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REPORT

UPON

THE TREATMENT OF CHRONIC COLITIS

BY

D'ARCY POWER, M. A., M. B. Oxon. F. R. C. S. Eng.

Surgeon to and Lecturer on Surgery at St. Bartholomew's Hospital
London.

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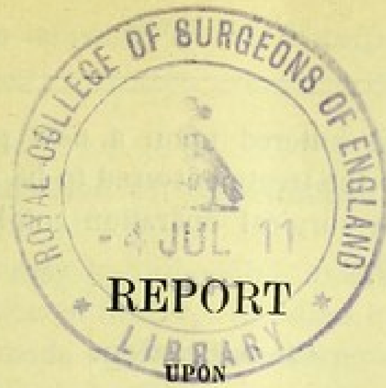

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Gentlemen,

The object of a report such as I have the honour of submitting to you as members of the International Society of Surgery seems to me to be the summing up of the present state of surgical knowledge upon a given subject in the country where the writer lives, rounded off by his own experience and by the conclusions at which he has himself arrived. It is necessary, therefore, to examine afresh the valuable contributions which lie buried in the files of the medical journals and in the transactions of our learned Societies. The results should be harmonised, if possible, and the reporter should recall to mind the cases which have been under his own care pointing out what he has learned from them. It is not difficult to attain these ends in the case of chronic colitis

because the subject has entered upon a new phase within the last fifteen years and, where the treatment used to be passive and by drugs, it is now active and by surgical operation combined with the latest results of vaccinotherapy.

Classification.

The classification differs according to the branch of the profession under which it is considered. The surgeon is content to think of chronic colitis causally. It is a condition in which there is a gross and visible cause or it is one in which there is no visible cause The physician requires a more comprehensive classification, and the following, in spite of some cross-division, seems to be generally accepted in the United Kingdom of Great Britain and Ireland at the present time. It was put forward by Dr Herbert P. Hawkins in the course of a debate upon the treatment of chronic colitis held at the Medical Society of London on March 14th, 1910 (The Medical Society's Transactions, vol. XXXIII, 1910, p. 212).

Colitis.

1. Protozoal.
2. Toxic.
3. Bacterial.
    - A. Catarrhal.
    - B. Necrotic.
        - i) Diphtheritic or croupous.
        - ii) Secondary or associated.
        - iii) Ulcerative.
            - a) British dysentery (B. Shiga or Flexner).
            - b) Paracolon (B. Coli).
            - c) Paratyphoid.
            - d) Pneumococcal.
            - e) Streptococcal.
            - f) Hæmorrhagic.
            - g) Recurrent.

A consideration of this table shows that, when the cause is not obvious, the surgeon is only called upon to treat cases of ulcerative colitis in some of its many forms.

Method of examination.

It may be easy or it may be impossible to discover the exact cause of a chronic inflammation of the large intestine, but in every case a diligent search should be made by every means known to modern medical science for upon the discovery of the cause will in large measure depend the treatment.

The examination, therefore, must be methodical and thorough. It is rarely possible to arrive at a correct diagnosis by such a simple examination as is possible in the out-patient room of a hospital or in the consulting room of a surgeon. It is better that the patient should be put to bed for a day or two before the examination is made and should be in the charge of a competent nurse. The bowels must be emptied and cleansed by simple enemata and subsequent irrigation with unirritating lotions. When this has been done thoroughly, digital examination followed by the careful use of a sigmoidoscope will often reveal the cause when the inflammation is limited to the rectum or to the lower part of the sigmoid flexure. Abdominal palpation may give a clue when the cause is situated in the colon at a greater distance from the anus.

Causes.

Mr. J. P. Lockhart Mummery (1) gave an account of 36 cases of colitis which had come under his observation for surgical treatment. In six cases he was unable to find a cause. In seven « the colitis was due to a tumour within the bowel. In each of these cases there was considerable doubt about the diagnosis previously to the discovery of the tumour, and several of the patients had already been under treatment for colitis ». « In looking through my cases of cancer of the rectum, he says, I find that there are several in which the symptoms were those of colitis rather than of cancer, but I have not included them because there was at no time any doubt about the real diagnosis as a clinical examination revealed the true state of affairs. » Care is needed to arrive at a correct diagnosis even in those cases where a gross lesion is found on examination, for Mr. Mummery says of a case : « The patient was a gentleman, aged 55, who had been passing large quantities of blood and mucus for many months in his stools. An examination was made with the sigmoidoscope which revealed the presence of numerous small follicular ulcers scattered about on the mucous membrane of the rectum and sig-

moid flexure. There seemed to be sufficient ulceration present to account for the symptoms, and he was treated by irrigation and injections upon this assumption. After a few weeks, however, although the ulcers had healed he was still passing blood and mucus in considerable quantities. He was again examined with the sigmoidoscope, and on this occasion a cancerous ulcer was detected very high up in the sigmoid flexure. This was subsequently excised by Mr. Mayo Robson ». Mr. Mummery thinks that « it is impossible from the symptoms alone to distinguish those cases of colitis which are due to cancer from other forms. The presence of blood in the stools is of no value, for in two of the seven cases there was no blood and in another case of inoperable carcinoma of the sigmoid flexure there was only a very small amount of blood on two occasions. Definite mucous casts may be passed in cases of cancer, and the age of the patient does not help much, for in one case the patient was only 42 years of age and only two of the others were over 55 years, while the average for all the cases is 43 years. The time during which the symptoms have existed will not exclude cancer as in one case the symptoms had existed for a year and a half, and in another case for five years ».

The irritation of a polypus sometimes produces the symptoms of colitis, but its presence is generally revealed by local examination. It should be borne in mind however that polypi may be situated at any point in the large intestine although, so far as my own experience goes, those which are unusually high up in the bowel have given rise to no symptoms until they had produced an intussusception or have been discovered in the ordinary routine of a post-mortem examination.

Ulceration of the large intestine is either local or is part of a constitutional condition. The local forms are sometimes due to such definite causes as actinomycosis or glanders, more rarely still to some strain of pneumococcus, occasionally to primary syphilis or to gonorrhoeal infection. I have seen it in a few cases of pericolitis where an abscess subsequently formed. It seemed in some of these cases as if the bowel had been perforated by some foreign body passing from within and lodging in one of the appendices epiploicae (14).

These are rare cases, and as there is a definite and ascertainable local cause in the majority of instances, they are neither difficult to diagnose nor to treat.

Ulcerative colitis.

There remains a most intractable form to which the general name of ulcerative colitis is given. It includes several groups as will be seen by reference to Dr. Hawkins' system of classification and it is infective in origin. The large intestine may be ulcerated locally or the inflammation may spread throughout its entire length. The lesion is very chronic, very destructive and usually very extensive. It rarely leads to perforation of the bowel and is hardly ever associated with abscess of the liver. It kills by toxæmia. It occurs equally in men and women, and most often, as it is seen in private practice, the cases are sporadic. It requires for its investigation all the resources of modern bacteriology and even then the pathologist often leaves us without a clue as to its cause. The bacteriological aspects of colitis have been recently investigated by Dr. John C. Matthews (15) in the Department of therapeutic inoculation at St. Mary's Hospital, London.

Frequency.

Sir William Allchin, M. D. (2), applied in 1909 to the large general hospitals for information as to the frequency with which it occurred, and he tabulated the results as follows : « During the twenty-five and a half years from 1883 to the midsummer of 1909, 60 cases were admitted into St. Thomas' Hospital ; during the 20 years previous to 1908 there were taken in at Guy's Hospital 55 cases. » In connection with this it may be remembered that Dr. Hale White is on the staff of this hospital, and his name is closely connected with the disease on account of the good work he has done upon it. It is probable therefore that a large number of cases would be sent to Guy's Hospital to be under his care. From 1884 to 1908, 42 cases were admitted to the Westminster Hospital. The incidence in successive years shows that they were pretty evenly distributed at about the average rate of two or three per annum at each institution : on several occasions the numbers were somewhat larger at all three hospitals, but in other years a rise at one place was accompanied by a fall at the other two, so that there was nothing indicative of epidemic occurrence. It should be remembered that epidemics of dysentery have been unknown in Great Britain for more than fifty years, excepting such as have occurred in asylums, and a small outbreak in 1901 among the troops at Aldershot, which was supposed to have been

introduced from South Africa. At other of the London hospitals considerably fewer cases were admitted ; thus, during the twenty-five years previous to the present only 20 cases are recorded at St. Mary's, all of which were distributed over eleven years of that period ; whilst in the records of the London Hospital during the past fifteen years there were only 22 cases in which ulcerative colitis was found post mortem. « Of the total number of 177 cases of all ages reported from the three hospitals mentioned 89 were males and 88 females. » Sir William Allchin adds that : « The great preponderance of *mucous* colitis in the female sex is in striking contrast. »

Historical.

The conditions of lowered vitality which attend ulcerative colitis were known before the disease itself was recognised. Dr. Bright (3), in one of his early and classical papers on albuminuria, records that Margaret Field, aged 40, died with anasarca, comatose. The kidneys were hard, rough and lobulated; the liver was somewhat fatty, and the large intestines were ulcerated throughout. The colon was also ulcerated in five other cases in this series of one hundred patients, and with a single exception, all these cases occurred in women. Dr. Bright also took special notice of the association of intestinal ulceration with renal disease for he says (p. 399) : « The intestines have in several instances, though not very generally, shown naked eye signs of disease. In about nineteen cases the small intestines have been irritated in some portion of their course ; in a few of these, ulceration has taken place, and in seven cases the colon or cæcum has been diseased ; but several of these occurred in conjunction with tubercles in the lungs and have been, therefore, scarcely ascribable to the peculiar circumstances of the disease. »

Morbid anatomy.

Mr. Lockhart Mummery (1) confirms these observations of Dr. Bright upon the condition of the mucous membrane in cases of ulcerative colitis. He says : « In my series of cases a definite inflammatory condition of the mucosa was found in twenty-four out of the total of thirty-six cases or in sixty-six per cent. The most usual appearance was for the mucous membrane te be injected and bright red; the normal mucous membrane is of a pale pink colour. The surface was dull having lost its normal glistening appearance and often granular. This granular

condition closely resembles that seen in granular pharyngitis. In many of the cases the mucous membrane looked as if its surface had been rubbed off with sandpaper. It bled readily if touched with an instrument and bleeding spots could often be seen apart from this. Scattered about on the mucous membrane there were irregular patches of yellowish-white adherent mucus which often gave a very characteristic appearance to the bowel. Occasionally a very extensive area of bowel was affected and in some cases the whole of the visible portion of the sigmoid flexure was involved. The inflammation was always most marked at the flexure and on the valves of Houston. In addition to the granular condition of the mucous membrane there was definite ulceration in seven of the cases. The ulcers were irregular in outline, quite shallow and with a granular base. These ulcers were often very numerous and sometimes extended throughout the entire sigmoid flexure and rectum. The degree of ulceration varies considerably, in some cases there are a few shallow ulcers at irregular intervals situated chiefly in the rectum or in the lower portion of the sigmoid flexure, the normal mucosa standing out in contrast to the background of ulceration. Even in such cases, however, the ulceration may be so shallow as only to involve the superficial layers of the mucosa and it is important to distinguish between this variety and that in which the ulcers are numerous and deep. This latter condition is much the more serious; the ridges of healthy mucous membrane between the ulcerated areas here appear like polypi so prominently do they stand up from the surrounding ulcerated areas. » I am able to show you an excellent example of this more serious condition of deep and extensive ulceration. It was taken from the woman whose case is narrated as case 1 (page 12 of this report). The block (plate I) is made from a three-colour photograph of the fresh specimen taken at the post-mortem examination on the day following the patient's death. It shows that the large intestine was extensively ulcerated. Some of the tags of mucous membrane had coalesced to form tunnels or arches of sufficient strength to support the weight of glass rods placed beneath them.

Symptoms.

The symptoms do not always correspond with the severity of the local lesion even when the inflammation has lasted for some length of time. The patients may thus seem only to be restless or apathetic, but severe pain is often a very marked feature. They are anæmic, but do

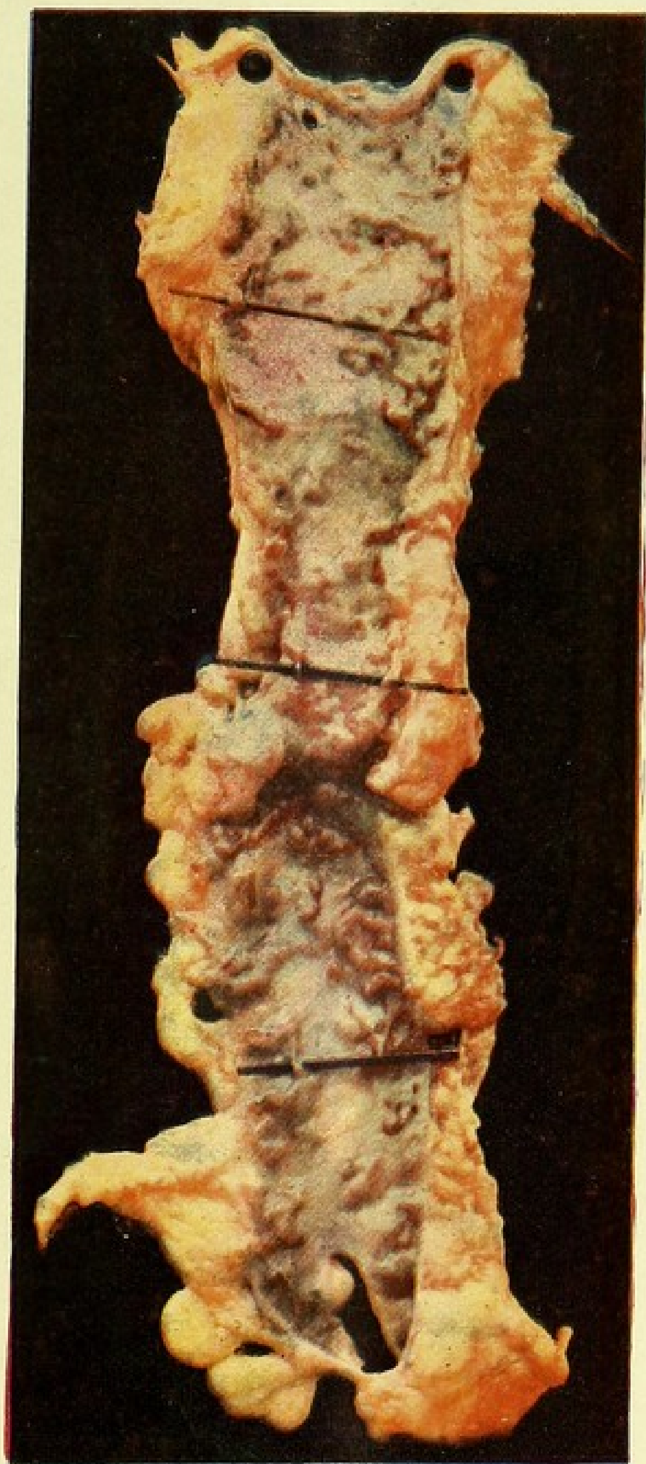
not always lose flesh and thus they may present very few of the ordinary facial aspects of advanced disease. They take the food that is offered to them and allow everything to be done for them quite passively. It even crossed the minds of some of my dressers to ask whether one of the patients suffering from chronic colitis was not merely a lazy person who was making the most of an attack of diarrhœa which had lasted somewhat longer than usual. Examination with a sigmoidoscope quickly set their minds at rest on this point, and showed them the seriousness of the condition from which the patient was suffering. The anus in these cases rapidly loses its tone and, as soon as it is dilated, a foul-smelling discharge escapes from the bowel. The mucous membrane is ulcerated, and the ulceration may extend as high as the instrument can be passed.

The mucous membrane between the ulcers may form polypoid masses, and the blood vessels are so delicate that they bleed easily whenever they are touched. On the other hand a patient who has much less severe ulceration may be in an infinitely worse condition as judged from the severity of the symptoms. This depends mainly upon the degree of toxæmia of which the temperature affords an adequate measure.

Treatment.

The treatment of chronic colitis, therefore, resolves itself into treatment by drugs to cure the ulceration and treatment by operation to allow of the thorough cleansing of the bowel from the septic products which are formed in such abundance. The danger arising from the disease is the danger due to the absorption of these products which cause a septic intoxication and not from any metastasis leading to pyæmia. Extensive destruction of the bowel sometimes takes place and leads to a general peritonitis or there may be a local abscess due to a small perforation or to leakage. These local abscesses are produced, so far as I have seen them, without very marked signs of peritonitis, no doubt because the patient is too ill to show any reaction. A rise of temperature without apparent cause followed by a discharge of pus a few days later with a fall of temperature are often the sole symptoms.

Early diagnosis and active treatment are of the utmost importance in chronic colitis for there is still too great a tendency upon the part of some physicians to await the effects of castor oil by the mouth and injections of bismuth or starch and opium by the rectum until the large



intestine has become so thickened and sodden by inflammatory products that it is unable to recover itself. Local injections are of great value in some of the simpler forms of colitis, but they are useless in the treatment of the more severe forms for chronic colitis is one of the most serious and intractable conditions from which a patient can suffer.

Vaccine-therapy.

Vaccine-therapy may be useful in the very earliest stages of the disease, the vaccine being made from the strain of micro-organisms which are causing the individual mischief and not by the injection of any polyvalent serum. The object of the vaccine is to immunise the patient by educating his tissues to resist the toxic products of the ulcerated intestine. It must be employed quite early in the disease and should be persisted in for a considerable length of time. It happens however that in most of the cases which have come under my care the patient has already been treated until auto-immunisation ought to have been brought about. In only one case (nr 8, p. 20), therefore, have I felt justified in the adoption of vaccine-therapy, and as the results did not seem to be commensurate with the expense, it was not continued for any length of time.

Good results have been followed by the attempts to keep the large intestine thoroughly cleansed formerly by means of a colostomy, more recently by appendicostomy.

Operative.

Mr. Skene Keith (4), at that time surgeon to the Samaritan Free Hospital in London, seems to have been one of the earliest surgeons to perform colostomy for the relief of chronic colitis, even before such a method had been suggested by Dr. Hale White (5).

In 1901 Dr. P. R. Bolton (6), of New York, treated a case of colitis by valvular colostomy and irrigation. The operation was undertaken at the instigation of Dr. C. L. Gibson who is here to-day to take part in this discussion. Dr. Gibson proposed to apply to the cæcum the method attributed to Kader which has been found so satisfactory in the performance of gastrostomy. The cæcum was exposed through a small incision and a soft rubber catheter was introduced through an opening in the anterior band of the cæcum and was kept in place by invaginating the cæcum with three tiers of sutures. Irrigation of the colon was

begun at once, a speculum having been previously introduced through the anus to allow the fluid to flow out easily. Several quarts of a 0.01 % solution of silver nitrate were allowed to flow through the bowel, followed by a 0,5 % solution of sodium chloride. The irrigation was done twice a day for the first three days and once a day for the next eleven days, the strength of the solution of silver nitrate being increased to 0,02 %. At the end of a fortnight the bowel was only washed out on alternate days. The colostomy wound soon healed, and the patient made a good recovery. The patient was a man, aged 42, who had suffered from a severe attack of colitis for two months before the operation was performed, the rectum and sigmoid flexure being the parts chiefly affected.

In January 1901 Dr. Francis W. Murray (7), of New York, published an interesting paper upon *Colostomy for Chronic Dysentery* in which he generously gave full credit to the work of English surgeons and concluded his paper with in the following words : « The case illustrates well the fact that irrigation by itself, even when thoroughly carried out, is not sufficient for a cure. As in ulcerations elsewhere rest of the inflamed parts is a necessary requisite for succesful treatment, so in amœbic dysentery which represents the severest form of non-malignant ulceration of the bowel, not only must the colon be placed at rest, but the performance of the colostomy should be done at an early date. »

A year later, in 1902, Prof. Robert F. Weir (8) published his communication on « A new use for the useless appendix in the surgical treatment of obstinate colitis », the paper being read at a meeting of the American Medical Association. Prof. Weir had used the Kader-Gibson method for a man of 30 who had a long continued dysentery, non-amœbic in character. The bowel was irrigated through the colostomy wound with large quantities of warm salt solution. A tube was generally placed in the rectum to facilitate the outflow, but occasionally the rectal tube was plugged to ensure overdistension of the colon and a more thorough cleansing of the bowel. The remedies used for irrigation after the wash out with salt solution were a 5 % solution of methyl-blue alternated with a solution of nitrate of silver 1 : 5,000 or of bismuth 3i to the ounce of starch water. A rapid cure ensued. « It so happened, says Prof. Weir, that on the same day in which the above method of fistula making was resorted to another case presented itself for treatment in a young man aged 31 years, who had suffered from a persistent diarrhœa for nearly three years. » The abdomen was opened to make a fistula in the cæcum, but the appendix obtruded itself so suggestively that Prof. Weir determined to employ it. He did so, found it satisfactory,

and the operation of appendicostomy took its place in surgery. In this case nitrate of silver injections of two grains to the ounce of distilled water alternated with bismuth gave most relief.

A few cases of appendicostomy were done in England by Mr. Moynihan (9), Mr. Walter Spencer (10), Mr. Jno. Hutchinson junior (11) and Mr. Stanmore Bishop (12), but the operation does not appear to have attracted much notice until 1905, when the late Mr. C. R. B. Keetley (13) read a paper upon it in the Surgical Section at the Leicester meeting of the British Medical Association. He pointed out that the operation is useful in the treatment of mucous colitis, dysentery (that is amœbic colitis), obstinate chronic constipation, ileo-cæcal intussusception, to prevent hæmorrhage, to prevent collapse, in the treatment of hæmorrhage from the bowel and inflammation and for syphilitic ulceration of the colon with hæmorrhage. From the date of this paper appendicostomy became firmly established in this country, and every surgeon has performed the operation on many occasions in the execution of his daily duties.

The operation seems to me to be satisfactory in every way. It is easy to perform, and can therefore be done rapidly. It leads to less disturbance of the parts than a cæcostomy and is therefore better borne by patients who are as seriously ill as are the patients upon whom it is usually performed. It is more cleanly than a fæcal fistula and is much more easily closed when it is no longer needed, indeed some difficulty has been experienced occasionally in maintaining the opening for a sufficient length of time as the little sinus has shown an almost invincible tendency to close. On the other hand in one or two cases I have seen, where the patient has been in a highly septic condition before the operation, a large suppurating sore has been produced by destruction of the skin along the line where the appendix was laid beneath it. I am inclined to think, therefore, that in some of these more serious cases it would be better to draw the appendix vertically up to the surface instead of laying it horizontally between the skin and the fascia as is generally done. Irrigation may be commenced at once, and the first effect is always a marked improvement. The temperature falls, the appetite improves, the discharge becomes less in quantity and is not so offensive as it was. This improvement lasts from a few days to several weeks. It may even be permanent in some of the slighter cases and the patient is cured. Unfortunately it more often happens that the temperature begins to rise again after a time and the general conditions become less satisfactory. These ups and downs continue for many months, but in the end the result is satisfactory.

Mortality.

The mortality of ulcerative colitis is extremely high in cases which have not been submitted to operation. Sir William Allchin (2) says (p. 66) : « Sporadic ulcerative colitis in its outlook is most grave. Of the 60 cases at St. Thomas' Hospital, where special care was taken to exclude from the record all but those that strictly conformed to the condition understood by the term, 40 died; whilst at Guy's Hospital 40 of the 55 similarly selected cases were fatal; at Westminster Hospital a somewhat lower rate ruled, 19 dying of the 42 cases admitted. The mortality is about equal in the two sexes and no special liability to death or recovery seems to be conferred by any age... But although the expectation of death is so high, recovery may follow even when the disease has run a comparatively acute and severe course... This circumstance makes the prognosis very uncertain in any individual case but the severity of the hæmorrhage and of the diarrhœa, the presence of tympanites and extreme prostration, and the typhoid state are manifestly ominous. Exhaustion is the most frequent immediate cause of death brought about by diarrhœa, or by hæmorrhage, or by both, and more rarely by peritonitis; pneumonia and purpura have been observed as terminal indications. »

Prognosis.

My own results (14) have proved to be somewhat more satisfactory than those quoted by Sir William Allchin, but as my cases have not been numerous, it is quite possible that I have been fortunate and that a larger experience will raise my death rate to the normal. At any rate I am well satisfied at the present time with the results of the operation of appendicostomy because it reduces to a minimum those causes of dangerous exhaustion which have been alluded to above.

Cases.

The following cases of ulcerative colitis have been under my care since 1908 :

Case 1. — The first patient was a married woman, aged 24, living at Hampton Court, who was admitted into St. Bartholomew's Hospital on April 26th, 1908 for the treatment of a constant diarrhœa with passage of blood and mucus from the bowel.

She said that she had been confined of her first child on January 28th, 1908. The labour was easy and she went about her household duties on the tenth day. Early in March she began to suffer from diarrhœa with the passage of blood and mucus. The symptoms were so severe that she was obliged to take to her bed after a few days and she had not again done any work. She had completely lost control over her bowels a month before her admission to the hospital.

When she first came under observation, she was a pale and flabby woman, not wasted, with a temperature of 101° F., a pulse of 120 and a respiratory rhythm of 26. She lay in bed absolutely listless, with a furred tongue and she passed her motions under her many times a day. The abdomen was rather distended and was everywhere tender.

I examined the patient under an anæsthetic on April 30th. The anus was patulous and was marked by numerous scars radiating from the margin. There was the scar of a small ulcer in the centre of the perinæum, and the skin was ulcerated from the anus to the tip of the coccyx. Several drachms of clear mucus escaped as soon as the forefinger was passed through the anus, and the whole circumference of the rectum was found to be ulcerated as far as the finger could reach. The bowel was narrowed about three inches from the anus and there was a spasmodic constriction of the muscular coat which simulated a stricture. Some pedunculated masses of mucous membrane could be felt in the rectum and were afterwards seen by means of the sigmoidoscope. The whole ulcerated surface bled easily. The vagina showed two small ulcers at the introitus, but there was no fistula either vaginal or anal. Local remedies failed to cause the slightest improvement and, as I thought the inflammation was localised to the rectum, I performed a left inguinal colotomy on May 7th. The descending colon was found to be as seriously ulcerated as the rectum, and the walls were so softened by the inflammation that the sutures would not hold and I was obliged to leave the intestine unopened, shutting off the peritoneal cavity with strips of gauze. The patient died on the following day.

The post mortem examination showed that the pelvis contained fæcal-smelling pus and that the coils of intestine lying in the pelvis were congested, though there was no general peritonitis.

The large intestine (plate I) was uniformly ulcerated throughout its whole extent, whilst there were numerous polypoid tags between the ulcerated patches of mucous membrane. Some of these tags had coalesced to form tunnels or arches which were strong enough to support the weight of glass rods passed beneath them. There was no

stricture of the rectum and there were no abscesses in the liver. The other organs were healthy.

Case 2. — A few weeks later, a married woman, aged 46, came under my care on account of a fistula and inflammation of the large intestine. She was admitted into St. Bartholomew's Hospital on May 30th, 1908, saying that she had been operated upon at St. Mark's Hospital five years previously for a fistula and had been discharged cured. She had progressed satisfactorily for two years and had then noticed blood in her motions at intervals of three or four months. Each attack lasted a few weeks, but the present attack, which began six or seven weeks before her admission under my care, had confined her to bed for three weeks. She had been twice married, the first time for fifteen years without conceiving, by the second husband she had a boy aged four years. Examination showed that she looked ill but had not wasted.

The temperature was 100°2 F.; pulse, 120; respirations, 28. Appetite poor. She had lost all control over her bowels and was passing offensive stools about seventeen times a day.

The abdomen was natural without any abnormal fulness and there was no tender area on palpation. There were two small fistulae on the left side of the anus and close to it. There was also the scar of a healed fistula. The urine had a specific gravity of 1020 and contained a trace of albumin.

The fistulae were laid open on June 3rd, 1908, and the rectum was then found to be ulcerated and to contain polypoid masses about two inches above the anus.

I asked my colleague Dr. Howard Tooth, C. M. G, who had a large experience of dysentery in the South African war to be kind enough to treat the patient by medical means for the chronic colitis. He did so from June 12th to July 2d, but in spite of every care she steadily got worse. I then examined the patient under a general anæsthetic by means of the sigmoidoscope and found that the rectum was extensively ulcerated and contained numerous polypoid growths. There was an abundant discharge of sanious pus and the fistulae which I had previously laid open had become large unhealed tracts with callous edges. The general condition of the patient rapidly became worse and she died of exhaustion on July 9th.

Case 3. — A housemaid aged 20 was recently admitted into St. Bartholomew's Hospital under my care complaining of considerable bleed-

ing from the bowel when she went to stool. She said that she had suffered from constipation for the last three or four years and had passed a yellowish offensive slime for more than a year. This discharge was generally noticed when the bowels acted, but it sometimes came away independently and stained her linen. At first there had been loss of blood from the bowels at intervals and during defæcation, but of late the bleeding had occurred daily to the amount of two or three ounces.

The patient was extremely reticent about her past history and said that she had ailed nothing. She was the youngest of five children of whom one brother and a sister were living. The other children died in their infancy, the one from « fits », the other from « bleeding of the navel ». The mother is alive and well, the father, who had served in the army, died young.

The patient was in a very miserable condition when she was first seen. She was thin, anæmic and troubled by a stinking discharge from the bowel. Nothing abnormal was discovered by an examination of the abdomen, nor was there any unusual tenderness. Examination under an anæsthetic showed a ruptured perinæum which had been sutured at some time not very long before. The mucous membrane inside the rectum was healthy for about an inch though the surface was covered with an offensive and blood-stained discharge which was slimy. The bowel was narrowed by a thickening of the walls of the rectum about two inches above the anus, the thickening being more marked posteriorly than in front. The narrowed portion only just admitted the tip of the forefinger. There was an ulceration of the whole circumference of the bowel immediately below the stricture though it did not extend to the anus.

The patient began to improve as soon as she was given three-grain doses of grey powder three times a day, the bowel being kept clean by repeated irrigation with biniodide of mercury lotion. She quickly regained her colour and increased in weight. The improvment, however, was only maintained to a certain point after which the ulceration became stationary. I ordered her, therefore, suppositories of mercury, each suppository containing one grain of mercury, one being given every other day. I examined her eighteen weeks after she had been upon this treatment. The rectum was then dry and was covered in its lower part with healthy mucous membrane, but there was a stricture of the mucous and submucous coats two inches above the anus. This stricture was soft and ringlike. It could be dilated easily until two

fingers could be passed through it. The mucous membrane immediately above the stricture felt rough, but it was not ulcerated and there was no undue amount of mucus covering it. The patient was discharged with instructions to pass a rectal bougie through the stricture and to return for advice if she had any farther trouble.

Case 4. — An unmarried woman, aged 25, was admitted into the Bromley Cottage Hospital with the symptoms of ulcerative colitis. She had lost control over her bowels and suffered from an offensive discharge of blood and mucus. I performed an appendicostomy and for a few weeks the patient improved. Her symptoms then returned with increased severity and she drifted into a fruitarian hospital where she died.

Case 5. — The next case began apparently in connexion with an ordinary attack of appendicitis. It was that of a man, aged 40, who presented himself with the usual symptoms of a subacute attack of recurrent appendicitis. I removed his appendix and found that it was kinked upon itself and was bound down by numerous inflammatory adhesions. The wound healed in the usual manner, but the diarrhœa continued and the discharge became offensive. He continued for some time in the Bromley Cottage Hospital where his colon was repeatedly washed out with irrigations of nitrate of silver and of copper sulphate, sometimes one and sometimes another. This treatment was continued by the district nurse for some weeks after his return home and he then went to Hastings for a month. He got quite well and has remained so and without relapse for more than a year, being able to resume his work.

Case 6. — A married woman, aged 38, with a history of alcoholism was admitted into the Bromley Cottage Hospital with hæmatemesis and melæna. She had a tender spot in the epigastrium and pains in the back. The abdomen was flat and moved well and there was no marked tenderness in the flanks. She was treated as a case of gastric ulcer. The vomiting ceased but the diarrhœa continued ; she wasted and her temperature became very irregular. Some return of hæmorrhage from the bowel took place whilst she was in the hospital, the evacuations being of a dark red colour and mixed with mucus. As there was some tenderness in the hypogastric region, she was examined under an anæsthetic by means of a proctoscope. The mucous membrane appear-

ed inflamed, but it was not ulcerated. Per vaginam there was rigidity of the vaginal wall with partial fixation of the uterus. Eventually she got worse and died. The post mortem examination showed that the stomach was elongated, contracted in the middle and with a patch of inflammation due to a small ulcer on the lesser curvature near the cardiac end. The omentum was adherent in the pelvis and the colon was ulcerated throughout, the ulcers being most numerous in the descending colon and in the sigmoid flexure. The coats of the bowel were here inflamed and very rotten so that they tore in lifting them out of the abdominal cavity. The lumen of the bowel was full of blood and of muco-purulent secretion. There was no general peritonitis and there was no evidence of tubercle either in the lungs or in the abdomen.

I am indebted for the notes of these three cases to my friend Dr. Herbert J. Ilott of Bromley, with whom I saw them in consultation.

Case 7. — Miss X..., aged 25, was operated upon in America in 1904. An abdominal section was performed and both ovaries were probably removed as the patient says that she has not menstruated since the operation. She had miscarried some months previously. She first came under medical treatment in February 1910 for gastric catarrh from which she soon recovered. She said at this time that she had been passing mucus in her stools for the past two years, that she sometimes passed nothing but mucus and that once or twice she had passed blood as well. When she became constipated, the mucus was more troublesome. A pill of sulphate of iron, aloin and extract of belladonna gave her relief for a time. She came under treatment again in June 1910 because she was passing more mucus in her stools and she then had well marked signs of ulcerative colitis. These signs increased steadily until August 1910 when she was admitted into a surgical home that she might be treated systematically by irrigation of the colon. The irrigations consisted of one pint of a solution of nitrate of silver (five grains to the pint) preceded by a pint of sterilised water and followed by a pint of normal saline solution. At this time she was passing large quantities of mucus and sometimes blood. There was great constipation. All the symptoms improved during the first three weeks of treatment, but they then reappeared and rapidly became acute. There was incontinence of the bowel with almost constant discharge of extremely offensive stools containing mucus, pus and blood. The temperature rose to 103°8 F. The appetite

failed, and the patient was in constant and severe pain which was only rendered bearable by hypodermic injections of morphia given twice a day.

I saw the patient at the end of September when these acute symptoms had lasted for nine days and there seemed to be every prospect of speedy death. Examination showed a general tenderness of the abdomen over the whole of the large intestine, the tenderness being more marked in the right and left iliac regions. I performed an appendicostomy upon her on October 1st, opening the appendix at the time of the operation and inserting a Jacques' soft rubber catheter. The bowel was irrigated almost continuously with a warm solution of permanganate of potassium, the results being immediate and satisfactory. The appetite improved within two or three days, no more morphia was required and the temperature fell. Some of these results, however, proved to be only temporary improvements for the temperature began to rise again, the track in which the fistula lay suppurated and the patient developed a painful sore over the tip of the coccyx. Her appetite, however, never again failed, and when I saw her two months after the operation, she had not only held her own, but had made some progress towards recovery.

I am indebted for the notes of this case to my friend Mr. James Adams, F. R. C. S. Eng., of Eastbourne, who writes to me on January 9th, 1911 : « The patient is making rapid strides towards recovery. She now has a large appetite, is increasing in weight and has a normal temperature. The mucus has practically disappeared from the motions, but I am still irrigating the bowel on alternate days with a pint of iodine solution ($^1/_2$ drachm tinct. iodi ad Aq. Oi.) ».

Case 8. — A. A., a gentleman, aged 30, engaged in the city as a buyer of furs, first came under observation on October 5th. 1904, suffering from constipation. He said that his bowels had always been obstinate, but that they had been worse lately. He was advised to take oily foods and to drink more fluid than he had been accustomed to take. He was also shown how to use glycerine enemata. He was relieved by this treatment until June 9th, 1905, when he returned complaining that for the last three weeks his bowels had again become irregular and that he had seen blood in his stools on the evening of June 8th and again on the morning of June 9th.

Examination of the patient showed that there were three fissures at the anus, one situated anteriorly, one posteriorly and the third on the

right side. The patient was ordered mist. alba and an ointment containing hamamelis. The fissures were touched with caustic. A week later, on June 14th, the patient reported that he had not seen any more blood, although an examination showed that he now had four ulcers extending radially from the margin of the anus. These ulcers were touched with solid nitrate of silver, and the patient was again ordered the ointment of hamamelis whilst he was recommended to take pulv. glycyrrhizae co. and mist. alba to open his bowels. The ulcers had healed without leaving any trace of their presence on August 9th.

The patient remained well for a year, and it was not until August 20th, 1906 that he was seen again when he said that there was still some blood in his motions and that he had continued to use the liquorice powder since August 1905. The patient now came for a pustular eruption of the skin of the hands, which he thought he had contracted in the course of his occupation as a buyer of furs. Rectal examination showed that he had a tiny fissure of the skin in the immediate neighbourhood of the anus

He did not present himself again until March 10th, 1910, when an examination showed that the fissures were still present. There was no pain when the bowels were relieved, but blood spattered the pan of the closet. His bowels at this time were very irregular and the patient complained that, when he had emptied them after breakfast, it was often necessary for him to do so again within twenty minutes, the second motion being solid or liquid. He had slept well until the last week or two, when he had been roused at night to relieve his bowels. He said that he had had a good stool at 2 a. m. on the previous night, but at 3 a. m. he was obliged to rise again to pass some watery stuff. He had lost his appetite and so much of his former vigour that he was unable to continue his business. His weight, which was 10 stone 6lbs in December 1908, was 10 stone 3lbs on March 18th, 1910. His teeth were very foul, and examination showed that he had two small piles.

Measures were taken to cure the pyorrhœa alveolaris, and on March 5th, 1910 the note records that spirilla were found in the tooth debris and that on the 2nd the patient had passed blood and mucus three or four times by the bowel. There was some spasm of the anus. Pulse 108. Temperature 99° F.

A well marked fissure of the anus had formed again on April 7th, and there was some eversion of the margin of the anus. The gums and mouth were in a much more healthy condition, and the patient was able to use a toothbrush. The pulse was 108 and the temperature 99·2 F.

On April 18th he wrote complaining of « rheumatism » on the right side, and when he was seen on the 25th, it was obvious that he was extremely ill. His pulse was 120, his temperature 103°3 F., and he had had a rigor. He passed his motions frequently the stools being crumbling and containing mucus and blood. The right wrist was swollen and red, and there was pain along the right sartorius muscle.

He was given milk and Benger's food and was ordered grey powder, Dover's powder and quinine. On the 26th the temperature had fallen to 99° F., and the pulse was 90. Many pustules had appeared on the body and his bowels had been open repeatedly.

I saw him on the 28th instant and found that he was passing stools which contained blood clots and that he had a chronic ulcer at the margin of the anus extending upwards into the bowel. This ulcer I touched with solid nitrate of silver and he was ordered fifteen minims of the liquor hydrargyri perchloridi with two grains of salicylate of quinine and an enema of starch and opium. On March 29th the temperature had again gone up to 103°6 F., he had experienced another rigor and the stools remained bloody. All milk food was stopped and the patient was fed entirely on albumin water with occasional doses of brandy. From May 8th onwards he had an egg and a few ounces of Benger's food once a day. On May 9th he passed eight ounces of pus by the bowel and on May 11th he was seen by Dr, Hale White, who agreed that it was desirable to perform an appendicostomy to ensure a better irrigation of the bowel. I operated on May 12th, the bowel was washed out whilst the patient was still under the anæsthetic and again on the following day, three pints of warm salt solution being used on each occasion. This was repeated daily and the report states that on May 15th there was no blood, pus or mucus. The patient remained very ill, however, and he was given a vaccine which had been prepared from his own pus. The quantity varied from five to ten millions and the injections were made on May 15th, May 18th, May 24th, May 31st and June 7th.

From time to time a little pus and streaks of blood appeared in the discharge from the bowel which was never so offensive as it had been before the operation. The temperature, which had oscillated widely between 102° F. and 98° F., began to show smaller excursions about the beginning of June and there was no rigor after the operation. The patient left the Nursing Home on August 15th, but it was not until September 13th that he was able to be carried out into his garden, nor until the middle of November that he could stand without support. He then began to increase steadily in weight from 6 stone 4 lbs on

October 23rd to 8 stone 4 1/2 lbs on December 19th. By this time the swelling of his wrists had subsided and there were no other signs of the septic condition through which he had passed except a slight difficulty in opening his mouth. On January 11th, 1911 his weight had increased to 8 stone 9 lbs, but he had suffered a slight relapse; his wrists had again become puffy, and there was a return of the discharge from the bowel. The note adds that he had suffered similar relapses on previous occasions and that they seemed to follow a few days after any extra effort or mental excitement.

I am indebted for these excellent notes to Dr. Ogier Ward, who has kindly allowed me to use them. They are given at some length because it is unusual to get so complete a history extending over seven years. They show that a man of delicate physique with a special weakness of his rectal mucous membrane suffered from a chronic colitis which eventually developed into a condition of acute ulceration associated with a general toxæmia. The infective agent may have been associated with the pyorrhœa alveolaris or it may have been acquired in the course of his business which compelled him to live for many hours daily in the dusty atmosphere of the fur salerooms.

Many remedies were tried in the course of his long illness. Carbolic acid in all its forms and even in very dilute solutions caused carboluria and was therefore discontinued at a very early stage. Salicylate of bismuth, perchloride of mercury and biniodide of mercury caused irritation in the earlier stages, and for the same reason boric acid solutions had to be discontinued. Carbonate of bismuth (grs. 15 ad Oi); permanganate of potassium (1: 30,000) and Allmatein-hæmatoxylon acted on by formaldehyde- (grs. 40 ad Oi) proved most useful and were all soothing. At a later period irrigation with perchloride of mercury (1; 20,000) and zinc sulphate (3iv ad Oiii) gave the best results when they were used alternately. Ionised irrigations were administered on several occasions but without any marked improvement. Chlorodyne was ordered throughout the illness whenever it was necessary to give relief from pain and it never seemed to lose its effect. The appetite fortunately remained good so that there was never any difficulty in feeding the patient even when he was at his worst. The discharge ceased so gradually and returned so frequently that even at the present time the patient cannot be said to be absolutely cured.

CASE 9. — A lady, aged 40, was sent to see me in August 1910. She said that she had been perfectly healthy until two years ago, when she

began to have attacks of, what she thought was, diarrhœa, but in which she passed stools mostly consisting of mucus and blood. This continued for six months before she sought medical advice. A rectal examination failed to detect any cause and she was treated by repeated doses of castor oil. For a time she got better, but all the symptoms afterwards recurred and the bowel was washed out with enemata of boric acid without any satisfactory result. A course of saline aperients was next tried without effect and then an enema of argyrol was given every second day to be retained for two hours. This was administered very slowly and by a trained nurse. The enema was administered in the knee-elbow position.

Examination showed that she was a delicate and highly nervous woman with a flaccid abdomen which did not appear to be anywhere tender on palpation. The sphincter ani still retained some tone, for a clear mucous secretion flowed out as soon as the finger was passed through it into the rectum. The mucus had a fæcal odour, but it was not extremely offensive. Local examination, so far as it could be made without the use of a sigmoidoscope, failed to reveal any ulceration.

As it was not convenient for the patient to stay in England, I advised her to return home and submit herself to an appendicostomy if the symptoms did not improve. This was done : she improved for a time and the stools became almost natural. The unfavourable symptoms returned within a few weeks and she was again passing blood and mucus with every motion. Various irrigations were made through the appendix, but none of them were successful. Large quantities of normal saline solution seemed to give her most ease and no difficulty was experienced in introducing two or three pints at a time, most of which was retained. In spite of everything the hæmorrhage has continued and the anæmia has become profound. At a consultation held on December 9th it was decided to inject normal serum through the appendix and to use a vaccine prepared from the mucus of the patient's colon. The normal serum seemed to improve the condition of the stools and the vaccine injections have been administered during the last month. Dr. Wright, to whom I am indebted for these notes, adds however : « I fear there is no real improvement in her condition ».

Case 10. — An unmarried woman, aged 28, was admitted into my wards at St. Bartholomew's Hospital on February 16th, 1911, complaining of abdominal pain. She states that she has suffered for a long time from pain in her abdomen and in 1909 she had an operation for piles

which relieved her for about a year. She was then seized with diarrhœa and passed blood for three months. She has pain at her menstrual periods and she is an epileptic. On examination her abdomen was found to be soft and flaccid. There was no swelling to be felt in any part, but there was marked tenderness in the right and left iliac regions. She passed evil-smelling fæcal material several times a day, but she had control over her bowels and her temperature was normal. Sigmoidoscopic examination showed that the rectum and lower part of the sigmoid flexure was deeply congested, the mucous membrane being of a purple colour and secreting an abundance of mucus stained with fæcal material. I performed an appendicostomy on February 23rd and inserted a number 8 soft rubber catheter.

The case is still under observation and on March 25th has undergone very marked improvement.

Conclusions.

This series of cases is not a very long one, but I venture to think that it may prove interesting as a record of the work of a single surgeon in the treatment of a serious and intractable form of disease. It seems to me that ulcerative colitis does not begin suddenly. Enquiry shows that the mucous membrane of the large intestine has exhibited signs of weakness for a long time before the symptoms of ulceration have appeared. Fissures, ulcers or piles have given evidence of this weakness, and it is noteworthy, I think, that some of the cases began shortly after parturition either at full term or as a miscarriage. This weakness of the rectal mucous membrane has been followed by chronic irritation which led to an increased secretion of mucus from the crypts of Lieberkühn and by a desire to go to stool repeatedly. The irritation passed on slowly to ulceration marked by the appearance of blood, pus and offensive stools. Absorption of the inflammatory products from the ulcerated bowel has led to a condition of profound toxæmia from which the patient is unable te recover.

The first step in the treatment of colitis is to endeavour to find a cause and, if possible, to remove it. Such gross causes as cancer, polypi and appendicitis can usually be excluded without much difficulty by a competent surgeon using the later instruments of surgical precision. Typhoid, tuberculous ulceration, inflammation due to the pneumococcus, the ray-fungus of actinomycosis, the spirochaete of syphilis and the b. mallei of glanders ought not to be overlooked, and the urine

should be examined to ascertain whether the colitis is associated with chronic renal disease.

The examination should be done systematically and under the most favourable conditions, not hastily and in the consulting or outpatient room, but in the patient's own house or at a nursing home where the resources of modern nursing are at hand. It should be remembered that the earlier the treatment is begun the better will be the results. It is useless to go on with a course of castor oil and rectal irrigations when the symptoms persist in spite of them. The lines of treatment required are those followed in all cases of chronic ulceration associated with the absorption of septic products upon a large scale. These are thorough cleansing of the absorbing surface, removal of the putrefying discharge as quickly as it is formed to prevent the microbic destruction of the tissues, an endeavour to render the tissues immune by the use of vaccino-therapy and the maintenance of the patient's strength in every possible way.

When it is once clearly recognised that a patient is suffering from chronic colitis which does not improve under ordinary treatment, I believe that the sooner appendicostomy is performed the better it will be for the individual. The operation is still on its trial and it is naturally employed, therefore, only in the most desperate cases, but even in these it has given very satisfactory results. Appendicostomy is no more curative in chronic colitis than the cleansing of a varicose ulcer of the leg is curative, but the operation allows the mucous membrane of the large intestine to be freed from decomposing products and thus lessens the amount of septic material absorbed. It should be remembered in this connection that the inflammatory products are very abundant and the intestinal walls are sacculated so that there is a tendency for pockets to be formed in the intestine which may contain as much as four or five ounces of pus. It is well, therefore, to empty these pockets from time to time by gentle overdistension of the bowel.

The results which I have obtained from appendicostomy are a lowering of the temperature, an improvement of the appetite and a lessening of pain, three good things because time is gained which allows other remedies to be used. I have not succeeded in cutting short the progress of ulcerative colitis by appendicostomy for the disease is chronic and must be attacked by other measures.

It seems probable that vaccino-therapy combined with appendicostomy gives the best results in the treatment of chronic colitis. The vaccine should be made from the strain of micro-organisms which is

causing the individual mischief. It should be employed at the earliest possible period in the disease for there is still too great a tendency to trust merely to local remedies. Appendicostomy in like manner should be performed as soon as it is recognised that the inflammation is refractory to the ordinary methods of treatment. The surgeon should attach more importance to the local than to the general state of the patient, for those who suffer from chronic colitis are often much more ill than they look. It should be pointed out at the time of the operation that appendicostomy will not cut short the inflammation which will continue until the patient becomes immune, but it will assist in prolonging life and thus enabling recovery to take place. It is probable, therefore, that after intervals of improvement there will be relapses though the net result will be a gain.

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