all statistics are drawn from hospital practice, where both men and women are taken, and that such

\* *Brit. Med. Jour.*, October 5, 1912.

statistics are vitiated by the fact that many women go into special women's hospitals and are treated there; this tends to reduce the number of cases of women with cancer of the rectum admitted to general or special rectal hospitals. Private practice does not appear to show any marked difference between the sexes as regards their predisposition to cancer of the rectum.

**PATHOLOGY.**—Cancer of the rectum may be of two kinds—epithelioma and adeno-carcinoma. Several other varieties are often described, such as medullary, adenoid, scirrhus, and colloid carcinoma, but these are only forms of adeno-carcinoma, and owe their different appearance to the rapidity of their growth and the secondary changes which they undergo; primarily they are all the same.

Epithelioma occurs only at the anal margin, and has all the usual histological characters of skin cancer. In the later stages it often invades the rectum, but it is always primarily a skin cancer. Adeno-carcinoma starts in the rectal mucosa, and the cells have the typical glandular arrangement of the crypts of Lieberkühn, although they differ from the normal tissue in that the arrangement of the glandular elements is irregular, and they have no secreting function.

Adeno-carcinoma, which is the variety always met with in the rectum, except in cases where an epithelioma of the anus has secondarily involved the rectal mucosa, may present several different histological types, but these are due to secondary changes, and do not really constitute different varieties of cancer. In the ordinary variety the tumour is seen to consist of a number of irregular convoluted tubes lined with columnar epithelium, the tubes being separated by a fine network of connective tissue containing bloodvessels. The epithelium lining the tubules resembles the normal epithelium of the glands of Lieberkühn, but is usually irregular, and may be very irregular. Masses of round cells can also be seen crowding the stroma between the glandular elements of the tumour. If the tumour has undergone colloid change, large masses of colloid material can sometimes be seen throughout the tumour replacing the glandular elements.

In the so-called scirrhus type of cancer the stroma consists largely of fibrous tissue, and this may be so dense as almost to obscure the glandular elements of the growth, which from compression by the surrounding fibrous tissue become much changed in shape and appearance. Such tumours cause considerable



stricture of the bowel, and on section are seen to be composed mainly of solid fibrous tissue. They tend to grow slowly, but early cause obstructive symptoms.

Very occasionally cases are seen in which a growth, which should be an epithelioma, and which apparently arose from the skin at the anal margin, is found, on microscopic examination, to be composed of columnar epithelium, and to be therefore really an adeno-carcinoma. Two such cases of great interest were recently reported to the British Proctological Society by Mr. Ernest Miles and Mr. Gordon Watson. In one of these cases the growth was associated with a fistula, which was of longer standing than the growth, and it appeared probable that the growth had started as a columnar carcinoma at the inner end of the fistula, and had tracked down to the skin along the fistulous track by invasion of the walls, and so reached the skin, which had become secondarily involved. This may afford an explanation of these apparently anomalous cases.

**ÆTIOLOGY.**—Unfortunately we are still completely in the dark as to the real causes of cancer, either in the rectum or elsewhere. Most of us believe that cancer is caused by certain epithelial cells suddenly beginning to grow at a rate out of proportion to the other epithelial cells. Every cell in the body is constantly reproducing itself, so that the tissues are continually being replaced. The exact rate at which different tissue cells grow and are reproduced varies with the tissue, and with the work that tissue is doing in the human organism. In the course of time, therefore, the entire human body is replaced, and in the course of years there is probably no scrap of it that has not been replaced by new cells. What the factors are which govern the growth and reproduction of different cellular elements forming the human body, we do not know. It is probable that these processes are controlled by a complicated nervous mechanism, presided over by centres in the central nervous system. In the case of cancer, certain of these cells in one of the epithelial structures of the body suddenly begin to grow at a rate out of all proportion to the requirements of the particular epithelial tissue in which they are situated. They soon become parasitic upon the normal tissues, and it would appear that in cancer certain epithelial cells are acting as parasites upon the organism; but why certain of the epithelial cells suddenly take on this parasitic form of growth we do not know.

All we can say at present is, that this peculiar parasitic form of growth, known as "cancer," tends to occur more frequently under certain conditions. Among these conditions may be mentioned the following: Cancer tends to arise in the situation of old chronic ulcers of the rectum, upon the openings of chronic fistulæ, and at the site of strictures previously of a non-malignant character. Further, I think there can be no doubt that simple tumours of the rectum have a marked tendency to become malignant in course of time. I believe that the majority of cancers of the rectum start in the first place as simple adenomata. We are still, however, completely in the dark as to what causes the change. I have frequently seen cases in which a simple adenoma has subsequently developed into a malignant growth. Again, one not infrequently sees cases of adenoma of the rectum in which malignant growth has already commenced in some portion. So convinced am I of the danger of malignant disease supervening upon simple adenomata, however small, that I would never leave any portion of a polypus or adenoma in the rectum if it could possibly be removed. If it were only possible for the rectum to be examined periodically and any simple adenomata removed, I believe many cases of cancer of the alimentary tract would be prevented.

The following case I venture to print in detail, as it is a very good illustration of the association between simple adenomata and malignant disease:

*Case.*—The patient was a man, aged sixty-two, of somewhat unhealthy appearance. He was admitted to St. Mark's Hospital on account of constant diarrhœa, tenesmus, and bleeding. There was a history of diarrhœa and tenesmus for the previous five and a half years. This had been very much worse for the last year, and he had a good deal of discomfort, particularly due to tenesmus associated with only small quantities of mucus. He had had no proper control over an action of the bowels for a year. He had lost about a stone in weight during the same period. Examination showed a large adenoma, about half the size of a fist, in the lower part of the rectum; this was innocent in character and attached to the bowel wall by a long pedicle. On May 5, 1913, this was removed by operation, and the pedicle ligatured. Some difficulty was experienced in de-

livering the tumour, which was of considerable size. Microscopic examination showed it to be an innocent adenoma. The symptoms still persisted after the operation, and further examination showed another large adenoma in the upper part of the rectum. This tumour was also attached to the wall of the bowel by a long pedicle, which was below the tumour. In other words, the tumour was impacted in the bowel upwards away from its pedicle. This was removed on May 16, considerable difficulty being experienced in getting the tumour to deliver and come past its own pedicle; it was of very considerable size, and filled the entire rectum. Microscopic examination showed it also to be innocent in character.

The patient was very much better after the second operation, but came back to the hospital in July complaining of much the same symptoms again. There was a good deal of colicky pain in the abdomen and discomfort in the left iliac region. Careful examination with the sigmoidoscope showed another huge papillomatous growth in the middle of the sigmoid flexure. As this tumour could not be tackled from the rectum, I opened the abdomen in the mid-line and discovered a large adenoma in the centre of the sigmoid flexure. This adenoma, however, had undergone malignant changes, and although part of it was still soft, one side had become malignant and formed a large mass, which was adherent to the fundus of the bladder. It was found impossible to remove it, and the abdomen had to be closed.

*Methods of Extension of Rectal Growths.*—Carcinoma, when once established in the wall of the rectum, tends to spread in all directions until it has invaded all the neighbouring tissues. A study of the exact manner in which this spread takes place, and of the directions in which it tends to occur, is of the utmost importance as long as our only means of treating the disease is by its local removal. It is obviously useless to remove a growth in the rectum unless we can be fairly certain that we have removed the whole of it, both macroscopic and microscopic. Our present knowledge of the disease tends to show that if we can be certain that we have removed every cancer cell, recurrence will not take place, and the patient will be cured of the disease. My own personal opinion, based upon considerable experience, while it

entirely agrees with this view, carries me somewhat farther, for I believe that recurrence need not necessarily follow if some of the cancer cells are left. I feel certain that I have seen cases in which small outlying portions of the growth have been left behind at the time when the growth itself has been removed, and yet there has been no recurrence during periods as long as five or six years after the operation. Other surgeons with whom I have discussed this question have agreed with me in thinking that such cases do occur. In all such instances the patient has been a fairly vigorous individual, and has enjoyed good health after the operation. My own belief is that there is a natural tendency for the human body to destroy the cancer cells, provided they are not present in too large numbers, and that in some instances after the removal of the primary growth this actually takes place, and the carcinomatous cells are destroyed. Such cases are, however, exceptional, and the phenomenon does not occur sufficiently frequently to warrant us in using it as a basis for treatment. The only safe assumption for the surgeon is that every portion of the growth must be entirely removed.

A great deal of light has within recent years been thrown upon the methods of the spread of cancer in the wall of the alimentary tract, and this has been of great value in guiding the surgeon to the most effectual means of eradicating the disease. It has, however, I think, led some surgeons to the performance of quite unnecessarily extensive operations in cases where the same result could have been obtained with less mutilation. In its earliest stages cancer of the rectum is a purely local disease, and if excised, together with the surrounding portions of the bowel wall, will not recur. After it has existed for a very short time, however, it begins to spread in two directions—intramurally and extramurally. The spread tends to take place along the lymphatic paths, and it is by a study of the lymphatics of the bowel wall that the method of spread has been ascertained. The growth first occurs in the epithelial lining of the bowel, and tends to produce an ulcer. In most cases the ulcer is produced by the direct breaking down of the normal epithelium and its replacement by cancer cells. Very shortly, however, the growth begins to spread more rapidly along the submucous layer beneath the epithelium, which is rich in lymphatics. As a result of the damage to the blood-supply of the epithelium overlying the growth, ulceration tends to occur by necrosis, in addition to that

caused by the direct destruction of the epithelium by the cancer itself. The growth tends to spread radially in the submucous layer, and it is in this layer that the widest extension of the growth occurs. At the same time that the growth is spreading in the submucous layer, it also spreads along the lymphatics, passing through the bowel wall. At a comparatively early stage, in many cases, the lymphatics and glands behind the rectum and in the attachment of the meso-rectum become invaded. The method of spread is entirely dependent upon the anatomical arrangement of the lymphatics and bloodvessels of the bowel wall. As is well known, the bloodvessels and lymphatics pass in a circular direction around the bowel from its base of attachment to its free edge. Consequently, one of the earliest tendencies of carcinoma of the rectum is to spread in a circular direction around the bowel. It is this fact which explains the characteristic tendency of carcinoma to encircle the bowel and produce a stricture. Once the growth has spread beyond the bowel wall and involved the main lymphatic trunks draining the diseased area, the spread tends to take place mainly along these lymphatic trunks and the glands into which they drain. In the rectum these are the glands situated in the meso-rectum and in the lower part of the mesocolon. In epithelioma of the anus the lymphatic glands in the groin are early involved.

It used at one time to be supposed that the removal of the involved glands was sufficient to prevent recurrence. We now know that this is not the case, and that it is necessary to remove the whole of the lymphatic areas between the primary growth and the glands, in addition to the latter. The growth appears to spread by direct continuity along the lymphatic paths until it reaches the glands, and it is just as necessary to remove these lymphatic paths as to remove the glands themselves. In some cases the growth tends to remain localized to a small area of the bowel wall for a considerable time without any serious extension, so that we may find a large growth and no evidence of extension, microscopic or otherwise, more than an inch or two away from the primary focus; but in other cases rapid spread, both in the bowel wall and along the lymphatics, occurs quite early, so that we may have a small growth, apparently localized, which nevertheless, on microscopic examination, shows extensive infection of the neighbouring tissues. Why this should be so, or what are the factors which produce rapid extension of the growth in

one case, while in another it remains localized for a considerable period, we do not know; nor do we, apart from microscopic evidence, know of any means by which we can distinguish the one from the other. Very valuable contributions have recently been made to this subject, notably by Mr. Lenthal Cheatle,\* Mr. Ernest Miles,† Mr. Sampson Handley,‡ and Mr. Percival Cole.§ Much discussion was lately caused by a paper of Mr. Sampson Handley's, in which he demonstrated by means of the mucicarmine staining method what he described as cancer cells in the submucous lymphatics of the rectum, as much as six and seven inches away from the margin of malignant growths. It was argued from these appearances that only the most extensive removal of bowel could insure freedom from recurrence in cases of cancer of the rectum. These observations have not, however, been generally accepted or confirmed, and, personally, I cannot believe that these cells which are stained by the mucicarmine method are really evidence of cancer cells. The general trend of the evidence, both clinical and microscopic, appears to show that, at any rate in the majority of cases, cancer of the rectum tends to remain localized to a comparatively small area for quite a considerable time, although admittedly there are cases in which very rapid spread at an early stage does occur. Mr. Percival Cole came to the conclusion, from a thorough histological examination of over twenty cases, that the mucous and submucous spread of rectal cancer is very much restricted, and that the finding of post-operative recurrences in the bowel wall is explained by contact transference, or secondary infiltration of the bowel wall from unremoved extramural involvement.

Mr. Lenthal Cheatle, who in his big microtome cut longitudinal sections of the entire rectal wall in cases of rectal cancer, found that, as a rule, there were no signs of cancer cells in the bowel wall beyond the margins of the growth. In one case, however, very diffuse spread was demonstrated in all the surrounding tissues. These exceptional cases are probably hopeless from an operative point of view, and, unfortunately, apart from

\* Lenthal Cheatle, "The Spread of Cancer in the Lower Part of the Large Intestine," *Brit. Med. Jour.*, February 7, 1914.

† Miles: "The Treatment of Carcinoma of the Rectum and Pelvic Colon," *Glasgow Med. Jour.*, February, 1912.

‡ Sampson Handley, "Recent Advances in the Surgical Treatment of Some Forms of Cancer," *Univ. Med. Record*, 1912.

§ Percival Cole, "The Intramural Spread of Rectal Carcinoma," *Brit. Med. Jour.*, March 1, 1913.

microscopical examination of the removed tissues, we have no means of distinguishing them from the more usual cases in which the growth is localized. Mr. Lenthal Cheatle has allowed me to publish one of his illustrations (Fig. 88), showing a longitudinal section of the rectum with a growth in the centre of it.

The formation of metastatic deposits, or generalization of the growth, tends to occur quite late. When it does occur, the secondary deposits are almost without exception in the liver; occasionally they may be found in the bones.

**INDICATIONS FOR OPERATION.**—This is one of the most difficult problems the rectal surgeon has to solve. A large number of factors have to be taken into consideration, and the responsibility placed upon the surgeon in advising for or against an operation, or as to which operation shall be performed, is one of the most serious that any human being can be asked to assume. Not only must he decide whether the operation shall be performed or not, but also which operation will give the patient the best chance of a successful result with the minimum of risk. The decision will depend upon the conditions present. If the growth is comparatively small and of fairly recent origin, if it is ~~not~~ confined to the lower rectum or the ampulla, and if the patient is not more than fifty-five and in good health, there can be no possible question that a free excision of the growth is the proper treatment, and that it should be carried out as soon as possible. If, on the other hand, the growth is situated at the upper end of the rectum, if it has already reached a considerable size and has become more or less fixed, and if the patient is over sixty years of age and not in very good health, there can be no doubt that any attempt to excise the growth is absolutely contra-indicated. The cases which come between these two extremes will often give rise to considerable difficulty in deciding which is the best course to advise. It is hoped that the following factors may assist in arriving at a correct decision, but it must always be remembered that the personal opinion of an experienced rectal surgeon is of infinitely more value than any number of written rules.

*Age.*—Except in most unusual circumstances, no attempt should be made to excise the growth in a person over the age of seventy. An exception may, however, be made in the case of a particularly healthy individual with a very small and easily reached growth. Some surgeons consider that if the patient is over sixty years of age this is a contra-indication to excision.

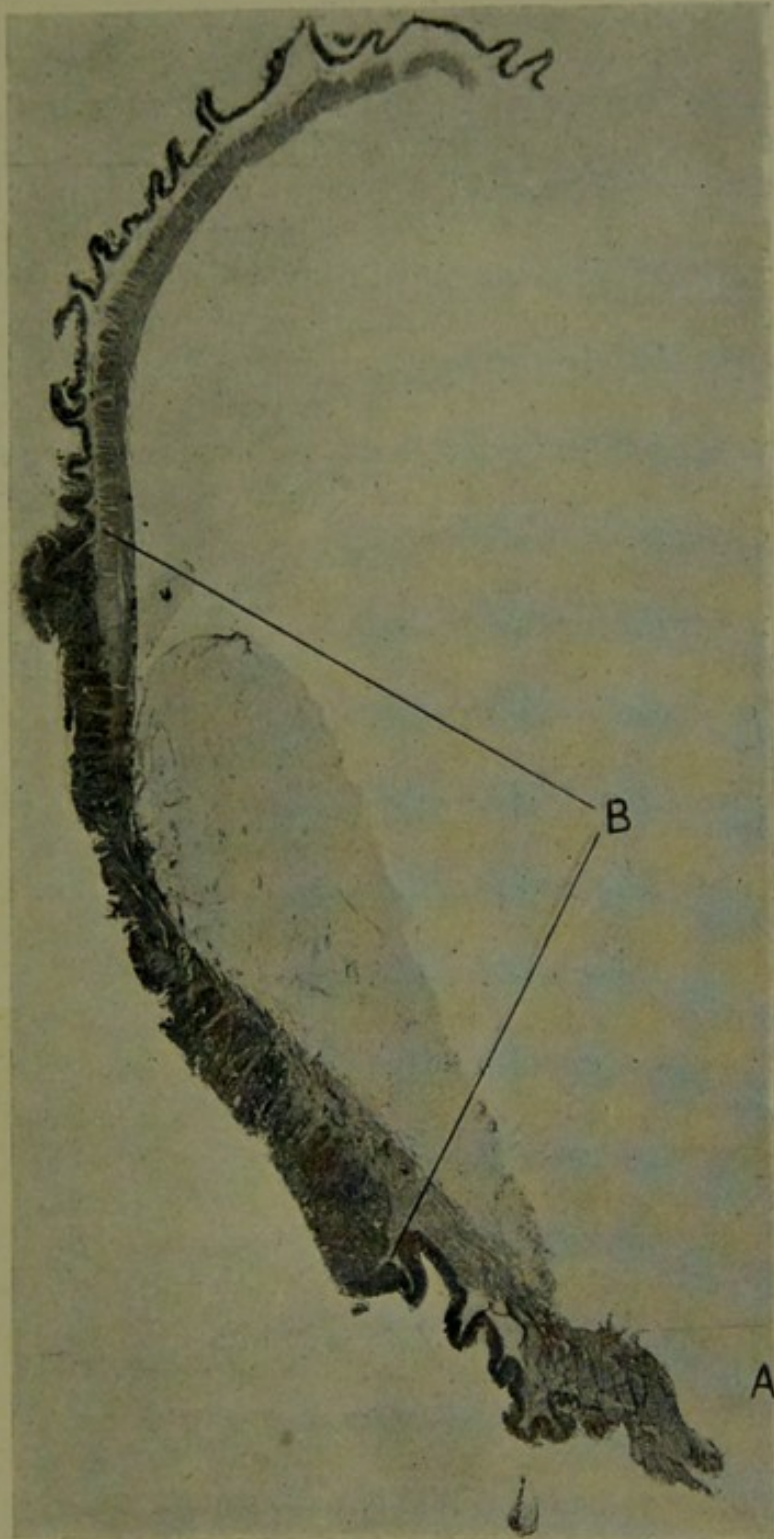


FIG. 88.—LONGITUDINAL SECTION (NATURAL SIZE) OF LOWEST PART OF LARGE INTESTINE.

*A*, Anus; *B*, cancer. All sections made of this case gave no evidence of cancer involving any parts above or below the area included by the indicating lines leading from *B*. The patient from whom this tumour was removed died from shock of operation. (From Mr. Lenthal Cheate's paper, *Brit. Med. Jour.*, February 7, 1914.)



Personally I do not agree with this dictum, for mere age as counted in years is not a sound criterion. One often sees one patient whose age is stated to be under fifty-five who is, as regards his suitability for operation, infinitely inferior to another whose age is sixty-five. As a general rule, however, we may say that growths in patients over sixty years of age should not be excised if their removal will involve a very serious operation, as the chances of success are not sufficiently good to warrant the necessary risk. In my own experience I have had a number of successful cases in patients over sixty where complete excision of the rectum has been performed. The patients have recovered from the operation, and have remained free from recurrence for a number of years.

*Situation of the Growth.*—Growths within reach of the finger are much more favourable for removal than those at the upper end of the rectum. Unfortunately, the commonest situation for carcinoma of the rectum is the recto-sigmoidal junction, which is also the most difficult portion of the bowel from which to remove a growth, and the one in which the greatest risk is experienced. The position of the growth *per se* is not, however, any contra-indication to operation, as we are now able to remove growths successfully from any part of the rectum. But growths situated at the upper end of the rectum involve a much more serious operation for their removal than is necessarily the case with growths lower down, and the situation is therefore an important factor in deciding for or against an operation in any individual case.

*The Size of the Growth and the Time it has existed.*—Obviously the best results will be obtained when the growth has only been present for a short time and has not attained to any large size. When the growth has already involved a large portion of the bowel wall, it becomes a difficult matter to decide whether it is worth while attempting to remove it. Much will depend upon the skill of the operator and the suitability of the patient to stand a serious operation. While, as a general rule, results are bad in the case of large growths, this is not always the case, and one of my most successful cases was that of a young man of thirty-five from whom an enormous growth was removed which involved two-thirds of the rectum. This patient has remained free from recurrence for between eight and nine years. Such cases are, of course, exceptional, and certainly no attempt should

be made to remove a large growth in the case of an elderly individual.

*General Condition of the Patient.*—This is a factor of the utmost importance, more especially when we have to deal with growths which will necessitate an abdomino-perineal excision or excision of the entire rectum. The operation is necessarily a severe one, and the patient whose general health is bad will have but a poor chance of surviving it. Well-marked arterio-sclerosis, chronic disease of the kidneys, a feebly acting heart, are all contra-indications to operating. But the most serious contra-indication, in my opinion, is obesity. Fat patients are bad subjects for any kind of operation, but in the case of rectal excision the presence of large quantities of fat adds so enormously to the difficulties of the operation that it renders the patients most unsuitable subjects. Moreover, fat patients heal exceedingly badly, the blood-supply to their cellular tissues is deficient, and their general vitality is, as a rule, low. Personally, I consider such patients, especially men, quite unsuitable subjects for rectal excision, and nothing more than the most limited excision of the growth should ever be attempted in such cases. The difficulties of removing a growth in the upper part of the rectum in a stout man are so considerable that I think few surgeons of experience will attempt it.

*Sex.*—Other things being equal, the operation for excision of the rectum is far less dangerous in women than in men. The operation is nearly 50 per cent. easier in the case of women. Women stand the operation better, and their recovery is usually more rapid. This is due to several causes. In the first place the pelvis is considerably wider in women, and there is consequently more room. The rectum is a somewhat more movable structure in women than in men. Another important factor is that in women the uterus and vagina lie in front of the rectum, and injury to these structures is not a serious complication, while their separation from the rectum is comparatively easy. In men, on the other hand, the ureters, bladder, and urethra lie immediately in front of the rectum, and their separation from it is often a matter of the utmost difficulty, while the slightest injury to any one of these structures is always a most serious complication.

*The Presence of Metastatic Deposits.*—The presence of secondary growths in the liver or elsewhere will entirely contra-indicate

any attempt to excise the primary growth. Some surgeons advise that the abdomen should always be opened as a preliminary measure, in order to make certain that secondary deposits are not present in the liver.

**Sarcoma of the Rectum.**—Sarcoma of the rectum is a very rare condition; but when it does occur, the growth arises in the connective tissue around the bowel, though as a rule it is very hard to be at all certain in which particular element of the connective tissue the growth started. In some cases the sarcoma has arisen in the pelvic fascia and the rectum has become secondarily involved; in other cases, again, it arises in the bone of the pelvic wall. The variety of sarcoma usually found in the rectum is that known as "small round-celled sarcoma." Unlike carcinoma, which is more or less confined to the later period of life, sarcoma may be found at any period of life, but is, as a matter of fact, more usual among young people. It is, however, a very rare condition, and at a hospital like St. Mark's we do not get more than about one case in two or three years.

Sarcoma frequently gives rise to a large swelling on one side of the rectum, which is often in the early stages mistaken for an inflammatory mass. It grows with great rapidity, and operation is of little use; in fact, the removal of a sarcoma involving the rectum is scarcely within the bounds of practical surgery. In these days very good results can be obtained by means of radium in large doses, and it is certainly worth a trial. The same may also be said of treatment with Coley's fluid.

The following case of round-celled sarcoma of the rectum was recently reported to the Subsection of Proctology of the Royal Society of Medicine by Mr. Aslett Baldwin:\*

*Case.*—The patient, a lady, aged forty-two, complained of pain in the lower part of her back. On examination, there was found in the anterior wall of the rectum, about  $2\frac{1}{2}$  inches up the bowel, a rounded, flat growth about  $\frac{3}{4}$  inch in diameter. The mucous membrane over it was smooth, and appeared to be healthy; it was attached to the mucous membrane, and moved freely over the muscular wall of the bowel. There was no loss of blood or mucus. The tumour was pulled down, and removed through the anus, and an immediate microscopical examination made by Mr. Ernest

\* Trans. Roy. Soc. Med., Subsection of Proctology, November 12, 1913.

Shaw, who pronounced it to be a round-celled sarcoma. The patient being in the lithotomy position, the posterior wall of the vagina was split up in its whole length, and the bowel freed all round, the peritoneal cavity was opened, the peritoneum on each side of the bowel was divided, and the bowel freed till about 6 inches could be easily brought down. The external sphincter was not injured. This part of the operation proved to be very difficult. The bowel was divided above the sphincter, and about 6 inches removed. The mucous lining of the anal canal was dissected away, and the upper end of the bowel brought through it and sutured to the skin. The vaginal wound was closed. There is no sign of recurrence at the present time, eight months later, and the patient has excellent control.

## CHAPTER XXI

### *OPERATIVE TREATMENT OF MALIGNANT DISEASE*

RESULTS OF TREATMENT BY OPERATION.—Before deciding upon such a serious matter as an operation for excision of the rectum, both the patient and his medical adviser often desire to know what are the curative possibilities of the operation; and it is quite natural that they should wish to have some definite information put before them, if possible in percentages. Unfortunately, it is exceedingly difficult to give any reliable information based on figures. In the first place, surgery of the rectum has undergone great changes and, we believe, improvements during the last few years. This fact tends to invalidate figures based on cases operated on by the older methods. It must also be remembered that in order to establish a case as cured, many years must elapse. Even if records are based on a three years' freedom from recurrence, it takes many years to obtain any reliable figures; and it is obvious that if there have been many changes in the type of operation performed during this period, the figures must necessarily be unreliable. Further, the results obtained by different surgeons vary greatly, and while one surgeon may get good results, another may have bad ones. So valueless do I consider statistics drawn up with a view to showing the curative results of operation upon the rectum, that I have not attempted to work out my own figures in this respect. For those, however, who desire to have such figures, I give the following from the work of other surgeons; but it will be noticed that in many cases the surgeon only operated upon a very small percentage of the cases seen—that is to say, the results are those of operation in picked cases. The difference between the figures given by different surgeons can be largely accounted for in this way.

Mr. Harrison Cripps' figures are as follows: Out of 400 cases of carcinoma of the rectum seen by him, 38 were subjected to excision of the rectum. Of these 3 died directly from the opera-

tion, giving an 8 per cent. mortality. A subsequent history was traced in 27 of the remaining 35, and a cure estimated on a three years' basis resulted in 7 cases.

Hockeneggs' figures show 17.2 per cent. of cures on a three years' basis.

The late Dr. Tuttle collected 640 cases of excision by various surgeons. The number of cures on a three years' basis was 95, giving an average percentage of 14.8.

There is every reason to suppose that with the much-improved methods of excising the rectum which prevail at the present day, figures as regards recurrence will show much better results when sufficient time has elapsed to allow of their being collected. The only figures that apply to the abdomino-perineal operation are those published by Mr. Miles,\* and these I give below from his tables.

In a series of 26 cases operated upon by the abdomino-perineal method, the operative mortality was 10. Five cases passed the three years' limit and are in good health, 1 was lost sight of, 1 died from another disease a year after the operation, 6 are still between the one and two years' limit, while the remainder are too recent to be counted at all.

These figures show a rather heavy operative mortality, but it must be remembered that they include all the early cases, when the operation was comparatively new, and that this operative mortality has now been considerably reduced in the hands of surgeons who have had experience with this operation. I have four cases living over four years after operation, and two over seven years after operation. There is, however, probably no period after the operation at which it can be definitely said that the danger of recurrence is past. A case was recorded by the late Mr. Clinton Dent two years ago, in which recurrence in the liver had occurred twenty-two years after excision of the rectum for carcinoma. Such cases are exceedingly rare, and as far as the benefits of the operation are concerned, we may say that the patients are cured if they have passed the four years' limit, though I am inclined to think that a three years' limit is too short.

The two following cases are selected as good examples of the result of complete resection of the rectum for cancer:

\* "The Radical Abdomino-Perineal Operation for Cancer of the Rectum and of the Pelvic Colon," *Brit. Med. Jour.*, October 1, 1910.

*Case of Complete Excision of the Rectum with Freedom from Recurrence for Eight Years.*—The patient was a man, aged thirty-seven. There was a very large growth involving the whole of the upper portion of the rectum and partly fixed posteriorly. The operation was performed in May, 1905. A preliminary colotomy was performed to ascertain whether secondary deposits were present, and a temporary colotomy opening was made in the upper part of the sigmoid. The coccyx was then excised, and the whole rectum removed from below, the stump of the coccyx being brought down and stitched to the skin at the anal margin. The patient made a good recovery, and a year later the colotomy opening was closed. The new rectum has acted well, the patient has been in excellent health, and has had good control. He is well at the present time, eight and a half years after the operation.

*Case of Complete Excision of the Rectum in a Man aged Seventy, with Freedom from Recurrence Three Years after the Operation.*—The patient, a man aged seventy, was admitted to St. Mark's Hospital in February, 1909, with a growth in the middle of the rectum. The entire rectum was removed, together with the lower portion of the sigmoid flexure; and the pelvic colon, after being freed, was brought down and stitched into the sphincters. The patient obtained very fair control and normal bowel sensation. He lives an ordinary life, and when last seen was in excellent health. The growth, on microscopic examination, was found to be an adeno-carcinoma.

CHOICE OF OPERATION.—The question as to which operation is the best for the removal of the rectum is one on which there is much difference of opinion; but the general tendency of recent years has been to advocate much more extensive operations, and to advise that the abdomino-perineal operation should be performed in the majority of cases. This is in accordance with the results of recent study of the lymphatics of the rectum, which lead us to believe that the more freely these lymphatic areas in the neighbourhood of the rectum are removed, the better chance is there of the subject being free from recurrence. Most surgeons now agree in recommending complete removal of the rectum in all cases when this operation can be carried out. Mr.

W. Ernest Miles, Mr. Sampson Handley, Mr. Gordon Watson, and myself, have all recently published papers describing more extensive operations in dealing with cases of cancer of the rectum. There can be no doubt that the best results will be obtained by complete removal of the rectum in all cases. There are, however many reasons why this operation cannot be performed as a routine. In the first place, many patients will not agree to subject themselves to the risk of so serious an operation, and will prefer to have a less serious operation performed, and run the extra risk of recurrence. Again, where the growth is a small one and well localized to one portion of the bowel wall, there is no doubt that very good results are sometimes obtained by the simpler operation of perineal excision, and undoubtedly this is a much safer operation than the abdomino-perineal one. Further, one meets with cases of small growths in patients who are unsuitable, either constitutionally or on account of age, for the abdomino-perineal operation.

There are a number of different operations which have been described for the removal of growths in the rectum, either with or without complete resection of this portion of the bowel, and it cannot be said that at the present time there is any operation the technique of which has been universally adopted; each surgeon has, more or less, his own particular method. I propose to describe here three

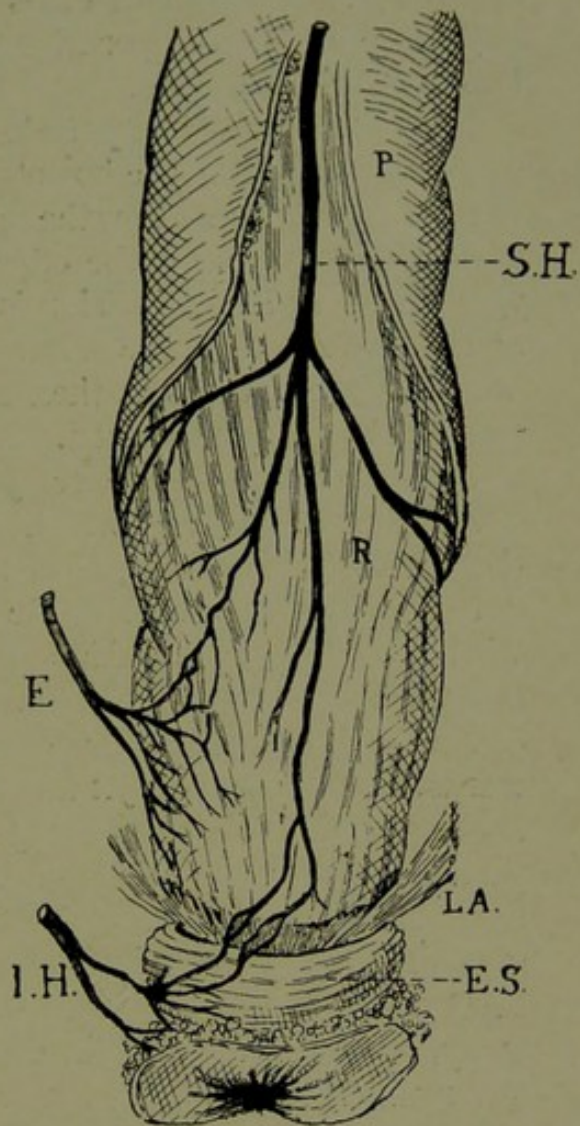


FIG. 89.—BLOOD-SUPPLY OF THE RECTUM AND ANAL REGION.

*S.H.*, Superior hæmorrhoidal artery; *E*, middle hæmorrhoidal artery; *I.H.*, inferior hæmorrhoidal artery; *P*, peritoneum. *R*, rectum; *L.A.*, levator ani; *E.S.*, external sphincter.



methods of operating for cancer of the rectum: (1) Local excision; (2) perineal excision; (3) abdomino-perineal excision. It must be understood that I do not advocate local excision of growths in the rectum except in cases where it is impossible to perform any more extensive operation, and the choice lies only between this and doing nothing.

**Local Excision.**—The patient is carefully prepared for operation so as to insure that the bowels shall be empty at the time. The patient is then placed on the left side, in the semi-prone position, with the buttocks on the edge of the table and with the knees well drawn up. An incision is made in the middle line, starting at the lower part of the sacrum and finishing an inch behind the anus. The tissues are then freed from the coccyx, and each side of the coccyx exposed. The fibres of the glutei which arise from it on either side are freely divided, and the tissues separated from its front surface until the coccyx remains attached only to the sacrum. Most surgeons remove the coccyx with a chisel, but I prefer to disarticulate it at the sacro-coccygeal joint. With a little practice this can easily be done with a knife. It has the advantage of not leaving a raw surface of bone, and I find that there is less tendency to pain in this situation afterwards. After the coccyx has been removed, the wound is deepened, and the rectum, having been defined, is freed as much as possible, and drawn up into the wound. Forceps are attached to it to act as retractors, and it is opened well to one side of the growth, so that the incision may be through healthy tissue. That portion of bowel wall containing the growth is then cut away, a good wide margin of healthy mucous membrane being left round the growth. There is generally free hæmorrhage at this stage of the operation, and a number of vessels have to be picked up with the pressure-forceps and tied off. The wound in the rectal wall must now be closed, and should, if possible, be sutured in a direction from side to side, so as to prevent any narrowing of its lumen. If this proves to be impossible, it may be sewn up in the shape of a cross. With a little freeing above, it is often possible to get the upper portion to come down sufficiently to allow of its being closed without tension. The mucous membrane should be carefully stitched together, a continuous mattress suture of thread being used. The other tissues should then be drawn together to support the line of sutures in the mucous membrane, and the posterior wound may then be sewn up,

preferably with fish-gut sutures, and a large drainage-tube left in the upper end of the wound. A drainage-tube should also be inserted in the rectum to prevent tension from flatus, etc.

Healing cannot be expected to take place by primary union, and, as a rule, some breaking down of the posterior wound occurs, with the formation of a fæcal fistula in this situation. If, however, the tissues have been brought together, and the mucous membrane is not allowed to come into contact with the skin, healing of the posterior wound occurs fairly rapidly, and in the course of a few weeks it heals up, leaving the patient with normal control of the bowel.

Needless to say, the bowel should be examined periodically, to make sure that no contraction is occurring, and if there are signs of this, bougies must be passed to counteract the tendency. I have performed a number of these operations for simple adenomata and other small growths in quite elderly people, and have had very little trouble from subsequent stricture; in fact, the operative results have been exceedingly good. Nevertheless, it must be clearly understood that this operation is not at all a good one for carcinoma. It is very suitable for cases of simple adenoma, but should only be performed for carcinoma when the growth is quite small and localized to the bowel, and a more extensive operation is for some reason or other impossible.

### OPERATIONS FOR THE REMOVAL OF THE RECTUM.

**The Question of a Preliminary Colotomy.**—The great object to be aimed at in the technique of the operation for removal of the rectum is aseptic healing. There are many circumstances which render this extremely difficult of attainment, but the circumstance which most of all militates against aseptic healing is the passage of fæcal material over the wound area after the operation; and it is quite certain that no operation in which this source of contamination is not avoided can possibly be considered perfect. In order to prevent this undesirable complication, many eminent authorities have advised that a preliminary colotomy should always be performed, in order completely to deflect the fæcal material from the wound area. The colotomy is usually performed a week or more previous to the radical operation, and the portion of bowel between the colotomy and the anus is thoroughly washed out with antiseptics for some days prior to operation. Preliminary colotomy renders the operation easier,

and greatly increases the chances of obtaining aseptic healing in the wound. The objection to it is that if the stump of the bowel is brought down and stitched to the anus after the radical operation is performed, the colotomy must subsequently be closed in order to render the perineal anus functional. The patient in a successful case will therefore have to undergo three operations. This is, of course, of minor importance compared with the increase in the safety of the operation obtained by aseptic healing. I cannot, however, agree with those who advocate preliminary colotomy in *all* cases.

In many cases of cancer of the rectum there is no serious narrowing of the bowel lumen by the growth, and in such cases it is possible by suitable methods so to empty the bowel that one can be morally certain no faecal material will find its way into the lower bowel for some days after the operation, and the bowels can be prevented from acting for six or seven days. In such cases preliminary colotomy is quite unnecessary if the operation is performed in the manner I am advocating here.

In those cases of cancer of the rectum in which marked narrowing of the bowel lumen at the position of the growth exists, there is almost certain to be faecal accumulation in the bowel above the site of stricture, and it is usually impossible to be certain that the descending colon and sigmoid flexure are empty, however thoroughly aperients and enemata are used. In such cases, therefore, I think preliminary colotomy should always be performed.

At the time when the colotomy is performed, an opportunity is afforded of examining the growth from above, and of ascertaining whether there is any secondary gland enlargement, and, if so, to what extent. The length of the sigmoid mesentery can also be examined, and this is an important point in the operation if the original condition of the parts is to be restored. In all cases in which inguinal colotomy is performed previous to excision, it is important that the portion of sigmoid chosen for the colotomy should be as far away from the rectum as possible; otherwise the colotomy will prevent the stump of the bowel being brought down after excision.

To sum up with regard to preliminary colotomy. Preliminary colotomy should always be performed when it is not certain that the bowel above the growth can be effectually emptied, and when the bowel is strictured. It should also be performed in all cases in which the sphincter muscles are involved and require removal.

Preliminary colotomy need not be performed when there is no stricture, and when there is good reason to suppose that the upper bowel can be effectually evacuated.

When it is necessary to remove the sphincter muscles owing to their being involved in the growth, a permanent inguinal colotomy should always be performed; for I am quite certain that a patient with a properly made inguinal colotomy is far better circumstanced than one who has a faecal fistula in the perineum.

### **Complete Excision of the Rectum from the Perineum (Author's Operation).**

This operation was first described by me in the *British Medical Journal*, June 10, 1907. While it has undoubted advantages in certain cases, it has now to a large extent been replaced by abdomino-perineal excision. There are, however, cases in which it appears to be preferable to the latter. Although a serious operation, it is not so dangerous as the complete abdomino-perineal operation, and some of my best results have been obtained by this method, several cases having passed the five years' limit with good functional results and an anus in the normal situation. I shall therefore describe the method in detail. It is very similar to the operation described by Quénu, but it allows of much more extensive resection of gut. It is also very similar to the operation performed by M. H. Hartmann of Paris, who obtained very successful results by this method. He appears to have been performing this operation, or one very much like it, before I had described mine, but I was not aware of this until the discussion at the Annual Meeting of the British Medical Association in 1906, and I think he had not published any account of his method.

**Preparation of the Patient.**—The bowels are well emptied by a good dose of castor oil at least three days before the operation. In cases where there is some narrowing of the lumen of the bowel by the growth, a little tincture of opium is added to the castor oil, as it is found that this enables it to act more effectually by relieving any spasm at the site of the stricture. In old persons, or those much weakened by exhausting diarrhoea, it is important not to purge too freely, especially just prior to operation, as it increases the liability to shock. After the castor oil a good dose of salts should be administered to further wash out the bowel, and then no more aperients should be given

before the operation two or three days later, but the bowels should be washed out daily with a soap-and-water enema. A diet should be given which, while providing as much nutrition as possible, will leave little or no residue after digestion. On the day of operation the bowel should be washed out with a warm-water enema (to which some sodium bicarbonate may with advantage be added) about four hours previous to operation. A hypodermic injection of morphine is given just before commencing the operation. This has the advantage of quieting peristaltic movements and preventing any tendency for the bowels to act. It is also, I am convinced, of great service in preventing the development of shock during the operation; it helps to allay the patient's fears, it quietens the nerve centres, and renders the anæsthesia smoother and easier, while a smaller quantity of ether is required to maintain anæsthesia.

The anæsthetic is an important point. Chloroform should be avoided, ether anæsthesia being maintained throughout, or C.E. mixture given after the first half-hour. I do not allow the patient to be starved before operation, but believe in allowing a light and easily digested breakfast a few hours before.

The parts are shaved, and the whole skin of the perineum, sacrum, and buttocks is cleaned up as carefully as for an abdominal section. If there is any ulceration of the growth, iodoform suppositories are given three times a day for some time previous to operation.

**The Operation.**—The patient is placed in the lithotomy position, and a small hard cushion is placed under the sacrum so as to raise the buttocks well above the table; this makes the wound much more accessible than if the patient's sacrum is resting on the table, and at the same time prevents the intestines from prolapsing when the peritoneum is opened. A good forehead lamp is a great help during the operation.

The first step in the operation is to dissect up a cuff of mucous membrane from the anal canal, for about 2 inches, in the same way as in Whitehead's operation. Scissors are used for this, and are then put aside and not again used. The rectum is then either closed by a clamp, and the portion of mucous membrane below the clamp sterilized with pure carbolic, or is closed with a purse-string suture. I prefer the former method, as it enables one to pull on the rectum if necessary.

The next step is to clean the whole area of operation most

carefully, and to discard the gloves which have been worn during the first stage. An incision is now made through the sphincters posteriorly, and carried backwards to a little beyond the base of the coccyx, which is next removed (Fig. 90). The posterior rectal space is then opened up, and the rectum and all the glands, cellular tissue, and lymphatics peeled off the sacrum with the finger, in one piece.

The levator ani on each side is pulled down by passing a finger behind the muscle, and divided close to the rectum. Attention is

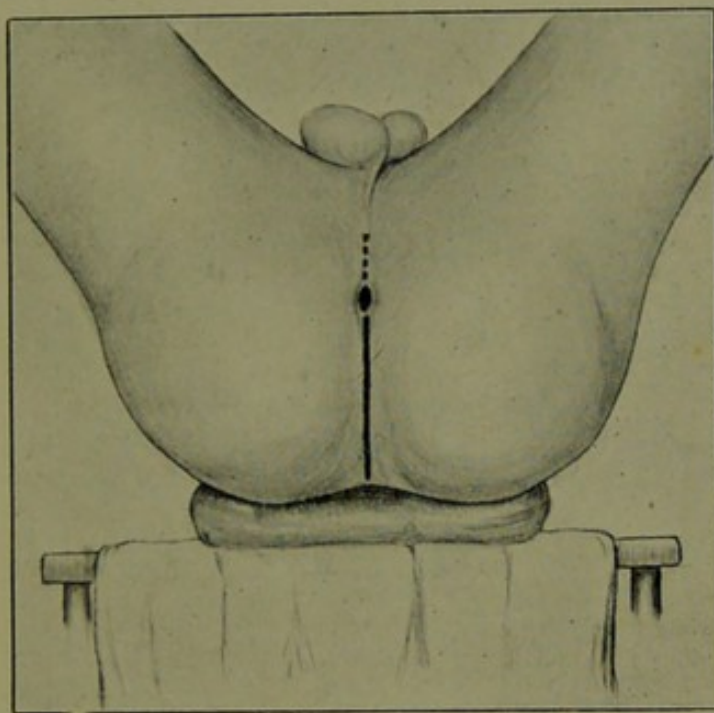


FIG. 90.—AUTHOR'S OPERATION.

The dotted line shows how the incision may be extended upwards if there is not room enough.

then turned to the separation of the rectum in front from the prostate and urethra, or in the female from the vagina. This is a difficult step in the operation, as one cannot have a finger in the rectum to guide one in making the dissection, and it is very easy to open either the rectum, urethra, or vagina (Fig. 91).

As soon as the peritoneal cul-de-sac is reached, it is opened, and the attachments of the peritoneum to the rectum divided, first on one side and then on the other, care being taken to keep as close to the rectum as possible, so as to avoid injury to the ureters (Fig. 92). The rectum is now free in front and at the

sides, except for some fascial attachments which are easily divided. The rectum will now come down several inches, and will be attached only by the meso-rectum (Fig. 93). The next step is to divide the meso-rectum. This is best done by applying a clamp to the meso-rectum as near as possible to the sacrum, and dividing the meso-rectum in front of the clamp. The rectum now comes down freely, and the sigmoid comes into view. The next step is to divide the meso-sigmoid, until a

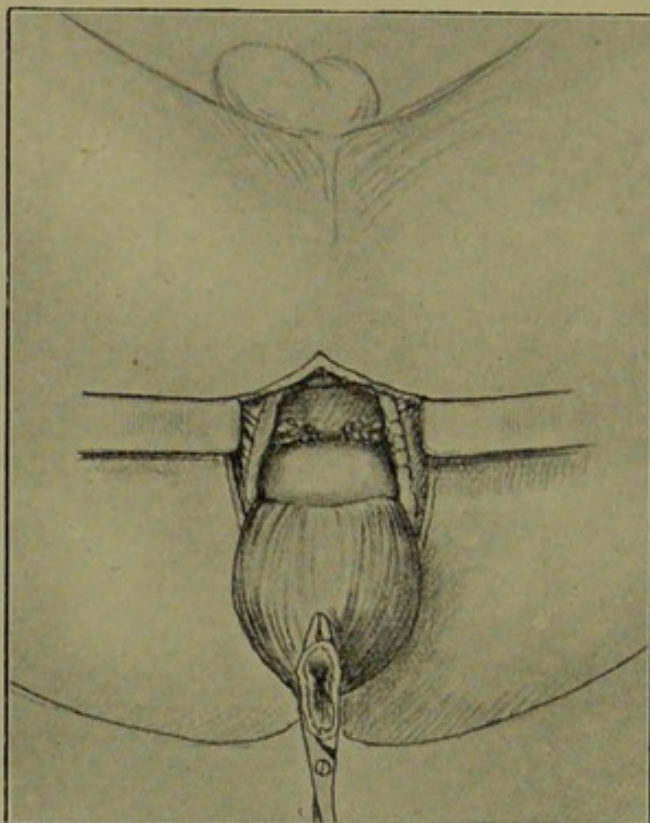


FIG. 91.—AUTHOR'S OPERATION.

The peritoneum and prostate are exposed, and the levatores ani have been cut through.

portion of the sigmoid is reached which has a sufficiently long mesentery to reach the anus easily and without dragging (Fig. 94). This may be anywhere from 3 inches to 6 inches above the junction of the sigmoid with the rectum. The meso-sigmoid is clamped, and divided until a sufficiently long piece of mesentery is found. The whole of the rectum and growth are now right outside the wound, and the next step is to repair the parts. First the clamps must be tied off, and this is sometimes difficult, as they are a considerable distance from the

surface, and it is not easy to pass a ligature round their upper ends. It is very important that no mistake should be made, as there are large vessels in the clamps, and hæmorrhage might be difficult to control in so deep a wound.

The peritoneal floor of the pelvis is now restored by stitching the peritoneum all round to the sides and front of the sigmoid. (If it is desirable to hasten the operation, this step may be dis-

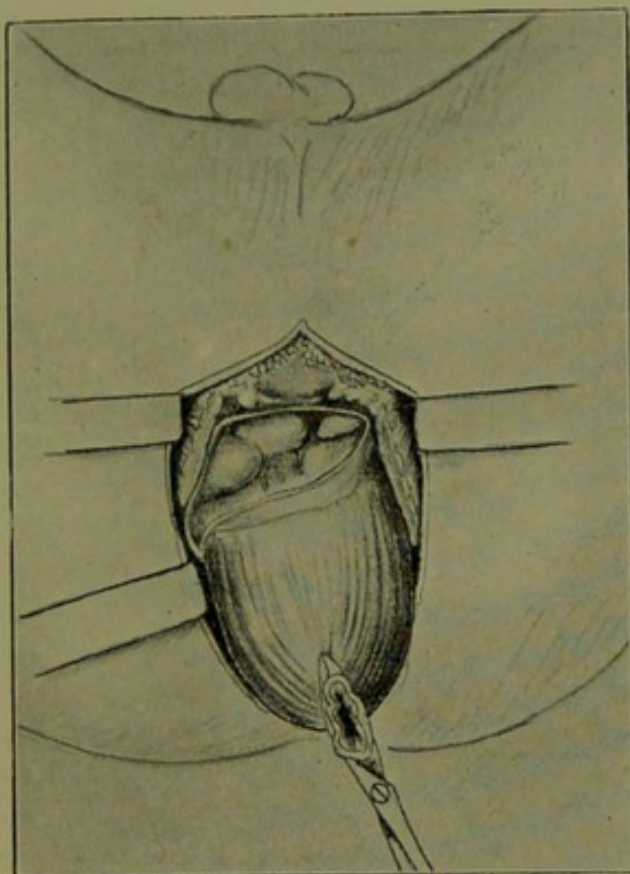


FIG. 92.—AUTHOR'S OPERATION.

The peritoneum opened and in process of being divided laterally from the rectum.

pensed with.) Some sterilized gauze is next placed in the wound to protect the peritoneum, and its end brought out at the posterior part of the wound. The rest of the wound is sewn up completely, and the sphincters carefully brought together and sutured. After this I smear the whole of the wound and portion of sigmoid nearest to it with sterilized vaseline. This seals up all the lymphatics, and forms a protection to the wound from infection, while at the same time it does not prevent any blood



or serum from finding its way out. The bowel is now cut through about  $\frac{3}{4}$  inch from the sphincters, and the edges roughly stitched to the skin all round and  $\frac{1}{2}$  inch or more from the skin edge (Fig. 97). The object of this is to separate the junction of the skin edge and the peritoneum covering the bowel from the septic edge of the mucous membrane. A week after the operation the extra mucous membrane is cut away with scissors. This is quite painless, and requires no anæsthetic. It is very important in

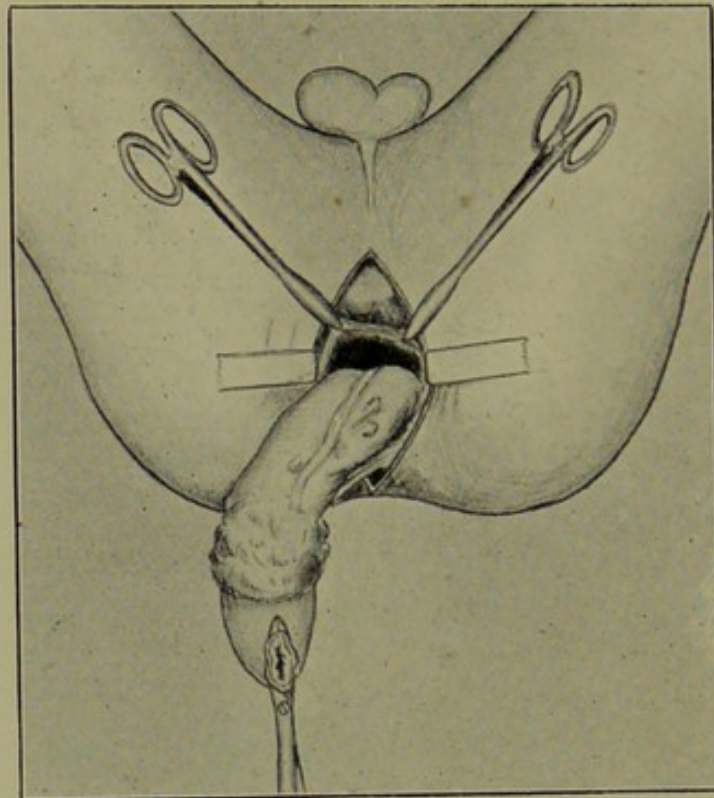


FIG. 93.—AUTHOR'S OPERATION.

The rectum is now only held by the meso-rectum and mesentery of the sigmoid. The clips are on the anterior part of the divided peritoneum.

choosing the point at which the bowel is to be divided to see that the mesentery or meso-sigmoid comes quite to the point of division, and is not on the stretch. The anastomosis of the vessels in the bowel is so poor that if the bowel be divided an inch or more away from the edge of the mesentery the piece without a mesentery will probably slough.

A short piece of rubber tube is now placed in the bowel opening, and gauze is packed round this, and the whole area of the wound covered in with gauze; lastly, a large triangular sterilized pad of

Gamgee tissue is placed over the sacrum and perineum. To the base of this pad tapes are attached, which go round the waist, and in front the apex of the pad is brought between the legs and attached to the waist straps. The rubber tube in the bowel is brought through the pad so as to give a free exit for flatus.

If the sphincters are involved, and it is necessary to remove them, a preliminary colotomy should be performed, and later,

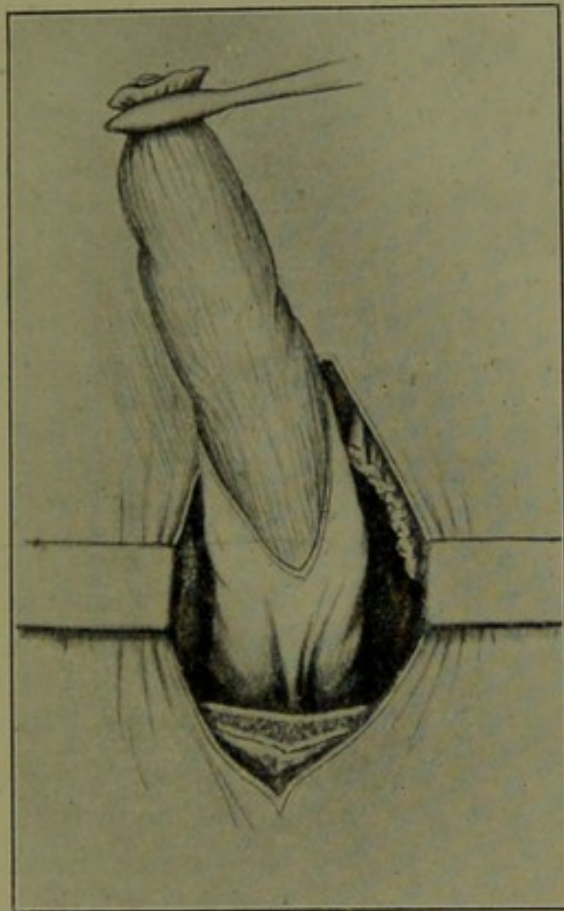


FIG. 94.—AUTHOR'S OPERATION.

The detached rectum is shown drawn forward with the meso-rectum on the stretch and ready to be clamped as far back as possible.

when the excision is done, after removal of the rectum and growth, the end of the sigmoid is closed up and replaced in the pelvis, the perineum being completely stitched up, and no opening left. If there is no portion of the mesentery of the sigmoid long enough to reach the anus, the whole of the bowel and rectum are pushed back into the pelvis, and the perineal wound is sewn up. The usual colotomy incision is then made in the abdomen, the

rectum found and pulled through it, and after cutting through the bowel a Paul's tube is tied into the proximal end, and attached to the edges of the wound, so as to form a permanent artificial anus.

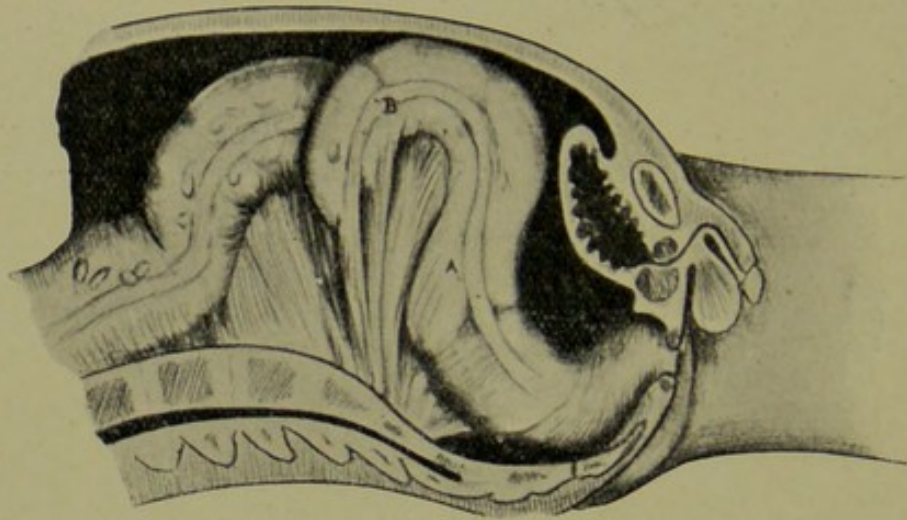


FIG. 95.—AUTHOR'S OPERATION.

Diagram to show the importance of dividing the sigmoid mesentery for some distance. The portion of bowel at *A* cannot be brought down to the anus, owing to the shortness of the mesentery, but the part *B* can be.

The patient should be nursed on the side for the first forty-eight hours if possible, and the dressings should be changed twice

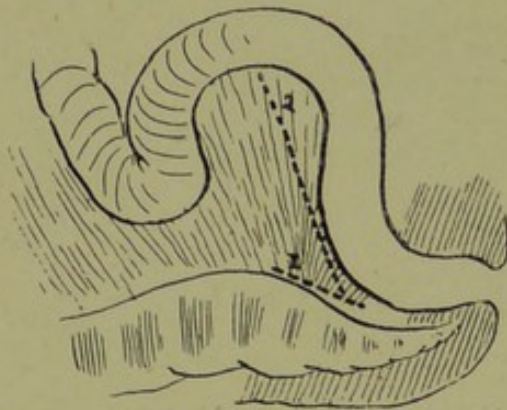


FIG. 96.—DIAGRAM OF MESO-SIGMOID, TO SHOW THE IMPORTANCE OF DIVIDING THIS STRUCTURE AS NEAR THE SACRUM AS POSSIBLE.

division is along dotted line 1, the bowel will be as much freed as if the division is made along the dotted line 2.

daily, as they are very liable to get displaced and soiled. The patient should be sat up as soon as possible; this is best managed by having a bed-rest at the back, and a good hard cushion or bolster under the thighs to take the weight off the buttocks. This is particularly important in old people. It is very necessary to avoid retention of urine, and it is a good plan to pass a catheter for the first few days to insure there being no residual urine. In women, regular catheterization for three or four days after operation is advisable.

The gauze can be removed on the third or fourth day. The bowels are best kept confined by morphine for five or six days,

and then opened by castor-oil by the mouth and oil enemata. If the wound heals aseptically, the patient may be got up at the end of a fortnight, or in some cases even earlier. After the first week the bowels are kept acting daily by an enema first thing in the morning. This is much better than the use of aperients, and should be continued until a regular action of the bowels can be secured without it.

The chief point in the operation is the complete removal of the entire rectum in all cases of carcinoma of that organ. By this method the whole of the rectum, the glands in the hollow of the sacrum, and the attached cellular tissue are removed in one piece, and there is thus a much greater probability of eradicating the disease. The local removal of malignant disease has never

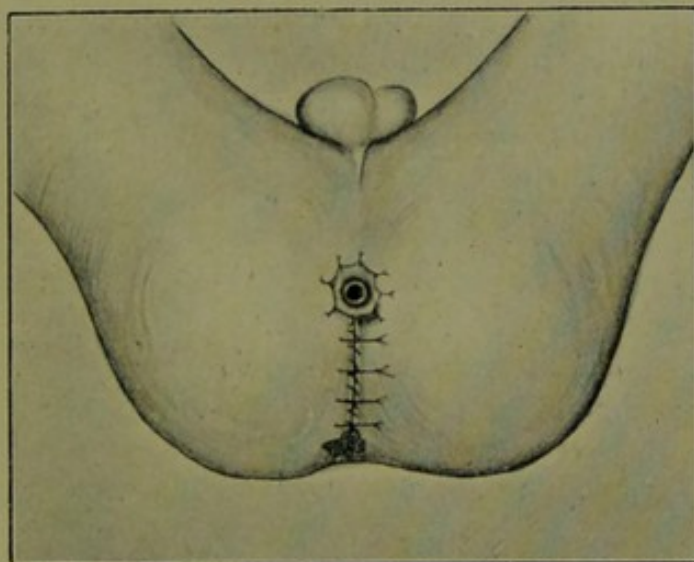


FIG. 97.—AUTHOR'S OPERATION.

The operation completed.

been very satisfactory, and the excellent results which have been obtained in recent years in the treatment of cancer of the breast and the uterus date from the time when surgeons recognized the importance of removing the entire organ *en masse* when any part of it was affected by cancer.

The advantages of this operation are:

1. That the entire rectum and growth, cellular tissue, and lymphatics, are removed *en masse*.
2. That it is possible for the operation to be performed aseptically, and for the wound to be kept clean after the operation.

3. That it enables the normal opening of the bowel to be restored in almost all the cases that do not require removal of the sphincters.

After this operation the sphincters rapidly recover their function; but at first, owing to complete absence of sensation in the new rectum, the patient is not conscious of the presence of fæces in the lower bowel, and partial incontinence results from this cause. The normal rectum is an organ specially designed for the expulsion of fæces, and when it has been partly or entirely removed, this function is not readily established in the new rectum. In a very few weeks, however, a certain amount of sensation at the anus is established, and the patient is easily able to tell when the bowel is full, and to control the action of the bowels in the ordinary way.

As compared with many of the older operations for excision, such as Kraske's, this method of bringing down the sigmoid, instead of utilizing the stump of the rectum, is a great advance. There is none of the risk of obstinate stricture, necessitating the constant use of bougies, which was so common after the old operations.

One very serious objection to this operation is its difficulty. It is hardly necessary to say that a thorough knowledge of the anatomy of the rectum and the posterior pelvis is essential before attempting it. I performed it several times on the dead subject before attempting it in the living, and I believe this to be a wise practice. But after considerable experience of both this method and the abdomino-perineal operation, I am inclined to think that the abdomino-perineal is the easier. The most difficult stage in the operation is the separation of the rectum from the structures immediately in front of it. In women this is comparatively easy, as the separation from the vagina is not difficult; moreover, damage to the vagina is not a serious matter. Further, the peritoneal reflection comes so much lower in the female that it is reached sooner. In men, however, this separation is very difficult when it is impossible to have a finger in the rectum to guide one, and it is very easy to damage the urethra or to cut into the ureters in performing the anterior separation, while one has to go a considerable distance before coming upon the peritoneum. As the result of experience, I think it easier to open the peritoneum on the side through the posterior wound and to separate the rectum from the prostate and bladder from

above. This is considerably easier than the separation from below, and saves a good deal of time. The other chief difficulty of the operation lies in finding the peritoneal cavity in cases where there is much fat. It is sometimes very difficult to open the peritoneum without wasting a good deal of time. This operation is not one to attempt lightly in a stout man. It is a much more suitable operation in women, and in my opinion is contra-indicated in stout men, especially in those with a narrow pelvis.

#### **Abdomino-Perineal Excision.**

**Preparation of the Patient.**—This operation is one of the most formidable in surgery, and as in the vast majority of cases it has to be performed on elderly subjects, it is essential that it should be carried out under the most favourable auspices as regards the preparation of the patient, facilities for performing the operation with the least possible delay, and the after-treatment of the patient. The operation should not be performed in a private house, except under very special circumstances, nor in any place where any of the facilities for modern operative surgery are lacking. A sufficient number of first-class nurses should be available, and for the first week or two, at any rate, it will be necessary for the patient to have a nurse in constant attendance day and night. A large airy room is advisable, and, personally, except in cases where the operating-theatre is practically next door to the patient's room, I prefer the operation to be performed in the room in which the patient will afterwards be nursed, as this avoids moving him along passages, or up and down staircases.

Most of these patients with cancer of the rectum are suffering at the time when the operation has to be performed from a certain amount of obstruction of the bowels, and consequent auto-intoxication. It is therefore essential that several days, preferably a week or more, should be expended in getting the bowels thoroughly empty, and, in so far as this is possible, asepticizing the alimentary tract. This is best done by mild daily aperients, aided by enemata, and the administration of charcoal and Salol by the mouth. The patient's general condition should be carefully inquired into, an examination made of the urine, the teeth overhauled for carious stumps, and careful attention given to getting the mouth into as clean a condition

as possible by means of antiseptic mouth-washes. It is a good plan to administer small doses of strychnine hypodermically for several days previous to operation. The patient's diet should be nourishing, and chosen with a view to avoiding an excessive residue. As has been mentioned, if definite chronic obstruction is already present, and it is not possible thoroughly to clear the bowel, a preliminary colotomy should be performed.

The anæsthetic must be administered by a thoroughly experienced anæsthetist, as a good deal of the success or otherwise of the operation must necessarily depend upon the skill and care with which the anæsthetic is administered. It used to be my practice to give morphia before the operation, but I have now come to the conclusion that the best results are obtained by the administration of a small dose of atropine ( $\frac{1}{120}$ ) some three-quarters of an hour before the operation. This keeps the air-passages free from mucus, and considerably assists in maintaining even anæsthesia. The actual choice of the anæsthetic should be left to the anæsthetist (see chapter on Anæsthesia). My own experience is in favour of open ether, with or without a little chloroform. The operation has sometimes been performed under spinal anæsthesia; in fact, on the Continent it is a popular method of anæsthesia for operations of this description. At St. Mark's Hospital we tried performing this operation under spinal anæsthesia, but on the only occasions on which the method was used the patient died from shock a few hours after the operation. In this country, at any rate, where general anæsthesia by the administration of ether or chloroform has reached such a high point of perfection in the hands of specialists, I feel confident that general anæsthesia is the best method for these operations, and I personally should not attempt to perform the abdomino-perineal operation under spinal anæsthesia if I were able to obtain the services of an experienced anæsthetist. Further reference to this subject will be found in the chapter on Anæsthesia, by Dr. Blumfeld.

The practice initiated some time ago by Mr. Arbuthnot Lane of infusing warm saline solution under the skin of the chest wall during the whole period of operation is, I consider, one of the utmost value, and I now always adopt it. It is best administered by means of one of the new forms of transfusion apparatus, and the fluid, which should, for preference, be a physiological saline solution should be run in at the rate of a pint an hour

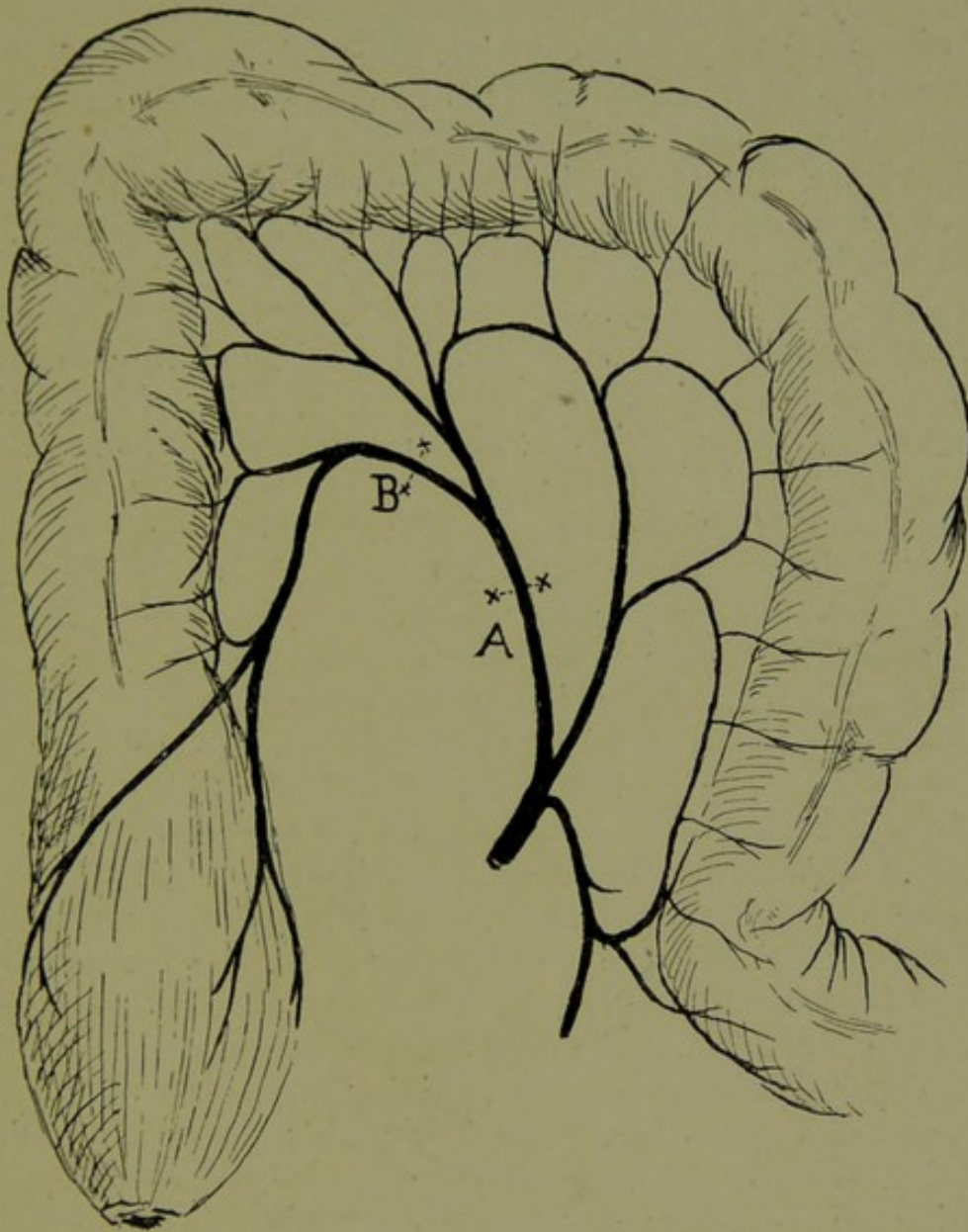


FIG. 98.—DIAGRAM TO SHOW BLOOD-SUPPLY OF PELVIC COLON AND RECTUM, MADE FROM AN X-RAY PHOTOGRAPH OF A COLON, WITH THE VESSELS INJECTED, PREPARED BY MR. HAMILTON DRUMMOND, OF NEWCASTLE.

Note that in addition to the large anastomotic loops in the meso-colon, there is a second anastomosis at the bowel edge in the lower half of the pelvic colon, but that this latter anastomosis is not present in the upper half. Ligature of the inferior mesenteric artery at *A* will leave a free collateral circulation to the lower part of the colon and upper rectum, whereas division at *B* would not leave such a good circulation. *A* is the right position for the ligature in performing the abdomino-perineal operation.



during the whole period of operation, this being as a rule superintended by the anæsthetist.

Patients are very difficult to lift after this operation, and are unable to assist themselves. It is therefore advisable that they should be on a fairly high and narrow bed. It is a very good plan to have a mattress divided into sections, so that parts of it can be withdrawn to facilitate getting at the patient. A water-bed is not suitable for these cases, but a half-air bed has proved very satisfactory.

**The Operation.**—It is advisable, if possible, to have two assistants, one of whom should superintend the getting of the patient into position at the beginning of the operation, and should also be prepared to put him in the correct position at the second stage. The operating-table must be one which admits of the full Trendelenburg position. If the patient is a male, it is essential that a urethral sound of suitable size should be ready to be passed into the bladder during the second stage of the operation.

The patient is first placed in the full Trendelenburg position, and arranged so that a good light can be thrown into the lower part of the pelvis. The best light for this purpose, in my opinion, is a projector lamp on a tall stand, as made by Messrs. Currie and Paxton. This throws a parallel beam from some distance away over the head of the anæsthetist down into the pelvis, and gives an excellent light in the field of operation. The abdomen is opened in the mid-line from the symphysis pubis to a little above the umbilicus. The edges of the wound are held apart, preferably by some form of self-retaining retractor, as this leaves the assistant's hands free. The liver having first been examined to make sure that there are no secondary deposits which would negative the operation being performed, the intestines are pushed up out of the way, so as to leave the pelvis as free as possible, and are held there by large flat swabs, to which clips have been fixed, to prevent any possibility of their being left behind in the abdomen. A towel is clipped to the edges of the wound on each side, so that all the skin surface is covered, and I believe this assists materially in obtaining an aseptic result. A large bladder retractor is next passed down into the anterior part of the wound to pull the bladder forwards and expose the lower part of the pelvic floor. If the patient is a female, it is often preferable to seize the fundus of the uterus with Vulsellum forceps, and draw this upwards and downwards. These forceps

are held by a nurse or the second assistant. The growth is then carefully examined, and the exact steps of the operation planned out. If the surgeon decides to bring down the sigmoid, so as to re-establish the bowel in the normal position, the pelvis is packed off with gauze, and the sigmoid drawn as far as possible out of the wound. The meso-sigmoid is put on the stretch by the assistant, and the surgeon, by blunt dissection with a pair of dissecting forceps, searches for the inferior mesenteric artery. This should be located, if possible, just above its bifurcation (Figs. 98 and 99). This vessel is then tied and divided above the bifurcation, the veins being tied off at the same time. The remainder of the meso-colon should then be divided back to the sacrum. The bowel is next turned over on the right side, and the left ureter defined. This is often a matter of considerable difficulty. The ureter should not be dissected out, as this might endanger its blood-supply; but it must be kept in view during the whole of the first stage of the operation, and carefully located to prevent any possibility of injuring it. Should the growth extend over towards the right side of the pelvis, the right ureter should similarly be defined. As a rule, however, there is little danger of damaging the right ureter. The packing is now removed from the pelvis, and with a good light the surgeon begins to divide the peritoneal floor on each side of the meso-sigmoid and rectum, passing between the rectum and bladder at the bottom of the pelvis. This is best done with a long pair of scissors with cross-over handles. Everything is cleared right down to the bone behind the bowel and its lateral attachments below the peritoneal reflection are divided with scissors. This part of the operation is difficult, for it has to be done mainly by feel, as it is at a great depth in the wound. On the left side great care must be taken in avoiding the ureter, especially if there is any extension of the growth in this direction. (See note *re* ureter later on.) The bowel and growth are now carefully separated from the bladder in front, though this separation need not be taken very far downwards; behind it may be carried down as far as can be felt along the bone in the hollow of the sacrum. By the ligature of the inferior mesenteric artery, the blood-supply to the posterior part of the pelvis has been almost cut off, so that little bleeding is likely to occur. What does occur only comes from anastomosing vessels at the sides of the pelvis, and is of little consequence.

In the female this stage of the operation is a good deal easier than in the male, as the peritoneal floor extends much lower down. Douglas's pouch should be divided across the bottom.

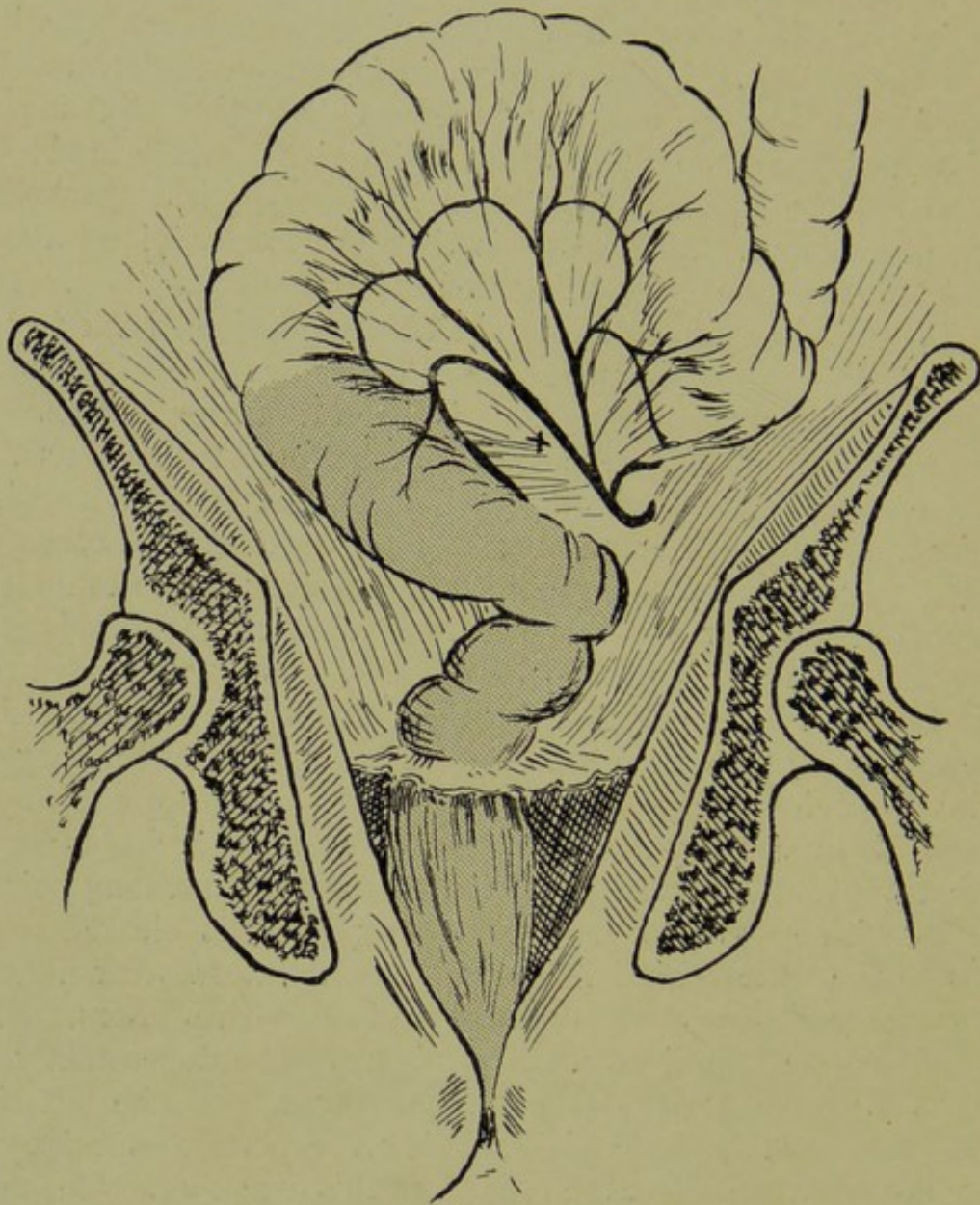


FIG. 99.—DIAGRAM SHOWING POSITION FOR LIGATURE OF THE INFERIOR MESENTERIC ARTERY, AND THE WAY IN WHICH A COLLATERAL CIRCULATION IS LEFT.

When the bowel is to be brought down, all the portion shaded is removed. If a colotomy is to be established, the ligature may be placed above the next main branches.

- A bladder retractor, such as the one illustrated in Fig. 100, will be found useful. The chief difficulty at this stage of the operation lies in the division of the lateral attachments of the rectum.

These are felt as lateral bands firmly holding the bowel to the sides of the pelvis. They may be freely cut through with scissors, but care must be taken not to damage the bowel itself, and on the left side especially not to damage the ureter, which must be most carefully defined at this stage of the operation. The section should be carried down to the upper surface of the levator ani muscle on each side. If the bowel is not entirely freed laterally at this stage, considerable difficulty will be experienced during the next part of the operation. The bowel is now pushed down into the wound formed at the bottom of the pelvis, and the peritoneal floor of the pelvis is re-established by carefully suturing the edges of the peritoneum around the upper part of the sigmoid. If the pelvic floor has to be re-established, the greatest care must be taken to insure that no opening is left. It is better not to attempt to close the pelvic floor rather than

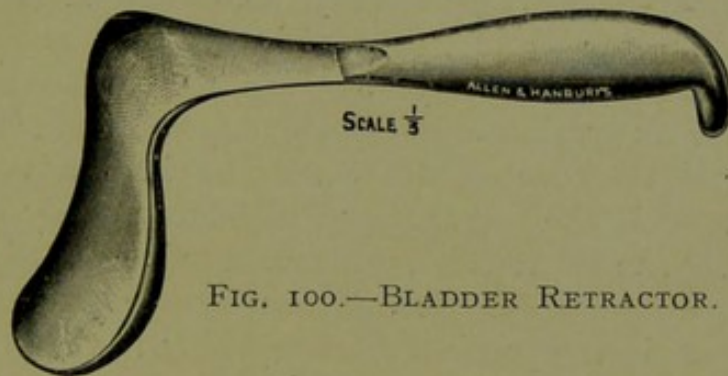


FIG. 100.—BLADDER RETRACTOR.

to leave one small portion of it through which small bowel can pass down and become strangulated. Particular care must be taken with the sides of what remains of the sigmoid and mesocolon, and in stitching the bowel to the sigmoid care must be taken not to contract the bowel. I use several continuous sutures, starting at the base of the meso-colon on either side, and gradually working round to the front, the peritoneum being stitched as close as possible, so as to leave no gaps. If it is not possible completely to get the parts together, flaps of peritoneum must be turned down from the bladder or elsewhere to fill the gap. In the female the uterus and broad ligaments may be drawn in to assist in re-establishing the floor of the pelvis. The abdominal stage of the operation is now completed, and the abdomen should be closed after a careful toilet of the peritoneum. Drainage should not be necessary.

Temporary dressings are now applied to the abdominal wound,

and after the table has been put into the horizontal position, the patient is turned into the left semi-prone position, with the buttocks at the edge of the table. The parts round the anus having been carefully cleaned, a purse-string suture of stout silk is inserted with a curved needle around the lower part of the rectum at the anal margin, and this is tied up tightly so as completely to occlude the bowel. An incision is then made from about the middle of the sacrum to the posterior margin of the anus. The incision is next carried round the anus, so as to free the bowel from the skin, care, of course, being taken to avoid cutting the purse-string suture and so opening the bowel. The sphincters are divided posteriorly, and a clip or suture placed on each side to mark the point of division of the sphincter muscle, as this will assist in restoring the muscle later.

The coccyx is next removed. This is usually done with a chisel and hammer, but personally I consider it is far better to disarticulate the bone at the sacro-coccygeal joint. This requires some little dexterity, but has the advantage that it does not leave a ragged stump of bone exposed in the wound.

The wound is then deepened until communication is established with the wound in the pelvic floor which has already been made from above. The levatores ani on either side are divided well away from the bowel wall, and the rectum separated, together with all the fat in the pelvis, and everything to the bone behind and at the sides. The loose bowel in the floor of the pelvis is now dragged out through the posterior wound. A large loop of bowel will come out, consisting of the upper part of the rectum and the lower part of the sigmoid flexure. This is held to one side by an assistant, and a good light is thrown into the deeper parts of the wound. The remaining attachments of the rectum to the bladder and prostate in front are then carefully separated from above downwards, this being very much easier than separating the bowel from below. Finally, the lower portion of the rectum, which has previously been closed by suture, is carefully dissected out of the sphincter on either side. The rectum will now be free, and will only remain attached to the sigmoid by its upper end. The bowel is then placed back in position, so as to see at what point it must be divided in order to restore the anus to the proper position. There should be sufficient bowel to reach the anus after at least a foot consisting of rectum and sigmoid has been removed. The next step in the operation is

loosely to attach the bowel to the muscular structures of the anus. The sutures should take up the peritoneal and muscular walls of the sigmoid and the tissues just around the anus. A few stitches to prevent retraction are all that is necessary. Two large tubes are then put into the posterior wound and brought out just below the stump of the sacrum. The posterior wound is then closed with fish-gut sutures, special care being taken to bring the posterior cut ends of the internal and external sphincters into apposition. Dressings are applied to the posterior wound, and the operation is now complete except for the division of the bowel. Up to this point in the operation the bowel has not been opened, in order that there should be no possibility of infecting the wound from the contents of the bowel. The bowel is now divided about an inch away from the skin, where it emerges from the anus, and the mucous membrane is loosely stitched to the skin away from its edge, as in the previously-described operation, or a Paul's tube is tied into the stump.

**Other Methods of performing the Second Stage of the Operation where the Bowel is brought down.**—In cases where the growth is situated high up at the recto-sigmoidal junction, and where there is reason to believe that the last 2 inches of the rectum can safely be left behind, the second stage of the operation may be performed in the following way: An incision is made from the middle of the sacrum to about  $1\frac{1}{2}$  inches behind the anus. The coccyx is disarticulated and the wound deepened until the wound in the pelvic floor made from above is reached. The levatores ani are then divided on either side, and the loop of bowel is drawn out through the posterior wound. The wound is then lightly packed with gauze, and a drainage-tube is passed up to the pelvic floor. Gauze is packed lightly around the loop which is left hanging out of the wound, dressings are applied, and the patient is sent back to bed without the loop of bowel and the contained growth being removed or opened. Two or three days later the bowel is divided, no anæsthetic being necessary, as division of the bowel causes no pain. The division is made 2 inches above the anus, and at a point above the loop which will allow of the upper end reaching to the lower stump. A large glass or rubber tube with a flanged end is passed into the rectum from the anus, and the upper end of the bowel is tied on to it with stout silk. The tube is then

drawn on until the two ends of the bowel are in contact, when they are stitched together with three or four sutures. The posterior wound is then lightly packed with gauze, and allowed to heal by granulation.

This method of performing the second stage of the operation has, it seems to me, several advantages. In the first place, it materially reduces the length of the operation, as the second stage can be performed in a few minutes. It also reduces the shock of the operation, as the sensitive anal area is not interfered with in any way. When the bowel is divided two or three days after the initial operation, one can be quite certain that one is cutting through healthy bowel, and that no sloughing will occur afterwards. This method gives complete restoration of function, as the anus has not been interfered with, and perfect continence results. I have performed this operation in all four times, and the results have been excellent. It is, however, only applicable when the growth is situated high up in the rectum; otherwise it would not be safe to leave the lower stump of the rectum.

Another method of performing the second stage, also with the object of leaving a normal anus, is to divide the rectum 2 inches above the anus, and evert it through the anus by dragging on the upper cut edge with forceps. After the rectum and growth have been cut away, the stump of the sigmoid is drawn through the everted stump of the rectum, and the edges are sutured together with a continuous suture. Lastly, the prolapse thus formed is returned, so as to leave the bowel once more continuous. A tube is then inserted through the anus into the sigmoid.

These methods of performing the second stage of the operation seem worth doing in cases where the growth is not large, and where it is situated high up in the rectum and well away from the anus. It always seems a pity to remove a normal anus unless this is absolutely necessary, as perfect control cannot result unless the normal structures are left behind.

#### **Abdomino-Perineal Excision with Colotomy.**

The technique of this operation is the same as for the abdomino-perineal operation already described, except that in this case no attempt is made to restore the bowel with an opening in the normal situation, but instead a permanent colotomy is performed. I believe this to be the best operation in men, with very few

exceptions. It is also the best operation when the growth is situated low down in the rectum, or is of any considerable size, as it allows of more extensive removal than the former method. It is a considerably easier operation, and can be performed rather more rapidly. It is also somewhat safer, as there is no danger of sloughing of the bowel, which may easily occur in the former operation.

The abdomen is opened in the same way as in the operation already described (p. 316). The sigmoid is drawn out of the wound, and the point at which the bowel is to be divided is decided upon. This should be as high up as possible, the necessity of not having any tension at the colotomy, and of keeping a good blood-supply to the upper stump, always being borne in mind. The bowel is now packed round with towels, so as to shut off the abdominal wound as completely as possible. The bowel is firmly clamped by means of two clamps applied close to each other. It is then cut through behind the clamps, and the ends cauterized with a Paquelin cautery. The clamps are then removed, and both ends of the bowel carefully invaginated with sutures. The ends are washed over with 1 in 20 carbolic, in case any soiling has taken place, fresh towels are applied, and the instruments used for the division of the bowel are re-sterilized. It is also advisable for the surgeon to change his gloves. It is at this stage of the operation that there is the greatest danger of infection, and the technique should be so planned as to reduce this risk to a minimum.

The operation is now proceeded with in exactly the same way as already described (p. 316). The lower stump of bowel is pushed down below the pelvic floor, and the pelvic floor is carefully stitched over it, care being taken not to let any of the stitches pick up bowel beneath, which would cause great difficulty during the second stage. Before the abdomen is closed, an incision is made through the abdominal wall to the left side of the main incision, and through this the upper end of the bowel is drawn. The stump of bowel is loosely stitched to the skin so as to prevent its retracting, and left closed.

The second stage of the operation consists in making an incision which is carried downwards from the sacrum in the mid-line, and 2 inches behind the anus is swept out into the buttocks to enclose the anus. The incisions meet at a point about  $\frac{1}{2}$  inch in front of the anus, so that the anus is included in an elliptical



incision with about an inch of skin all round it. (The anus should previously have been closed by purse-string sutures.) The wound is deepened until communication with the upper wound is established, and the rectum is then freely dissected out by dividing the levatores ani well away from the bowel wall and clearing out everything in the pelvis. The separation from the bladder and prostate in the male, or from the posterior vaginal wall in the female, is best made from above downwards. Last of all the large wound is closed by sutures, adequate drainage being provided.

An excellent method is described by Mr. Sampson Handley for preventing shock after this operation. A No. 12 Jacques catheter is tied into the end of the stump of bowel which has been brought out through the abdominal wall to form the colotomy. A purse-string suture is placed on the stump of bowel so as to include an area about  $\frac{1}{2}$  inch in diameter. A stab incision is then made through this area, and the catheter inserted. The purse-string suture is then tied on to the catheter. Continuous saline is run into the bowel through this catheter during the first forty-eight hours after the operation, and flatus is afterwards allowed to escape through it until such time as it becomes advisable to open the bowel.

**SPECIAL POINTS TO BE OBSERVED IN PERFORMING THE ABDOMINO-PERINEAL OPERATION.**—1. It is most important that the inferior mesenteric artery should be ligatured in the right place; for should the large inferior hæmorrhoidal branches not be controlled, very severe and alarming hæmorrhage will occur during the lateral separation of the bowel from the abdomen, and will be exceedingly difficult to deal with. [Two diagrams are given showing the position which I consider best for the ligature of this vessel (Figs. 98 and 99).]

2. One of the most serious difficulties lies in avoiding injury to the ureters. Cutting through the ureter is a most serious complication, and will almost certainly necessitate subsequent removal of the kidney. The left ureter is the one most frequently damaged, and this should be carefully traced right down to the bladder, and its position verified from time to time during the whole of the first stage of the operation. As a rule the right ureter runs no risk of damage. But there is an exception in the case of a growth in which there is extension towards the

right side. When the growth is situated at the recto-sigmoidal junction, there is often a considerable amount of contraction occurring in the tissues just around the growth, and this may cause a loop of ureter to be dragged out of its normal anatomical position and to be displaced considerably towards the growth. I feel confident that in the cases in which the ureter has been damaged it has often been due to this cause. On one occasion, when tracing the ureter, I was surprised to find a regular loop running almost up to the growth, and it is quite certain that, had this not been seen, the ureter would have been cut through in two places, without my having gone into the apparently dangerous zone. I have tried catheterizing the ureters before the operation, but this will not prevent the ureter being damaged in cases where it is doubled or kinked, as in all probability it will be impossible to pass the ureteral catheter past the bend. The only safeguard lies in careful tracing of the ureter, and a constant watch to see that it is not being damaged. Should the ureter be damaged during the operation, and the fact detected, it should be ligatured at once above and below the injury. If the injury to the ureter is not detected until later, there will be no alternative but to remove the kidney on the injured side.

3. It is well to bear in mind that, unless the pelvic floor can be completely and properly closed, it is far better not to attempt to close it at all. If it is not closed at all, there is no risk of hernia; but if a small opening between two stitches is left, small bowel may get through this opening and become strangulated, with fatal results. This has occurred several times with different operators. The pelvic floor must therefore be very carefully sutured, or it had better not be closed. In the female the closing of the pelvic floor is fairly easy, as the uterus can be used to fill in the gap. In the male it is sometimes a matter of great difficulty. The closing of the pelvic floor is not absolutely necessary, and excellent results have been obtained without this being done. The main advantage, however, of closing the pelvic floor is that, should sepsis occur in the posterior wound, which is not an unusual event, there is no danger of a subsequent peritonitis.

4. Separation of the rectum from the prostate and bladder in the male is often a matter of some little difficulty, more particularly if the growth happens to involve this particular section of the rectum. In separating from above, one can be sure of not

injuring the bladder or urethra, and this method should always be adopted when possible. If the separation is carried out from the anus, it is quite easy to damage the urethra or to cut into the prostate. A sound should always be kept in the bladder to act as a guide during this stage of the operation. Damage to the urethra is, however, not a very serious accident. I have on two occasions damaged the urethra in removing anterior growths from the lower rectum, without any unpleasant consequences. A large catheter should be passed at once into the bladder while the wound is open, so that the surgeon can be sure that the catheter is really passing into the bladder. The damaged part should then be stitched over the catheter, and the catheter should not be removed for ten days or a fortnight.

5. In cases where an attempt is made to leave a normal anus by joining up the bowel, it is advisable to divide the sphincter anteriorly so as to insure free drainage of the contents of the bowel during the healing stage. This may be done by subcutaneous section with a tenotomy knife or by simple radial division. It will not interfere with subsequent control.

**AFTER-TREATMENT.**—During the first twenty-four hours after the operation, saline solution should be administered either subcutaneously or, where a colotomy has been established, into the bowel. Three or four pints should be administered during the twenty-four hours. Morphia should be given to keep the patient as quiet as possible and to prevent pain. This drug has also a most beneficial effect in allaying shock, and personally I consider it of the utmost value as a means of combating shock in these cases. Stimulants which tend to raise the blood-pressure should not be administered unless absolutely necessary, for they do little good, and tend to cause hæmorrhage from the wound.

The patient should be nursed on the side as much as possible. It is useless to administer food to the patient for the first forty-eight hours. The digestive processes are arrested for the time, and food at this stage will not be of any value. After the shock of the operation has passed off, however, it is very important that the patient should be given food in sufficient quantities to make up for the loss of energy resulting from the operation. I prefer to give a semi-solid diet—boiled fish, chicken, eggs, custard, etc.—rather than to depend upon ordinary so-called “liquid nourishment,” and I find patients do very much better on this diet.

If the bowel has been brought down to the anus, an aperient must be administered on about the fifth day. Everything will, however, depend on the condition of the patient as to when the aperient is administered. If a permanent colotomy has been performed, the bowel should be opened and a Paul's tube tied into the stump on about the fifth or sixth day, or earlier if this seems advisable. Every care should be taken to avoid soiling the abdominal wound, and for this reason it is not advisable to open the colotomy sooner than is absolutely necessary. The dressings should be changed frequently, as they are very apt to become soiled, especially those covering the posterior wound. Antiseptics are best used freely, as the chances of sepsis are considerable, and there is less risk when using antiseptic dressings. The posterior wound often takes some little time to heal, and there is generally a considerable part of this wound which has to heal by granulation. Complete primary union of the posterior wound is uncommon. This is partly due to the fact that, owing to the extensive removal of tissue and to ligature of the vessels which this necessitates, a certain amount of sloughing of the cellular tissue results, and causes a brownish, offensive discharge which interferes with primary union.

The patient is got out of bed as soon as the abdominal wound is healed, and is allowed to sit in a bath daily. This hastens the healing of the posterior wound, and materially diminishes the period of convalescence.

This operation is a serious one, and requires a considerable amount of very careful after-treatment in order to lead the case to a successful conclusion. After the initial shock of the operation is over, it is most important to administer nourishment freely, and to do everything possible to build up the patient's strength. Sleep is most important, and, if necessary, drugs must be given to secure a good night's sleep.

## CHAPTER XXII

### *PALLIATIVE TREATMENT OF MALIGNANT DISEASE*

It is an unfortunate fact that there is no non-operative treatment of cancer of the rectum which can be relied upon to cure the patient, or which can even be considered as a substitute for a radical operation. At the present time we know of no means of curing cancer in the rectum or elsewhere except by the complete removal of the growth. The palliative treatment of cancer of the rectum, therefore, only applies to those cases in which removal is not possible, either on account of the size of the growth, the unsuitability of the patient for operation, or the inability of the surgeon to perform the necessary operation. But although palliative treatment cannot be considered as a substitute for operation, it is still of great value in prolonging the life of patients who have inoperable growths, and in alleviating their suffering and discomfort. Much may be done to help these patients, much more, in fact, than most people are aware of.

Unfortunately, both in private practice and hospital practice, nearly two-thirds of the cases are inoperable when first seen—inoperable in the sense that a cure cannot be expected—owing to the advanced condition of the growth, and one therefore has considerable experience in palliative treatment of these cases. I have had patients who have lived in comparative comfort for as much as five and even six years after an inoperable growth was discovered—in fact, in sufficiently good health to be able to get about and continue their business; while two years is not at all an unusual time for a patient to live, even though the growth cannot be removed. It must also be remembered that in a few cases, a very few, a cure is sometimes seen as the result of one or other of these methods of treatment, though such cases are too rare to warrant us in ever suggesting them as substitutes for radical operation. It is a mistake to suppose that, because a radical operation cannot be performed, there is nothing further

to be done, and, indeed, it is most cruel to let these patients think that their case has been given up, and there is nothing left for them to do but to die. On the contrary, a great deal can be done, though we cannot, of course, promise any permanent result.

It is very usual for the patient or his friends to ask how long he has to live, when a growth has been discovered in the rectum which cannot be removed. Personally I always refuse to answer such questions, as any answer is little better than guess-work. The time before the disease proves fatal varies so enormously in different cases, and as the result of different conditions both of mind and body, that it is quite futile even to hazard a guess as to the length of time any particular individual has to live.

### Palliative Operations.

There are three palliative operations to be considered—colotomy, curettage, and diathermy.

**Colotomy**—*Indications for Colotomy*.—There is a good deal of difference of opinion among surgeons as to whether colotomy should be performed in inoperable cases. Some surgeons maintain that colotomy simply adds to the patient's discomfort without giving him any real advantages, while others believe that it gives the greatest possible relief in such cases. As the result of considerable experience, I am personally convinced that colotomy considerably prolongs the patient's life, especially if it is performed before the patient has become seriously run down in health. At the very worst, colotomy will prolong the patient's life at least six months, and it undoubtedly alleviates many of the worst discomforts. If a colotomy is performed early, while the patient is still in fair health, and if the lower bowel is afterwards kept washed out regularly with antiseptics, it is possible to prevent secondary septic infection to a very large extent, and many of the secondary inflammatory complications which arise in the neighbourhood of the growth will be avoided. As a result of the growth being kept clean and free from constant irritation by the passage of the fæcal contents, it will tend to grow more slowly, and there will not be so much ulceration. Many of the deaths which occur at an early stage in cancer of the rectum are due rather to secondary inflammatory processes than to direct invasion by the growth. All the cases I have met with in which a patient with an inoperable growth has lived for several years have been cases in which colotomy has been performed at

an early stage. There is no doubt that the pain is considerably diminished where colotomy is performed, and also that the discharge from the rectum, which becomes such a distressing complication, is much less in those cases which have a colotomy. I am strongly of opinion that colotomy is a valuable means of treatment in incurable cases of cancer, but I maintain that we should perform it at an early stage, and not wait till symptoms of obstruction have occurred.

*The Operation of Colotomy.*—Inguinal or transverse colotomy has now entirely taken the place of the older lumbar colotomy. The only advantage of the older operation was that it did not

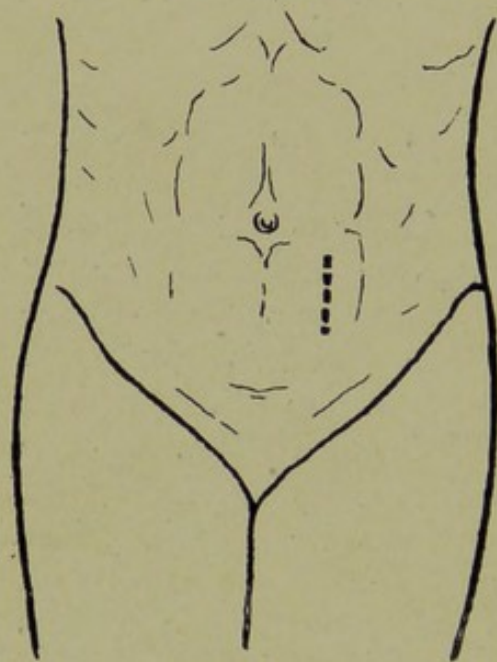


FIG. 101.—INCISION FOR COLOTOMY THROUGH LEFT RECTUS MUSCLE.

necessitate opening the peritoneal cavity, and in the pre-Listerian days this was of primary importance. As opening the peritoneal cavity has no longer any terrors for the modern surgeon, transperitoneal colotomy is now alone performed. The operation is performed as follows: The patient is prepared for operation in the usual way. An incision is made over the left rectus muscle just below the umbilicus, the best position for the incision being about  $\frac{3}{4}$  inch from the outer edge of the left rectus band (Fig. 101). The anterior rectus sheath is opened and the muscle fibres separated. The abdomen is then opened, care being

taken to keep the incision as small as is compatible with reaching the colon, as the resulting control will be much better where only a small incision has been made. When the abdomen has been opened, the sigmoid flexure is searched for, and a loop of it is drawn out through the wound. Should any difficulty be experienced in defining the large intestine, the best plan is to pass two fingers into the wound, and push them outwards over the inner surface of the abdominal wall towards the left iliac fossa, and then inwards over the parietal peritoneum covering the floor of the left iliac fossa towards the middle line. The parietal peritoneum is in this way traced from the wound outwards, and

again inwards towards the meso-sigmoid. The first portion of visceral peritoneum reached will be the meso-sigmoid, and the first piece of bowel with which the ends of the fingers come in contact will be the large intestine. Any loops of small intestine which are lying in the left iliac fossa are, of course, disregarded. As soon as the fingers are found to pass off the parietal peritoneum on to a piece of bowel, this piece of bowel is caught between the two fingers and dragged out of the wound, and it should certainly prove to be the large intestine. The large intestine is easily distinguished from the small intestine by the fact that it has longitudinal muscle bands, and also appendices epiploicæ. Both these factors are always present, and serve in identifying the bowel. Should there be great difficulty in finding the large intestine, the abdominal incision should be enlarged and a careful search made. A loop of the sigmoid having been found and drawn out of the wound, it should be pulled upon in both directions to determine which is the upper end. The upper end should then be pulled upon until it is tense, and the remainder of the bowel returned into the abdomen. Next a glass rod, about  $\frac{1}{4}$  inch in diameter, is pushed through the meso-colon just beneath the bowel. A piece of rubber drainage-tube, about an inch in length, and of sufficient calibre to allow of its being passed on to the glass rod, is then pushed on to the rod at either end to prevent the rod slipping out (Fig. 102). A suture of fish-gut or stout silk is then passed through the skin at each end of the abdominal incision, and should take up the longitudinal muscle band on the colon. In passing this suture it is advisable to use two needles—a cutting needle for passing the thread through the skin, and a non-cutting needle for passing it through the bowel wall. If a cutting needle is used on the bowel wall, the stitches will be very liable to cut out. When the sutures are tied up, they close in the corners at the ends of the incision, and are also useful in anchoring the bowel and preventing further bowel from prolapsing, should the patient strain soon after the operation. There is no necessity for the insertion of any other sutures; but should it be proposed to open the bowel at once, a few more may be inserted to shut off the abdominal cavity. Any large appendices epiploicæ which are present on the loop of bowel outside the abdominal wall should be ligatured and cut away.

In most textbooks the incision for left inguinal colotomy is given as the junction of the middle and outer thirds of a line



between the umbilicus and the left anterior superior spine. While this position has the advantage of being directly over the sigmoid, it is not so convenient a situation for a colotomy as the one previously mentioned and illustrated in Fig. 101, as it is too near the bone, and the cup which will subsequently be worn to cover in the opening will tend to ride up when the patient walks and moves about, and will result in leakage and discomfort. The incision through the fibres of the rectus has the advantage of

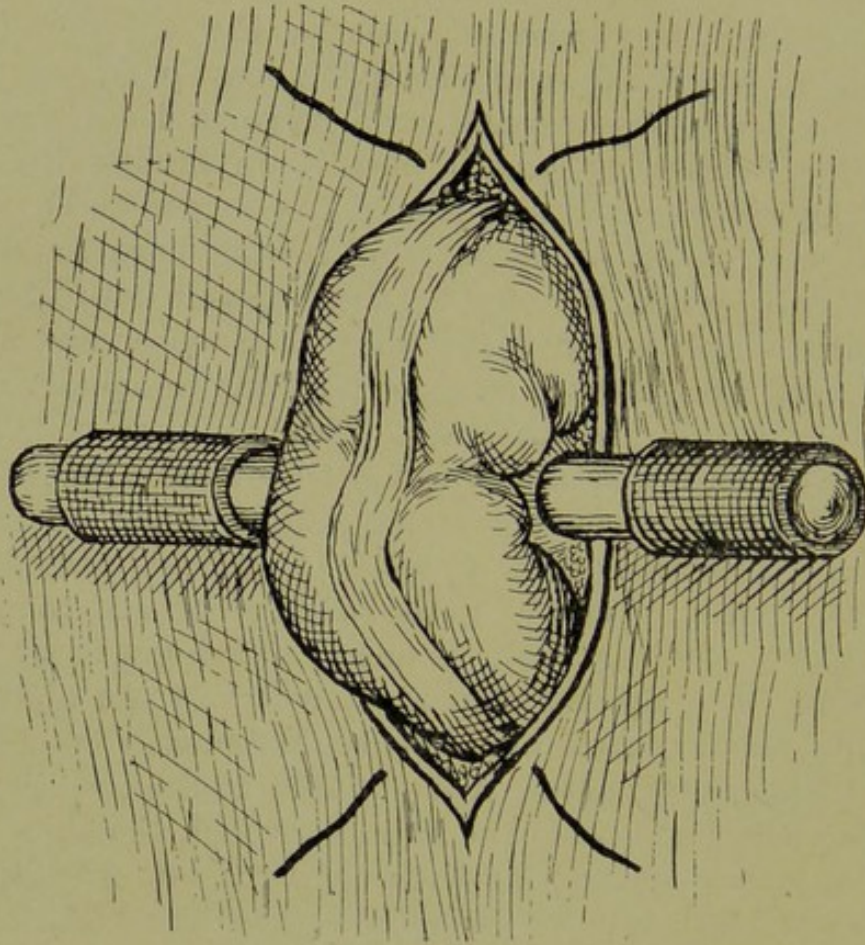


FIG. 102.—COLOTOMY: GLASS ROD IN PLACE, AND SUTURES AT EACH END READY TO BE TIED.

giving the patient very considerable control over the opening. When walking about, or by voluntary effort, the patient is practically able to close the opening by the contraction of the left rectus, and thus quite good control is obtained.

The important points to remember, in order to secure a good colotomy opening, are to keep the incision in the abdominal wall as small as possible, to make it through the rectus, and to have as little protruding bowel as possible at the opening.

Unless there is some special reason, the bowel should not be opened immediately, but should be left closed for two or three days. Then a small transverse incision is made at the apex of the protruding loop with a pair of scissors. No anæsthetic will be required, as there is no sensation in this portion of the bowel. The bowel should not be completely cut across at this stage, but only a sufficient opening made to allow of the escape of fæces. At the end of about eight or ten days the glass rod should be withdrawn, and all the bowel superficial to the skin should be cut away with scissors. If necessary, an anæsthetic should be given for this, but, as there is practically no pain, an anæsthetic is not really necessary, and personally I very seldom employ one. When performing this little operation of cutting off the bowel, one must be prepared for quite free hæmorrhage. The best plan is to have several curved needles threaded with silk, and half a dozen clips, preferably with biting points, such as Kocher's clips. The bowel should be cut away in sections and the bleeding-points clipped, or controlled by passing sutures beneath them with the needle and then tying over them. The latter is often the best method. When the bowel has been cut away, dressings should be applied for a day or two, and a very good opening should result. There will be two orifices, the upper of which communicates with the descending colon, and the lower with the rectum. The less mucous membrane there is outside the skin, the better control will the patient subsequently obtain.

The patient should be instructed to try and get an action of the bowels at the same time every morning, and not to take aperients if he can possibly avoid them. The diet should be as simple as possible, and the patient should avoid those articles of diet which are likely to cause diarrhœa. If there is a tendency to looseness in the stools, 5-grain tablets of pulv. ipech. co. once or twice a day will, as a rule, easily remedy this. The best apparatus for the patient to wear consists of a belt round the lower part of the abdomen, that part of the belt which comes over the opening being made of pure smooth rubber. A celluloid cup with thick edges is placed over the opening, and on the back of this cup are some small studs, which press into the rubber portion of the belt and prevent the cup from moving about. This apparatus is made by Messrs. J. H. Montague, of New Bond Street, and is, in my experience, by far the most satisfactory apparatus there is. It is simple, is easily cleaned, and after

being worn for a short time is very comfortable. Other kinds of apparatus are made in which there is a receptacle for the faecal contents, but except in special cases these are not to be recommended.

As a rule patients become quite used to a colotomy opening after a month or two; and when they have learnt how to look after themselves and to avoid liquid stools, most of them suffer very little inconvenience from the presence of the colotomy opening. They are able to go about as usual, and beyond having to be a little more careful in diet, and having to spend a little more time on the daily toilet, suffer little inconvenience from the artificial opening. There are, of course, exceptions in which the patient suffers a considerable amount of inconvenience, but these are most often due to the patient not having been properly instructed as to how to manage the opening. I have several patients who have had colotomy openings for many years, and they assure me that the opening causes them very little inconvenience. One patient even goes so far as to say he wishes he had had it done twenty years earlier, as he previously suffered from severe constipation, which is now no longer the case.

When the bowel has to be opened at once, the best method is to tie a large Paul's tube into the bowel by means of a purse-string suture, or, better still, by means of a piece of  $\frac{1}{2}$ -inch tape. The object of using tape instead of a suture is that it does not tend to cut through the bowel so readily, and the tube is retained longer. To the free end of the tube is attached a long piece of india-rubber tubing, which can be carried over the side of the bed into a pail or other receptacle. These tubes generally remain tied in for about four or five days, after which they will separate unless they are tied in a little higher up.

**Curettage.**—This is a very old treatment for cancer in the lower part of the rectum, and it does not seem to have received the amount of attention which it undoubtedly deserves for the relief of inoperable cases of carcinoma recti. The principle of the treatment is to remove with a blunt curette all that portion of the growth which is fungating into the bowel. It is only applicable to growths which are quite at the lower end of the rectum, and which, for preference, are on the posterior or lateral walls. Growths on the anterior wall in men should not be curetted unless the greatest care is taken to avoid the danger of opening the urethra or bladder. In women this danger does not exist,

and consequently growths on the anterior wall may be freely curetted. This mode of treatment, by getting rid of a large fungating mass, gives the patient very great relief. The pain and discharge are to a great extent stopped, and the symptoms often entirely disappear for some months. I have known patients with growths in the lower part of the rectum who have been curetted every four or five months for as much as five years, and who have remained during the whole period in very fair health and been able to go about their business. In these days curettage may with advantage be combined with treatment of the curetted area by large doses of radium, and I consider this a very valuable method of treating inoperable growths in the lower part of the rectum that cannot be removed by operation. The patient's life is considerably prolonged thereby, and his comfort greatly increased. On no account should any attempt be made to curette growths high up in the bowel, especially if they are on the anterior wall, as the peritoneal cavity may easily be opened, with fatal consequences. The operation is performed as follows: The patient is prepared in the usual manner to make sure that the bowel is empty. An anæsthetic is administered, and the bowel washed out with some weak antiseptic. With a large blunt curette all the accessible portion of the growth is scraped away down to the hard fibrous tissue beneath, the actual cautery being used in addition if it is considered advisable. The bleeding, which is usually free, is checked by douching with hot hazeline solution, and the bowel is then firmly packed with vaseline gauze, a tube being passed above the packing to allow the escape of flatus. The patient is given a dose of morphia to prevent pain from the presence of the packing. Thirty-six hours afterwards the packing is removed, and the bowel douched out twice a day with weak lysol solution. A week later radium is freely applied to the curetted area. At the end of about ten days the parts will have healed, and there will be a flat granulating ulcer in the original situation of the growth. The patient will be completely relieved of his symptoms, and be able to get about again at the end of a fortnight. He should be instructed to return for a repetition of the treatment as soon as the symptoms again become troublesome, which will generally be in three or four months, but possibly later.

**Diathermy.**—Diathermy is a new form of cauterization which has recently been advocated for use in inoperable cancer. The

principle of the treatment is to use a high-frequency electrical current, of low potential but large amount. The spark so produced has a powerful cauterizing, destructive effect upon the tissues, while at the same time it is quite painless. This treatment must be looked upon as quite experimental at the present time, and the danger connected with it lies in the fact that the extent to which the tissues are burnt cannot be gauged, so that considerable destruction may occur beyond what is anticipated.

It has apparently been used with success in some cases, but it should only be employed with the greatest caution.

**TREATMENT OF SYMPTOMS.**—The treatment of cases of inoperable carcinoma of the rectum often resolves itself into treatment of symptoms as they arise.

*Relief of Pain.*—It is a mistake to resort to the use of morphia immediately a patient with inoperable carcinoma of the rectum complains of pain. Attempts should first be made to relieve the pain by simpler methods. Much may be done by the use of antiseptics to diminish the inflammatory reaction, and by hot baths, fomentations, etc., to relieve pain. Aspirin in 10-grain doses when the pain is troublesome, or phenacetin, or combinations of both, are of considerable value. Aspirin or phenacetin enemata are also useful in doses of about 15 to 20 grains. Iodoform suppositories often give a certain amount of relief, as also do suppositories made up with anæsthesin or chloretone. When these means fail to relieve the pain, suppositories of morphia ( $\frac{1}{4}$  grain) and extract of belladonna ( $\frac{1}{2}$  grain), given two or three times a day at the times when the pain is usually found to occur, will give great relief. Later, hypodermic injections of morphia, heroin, or omnopon, should be administered as often as may be necessary to keep the patient comfortable. It is a good plan to ring the changes on these different derivatives of morphia rather than to stick to any one of them.

*To diminish the Discharge.*—If a colotomy has been performed, the lower bowel should be washed out from the colotomy opening daily with some weak antiseptic solution, such as lysol (1 drachm to the pint), sanitas (1 drachm to the pint), 5 per cent. formalin solution, etc. Strong solutions of hazeline are also useful. Solutions of liquor ferri perchlor., in strengths up to  $\frac{1}{2}$  ounce to the pint, often do a great deal to stop and diminish the discharge,

but weak solutions should first be tried. They should not, however, be given oftener than twice a week. Solutions of tanogen (which substance can be made to go into solution by adding alcohol) is very useful in diminishing the discharge. Any of these solutions should be administered either by the rectum or through the colotomy opening. Suppositories of morphia and belladonna are also exceedingly useful in drying up the discharge and diminishing the irritability of the rectum.

*Use of Drugs to diminish the Rate of Growth.*—Innumerable attempts have been made to find some drug the administration of which will cause diminution in size or disappearance of the growth, and new drugs for which this is claimed are constantly being brought forward. But it cannot be said at the present time that there is any known drug which can be relied upon to arrest the progress of a malignant growth. Isolated cases are met with from time to time in which great improvement, or even complete cure, of an apparently hopeless case of malignant disease has occurred after the use of some particular drug. Unfortunately these good results are often not seen in other apparently similar cases, and we do not know what are the factors which produce a cure in one case while no benefit results in another. The drug which has the greatest reputation as a means of curing cancer is arsenic in some form or other. It is the basis of nearly all the quack cancer cures, and there can be no doubt that it has a marked effect upon carcinomatous growths, though what exactly its effect is, and why this should appear in one case and not in another, we do not at present know. All we can say is that if arsenic in full doses is administered for some considerable time to patients suffering from cancer, diminution of the growth undoubtedly occurs in some of these cases, and in a few—unhappily a very few—the growth has been known to disappear. To be of any use, however, this metal must be administered in large doses and for a long time; and unfortunately arsenic administered in this manner produces very unpleasant symptoms, and a great many patients are so intolerant of the drug that it is impossible to continue its use. It is, however, well worth trying, and if it can be tolerated its use should be continued for some months. It may be given either in the form of liquor arsenicalis, 10 minims three times a day, or in the form of soamin hypodermically, or in the form of salvarsan injected into the veins at periodic intervals. Which form is used will depend upon how

the patient tolerates the drug. Perhaps the most convenient and best method of administration is liquor arsenicalis by the mouth; but this method is very liable to give rise to severe pain in the stomach.

The following two cases, which have occurred in my practice during the last two years, are examples of what may sometimes be seen in the use of arsenic in inoperable cases of cancer of the rectum.

*Case.*—I was asked by a doctor to see an elderly gentleman, aged about sixty-two, living in the suburbs of London, who had for some months been suffering from symptoms pointing to carcinoma of the rectum. On examination I found at the upper end of the rectum a carcinomatous growth which could both be felt and seen with the sigmoidoscope. There was no reasonable doubt as to its nature, and, owing to the patient's age, and the fact that he was very stout, any attempt to remove it was out of the question. I advised that he should be put on full doses of arsenic in the hope of diminishing the growth, and this was done, the patient taking 10 minims of the liquor arsenicalis, B.P., three times daily. He continued to take the drug without interruption for nine months. During that time he suffered a good deal of inconvenience at times from abdominal pain and other symptoms of slight arsenical poisoning. His bowel symptoms, however, got better, and when he came to see me fourteen months after I first saw him he was in perfect health, and there were no symptoms of any bowel trouble, while on examination I was unable to detect any signs of the original growth.

*Case.*—About a year and four months ago I was asked to see a lady, aged seventy-eight, on account of a carcinomatous growth in the rectum. On examination I found a small movable growth situated very high up in the bowel. It was ulcerating, and there was a good deal of discharge and blood. Operation was not advisable, for the patient had not the physique to stand an operation, and was too old. It was decided to try the effect of arsenic. The patient was given an injection of salvarsan on two occasions with a month's interval, and afterwards treated with small doses, 5 to 10 minims, of the liquor arsenicalis twice a day. This was

taken with interruptions, due to the fact that the arsenic occasionally caused troublesome symptoms, up to the present time. It is now sixteen months since I first saw the patient. The growth is now no larger, and appears to be even somewhat smaller than when it was first seen, and the patient is quite free from any bowel symptoms.

These are admittedly isolated cases, for I have had cases in which arsenic did no good, but they seem to me sufficient to justify us in using this drug in inoperable cases where it can be tolerated.

*Potassium Iodide* was at one time much used for diminishing the rapidity of the growth. But I must confess that although I have seen it used I have not thought that it had any such effect, while it certainly caused a great deal of depression and other unpleasant symptoms.

*The Use of Colloid Metals.*—During the last two years colloid preparations of copper and selenium have been much advocated in the treatment of cancer, and several papers have been written on this subject. These colloids, as they are called, consist of extremely minute particles of the metal in suspension in water. There are two different types of preparation—colloids and collosols. The former are prepared by an electrical process, while the latter are chemically prepared. The chemically prepared collosols are said to be much more active than the electrical colloids. Both these preparations can now be obtained from the leading chemists in London as well as from the agents in Paris. These colloids are not toxic, and can be injected either under the skin or into the muscles. The injections are painless, and there does not appear to be any serious reaction. The injections are usually given every four days at first, and afterwards at longer and longer intervals. I have made use of these preparations in several cases during the last two years, but cannot say that I have been satisfied with the results. They certainly did not appear to do any harm or to cause unpleasant symptoms, and I thought that they diminished secondary septic complications, but I was not able to satisfy myself that they had any direct action on the growth. They are, however, harmless, and may certainly be used without fear of increasing the patient's discomfort.

**TREATMENT WITH RADIUM.**—Every patient suffering from cancer which cannot be dealt with by operation now expects to be



cured with radium, and this hope has been encouraged recently by optimistic articles in the daily papers. Radium has been lauded as a means of curing cancer, and the public have been led to believe that treatment by the rays of radium is capable of curing cancer. Unfortunately the facts do not bear out this belief, and it is therefore necessary to know what the real facts are with regard to the use of this substance. I shall confine my remarks on the subject to the treatment of cancer of the anus and rectum, as the treatment of cancer in other parts of the body does not affect this book.

So far no single instance of an undoubted cure of rectal cancer by the use of radium has been brought before the medical profession. In a few cases, however, treatment by radium has resulted in a marked and considerable improvement in the local condition. Treatment by radium has also, in a few instances, apparently rendered growths previously inoperable small enough to be dealt with satisfactorily by operation. The action of radium is local, and the effect of the rays does not extend for any considerable distance, so that, although that portion of the growth which is palpable may be arrested or destroyed, it often happens that the outlying parts are not affected.

Unfortunately, however, it appears from clinical experience that the more distant parts of the growth which are not acted upon by the radium to a sufficient extent to be destroyed are actually stimulated into increased growth. As the result of my own personal experience of the action of radium in rectal growths during several years, I have been forced to the conclusion that the effect of radium upon large growths, or growths situated high up in the rectum, is often to cause rapid dissemination of the growth, and therefore to hasten the fatal issue. I think it is wiser not to use radium in cases where the growth is high up and difficult to get at with the rays, or where there is reason to believe that the entire growth cannot be acted upon by the rays to the point of destruction.

When the growth is small and low down, and it is possible for a really large dose of radium to be applied to the whole of it, the use of radium is well worth a trial. Such cases are, however, usually operable, and in no case does our present knowledge of the results of radium justify us in using radium in cases which are operable.

If radium is to be used, nothing short of very large doses is

worth considering, and the treatment must therefore be carried out by someone who has a large supply of this substance. The radium is screened with lead to cut off the A rays, and applied as near to the tissues as possible. The first dose should be at least 100 milligramme hours, and it should be repeated in fourteen days, and again in a month. No pain is experienced from the application, but in about ten days to a fortnight a decided reaction occurs; the discharge is increased, and there is pain and may be hæmorrhage. After this in favourable cases the growth diminishes in size and is replaced by fibrous tissue. The patient should keep quiet during the reactionary stage, or hæmorrhage may occur.

When it can be applied, another and better method of using radium is to bury a tube of radium in a silver case of suitable thickness in the substance of the tumour. This requires an operation, but the results are better than in cases where the radium is merely applied to the surface.

## CHAPTER XXIII

### *FOREIGN BODIES IN THE RECTUM*

THE foreign bodies which have at different times been found in the rectum are both numerous and varied. The reason for their introduction is in many cases obscure, but in others there has been some definite object in view, perhaps the most common being the relief of pruritus. It is a well-known fact that in some cases immediate relief from itching follows the introduction of a bougie or a finger into the rectum, and doubtless this accounts for the introduction of the foreign bodies in some cases. In some instances it has been the act of a lunatic, or has been done through sexual perversion. One of the most curious cases is that related by Hevin. Some students introduced the frozen tail of a pig into the anus of a French prostitute. The bristles were cut short, and having prepared the passage with oil, they introduced the tail with great force into the rectum, allowing a portion to protrude. Great pain and violent symptoms followed. Efforts to remove the tail proved unsuccessful; the arrangement of the bristles which allowed entrance prevented removal. On the sixth day, in great agony, the woman applied to Marchettis, who succeeded in removing it by passing a hollow reed into the rectum outside the bristles, and then removing both reed and tail together. The patient recovered.

Morand, in his memoirs of the Academy of Surgery in Paris, speaks of a monk who, to cure a violent colic, introduced into his fundament a bottle of "l'eau de la reine de Hongrie," with a small opening in its mouth, by which the contents, drop by drop, could enter the intestine. The bottle could not subsequently be removed, and caused great distress. It was at last necessary to secure a boy with a small hand to extract the bottle.

Studsgaard mentions that in the Pathological Collection at Copenhagen there is a smooth stone, 17 centimetres long, weighing 900 grammes, which a peasant had introduced into his rectum to relieve prolapse.

In Nelson's "Northern Lancet" (1852), there is the record of the case of a man at stool who slipped on a cow's horn, which entered the rectum and lodged beyond the sphincter. It was removed with great difficulty.

A convict at Brest put up his rectum a box of tools. Serious symptoms occurred, and he died seven days later. After death the box was discovered in the transverse colon. It was a cylindrical box of sheet-iron covered with skin. It was 6 inches long and 5 inches broad, and weighed 22 ounces. It contained a piece of gun-barrel, a screwdriver, a saw for cutting wood and another for metal, a boring tool, a file, a half-franc piece and four one-franc pieces, some thread, and a piece of tallow. It was found that these tool-boxes were in common use among the convicts, and were always concealed in the rectum, but the patient in this case had in his excitement put it in wrong end forward, with the result that it could not be expelled.

Hockenull extracted 402 stones from the rectum of a boy of seven. Landerer speaks of a curious case in which the absorptive power of the rectum was utilized in the murder of a boy of fifteen. In order to come into the possession of a large inheritance a woman poisoned the boy by placing the ends of phosphorus matches in his rectum, with the result that death followed in a few hours. The woman was caught and committed suicide.

**Birth of a Child by the Rectum.**—Payne records the case of a woman of thirty-three in labour thirty-six hours, in whom there was a congenital absence of the vaginal orifice. The child's head was presenting at the anus, and the child was delivered with forceps by this channel without difficulty.

Louis, the celebrated French surgeon, described the case of a young lady who had no vaginal opening, and regularly menstruated by the rectum. She allowed her lover to have connection with her in the only possible manner, which sufficed for impregnation, and at term she bore by the rectum a well-formed child.

Vallisneri reported a case of a woman with two uteri, one of which opened into the vagina and the other into the rectum. She bore a child by the rectal uterus. Hunter reported a similar case.

Harrison has recorded a case in which a foetus was delivered by the anus after rupture of the uterus. The uterus was cartilaginous and adherent. The woman recovered. Morisani has reported the case of a woman who was delivered by the rectum of an extra-uterine pregnancy.

## INDEX

- ABDOMINO-PERINEAL excision, 313  
     after-treatment of, 326  
     preparation of patient for, 313  
     special points in performing, 324  
     with colotomy, 322
- Abscess, 159  
     after operation for piles, 99  
     causes of, 160  
     ischio-rectal, 161  
     perirectal, 163  
     rare forms of, 164  
     subcutaneous, 160  
     submucous, 162
- Adeno-carcinoma, 283
- Adenomata, 269  
     malignant tendency of, 271  
     microscopic appearances of, 271  
     multiple, 270
- After-treatment, 33  
     of abdomino-perineal excision, 326  
     of ligature operation, 81  
     of operations for fistula, 215
- Allingham: bistoury, 200  
     statistics of fistula, 181, 182
- Amputation of prolapse, 123
- Anæsthesia in abdomino-perineal excision, 49  
     in lesser rectal operations, 44  
     rectal cry under, 45
- Antiseptic technique, 27
- Anus, eczema of, 152  
     herpes of, 152  
     imperforate, 5  
     patulous, 229  
     syphilis of, 157  
     ulceration of, 153
- Aperient after operation, 36
- Arrested development of rectum, 5
- Arsenic in treatment of cancer, 337
- Atresia ani, 257
- Atropine before operation, 47
- Baldwin-Aslett, 294
- Ball, Sir Chas.: formation of fissure, 169  
     malformation of rectum, 9  
     operation for pruritus, 247
- Bilharzia hæmatobia* in fæces, 26  
     multiple adenomata caused by, 274
- Bismuth solution for sterilizing fistulous track, 209
- Bodenhamer: congenital malformations, 9
- Bridging of fistula wound, 219
- Bruce, Ironside: cataphoresis, 141
- Cancer of rectum, 276  
     causes of, 284  
     checking of discharge, 336  
     choice of operation for, 298  
     colotomy in, 329  
     curettage in, 334  
     diagnosis of, 277  
     early symptoms of, 278  
     indications for operation, 290  
     intramural spread, 287  
     operation of abdomino-perineal excision, 313  
         with colotomy, 322  
         by complete excision, 303  
         by local excision, 300  
     palliative treatment, 328  
     pathology of, 283  
     relief of pain in, 336  
     statistics of, 281, 282  
     use of colloid metals, 339  
         drugs, 337  
         radium, 339
- Carcinoma. See under Cancer

- Carbolic acid injections for piles, 67  
     dangers of, 68  
     method, 70  
     solutions for, 69  
     syringe for, 70  
 Cataphoresis in treatment of proctitis, 141  
 Chancres of anus, 157  
 Cheate, Lenthal: spread of rectal cancer, 289  
 Chetwood's operation, 231  
 Cirrhosis of liver complicating piles, 65  
 Coccyx, disarticulation of, 320  
     fistula in connection with, 213  
 Cole, P.: intramural spread of cancer, 289  
 Collier, Stansfield: malformations of anus, 5  
 Colloid metals in treatment of cancer, 339  
 Colopexy, 118  
 Condylomata of anus, 157  
 Confinement to bed, 38  
     after operations for piles, 88  
 Constipation, a cause of piles, 51  
 Cripps, Harrison: site of rectal cancer, 282  
     statistics of operations for cancer, 296  
 Curettage in treatment of cancer, 334  
  
 Dent, Clinton: recurrence after twenty years, 297  
 Diagnosis, value of symptoms in, 12  
     of local examination in, 10  
 Diarrhoea, cause of incontinence, 221  
     symptom of cancer, 278  
 Diathermy in treatment of cancer, 335  
 Diet after operations upon rectum, 38  
     Von Noorden's, 40  
 Dilatation of stricture, 263  
     of high-lying stricture, 264  
 Dilators, author's, 104  
     use of, after operations, 37  
 Director, fistula, 199  
 Divulsion of sphincter, 100  
     anæsthesia for, 105  
     dilator for, 104  
     method, 102  
 Dressing-probe for fistula, 216  
 Drugs, use in malignant disease, 337  
 Duval: operation for prolapse, 126  
  
 Eczema of anus, 152  
     treatment of, 153  
 Edwards, Swinford: fistulous tracks, 206  
     sigmoidopexy, 125  
 Epilepsy, a cause of rectal neuralgia, 254  
 Epithelioma, 283  
 Examination of the fæces, 25  
     of the patient:  
         bimanual, 24  
         illumination for, 17  
         importance of local, 10  
         sigmoidoscopic, 22  
         under anæsthetic, 24  
         use of specula in, 19  
  
 Fæces, examination of, 25  
 Fibrolysin, in treatment of stricture, 265  
 Fibromata, 273  
 Fissure, 168  
     after-treatment, 178  
     causes of, 170  
     delayed healing of, 179  
     examination of, 174  
     excision of, 179  
     occurring after operation for piles, 99  
     reflex symptoms, 172  
     treatment, non-operative, 175  
         operative, 177  
 Fistula, 180  
     after-treatment, 215  
     causes of, 181, 183  
     complications in operating for, 213  
     connected with bone-disease, 213  
         coccyx, 187, 213  
     horseshoe, 184  
     non-healing of, 218  
     operations for, 196  
         complicated, 202  
         with lateral internal opening, 206  
         with two internal openings, 209  
         with suture of wound, 209  
     recto-urethral, 211  
     recto-vaginal, 212  
     recto-vesical, 212  
     spontaneous healing of, 190  
     symptoms of, 188  
     treatment by silver nitrate injections, 194  
         bismuth paste injections, 195

- Fistula, tubercular, 182, 192  
 with multiple openings, 184
- Follicular ulceration, 150
- Foreign bodies, 342  
 a cause of proctitis, 130
- Glycosuria, a cause of pruritus, 239
- Godlee, Rickman: fistula tracks, 186
- Gonorrhœal proctitis, 157
- Goodsall: fissure, 170  
 fistula, 184
- Greiwarik: rupture of walls of prolapse, 112
- Hæmorrhage after operations for  
 fistula, 213  
 for piles, 91  
 plugging the rectum for, 91
- Hæmorrhagic proctitis, 135
- Hæmorrhoids, external, 52  
 operative treatment, 56  
 palliative treatment, 55  
 thrombotic, 53
- internal, 57  
 causes of, 51, 59  
 degenerative changes in, 62  
 operations for, 74  
 author's excision, 75  
 clamp and cautery, 82  
 complications after, 89  
 Earle's excision, 76  
 Laplace's excision, 76  
 ligature, 77  
 Whitehead's, 84
- pathology of, 62
- polypus growing from, 63
- recurrence after operation, 95
- treatment by divulsion of sphincters, 67  
 by electricity, 72  
 injections of carbolic acid, 67  
 of prolapsed and strangulated, 73
- Handley, Sampson: spread of rectal cancer, 289, 299  
 prevention of shock after abdomino-perineal operation, 324
- Hartmann: operation for cancer, 303
- Herpes of anus, 152
- Hockeneggs: statistics on cancer, 297
- Horseshoe fistula, 184  
 operation for, 204
- Incontinence, rectal, causes of, 220  
 occurring after operations, 224, 98  
 operations for, 226  
 partial, 221
- Innocent tumours, 269
- Irrigation of the rectum, for proctitis, 131, 140
- Ischio-rectal abscess, 161
- Jackson, Ralph: rare form of abscess, 165
- Lane, Arbuthnot: infusion of saline during operation, 314
- Ligature operation, for hæmorrhoids, 77  
 for prolapse, 117
- Lipomata, 274
- Lupoid tubercular disease of the anus, 155
- Malformations, congenital, 1  
 causes of, 4  
 frequency of, 1  
 prognosis in, 9  
 treatment of, 7
- Malignant disease. See under Cancer
- Matthews: pruritus, 237
- Metastatic deposits contra-indication to operation, 293  
 infection after operation for piles, 92
- Miles, Ernest: spread of rectal cancer, 289  
 statistics of cancer operations, 297
- Morgan: malformations, 5
- Morphia before operation, 47
- Morris, Malcolm: pruritus, 237
- Moschowitz: cause of prolapse, 110  
 operation for prolapse, 126
- Mucus in stools a symptom of cancer, 278
- Murray, Dwight: cause of pruritus, 240  
 treatment of pruritus, 241
- Nævi of the rectum, 273
- Operation, after-treatment of, 33  
 complications after, 38, 90  
 preparation of patient for, 30
- Oxyuris vermicularis*, cause of rectal tumour, 274
- Pain after operations for piles, 89

- Pain, relief of, after operations, 37  
 Papillomata, 272  
 Paraffin-wax injections, 116  
 Parasites, a cause of adenomata, 274  
 Pennington, Rawson: bismuth-sub-  
 nitrate for fistula, 195  
 Perirectal abscess, 163  
 Plastic operation for restoring anus,  
 232  
 Plugging of rectum for hæmorrhage,  
 91  
 Position for examination, 16  
 for stretching the sphincter, 102  
 Potassium iodide, use in cancer,  
 339  
 Preparation of patient for operation,  
 30  
 for **A** abdomino-perineal excision,  
 313  
 Proctitis, atrophic, 134  
 causing rectal neuralgia, 252  
 cataphoresis in treatment of,  
 141  
 chronic, 132, 140  
 gonorrhœal, 157  
 hæmorrhagic, 135  
 treatment of, 139  
 hypertrophic, 134  
 simple catarrhal, 129  
 treatment of, 131  
 ulcerative, 147  
 Proctopexy, 118  
 Proctotomy, internal, 266  
 complete, 267  
 Prolapse, 107  
 causes of, 107, 109  
 in children, 108, 114  
 operations for, 117  
 author's, 119  
 ligature, 117  
 linear cauterization, 117  
 sigmoidopexy, 124  
 to close Douglas's pouch,  
 126  
 pathology of, 110  
 reduction of, 113  
 treatment of, 115  
 Pruritus ani, 236  
 associated with fissure, 172,  
 173  
 Ball's operation for, 247  
 causes of, 237  
 reflex causes, 240  
 treatment of, 243  
 streptococcal infection in, 240  
 use of X rays in, 249  
 Pyosalpinx, opening at side of anus,  
 165  
 Quénu: operation for prolapse, 126  
 for cancer, 303  
 Rectal crises, symptom of tabes,  
 254  
 Rectal neuralgia or hysteria, 250  
 causes of, 252  
 reflex causes of, 254  
 Recurrence after operations for  
 piles, 95  
 Retention of urine, 38  
 after operation for fistula,  
 214  
 for piles, 90  
 Ruffer: rectal tumour, 274  
 Saline solution, infusion during  
 operation, 314  
 Sarcoma, 294  
 Scopolamine before operation, 47  
 Sigmoiditis a cause of rectal neu-  
 ralgia, 252  
 Sigmoidopexy, 124  
 Sigmoidoscope, 22  
 crocodile forceps for, 23  
 Sonnenschein: operation for pro-  
 lapse, 126  
 Specula, use of, 19  
 Speculum, author's, 20  
 Czerny's anal, 21  
 Hirschmann's rectal, 21  
 St. Mark's Hospital, 20  
 Sphincter, absence of, 231  
 divulsion of, 100  
 Spinal disease, a cause of rectal  
 neuralgia, 254  
 Spontaneous healing of fistula, 190  
 Stricture (non-malignant), 257  
 after operation for piles, 94  
 congenital, 257  
 diagnosis of, 261  
 dysentery, supposed cause of,  
 260  
 fibrous, 258  
 non-operative treatment of,  
 263  
 operations for, 266  
 pathology of, 260  
 perforation resulting from, 261  
 spasmodic, 257  
 syphilitic, 259  
 ulceration associated with, 151  
 Subcutaneous abscess, 160  
 Submucous abscess, 162  
 tracks, 206  
 Symptoms, value of, in diagnosis, 12  
 Syphilis of rectum and anus, 157  
 secondary, 157



- Syphilis, tertiary, 158  
 Syphilitic stricture, 259
- Tabes dorsalis, 254
- Teale, Pridgin: divulsion of sphincter, 100
- Tubercular ulceration, 153  
 fistula, 182, 192
- Tuttle: classification of stricture, 257  
 site of rectal cancer, 281  
 statistics of cancer operations, 297  
 Whitehead's operation, 87
- Ulceration of rectum associated with stricture, 151  
 classification of types, 147  
 follicular, 151  
 in chronic dysentery, 150  
 infective, 149
- Ulceration, tubercular, 153  
 treatment of, 155
- Ureters, injury to, 325
- Urethral fistula, 187
- Wallis, Sir Frederick: cataphoresis, 141
- Watson, Gordon: rare case of cancer, 284
- Webb, Curtis: solution for cataphoresis, 145
- Whitehead's operation for piles, 85  
 incontinence after, 98, 229  
 recurrence after, 225, 96  
 stricture following, 94
- Wood-Jones: malformation, 8
- X rays in treatment of pruritus, 249
- Zinc sulphate in cataphoresis, 143

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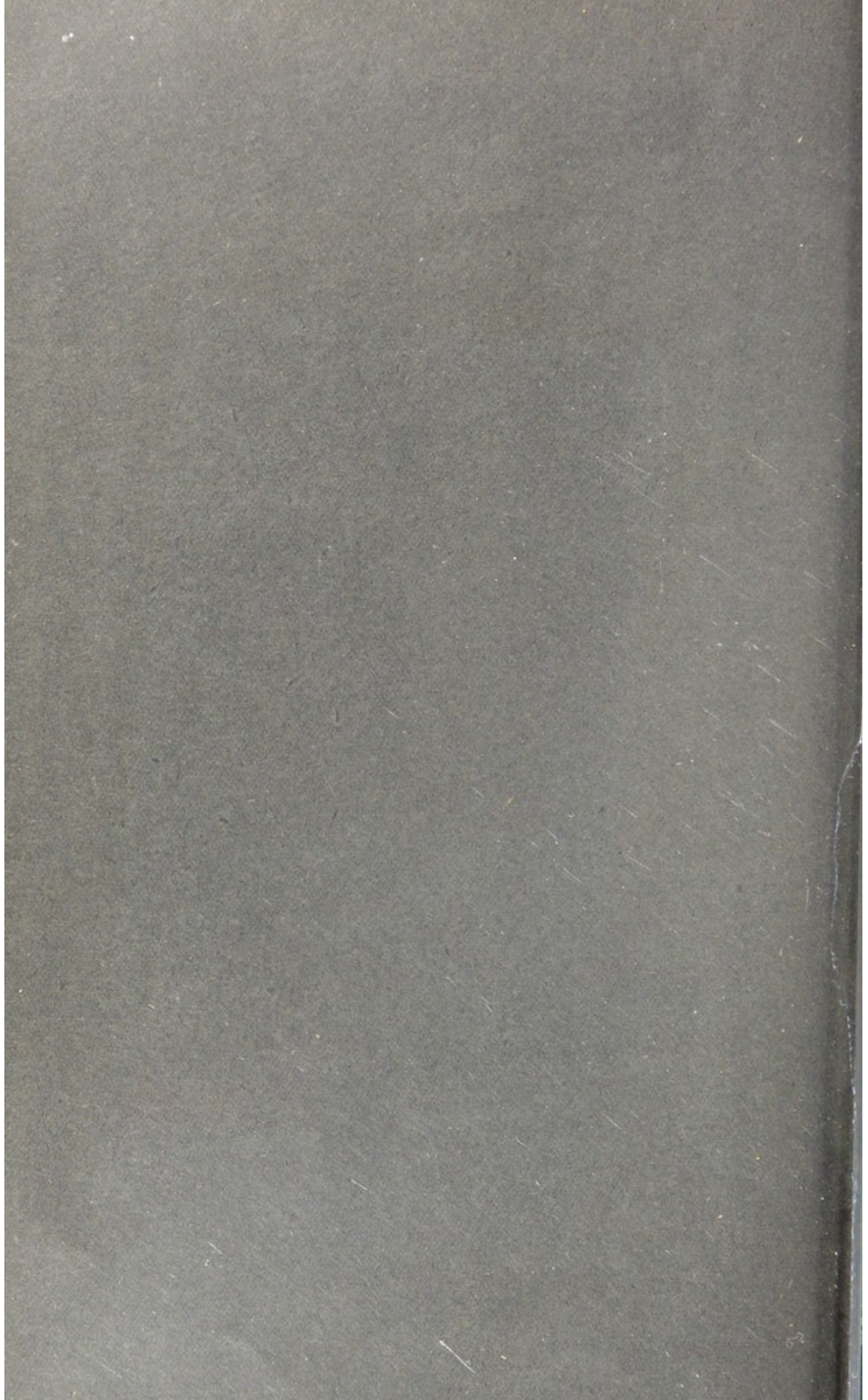
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