Chest complications in abdominal disease : a study in diagnosis : the first Hunterian lecture of the Hunterian Society session 1901-2 / by J. Mitchell Bruce, M.A., L.L.D., M.D., F.R.C.P.

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Chest Complications in Abdominal Disease: a Study in Diagnosis

The First Hunterian Lecture of the Hunterian Society
Session 1901-2

BY

J. MITCHELL BRUCE, M.A., LL.D., M.D., F.R.C.P.

Physician to Charing Cross Hospital
Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton

London
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GREAT TITCHFIELD STREET, OXFORD STREET

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Chest Complications in Abdominal Disease: a Study in Diagnosis

MR. PRESIDENT AND GENTLEMEN,—I confess that I feel myself quite unworthy of the honour that you have conferred upon me by asking me to deliver the first lecture of the present session, and thus to associate myself with a society which bears the name of my immortal countryman, John Hunter. My single comfort is that what I am about to lay before you is the outcome of honest observation in the field of clinical medicine, and that, however poor it may be, it has been inspired by his example and his teaching; and, unless I am mistaken as to the constitution and objects of the Hunterian Society, my address will not be less favourably received because it is practical in its bearings. To some of you, perhaps, the thought may have occurred, when you read its title, that the subject relates to uncommon or even rare conditions, and that there would be little for you to carry back with you that might be of real use in daily practice. I hope I may be able to persuade you that this is not so, and that the considerations which we shall reach are of almost daily application in our routine work. In order to ensure this very desirable end, I have been compelled to omit a portion of my subject which would have served as a natural introduction to a study of the clinical aspects of complications within the chest in abdominal disease, namely, the anatomical and physiological relations to each other of the viscera above and below the diaphragm and of the diaphragm itself. This is not a systematic lecture, and I know that I can safely assume that you are familiar with these points.

Associated diseases of the abdomen and chest present

themselves clinically from either of two sides. More frequently we meet with them as affections of the stomach, bowels, liver, or other of the intraperitoneal viscera, or of the peritoneum itself, complicated with a secondary invasion of the chest; in other instances, we are first introduced to a disease of the lungs, pleura or pericardium, which proves to be secondary to an unrecognised lesion below the diaphragm. It will give more effect to the lessons which I wish to draw from our study of the subject if I discuss it in the same order, that is, first from the one side and then from the other. And in so doing I shall be careful to make my sketches of my most interesting cases so broad as neither to weary you nor to obscure with details the points which I wish to bring into special prominence.

I.

In the course of the investigation of an obscure case of abdominal disease, when we are in difficulty over the diagnosis and hesitating in our treatment, symptoms and signs make their appearance which point to invasion of the chest. These at first add to the complexity of the case; but if they are attentively considered, they prove to be useful guides to the discovery of its nature and to the correct treatment, when treatment is possible. Let me begin with what would now be called a very simple instance.

Subdiaphragmatic Abscess

A good many years ago I had under my care at Charing Cross Hospital a middle-aged, unmarried woman, who gave us a complicated history of chronic disease or disorder of the stomach, ending in an attack of violent abdominal pain, vomiting and collapse immediately before her admission. The most probable diagnosis was perigastritis from incomplete perforation of the stomach; and as this suggested surgical interference, I availed myself of the advice and assistance of my colleague, Mr. Morgan. Now in those early days we had very little experience of subdiaphragmatic abscess and its surgical treatment to guide us. Had suppuration occurred, and, if so, where did the pus lie and how was it to be reached? An area of fulness and tenderness developed at the outer border of the left rectus abdominis muscle, a little above the um-

bilical level, as if matter were pointing immediately underneath; but it passed off again, leaving us once more in doubt with respect both to the pathological condition and the proper treatment to pursue. Almost immediately however, a simple patch of dulness appeared at the posterior base of the left chest. It increased daily in size, and presently it yielded the ordinary signs of pleurisy with effusion. From that moment the diagnosis was easy. There was suppuration, or at any rate active inflammation, under the left wing of the diaphragm; and I may add that pus was found in this situation at the operation which followed. I can understand how the history of this case as I have recounted it may sound very commonplace to you to-night, one, indeed, hardly worthy of record or even reference. We see almost daily in hospitals, and by no means rarely in general practice, cases of a similar kind, or closely related, which are readily diagnosed and unhesitatingly and successfully treated by the surgeon. This, however, is beside the point, which is that at a time when perforation of the stomach was quite unfamiliar to us as a condition amenable to operation, and very imperfectly understood clinically, the phenomena at the base of the chest revealed its existence, progress, and local development after the abdominal phenomena had failed us. So even now, with all our improved knowledge of perigastric abscess, careful observation of a similar kind will surely be of service.

Tuberculous Peritonitis

Now take another illustrative case. A medical student, aged 24, consulted me for distension and tenderness of the abdomen, accompanied by fever. He had lived in India as a child, and from the age of 6 had suffered from occasional attacks of malarial fever and dysentery. I found considerable abdominal enlargement and the signs of free fluid in the peritoneal cavity; the temperature was 103 degrees. I confess I could not reach a definite diagnosis but I suspected that along with malarial fever there was chronic hepatitis, the liver not being palpable in consequence of the ascites. For a short time I remained in doubt. Then an event occurred which gave an entirely different complexion to the whole case. It was a simple enough event in itself: the appearance of friction over the base of the left lung, which was quickly followed by the development of crepitations upwards. This was enough.

The case was one of tuberculosis, involving first the peritoneum, then the left pleura and lung. In a very few weeks it ended fatally.

Appendicitis

Tuberculous peritonitis is not the only kind of peritonitis that may be associated with acute pleurisy and other complications within the chest. The commonest by far is perityphilitis, originating in appendicitis. I have met with a number of instances, some of which may interest you, and certainly deserve record, for different features that they presented of diagnostic or therapeutical importance. Consider for a moment the significance of the following case. I was asked to see a man of 40 who was under treatment for appendicitis. The disease had passed through what might be called the ordinary course of an acute attack of moderate severity, and so far everything had gone well—with one exception. This was persistence of fever. The local symptoms and signs had died down, and yet the patient's temperature remained pyrexial. I examined the abdomen carefully, and confirmed the correctness of the account that had been given me. Nor were there any evidences to be discovered of pus tracking upwards or downwards. There was no septicæmia. I was beginning to feel puzzled, when systematic examination of the chest cleared up the difficulty, for at the base of the right lung I found physical signs of a patch of pleuro-pneumonia. Now, to some of you it may appear remarkable that whilst the lung and pleura were actively involved in what must be regarded as a process of local infection, the source of the infection itself—that is, the primary disease—should have been perfectly quiescent. Unquestionably this is a point that deserves consideration. There can be no question of the facts. Indeed, I will go further and say that the chest is sometimes invaded in perityphlitis after successful treatment of the primary disease, including removal of the appendix. Some time ago I saw in consultation a young man of 24, who was suffering from acute pleuro-pneumonia at the base of the right chest. Three weeks previously he had been operated on for purulent perityphlitis with excellent result; indeed the local wound was perfectly healed, as the surgeon demonstrated to me. I learned that the fresh development had started only some thirty hours before my visit, with pains in the left

hypochondrium, which presently shifted to the right subaxilla. There the pain persisted, quite slight in degree, but aggravated by deep inspiration. With these symptoms the temperature, which was being carefully observed and recorded by the nurse, rose to a moderate height, and the ordinary constitutional phenomena of fever developed. Having confirmed the physical signs of invasion of the right pleural cavity, I searched the abdomen for evidences that might exist of continuity of the processes in the abdomen and chest, but there were none to be found. The whole abdomen was perfectly soft and free from tenderness, nor could any abnormal sign be elicited in the loin. It was resolved to give nothing more than a dose of calomel, followed by a saline. The result was entirely satisfactory. Next day the temperature had returned to normal, and the patient was much better in every respect, although naturally the physical signs in the chest remained. When I saw the patient for the third and last time, six days later, only a small patch of impaired resonance over the lower ribs could be found, and he was practically well.

Unfortunately the secondary affection within the chest in appendicitis is not always of that moderate degree and favourable course which these two cases illustrate. In some instances severe inflammation occurs, characterised by a large serous effusion in the right pleural cavity. I found this association, for instance, in a middle-aged man, the subject of purulent perityphlitis, which required immediate operation, the primary disease having commenced fifteen days before, and the pleurisy seven days. Evacuation of the intraperitoneal abscess was sufficient to relieve both conditions. But you all know that the termination of cases of this class is not favourable in every instance, or, if favourable, by no means so easy or uneventful. I have met with a series of instances of purulent invasion of the right chest associated with appendicitis. In some of the cases operation had been neglected, in other cases it had been successfully completed. Such an empyema may extend over months, and gravely compromise the prospects of recovery. Or right pleuro-pneumonia may be found lying over a sub-diaphragmatic abscess which connects it with the diseased area around the appendix. I have known both pleural cavities invaded under similar circumstances—a hopeless complication,

Another form is equally alarming, although fortunately,

not necessarily fatal. I mean the development of an abscess cavity at the base of the right chest, and rupture of it into the bronchi wlth discharges of quantities of foul pus. Few conditions of the class which we are now considering could be more distressing or appear more desperate than this. The patient, with a recent surgical wound in the right iliac fossa which is still being drained, is compelled to sit up or to be raised in bed on account of violent paroxysms of cough, accompanied with discharge of mouthfuls of offensive sputum, and followed by alarming dyspnœa and collapse. Yet, as I have said, even from this unpromising condition he may be rescued by perseverance in strict surgical and constitutional treatment. Thus, in a case that I have in my mind as I attempt to describe this grave type of chest disease in appendicitis, which I saw in consultation with Dr. Rushworth, of Hampstead, and in which we had the invaluable surgical assistance of Professor Barker, not only all symptoms but practically all the physical signs of pulmonary abscess disappeared within six weeks. Only a trace of dulness and occasional crackling over the right lower lobe remained to point to the seat of cavernous breathing and bubbling *râles* which accompanied the acute phase of the process. I need hardly remind you, however, that there are other and even more unpromising, indeed quite hopeless, intrathoracic complications of purulent perityphlitis, including septic endocarditis, in which the line of infection can be traced back through the liver (pyæmic abscess) and portal vein (pylephlebitis) to the appendix.

If it may appear to some of you that I have said enough, or more than enough, on the subject of the association of disease within the chest, in one form or other, with perityphlitis, I can but reply that the time which I have devoted to it in this lecture is strictly proportionate to its frequency in my own experience. I should call it by no means an uncommon event, and at the same time one which in routine practice not seldom remains for a time unrecognised, probably because of the considerable distance of the two seats of disease from each other.

Affections of the Chest Secondary to Hepatic Disease

This brings me to speak of a more obvious, because more immediate or continuous as well as familiar, association of abdominal and intrathoracic disease. I refer to

secondary affections of the right pleura and lung in abscess of the liver, inflammatory affections of the gall bladder and bile ducts, and other morbid conditions of these viscera. Tropical abscess is by no means a common disease in this country, yet there can be but few of us here this evening who have not met with it in practice, and many of us must have seen at least one instance of hepatic abscess bursting through the lung. It is the right chest that is invaded as a rule; and the physical signs, not only at the base but occasionally at least well upwards into the pulmonary region, can be easily traced. Only a few days ago I met with an instance of invasion of the left pleura in this connection. A young man who had suffered from dysentery and hepatitis in Burmah was found to have a large swelling in the epigastrium, and the lower sternal region pitted on pressure. The most urgent condition, however, of quite recent development, was dry pleurisy of the left side, characterised by pain and loud friction sound all over the anterior and lateral base. Two days later a large hepatic abscess was safely evacuated.

I will not dwell longer on this class of cases, which, as I have said, are comparatively common, very obvious and readily recognised. Nor will I do more than make a passing reference to the occasional occurrence of right pleurisy in gall stones and their local effects on the neighbouring parts. This association is met with not only as an acute complication of the presence and passage of gall stones, that is, as acute right pleurisy following on hepatic colic, but also as a chronic process involving the base of the right chest and the right hypochondrium, where the signs may be extremely complex and difficult to interpret.

We have now reviewed a sufficient number of cases belonging to the first of the two classes which I proposed to examine, to justify us in formulating a practical conclusion. I would do so in these terms: In all obscure diseases within the abdomen, particularly diseases of an inflammatory kind, let it be a clinical rule to examine the chest with special care. I fancy I hear some of you saying to yourselves, "Of course this is a clinical rule, recognised, taught, and followed." With all respect I would ask, Do we follow this rule on all occasions, or even as a matter of ordinary clinical routine? I confess I am somewhat doubtful. And now I would go further and give you as a corollary the further counsel; Let such physical examina-

tion of the base of the chest in obscure and anxious abdominal cases be repeated as often as examination of the abdomen itself, daily if necessary, for it is an essential feature of the association that it supervenes in the course of the primary disease, and develops under our observation.

II.

The second set of circumstances in which the association of abdominal and thoracic disease presents itself to us clinically, whilst perhaps less frequent than that which I have just reviewed, is quite as important, and in one way even more interesting. It is, as it were, the reverse presentment of the related diseases. In the course of the investigation of a case of disease of the chest, such as a pleurisy or a basic cavity, we discover evidence of disease within the abdomen. This observation appears at first to add to the difficulty of diagnosis, but it serves to simplify it. The disease below the diaphragm proves to be the primary of the two, and the nature and course of the case from first to last, as well as the indications for treatment, are cleared up. I have met with many instances of this relation of intrathoracic and abdominal disease diagnostically, and I will now relate to you very briefly a few of the most instructive of them.

Hepatic Disease

A single lady, aged 40, who was described as a chronic dyspeptic, consulted her medical attendant for pain in the right hypochondrium. He found the physical signs of a considerable effusion in the pleural cavity, and asked me to see the case with him in consultation with a view to treatment. His diagnosis was easily confirmed. There was dulness over the right base, anteriorily as high as the nipple line, posteriorily above the scapular apex; and the auscultatory signs corresponding were characteristic of fluid. The side was tender, suggesting empyema; but it had been rather freely painted with iodine to promote absorption of the exudation.

Now, I hardly need remind you that we must never rest content with the diagnosis "pleurisy" in any case that may come under our observation and care. "Pleurisy" is nothing more than an anatomical expression—inflamma-

tion of the pleura. It is quite incomplete and insufficient as a working diagnosis. By itself it will not carry the weight of any useful prognosis or line of treatment that we might attempt to base upon it. You will agree with me that we can neither say whether a patient will live or will die, nor order treatment for him likely to be of any service, if we diagnose that he has "sore throat," and go no farther. The most inexperienced and the most casual of us takes another step in his enquiry, and determines whether the sore throat be scarlatinal, or diphtherial, or syphilitic, or rheumatic, or gouty, or the result of a recent operation on the tonsils, or whatever else it may be. Is the same proper course of enquiry followed in every case of inflammation of the pleura? Or does not the term "pleurisy" sound so complete and sufficient, based as it is, also, on the result of an elaborate examination of the chest, that the practitioner rests satisfied with it, and thereupon proceeds to plan his treatment? I am afraid this is sometimes done, and no attempt made to determine the nature, kind or origin of the pleurisy: whether tuberculous, rheumatic, scarlatinal, influenzal, malignant, related to nephritis, septic, or produced by one or other of the micro-organisms which are now known to produce it. Now to return to the case which I was reciting to you. When the diagnosis of right pleurisy with effusion was confirmed, my friend and I tried to connect it with one or other of these causes, but in vain. Our investigation had to be carried further, and naturally it was carried into the abdomen. And there the cause was found at once. The liver was the seat of an extensive growth, quite obviously malignant. The effusion in the right pleural cavity proved to be an insignificant event in the course of a disease which would end fatally in a few weeks.

Pleurisy and Perigastric Abscess

Next let me tell you of a case of what appeared at first to be nothing more than a simple serous pleurisy involving the other side of the chest. A delicate-looking girl of 18, who had been taken with severe pain in the left subaxilla, was found after some days to have dulness over the whole of the corresponding lung, loss of fremitus, weak bronchial breath sounds, and ægophony. She suffered from severe dyspnœa on movement; and her case being in this respect and otherwise urgent, she was admitted into the Brompton

Hospital. The resident medical officer confirmed the diagnosis, found pus by means of a long fine needle, and sent for Mr. Godlee. The rest of the case has been recorded by Mr. Godlee himself. The preliminary exploration made by him revealed the presence of serum, not pus, in the left chest; he diagnosed pus within the abdomen; and, by adopting a carefully-planned method of operation, evacuated a perigastric abscess lying below the diaphragm, and a large serous effusion lying in the pleural cavity above it. The girl recovered, after an unusually eventful history, from what was at first called "simple pleurisy with effusion."

Pleurisy and Perinephritis

Very curiously, I have met with an exact counterpart of this case as regards the possible fallacies, difficulties and dangers connected with diagnosis, but on the right side of the chest instead of the left. A gentleman of 45 was seized with urgent symptoms of right pleurisy, and the physical signs of fluid in the chest were easily made out. He was exceedingly ill when I saw him in consultation on the third day. Along with the account of pleurisy there was a curious and perplexing history of abdominal pain and of urinary disturbance. Examination of the right lumbar region elicited tenderness, and the urine proved to contain blood and much albumen. Perinephritis and associated pleurisy were diagnosed; and we arranged to get the help of a surgeon. Before doing so, however, my friend wished to confirm the diagnosis, and passed a needle into the lower part of the right side. Pus was found and empyema was diagnosed. Next day an exploratory operation was performed. The right pleural cavity contained abundant fluid, but this was serous, not purulent; and underneath the right wing of the diaphragm in the region of the kidney was a collection of extremely offensive matter. Unfortunately the case did badly.

I could easily multiply descriptions of cases of this kind which I have met with from time to time, and in which the order of discovery has been, first, that of acute disease within the chest, whether pleuritic or pulmonary or both, and thereafter that of abdominal disease, which proved to have been the primary lesion. Thus I have known the diagnosis of hydatid of the liver preceded for months by the discovery of a band of soft crepitus round the base of

the right chest, that is, along the line of attachment of the diaphragm, for which we could not account. When the tumour developed with its characteristic signs in the hypochondrium there was no difficulty. But I must pass on to equally instructive experiences of a related but different kind.

Pleurisy and Peritonitis (Tuberculous)

The first of these is the case of a man, aged 40, who came of delicate stock, and had himself long been weakly, thin and anæmic. Quite recently he had become manifestly unwell, and been compelled to give up work, when it was found that he was feverish and had a patch of pleurisy at the base of the right chest. He grew steadily worse, and had to keep his bed; yet there was nothing of an obvious character to account for this, the basic signs being by no means extensive. His condition was then investigated with particular care, and it was discovered that in addition to the chest disease there was a small quantity of fluid in the peritoneal cavity. The diagnosis now became clear—the man had active tuberculosis; and I may add that he died of this in a few weeks. This case will remind you of that other instance of associated tuberculosis of the abdomen and chest which I related to you in the first part of my lecture. Only the order of discovery and diagnosis is reversed in the two histories. In the one, what was believed to be ascites from hepatic disease was proved to be tuberculous peritonitis by the discovery of associated disease above the diaphragm; in the other, an insignificant-looking affection of the pleura was proved to be tuberculosis by the discovery of associated disease in the abdomen.

Hydatid of the Liver

Leaving for a moment physical signs, I need hardly remind you that symptoms connected with the lungs are frequently the first phenomena to direct our attention to the abdomen. How instructive, for example, is the following case: I was consulted by a stout but soft-looking man of middle age for what he called blood spitting and pain under the right breast. It was an easy matter to discover impairment of respiratory movement and of percussion resonance, as well as a few small crepitant sounds, over the right lower lobe, back and front, but I failed to find a satis-

factory explanation either of the chronic pleurisy or of the hæmorrhagic sputum. I therefore extended my observations in two directions. I made an ordinary microscopical examination of a specimen of the sputum which the patient coughed up for me, and in it, after a little search, I found a single hydatid hooklet. At the same time physical examination of the hypochondrium readily revealed the presence of hydatid tumour of the liver. This, however, was not the end of the diagnosis of the case, to which I shall return presently to show how it was incomplete after all, and the result correspondingly unsatisfactory, from want of sufficient care in the study of the very symptom, namely hæmorrhagic expectoration, which had proved so suggestive to me. Meanwhile, let me say that the sudden discharge of pus, bile, hydatid membranes, and the like, by cough and expectoration, may come under our observation at any time as the first symptom or event that compels the patient to seek advice for disease of the liver or other abdominal organ.

I have now related a sufficient number of this series of cases to make the clinical bearing of them obvious; and I may venture to state it in the form of a second clinical rule for your acceptance, as I did the conclusion at which we arrived from a study of my first series. Let it be a rule of practice in every instance of pleurisy and pulmonary disease, or of difficulty in connection with the interpretation of pulmonary symptoms, particularly at the base of the chest, to complete our examination with a careful enquiry into the condition of the stomach, the liver, the intestines, the other abdominal viscera, and the peritoneum itself, remembering that affections of the chest often originate below the diaphragm. I would particularly ask you to observe that the risk of your failing to follow this second rule is greater than the probability of your neglecting the first. As a matter of fact it is not generally observed. Examination of the abdomen is not a routine procedure when the patient's complaints relate to the chest, especially if the patient be a woman. But as I have already said, there is usually another reason for this oversight when we commit it, namely, that we rest content with the diagnosis "pleurisy," "cavity," "hæmoptysis," or the like, which, however elaborate it may sound, is nothing more than a first step towards a working acquaintance with the case. And as the risk of omission is con-

siderable, so also the discredit that may follow it is serious. It is very unfortunate to call by the name of "pleurisy" a grave abdominal disease like perigastric abscess, or tuberculous peritonitis, or cancer of the liver.

III.

Difficulties in Diagnosis

I have spoken so fully on the association of diseases of the abdomen and chest, and raised it to a position of such importance by taking it as the subject of the Hunterian Lecture, that I fear lest I may have gone too far and be responsible for your discovery of it in cases where it does not exist. This is a mistake which is easily made. A good many other conditions simulate very closely that which we have been considering this evening. Let me mention a few of the commonest of them.

In the first place, invasion of the pleura and lung from the abdomen is simulated by secondary affections of the same parts in puerperal septicæmia originating in the pelvis. I need not do more than mention this serious condition, which occasions so much anxiety when it occurs in your midwifery practice. No doubt its pathology varies considerably in different instances, but certainly in cases that I have recently seen the infection reached the chest through the blood stream, not *viâ* the lymphatics of the peritoneum and diaphragm. This reminds me of a mistake that I once made in the diagnosis of a case of pleurisy following a pelvic operation. A single woman of 35 had a papillomatous mass removed from the neighbourhood of the uterus by combined suprapubic and intravaginal operation. All went well for a few days, but then the temperature rose, vomiting set in, and empyema developed in the right side of the chest. In spite of the fact that there was not a trace of peritonitis, I maintained that the relation of operation and empyema was too obvious to be ignored. But I was wrong. The case recovered after incision and drainage; there was no septicæmia; and the empyema was proved to be influenzal, for it turned out that the patient's sister had come and sat by her bedside straight from that of a friend with influenza.

The second error in diagnosis that might be made by one somewhat over-zealous to discover an instance of the connection which we are discussing, consists in inter-

preting every patch of dulness and crepitus at the base of the chest as significant of invasion of the lung or pleura. We must not forget that in great enlargements of the liver an area yielding these signs may be due to compression and displcement upwards of the lower lobe of the right lung; and that the same parts may be hypostatically congested and œdematous, if the patient has been confined to bed for some time. Nor are the symptoms always so free from possible fallacies that mistakes may not occur unless scrupulous care be exercised in the investigation of them. I promised a few minutes ago to return to this point in connection with the case of hydatid of the liver and hæmorrhagic sputum which I described to you. You will remember that I found a hydatid hooklet in the sputum, and the ordinary physical signs of hydatid of the liver. Now the hydatid of the liver, which was a very large one, was treated surgically but unsuccessfully, for the patient died, and then we discovered that the blood-stained sputa had not come from the hydatid of the liver at all, but from a second hydatid at the base of the right lung. If I had examined the blood-stained products more carefully, I should have been able to determine that they contained neither bile nor hepatic tissue.

Lastly, it is very often difficult, and sometimes impossible, to make a differential diagnosis of the seat of the primary lesion in the abdomen which has invaded the chest, that is to say, whether it is in or around the stomach, the bowel, the liver, the kidney, or one of the other viscera. But this is a part of the subject into which you will not expect me to enter now.

In conclusion, and, as it were, by way of postscript, let me notice two other points of interest indirectly connected with our present subject. The first is a pathological one. We have had before us to-night many instances of the passage of infective materials from the abdomen into the pleura. May not this be the usual route by which the pleura is invaded by the tubercle bacillus? We all know how extremely common tuberculous pleurisy is, and how, as a rule, it precedes the pulmonary disease by months or by years. In the face of what we have been studying this evening, is it not likely that the bacillus often reaches the pleura in the lymphatic stream through the diaphragm from the peritoneal cavity with its many visceral relations?

The second point is a strictly practical one. Indeed, so thoroughly practical and important is it that this must

serve as my excuse for introducing it into a subject to which it does not strictly belong. I refer to the condition of the abdomen in acute disease within the chest, particularly acute bronchitis and acute pneumonia. Distension of the stomach is a very common condition in these diseases, partly produced by free feeding with fluid diet. Intestinal distension is frequently associated with diarrhœa in acute pneumonia. In both cases the diaphragm is driven and kept forcibly upwards against the lungs and heart; respiration and circulation are grievously handicapped; and the patient may perish in consequence of an adventitious embarrassment which is preventable or remediable. Might I venture, then, to submit to you a third rule of practice? Never neglect to examine with particular care the state of the abdomen with respect to distension and pressure in every case of acute pulmonary disease.

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ESSAYS ON HYSTERECTOMY

BY

J. BLAND-SUTTON, F.R.C.S.,

SURGEON TO THE CHELSEA HOSPITAL FOR WOMEN; SURGEON TO OUT-PATIENTS AT MIDDLESEX HOSPITAL.

London
ADLARD AND SON
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A gravid uterus in sagittal section. The patient miscarried at the seventh month, and the arm presented. Delivery being impossible on account of a large cervical fibroid, the uterus, with its tumours, contents, and cervix, was removed (panhysterectomy). The patient, a primipara aged 34 years, recovered (*Trans. Obstet. Soc. London*, 1904).

This is probably the first recorded example of panhysterectomy during labour.

PREFACE

THE officers responsible for the Surgical Section of the British Medical Association, which met at Oxford, July, 1904, invited me to open a discussion on the "Indications for Hysterectomy." The fact that the operative treatment of an organ usually neglected by the general surgeon should be accorded a prominent position in the Surgical Section is an epoch-making event, and a very significant "sign of the times." Forty years ago the term Hysterectomy was uncoined, and for many years subsequently this operation, especially when employed for fibroids, remained under a ban, but now it ranks among the brilliant health-preserving operations of modern surgery. It was impossible in the time allowed for opening the "discussion" to give details in support of my opinions, so I take the opportunity of reprinting the opening address and collecting some scattered essays which embody the evidence relating to debatable points.

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47, Brook Street,
Grosvenor Square,
London, W.;
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CONTENTS

ESSAYS ON HYSTERECTOMY

A DISCUSSION ON THE INDICATIONS FOR HYSTERECTOMY, AND THE METHODS FOR PERFORMING IT.

Great as have been the advances of surgery in the treatment of diseases of the abdominal viscera, none can compare with the success which has rewarded the efforts of surgeons during the last ten years in the operative treatment of diseases of the uterus. One of the first consequences of what may be called surgical aggression among the viscera is the marked increase in the extent, as well as in the accuracy of our knowledge of the pathology of the abdominal and pelvic organs. This has happened in the case of the uterus, and I shall endeavour to show that the surgery of this organ has been advanced and placed upon a secure foundation, by the very fact that the efforts of surgeons made a proper clinical and pathological investigation of its diseases possible.

Cancer of the Uterus.

In considering the indications for hysterectomy, cancer of the uterus necessarily holds the foremost place, for it was with the hope of combating this foul disease which led surgeons in the first instance to attempt the complete extirpation of this organ. The early efforts in this direc-

tion were made by the abdominal route, and were in most instances miserable failures, but the primary success which followed operative endeavours conducted through the vagina completely revolutionised the methods of dealing with this disease surgically, and the complete extirpation of the cancerous uterus soon replaced the unsatisfactory niggling operations such as scraping, cauterising, and partial amputation of the cervix.

It soon became clear that the complete removal of a cancerous uterus, though it was attended by a low mortality in skilled hands, was followed by very unsatisfactory remote results, and this led to a more thorough inquiry into the nature, course, and modes by which cancer of the uterus destroyed its victims. From careful studies conducted in the wards and laboratories, the indications for performing hysterectomy in cases of uterine cancer can be fairly well formulated.

Cancer of the cervix uteri.—Without laying down any hard and fast rules it may be stated that in suitable cases, the uterus is best removed in this disease by the vaginal route as it enables the surgeon to excise the tissues about the cervix uteri widely, and at the same time enables him to avoid the bladder, the ureters, and rectum.

In order to secure a good result it is of the highest importance to make a very careful selection of the cases. The disease should be limited to the cervical tissues; and the broad ligaments should be free from any suspicion of infiltration. These are matters which cannot be satisfactorily determined by the finger alone, but by examination under an anæsthetic; it is surprising how often a case seems favourable for operation when digitally explored, and yet woefully disappoints the surgeon when the parts are exposed with the help of a speculum in a good light.

My hospital experience shows that out of one hundred consecutive patients with cancer of the neck of the uterus, about 5 per cent. are favourable subjects for the purposes of operation. No doubt many think that I am too exclusive in selecting cases for operation, but I am satisfied that

if hysterectomy is not to be discredited as a mode of treatment in this disease it is necessary to select the cases with very great care.

Cancer of the neck of the uterus and pregnancy.—It may be stated without fear of contradiction that the most appalling complication of pregnancy is cancer of the neck of the uterus; unfortunately it is not uncommon, but it is not often that the cancer obstructs labour, and this is explained on two grounds:

1. Cancer of the cervix predisposes to abortion.
2. When it has advanced to such a stage as to fill the vagina with an obstructive mass it has had such an effect on the health of the mother that it endangers the life of the fœtus and leads to miscarriage.

A study of the literature relating to this complication indicates, that when a pregnant woman with early cancer of the cervix comes under observation in the early months, her best hope lies in vaginal hysterectomy. In the later months (4—7) very good consequences have followed amputation of the cervix, and this operation has been performed without disturbing the pregnancy. In the latest stages the best consequences have followed the induction of labour and the immediate performance of vaginal hysterectomy, for, surprising as it may seem, the uterus, though enlarged by the pregnancy, can be safely extracted through the vagina. These methods of course only apply to cases where the cancer is in such a condition as to afford reasonable hope of a prolongation of life.

Cancer of the body of the uterus.—Pathological inquiry has let a flood of light into the dark corners of the uterus. The fog of names which formerly obscured the changes, malignant and otherwise, of the endometrium has been dispelled. "Cancer of the body of the uterus," as it is called in the loose phraseology of the wards, has been carefully studied, and is known to be less frequent than cancer of the cervix, that it is more liable to arise in elderly spinsters and sterile married women than in those that are fertile. It is clear that there are two varieties,

and that the disease spreads and destroys its victims in a manner different to cancer of the cervix. It may attack a uterus beset with fibroids, or arise in a senile atrophic organ. On the whole it is less virulent than the cervical form and is best dealt with by complete removal of the uterus, Fallopian tubes, and ovaries by the abdominal route.

The remote results of hysterectomy for cancer of the body of the uterus are very good when performed before the disease has perforated the uterine wall. The best results are met with in the rarer instances in which the disease arises in a senile uterus. The chief points which guide the surgeon in determining the particular route by which he will remove a cancerous uterus are in the main based upon the known proclivities of the disease. Cancer of the cervix by spreading circumferentially tends to implicate the bladder, rectum, vesical ends of the ureters and vaginal mucous membrane, and is most completely open to free operative removal from the vagina, and as it is almost entirely confined to women who have been pregnant the vagina is usually large enough to permit the necessary manipulation. Cancer in the corporeal endometrium tends to spread into the uterine sections of the Fallopian tubes, making it imperative that these structures should be freely removed, is a fact in favour of the abdominal route, and this proceeding is in many instances enforced on the surgeon by the narrowness of the vagina in spinsters and sterile married women even when the uterus is atrophic.

Cancer of the Fallopian Tube.

As an example of the manner in which the enterprises of modern surgery have reacted on the acquisition of reliable clinical knowledge, I may take this opportunity of drawing attention to cancer of the Fallopian tube. Our knowledge of this disease dates from 1888, and making full allowance for cases in which it is possible and even

probable, that some cases recorded as examples of primary tubal cancer were instances of cancer of the endometrium extending into the uterine ends of the tubes, there is now a large body of carefully prepared evidence to prove that cancer may arise primarily in the tubal mucous membrane. The subject is one which must be considered here, for the signs of the disease are those exhibited by cancer of the body of the uterus, namely irregular hæmorrhages at, or more frequently subsequent to the menopause. I am also of opinion that in cases where the uterus has been dilated for diagnostic purposes, where the signs strongly indicated cancer of the body of the uterus and no disease was found on examination and the hæmorrhage continued, in some of those cases there may have been cancer in the Fallopian tube (p. 35).

Primary cancer of the tube is very malignant, and gives bad remote results to operative treatment even when the uterus has been removed with the tubes. Certainly it seems that it is better not to remove the uterus, but we await with patience the results of more experience.

Deciduoma malignum (chorion-epithelioma). — This dreadful disease for which complete extirpation of the uterus is at present the only available remedy, may be described in the phraseology so familiar to zoologists as "a species new to science," it is "newer" than cancer of the Fallopian tube. Very few examples have been observed in England, and most of our knowledge concerning its pathology and clinical characters we owe to German workers. The most complete account of this disease accessible to British surgeons is an admirable paper furnished by Dr. John H. Teacher to the 'Transactions of the Obstetrical Society,' London, 1903, which contains a tabular statement of the results of operative treatment of the disease, the result of an analysis of 188 recorded cases. His opinion may be given in his own words: "It seems reasonable to conclude that operation offers a fair chance of recovery, and, further, that it may be done with some prospect of success in the face of the gravest signs of

disease, and even of metastasis, having occurred." Thus what I have said in regard to primary cancer of the Fallopian tube is equally applicable to deciduoma malignum, we must wait with patience the results of more experience.

Fibroids and Sarcoma of the Uterus.

The history of attempts made by surgeons to relieve women of troublesome and dangerous fibroids has an interest surpassing that of ovariotomy: indeed the successful removal of a uterus beset with fibroids ranks, in some circumstances, among the greatest enterprises of modern surgery.

The wide interest in, and the extraordinary success which in the last ten years has followed the radical treatment of uterine tumours depends on several causes:

(1) The establishment of the intraperitoneal method of treating the stump, and the extension of the operation known as panhysterectomy.

(2) The gradual recognition of the view, that fibroids of the uterus cease to be troublesome at the menopause, applies only to a small proportion of cases (p. 30).

It is also clear that the term fibroid is of generic value only. Many tumours are truly myomata, others with equal truth merit the name fibromyomata. There is also the soft jelly-like uterine tumour met with most commonly in the interval from the twenty-fifth to the thirty-fifth year associated with profuse menorrhagia, profound (toxic) anæmia which on section after removal resembles a mass of trembling jelly (myxoma); this tumour so often described as a degenerate fibroid is not so, in fact, it is a primary condition and serves to bridge the interval between the true fibromyomata and sarcoma of the uterus. Many tumours described as uterine fibroids which had undergone malignant change, were in all probability sarcomata in their beginning.

There is a consensus of opinion among surgeons and

gynæcologists that operative interference with fibroids may be recommended in the following circumstances:

1. When the fibroids cause profuse and long-continuing menorrhagia.

2. When the fibroid is septic and gangrenous.

3. Impacted and irreducible fibroids causing pain and retention of urine.

4. Fibroids which are growing rapidly and those which are degenerate and softened (cystic).

5. Cervix-fibroids too large to admit of removal by the vagina (p. 43).

6. Fibroids complicating pregnancy, delivery and puerpery, in certain circumstances (p. 66).

Although these conditions indicate and justify the surgical treatment of uterine fibroids, there are certain points of difference among surgeons as to the best mode of carrying it out. It would have been interesting to have traced the evolution of the methods of performing hysterectomy, but I may state without any fear of contradiction that the present position of the operation is due to the introduction of the aseptic ligature and the intraperitoneal method of treating the cervical stump. This is best known to-day as the supravaginal method of hysterectomy. A careful study of the subsequent course of the patient led observant operators to notice that in a given series of cases those patients did best in whom the cervix had been most freely removed, and this soon led some surgeons to adopt what is known as panhysterectomy, or complete removal of the cervix, as well as the body of the uterus.

I have given all the methods a fair trial and come to the following conclusions:

1. That under certain conditions myomectomy, abdominal enucleation and hysterotomy are very useful measures.

2. That supravaginal hysterectomy is a very suitable and excellent operation in a large proportion of patients.

3. Panhysterectomy is as safe an operation as supra-

vaginal hysterectomy; it is desirable in many cases to remove the whole cervix, but it is not necessary to do this as a routine procedure.

The reasons for these opinions must be considered in some detail.

It is, I believe, admitted by most writers that the ideal method of dealing with fibroids requiring removal by cœliotomy is to remove them either by ligature or by enucleation, and in certain circumstances by actually opening the uterine cavity, extracting the tumour, and then suturing the incision as after a Cæsarean section, an operation to which I applied the term *hysterotomy*. In actual practice this ideal operation of removing the tumours and leaving the uterus and ovaries intact can only be carried out in a small proportion of cases, probably in less than 10 per cent., and it is fair to state that enucleation and hysterotomy are often more troublesome and serious operations than hysterectomy, also the preservation of the uterus is not always an advantage to the patient.

When a woman is submitted to hysterectomy for fibroids we can assure her that the tumours will not recur, but after a myomectomy or enucleation in a woman in the reproductive period of life we cannot give her this assurance, for she may have in her uterus many "seedling" or what I prefer to call "latent fibroids," and one or several of these may grow into formidable tumours.

My rule of practice in this matter may be summarised thus:

A young woman contemplating marriage, or a married woman anxious for an offspring, may, if her tumour be single and admits of myomectomy or enucleation, have her uterus spared. Although I have carried out these measures on many occasions I only know of five patients who have subsequently borne children.

It is, however, a matter of greater interest to me to relate that in several instances of pregnancy complicated with tumours, and in which the signs were very urgent,

that on performing cœliotomy I have succeeded in removing the fibroid without disturbing the pregnancy, and it has gone safely to term and the child has survived. Another legitimate class of case in which myomectomy is a very safe undertaking is in patients at, or after, the menopause, where a stalked fibroid gives trouble by twisting its pedicle, or by shrinking to such a size that it falls into the true pelvis and becomes impacted; or more rarely, the pedicle of such a tumour may entangle a loop of small intestine and obstruct it.

In regard to the removal of the uterus for fibroids I hold very definite opinions, preferring the method known as supravaginal hysterectomy: it is a simpler operation than panhysterectomy, attended with less shock, and involves less risk to the ureters. In a carefully performed supravaginal hysterectomy within a few weeks of the operation the cervical stump is movable, and the vaginal vault free and undamaged, and the condition of the parts is such that by digital examination or inspection it would be difficult to determine that the patient had lost her uterus.

The advocates of routine panhysterectomy write that the risk of danger to the ureters has been exaggerated, and urge that by leaving a cervical stump the patient runs a risk of acquiring malignant disease. They admit that the operation is somewhat more difficult and takes longer to perform than the supravaginal operation. It is impossible to ignore the fact that extirpation of the cervix, whether by the abdominal or the vaginal route, greatly imperils the integrity of the ureters. Sampson states that in 156 hysterectomies for cancer of the cervix, the ureter was injured in nineteen cases. The injuries were of various kinds, as "ligating, clamping, cauterising, cutting," etc. These operations were performed in the Johns Hopkins Hospital from August, 1899, to January 1st, 1904.

In all questions of this kind it may be taken for granted that there is much to be said on both sides. There are cases where the simpler method is sufficient, safe and satisfactory. Supravaginal hysterectomy in a spinster, or

a childless married woman with a large fibroid in a uterus with a long narrow neck and an undilated healthy cervical canal is as safe as any major operation in surgery, and if care is taken to bring the cervical flaps into strict contact they will unite by first intention, and the patient recover without a rise of temperature from the time of operation to complete recovery.

When hysterectomy is required in married women, and especially those who have had children, in whom the cervical canal is patulous, perhaps septic, and in many cases large and hard, or large and spongy, then it is to the patient's advantage to have the cervix completely removed, and especially if she be more than forty years of age.

I have performed panhysterectomy one hundred times in order that I could speak with confidence on its merits and demerits. There are conditions such as I have mentioned above in which it is judicious to remove the cervix with the uterus, and that surgeon acts best towards his patient who does not follow any routine method but modifies the operation according to the necessity of the case.

When it is necessary to remove the uterus for fibroids obstructing labour it is the custom to perform supravaginal hysterectomy. In June (1904) I reported a case to the Obstetrical Society, London, in which I performed panhysterectomy on a patient who miscarried at the seventh month of pregnancy, the passage of the fœtus being barred by a large fibroid growing from the posterior aspect of the supravaginal cervix (Fig. 1).

The superiority and safety of supravaginal hysterectomy or panhysterectomy turns in the main upon some very important questions which have been raised in regard to the liability of the cervical stump to be attacked by cancer. A number of observations have been recorded in which, after removal of the body of the uterus, cancer or sarcoma has attacked the cervix. But a careful analysis of the reputed cases proves clearly that in some of the patients the cervix was already cancerous at the time of removal of the body of the uterus, and in some the

reporters state the tumours suspected to be fibroids at the time of the primary operation were, in reality, sarcomata. In a few instances cancer of the cervix appeared in the stump at such an interval after the hysterectomy as to entitle it to rank as a new invasion (p. 52).

The bearing of these things is significant, for it teaches us to carefully examine the cervix for evidence of early cancer in association with fibroids, and to remove it if the appearances are suspicious; it also behoves us to have soft fibroids carefully examined, for a tumour we unsuspectingly regard as a benign fibroid may be in reality a sarcoma. I am very sceptical of what is called the metamorphosis of a fibroid into a sarcoma. It is also good to remember that carcinoma is not a degeneration! Lastly, it is important when sufficient observations are forthcoming, to determine whether cancer of the cervix occurs more frequently in women who have undergone supravaginal hysterectomy than in other circumstances.

The Treatment of the Ovaries in Hysterectomy for Fibroids.

In performing hysterectomy whether vaginal or abdominal for fibroids it is an important matter to decide how to deal with the ovaries. In a paper communicated to the Obstetrical Society, London, October, 1897, I stated that when operative interference was necessary in the treatment of fibroids during the menstrual period of life, I reversed the conditions of oöphorectomy, and instead of excising the ovaries and leaving the uterus, removed the uterus with its tumour, leaving one or both ovaries with the corresponding Fallopian tube. The immediate results of the innovation were admirable and spared the patient at least the inconvenience of an acute menopause. I fully recognised that it was a method well worth a wider experience than the fourteen examples referred to on that occasion. Three months later Dr. Howard Kelly, of Baltimore, published a paper on the same subject in the

'British Medical Journal,' January 29th, 1898, advocating from his own experience the same conservative idea. Since that time experience has taught me that the expected benefits were over-estimated, but that the preservation of ovarian tissue is of marked service to the patient within certain limits. Towards the end of 1901 Dr. Crewdson Thomas, who was then Registrar to the Chelsea Hospital for Women, attempted to determine these limits. He conducted an inquiry into the after-history of one hundred consecutive cases of supravaginal hysterectomy performed in that institution, and among the results of the analysis of his returns he came to the conclusion that supravaginal hysterectomy does not interfere with the sexual passion, and that the retention of an ovary is of striking value "in warding off the severity of an artificial menopause," this is more especially the case when the patient is below forty years: above that age the ovaries decrease in value every year ('Lancet,' 1902, vol. i, p. 294). As many of the patients which formed the subject of Crewdson Thomas's inquiries had been under my own care I not unnaturally took great interest in his work, and was so satisfied with the great care he expended on the investigation that his conclusions satisfied me. And since the publication of his excellent paper I have, as a working rule, usually removed both ovaries when performing hysterectomy for fibroids in patients aged forty years and upwards, and taken unusual pains to preserve at least one when healthy in women below that age.

Previous to Crewdson Thomas's inquiry my notes show that I left one or both ovaries in 50 per cent. of the cases in which hysterectomy was performed for fibroids; since 1901 the proportion has fallen below 20 per cent.

I have lost no opportunity of studying the fate of ovaries conserved in this way. On three occasions on which I have had an opportunity of studying the condition of these glands two, three, and five years after removal of the uterus, they had shrunk to small nodules about the size of a cherry-stone. Thus any benefit which is derived

from their retention is temporary, and its chief value lies in the circumstance that these patients are spared the annoyance and inconvenience of an acute and stormy menopause. Although I have left one or both ovaries in more than two hundred women in whom hysterectomy was performed for fibroids, in only one instance has it led to trouble. A lady aged fifty had a large cervical stump which suppurated after hysterectomy in March, 1898. This caused the right tube to become a pyosalpinx, and I removed it in November, 1900. At this date (1904) the patient is in admirable health.

There is another point in the age-value of the ovaries worth consideration. In a "discussion" at the Meeting of The British Medical Association held at Portsmouth, 1899, I drew attention to the analogy in the pathological tendencies of the thyroid gland and the ovaries; and it interested me very greatly to read some remarks of Sir Victor Horsley that "the thyroid gland which is such an extremely important organ in early life for the growth and development of the body becomes of less importance every year after the age of forty is passed, and most cases of carcinomata of the thyroid gland begin after the forty-fifth year." Certainly this is true of the ovaries.

Adenomyoma of the Uterus (Adenomyoma uteri diffusum benignum).

The term adenomyoma is applied to a pathological condition of the uterus, the leading features of which are admirably summarised by Cullen in the following terms: "It is diffuse in character, situated in the middle layer of the uterine wall and is dependent on the uterine mucosa for its glandular elements." Although several observers, including Recklinghausen, have recorded isolated examples of this disease, Cullen seems to have been the first to draw attention to its clinical importance (1897).

In well marked cases adenomyoma presents clinical features which cause it to resemble the common varieties

of submucous fibroids. The ages of the patients vary from twenty to fifty years; the uterus is enlarged, there is profuse and in some instances uncontrollable menorrhagia and profound anæmia.

When the uterus is removed and divided longitudinally, the walls are seen to be greatly thickened, measuring in some specimens 5 cm. (2 inches) in thickness; this increase is due to the formation of new tissue between the outer wall of the uterus (the subserous stratum) and the superficial layer of the endometrium. There is no attempt at encapsulation, and the term "diffuse" is thoroughly justified. The new tissue consists mainly of bundles of plain muscle fibre, which instead of being arranged in vortices, as is so common in the ordinary hard fibroid, are disposed in an irregular manner, and the spaces between the bundles are filled with the peculiar stroma of the uterine mucosa containing gland tubules lined with columnar epithelium and of the same type as the normal tubular glands of the endometrium. The glandular elements appear to be uniformly distributed throughout the adventitious tissue, and can be detected up to the limits of the thin muscular stratum underlying the peritoneal coat of the uterus.

My experience of this disease is limited to three cases, and in each operative interference was undertaken for what may, without any exaggeration, be described as uncontrollable menorrhagia, and in each it was supposed to be due to a submucous fibroid. The patients made an excellent recovery.

Adenomyoma of the uterus has been recently brought under the notice of British surgeons in an excellent paper by Mr. F. E. Taylor and Dr. Cameron in the 'Obstetrical Journal of Great Britain,' March, 1904, p. 248.

Fibrosis of the Uterus.

Under this term I described in 'The British Medical Journal,' 1899, vol. i, p. 839, a peculiar affection of the

uterus of which the leading clinical feature is uncontrollable menorrhagia. The regular abundant loss of blood is not merely uncontrollable from the point of view of drugs and rest, but also is irresistible to curetting, and in some of the cases which have been under my care the uterus had been repeatedly curetted by competent men. The disease, which is chiefly met with in women between thirty-five and forty-five years of age, is associated with striking structural changes in the uterus. The organ is larger than usual and its walls thick and tough. On microscopic examination the muscle tissue of the uterus is seen to be replaced by an abnormal growth of fibrous tissue. The walls of the uterine arteries are thick and the lumina of the vessels narrowed and occasionally obliterated. This change in the tissues of the uterus is, I believe, a remote result of septic endometritis. In unmarried women, and sometimes married (parous) women, the uncontrollable menorrhagia is sometimes simulated by diffuse adenomyoma of the uterus. The enlargement of the uterus in the latter disease should be a valuable diagnostic guide.

In cases of uncontrollable menorrhagia it is usual to perform bilateral oöphorectomy, but this is a mode of treatment which cannot be relied upon, because in so many cases it has little, and often no effect, upon the bleeding. This may be partly due to the difficulty of completely excising the ovaries. It is far safer to remove the uterus and leave the ovaries, unless there be strong evidence of disease in these bodies.

In some patients I have carried out vaginal, and in others abdominal hysterectomy. If the vagina is fairly capacious and the uterus but little enlarged, it is the preferable route. The remote results of hysterectomy for severe bleeding due to uterine fibrosis are admirable.

In discussing the radical treatment of uncontrollable menorrhagia depending on fibrosis of the uterus, it is necessary to emphasize the importance of removing the whole of what I have termed the *menstrual area* of the uterus—by this I mean that portion of the endometrium

which bleeds during menstruation. This area is the same as that which is concerned in the formation of the decidua and is delimited in Fig. 2. The area corresponds to the endometrium of the fundus and body of the uterus, a very small surface of the cervical canal and that portion of the mucous surface which extends into the cornua of the uterus to receive the adit of each Fallopian tube.

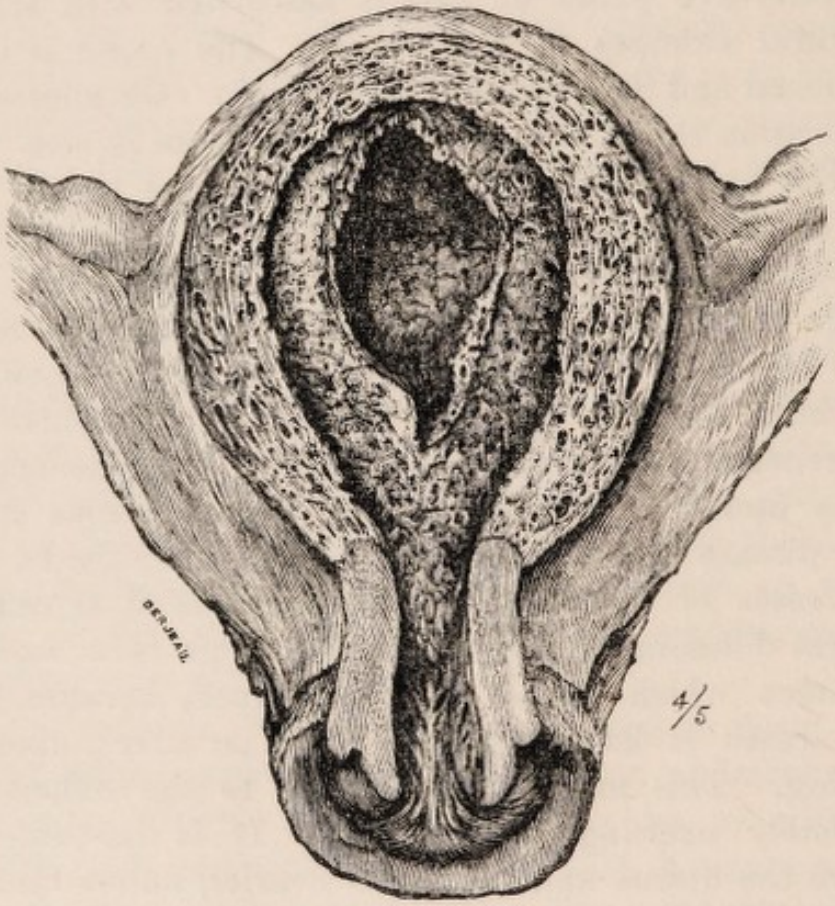

FIG. 2.—A uterus laid open along its anterior wall: it is lined with a thick decidua. From a case of tubal pregnancy. The drawing represents the "decidual" and the "menstrual area" of the uterus.

Since the publication of the original notice of this affection of the uterus I have performed hysterectomy for its relief on ten occasions; in each instance the operation was successful, and the remote results to the patient have been as remarkable as anything I have witnessed after the removal of any other abdominal viscus. The subsequent condition can only be described as admirable.

Extirpation of the Septic Uterus.

The consideration of uterine fibrosis, which, in my view of its pathology, is the remote sequel of a septic endometritis, leads us to the consideration of the treatment of the septic uterus in the acute stage.

Acute septic infection (puerperal) of the uterus, which is, alas! too frequent even in this antiseptic epoch, is a condition which scarcely lends itself to surgery. Attempts have been made to remove the uterus even in this desperate condition, but with no encouraging measure of success. Michels recently published an account of a bold piece of surgery wherein he followed Trendelenberg's example and excised the thrombosed ovarian veins and saved the life of his patient ('Lancet,' 1903, vol. i, 1025). Reflections on these facts leads me to strongly urge upon those who have the opportunity to investigate bacteriologically the clot in the ovarian veins in these conditions, for we need to know the nature of the micro-organism which establishes the clotting, as it may serve to throw light on those tragic cases in which, after abdominal operations, the patient appears to be convalescing smoothly, dies suddenly and without the slightest warning. I am strongly of opinion that sepsis is at the bottom of these surgical tragedies.

Acute gonorrhœal endometritis. — The desirability or otherwise of removing the uterus in this condition is sometimes forced upon the surgeon when he is called upon to remove the Fallopian tubes and ovaries in acute or sub-acute salpingitis. Those who have had much experience of operating in this disease must have occasionally felt perplexed in regard to the best way of treating the septic stumps of the tubes; and as both tubes and ovaries are removed it appears not unreasonable to regard the uterus as a useless organ, and one that is not infrequently a source of troublesome bleeding due to its septic endometrium. Several surgeons, myself among the number,

have under these conditions removed the uterus. It is, however, a proceeding which I cannot recommend save in very exceptional circumstances, as some of the patients had a long and tedious convalescence. The subject has been carefully considered by Hartmann and others in France and Germany.

My present practice in these cases of septic uterus is to allow the infection to subside and a long interval to follow the bilateral oöphorectomy; in many no very inconvenient consequences arise, but if the patient is much disturbed by the metrorrhagia and her health and industry are seriously affected, then vaginal or abdominal hysterectomy may be recommended, and in these circumstances it is a straightforward and comparatively safe proceeding.

Septic fibroids.—It is fortunate that in a large proportion of cases the uterus endeavours to extrude a septic fibroid, and it is equally true that a submucous fibroid becomes septic in consequence of being extruded by the uterus, but it is distressing to be asked to deal with a case in which a fibroid perhaps no larger than a Tangerine orange is hanging loosely from the uterus and the patient is in the last stages of septicæmia, yet this tumour could have been removed by a nurse. The uterus in such cases is infiltrated with pyogenic organisms, and the septic material creeps along the Fallopian tubes and infects the pelvic peritoneum. Septic endometritis accompanying a septic fibroid is a very dangerous condition for hysterectomy, but if the uterus can be removed by the vaginal route it is often followed by good consequence, but nearly always entails a long convalescence. If the fibroid is so large as to need abdominal panhysterectomy then the risks of the operation and the length of convalescence are greatly increased.

Hysterectomy in Cases of Ectopic Pregnancy.

It is occasionally necessary in three of the great subdivisions of abnormal pregnancy embraced under this

heading, namely, tubal, interstitial and cornual pregnancy, to remove the uterus in order to efficiently control the bleeding or for other reasons. In tubal pregnancy such a necessity rarely arises, but cases have been observed and recorded in which the hæmorrhage has torn up the tissues of the mesometrium, so that an experienced and conservative surgeon like Doran has found this step imperative, and I have had a similar experience.

In cases of interstitial or tubo-uterine pregnancy in which gestation has gone beyond the second month, the uterine tissues are so intimately incorporated with the gestation sac that the operator who is called upon to deal with hæmorrhage due to rupture of the sac will find it the only expedient open to him in the majority of cases.

In the condition known as "pregnancy in the rudimentary horn of a so-called unicorn uterus," or better "cornual pregnancy," the removal of the uterus may be regarded as the routine method of treatment, not only in those cases where operation is urgently indicated on the score of bleeding in cases where the fœtus is "quick," but also in the other variety in which the fœtus is dead and sequestrated, and in the rare instances in which the fœtus has undergone maceration, and only its skeleton remained (Remfrey). There is a condition of cornual pregnancy in which the fully-developed cornu may be spared, namely, that in which the rudimentary but gravid cornu is connected with it by a distinct and usually solid "pedicle." Many such have been observed and very carefully described.

Hæmatometra.—The great difficulty of maintaining the patency of the opening made for the evacuation of the retained blood in this condition had induced several operators, myself among the number, to remove the uterus and distended tubes by cœliotomy. The results, immediate and remote, are excellent, and there is little doubt that hysterectomy will become the recognised means of dealing with this condition.

The Ethics of Hysterectomy.

In a discussion concerned with the removal of the uterus, it is impossible to blink what may be called the ethical, or better the sentimental side of the question. So much mystery is shrouded in the phrase "reproduction of the species" and as much superstition and erroneous opinion clings about the uterus as poets have succeeded in securing for the heart: indeed a professional wag in discussing the uterus from the sentimental side describes the womb as a second heart. It is indeed somewhat curious to find those who do not for one moment hesitate to amputate a damaged leg, a crushed arm, enucleate an eyeball, or excise a larynx, express very conservative notions when it is proposed to remove the uterus for a disease which gravely imperils life.

Let us for a few moments seriously consider the nature of the uterus. This musculo-glandular organ strictly should be classed like the ovaries among the temporary glands. Its normal period of activity is coincident with menstrual life, which in Great Britain lasts thirty years (15–45), and after the occurrence of the menopause a healthy uterus, like the ovaries, shrinks and usually becomes an atrophic and insignificant organ. This change accomplished, a woman usually enjoys a healthy vigorous existence and retains to the full her mental powers. This is sufficient proof that whatever uses the ovaries and the glandular elements of the uterus fulfil in relation to sexual functions from the point of view of internal secretion, their arrest is in no way detrimental to the well-being of the individual.

It is established as a result of thousands of hysterectomies performed throughout the civilised world, that except amenorrhœa and sterility when the operation is performed during the sexual period of life, the removal of the uterus is followed less frequently by unpleasant sequelæ than any other major operation in surgery.

Hysterectomy has a wonderful future, and this is a great thing to say of an operation which forty years ago had no more reality than the story of "Jack the Giant Killer."

Hysterectomy.

Hysterectomy is the name applied to the surgical operation for the removal of the uterus, and it can be effected by two methods. In one access is obtained to the uterus through an incision in the lower part of the belly wall—this is known as *abdominal* hysterectomy; in the other the uterus is extirpated through the vagina, and is on this account termed *vaginal hysterectomy*.

It is somewhat remarkable that although the object of both operations is the same, namely removal of the uterus, in the abdominal method the surgeon takes every care to thoroughly close the peritoneum over the stump of the cervix, or the vaginal opening as the case may be, but in vaginal hysterectomy the edges of the gap in the peritoneum left by the removal of the uterus are as a rule allowed merely to fall into apposition.

It is also necessary to point out that the two methods differ in an important particular. The vaginal route allows the surgeon to deal thoroughly with diseased tissues in the immediate vicinity of the cervix, whereas the abdominal operation gives free access to, and affords the greatest scope for dealing with complications associated with the Fallopian tubes, ovaries, and the mesometria.

The results of both methods in the hands of surgeons accustomed to this class of work are among the most remarkable in surgery; to ensure success it is necessary to obtain a *rigid asepsis and perfect hæmostasis*, and any trespass in either is sure to be visited with penalties. Some surgeons believe that the peritoneum is capable of dealing successfully with a fair dose of pyogenic material as compared with connective-tissue, and seek to explain in this way some of the extraordinary successes recorded in

recent years. This is unfortunate, and may help to explain in part the high mortality of abdominal hysterectomy in the general hospitals of London. It is essential to be extremely careful in the preparation of the patient for operation, as well as the materials and instruments used during the operation, and more especially of the surgeon's hands, for these are a notorious source of danger. My working rule is this:

Nothing should be allowed inside a patient's abdomen that has not been boiled specially for the operation, and as the surgeon's hands cannot be sterilized by heat he should wear rubber gloves which have been boiled.

As the patient cannot be treated in this way her preparation is a matter of some importance.

Preliminaries.—It is essential to have the assistance of two nurses specially trained in abdominal work; they understand the methods of douching the vagina and preparing the parts, are apt at passing the catheter, and carry out these details without fuss. It is a good plan to have a nurse in attendance forty-eight hours before operation so she may shave the hair from the pubes and labia, and after thoroughly washing the operation area with soap and warm water make the skin thoroughly clean with such antiseptic solutions as the surgeon is accustomed to use. A solution of perchloride of mercury (1 in 5000) is a very efficient antiseptic agent for this purpose. The abdomen is swathed in compresses wrung out of this solution for twelve hours preceding the operation. The bowels should be thoroughly emptied by enemata and the patient abstains from food or drink at least six hours preceding operation. The bladder is emptied by a glass catheter immediately before the administration of the anæsthetic.

All instruments should be of metal throughout to permit them to be boiled for fifteen minutes. The ligature material should be silk of different thicknesses: silk wound on a reel can be boiled for one hour without impairing its strength.

Fishing or silk-worm gut is useful for suturing the middle layer of the abdominal wound: it should be boiled for one hour. Catgut is a very dangerous material; it cannot be boiled and should be discarded. For dabs, Gamgee tissue cut in squares varying in size and carefully hemmed is excellent. The material is cheap, capable of easy and efficient sterilisation by dry heat or boiling for an hour in water immediately before use, and should be burnt after each operation.

It is unnecessary to give minutely every detail in the preparation and sterilisation of instruments and material, for it may be assumed that no one would undertake such a serious operation as the removal of a uterus without some previous experience in operative surgery; most surgeons have had opportunities of witnessing the operation, or what is infinitely better, assisting a skilful surgeon in the performance of hysterectomy.

Abdominal Hysterectomy.

For the satisfactory performance of this operation the Trendelenberg position is indispensable: when the patient is in this position the arms should lie parallel with the trunk. This avoids pressure palsy of the arms and prevents the fingers being nipped when the table is restored to the horizontal position.

Instruments: Scalpel; twelve hæmostatic forceps; dissecting forceps; scissors; needles, curved and straight; silk of various thicknesses; a volsella; a pair of long forceps with fenestrated blades; silk-worm gut. The instruments should be immersed in warm sterilised water, and six dabs of various sizes: these should be washed in water (at 100° Fahr.) during the operation.

The anæsthetic depends on choice. I select experienced anæsthetists and leave the matter to their discretion.

Steps of the operation.—The operation area is isolated with sterilised towels, and the pelvis well tilted and so arranged as to face a good light; the wall of the abdomen

is freely incised in the middle line between the navel and the pubes. (This is conveniently referred to as the median subumbilical incision.) The actual length of the incision varies with the size of the uterus and the thickness of the abdominal wall. Its extent is of small moment and has no influence on the result of the operation. A free incision greatly facilitates manipulation, and in the case of very large tumours it may be necessary to carry it several inches above the navel.

The uterus is then exposed and, if possible, drawn out of the abdomen, and the intestines with the omentum carefully isolated with dabs. In a simple case the mesometria are seized with hæmostatic forceps and divided up to the uterus. If it is intended to preserve the ovaries the forceps are applied between the ovaries and the uterus, but if it be the intention to remove them then the forceps are applied to the mesometria near the brim of the pelvis beyond the outer pole of the ovary. At this stage also it is convenient and an advantage to divide the round ligament of the uterus after securing it with forceps. It is well to do this, not merely to secure its artery, but also to prevent it unduly retracting the peritoneum. When the mesometria are freely divided the uterine artery, with its companion veins, are seen at the sides of the uterus, and is, as a rule, easily secured with forceps. The surgeon then cuts a peritoneal flap from the anterior wall of the uterus and turns it downward, taking care not to injure the bladder. Then he fashions a similar flap from the posterior wall of the uterus. His subsequent proceedings will then depend on the manner in which he intends to treat the cervix.

If it be a simple case and is suitable for *supravaginal hysterectomy* he will then detach the uterus at a point corresponding to the internal os. Should he wish to remove the cervix, it will be necessary to open into the posterior cul-de-sac of the vagina, seize the tip of the cervix with a volsella, and then detach it from the vaginal wall by means of a scalpel (panhysterectomy). Suppose in the

first place the surgeon thinks it will only be necessary to remove the body of the uterus, and after he has detached it finds that the cervix needs removal also, this can easily be enucleated with the assistance of a volsella.

For several years I have practised and recommended the following plan, which is intermediate between the typical supravaginal method and panhysterectomy. In cases where there has been no inflammation, if the cervix

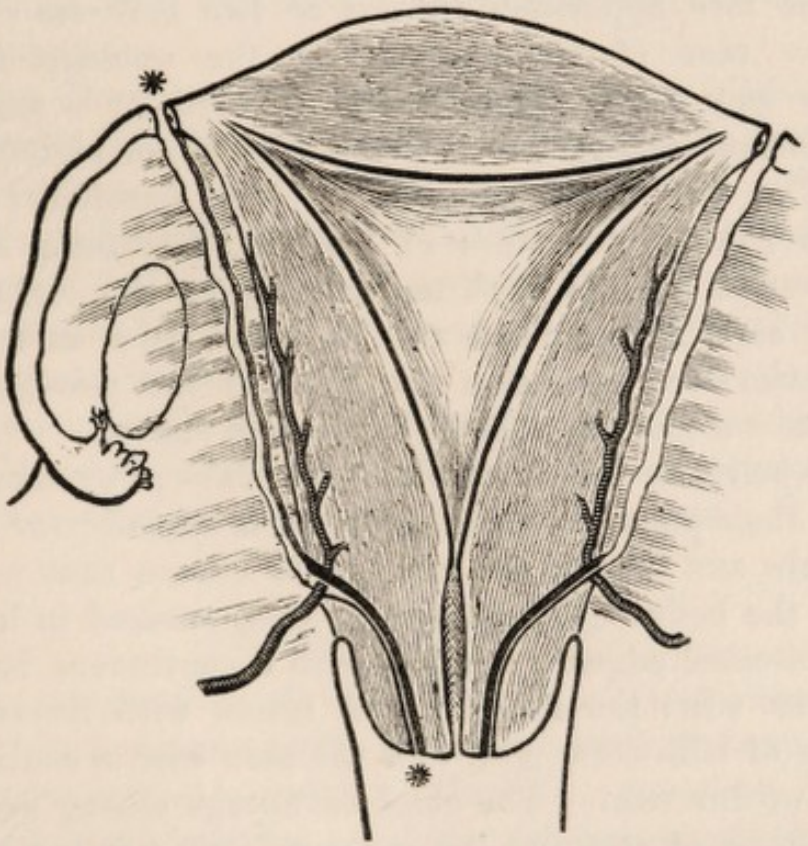

FIG. 3.—A diagram to show the amount of cervix removed in Mr. Bland-Sutton's operation of modified panhysterectomy.

is well drawn up either by the uterus, or, if the latter has been cut away, by a volsella, the covering of mucous membrane derived from the vagina will invaginate like the finger of a glove or a stocking; this cap of mucous membrane can be divided near the extremity and the whole of the cervical canal extirpated with the uterus. This method possesses nearly all the advantages claimed for panhysterectomy, and affords a safe insurance against damage to the ureters (Fig. 3).

Whichever method the surgeon adopts in dealing with the stump there will be a certain number of bleeding points. These are most numerous when the cervix is enucleated because the territory of the vaginal arteries is invaded. When the vessels are carefully occluded with silk and the ovarian pedicles securely transfixed and ligatured, taking care not to forget the artery in each round ligament, the anterior and posterior flaps are brought into apposition by one or two mattress sutures. (In the case of panhysterectomy the opening in the vagina may with advantage be reduced by a suture at each lateral angle, but it is not wise to completely close it.) The peritoneal margins are then carefully united with a continuous suture of fine silk, beginning at the left ovarian pedicle and terminating at the right one, taking care not to prick the bladder. In a skilful and straightforward operation the floor of the pelvis should only show a narrow ridge in the line of suture.

The pelvis is cleared of blood and dabs; the intestines fall in their places and the omentum is spread over them. The dabs and forceps are counted to ensure that none is left in the belly. The incision is then sutured in layers; the peritoneal edges are joined with a continuous layer of very fine silk: the muscles and fascia with interrupted sutures of silk-worm gut, and the skin with a continuous suture of fine silk. The chief advantage among many of this method of suturing the incision is, that it has almost abolished the occurrence of post-operative hernia and the routine use of an abdominal belt.

The patient is restored to the horizontal position; any blood and clot that may have escaped into the vagina is carefully removed with gauze dabs; the bladder is emptied by means of a glass catheter.

The wound is dressed with a piece of moist cyanide gauze, covered with sterilised Gamgee tissue retained by a many-tailed flannel bandage.

The details of the operation set forth in this account refer to a simple or uncomplicated hysterectomy, and

under these conditions it cannot be described as a difficult operation to any surgeon accustomed to dealing surgically with the abdomen, but the complications not infrequently met with in connection with uterine fibroids are occasionally very formidable and tax the skill and resource of the boldest, *e. g.* :

Large incarcerated cervix fibroids complicated with a big fibroid in the fundus.

Fibroids with extensive adhesions to rectum, colon, or small intestine.

Large fibroids of the cervix displacing the bladder.

Fibroids associated with suppurating ovarian dermoids, or pyosalpinx.

Perhaps the most dangerous condition is the co-existence of unsuspected cancer of the upper part of the cervical canal complicating a large fibroid of the body of the uterus and perhaps implicating it.

It is impossible to decide rules of operating under these difficult conditions: here skill and experience are required, and when successfully overcome mark the man.

Vaginal Hysterectomy.

The preparation of the patient has been already described in connection with abdominal hysterectomy.

Instruments.—A crutch; a duck-bill speculum (Sims); a sound; two volsellæ; scalpel; six hæmostatic forceps; dissecting forceps; three or four long-handled forceps with fenestrated blades; silk of various thicknesses; six stout curved needles; six dabs or a roll of gauze; and a glass catheter.

Steps of the operation.—The patient is anæsthetised, secured in the lithotomy position by means of crutch (care being taken that the straps do not press unduly on the popliteal artery and cause gangrene of the foot, or on the musculo-cutaneous nerve and paralyse the peroneal muscles; both accidents have been observed) and so arranged that the perinæum faces a good light. The

vagina is then exposed by means of a duck-bill speculum, and its cavity thoroughly irrigated with a solution of perchloride of mercury (1 in 2000), or something equally efficacious.

The surgeon seated at a convenient level passes the beak of the speculum into the vagina and seizes the cervix with a volsella. If there be much sprouting growth it is sometimes useful to scrape it away with the handle of the knife and then irrigate the parts. The assistant empties the bladder with a glass catheter, introduces a sound, and keeps the operator well informed of the relation of the bladder to the cervix throughout the first stage of the operation.

Stage 1.—This consists in seizing the cervix with a stout volsella, and then by means of a scalpel the mucous membrane on its anterior aspect is transversely divided at a point sufficiently low to avoid injury to the bladder. The bladder is then cautiously separated from the cervix with the forefinger, assisted, if necessary, with the handle of the scalpel; it is an advantage to divide the peritoneum forming the lower limit of the utero-vesical pouch, and gain access to the peritoneal cavity. Throughout this stage the operator constantly informs himself of the exact position of the bladder by manipulating the sound.

Stage 2.—The incision in the mucous membrane is now carried round each side of the uterus, and by means of scissors the recto-vaginal pouch is opened.

Stage 3.—The broad ligaments are dealt with in the following manner: A curved needle in forceps armed with strong silk is made to transfix the connective-tissue tract close by the side of the cervix in order to avoid the ureter. The object of this ligature is to secure the uterine artery near the spot where it turns on to the side of the uterus. The ligature is firmly knotted. Very often the artery may be seen. It is then picked up with forceps and deliberately tied. When the artery has been secured on each side, and the tissue between the ligature and the uterus divided with scissors, the organ can now, as a rule,

be drawn low down into the vagina, and the upper segments of the broad ligament transfixed with double silk ligatures. These embrace the Fallopian tubes with the ligament of the ovary, the ovarian artery and veins, and the round ligament of the uterus; the tissues between the uterus and the ligatures are divided, and the uterus is removed. Should an ovary or a Fallopian tube be found diseased, then they should be removed by transfixing the pedicle with silk.

If all the lateral ligatures have been securely applied, and hold, there should be no bleeding from the sides, but there is usually some oozing from the anterior and posterior folds. Any vessels which are freely bleeding should be seized with forceps and ligatured with fine silk. In regard to the posterior flaps it is an advantage to compress its edges between the blades of fenestrated forceps and leave them in position for a few hours (twelve to twenty-four). The same manœuvre may be adopted with oozing from the lateral cut surfaces, but these should not be clamped too deeply for fear of compressing a ureter.

The parts are then gently irrigated with sterilised water, carefully dried with mops of gauze, and a thin gauze drain inserted to allow blood and serum to easily escape. The bladder should be tested with a sound; the crutch removed and the patient returned to bed.

The method described above is that exclusively employed by me. I have given other methods which have been advocated a fair trial, and have decided after many modifications to cast them aside for this one.

MEDICAL SOCIETY OF LONDON
Established 1773

THE PERILS AND COMPLICATIONS OF FIBROIDS AFTER THE MENOPAUSE.*

It was formerly taught and believed, even by thoughtful men, that uterine fibroids ceased to be troublesome with the cessation of menstruation. It is quite certain that a new chapter in their natural history requires to be written.

Uterine fibroids stand almost alone among tumours in the peculiarity of their age distribution, for they only arise during the menstrual period of life (from 15 to 45 years of age), but they stand absolutely alone among tumours in possessing another remarkable character. As a rule they cease to grow after the menopause, and in some instances they undergo a marked diminution in size. Many writers are of opinion that they may even disappear. This must be a very exceptional phenomenon and hard to prove satisfactorily, and upon which I have always entertained the gravest doubts.

The object of this communication is to discuss the complications of uterine fibroids after the menopause, for though, as a rule, they cease to grow after this event, they are frequently sources of great peril to life, not only in co-existing with other serious diseases of the uterus and ovaries, but the very fact that they are apt to diminish in size is in itself an occasional element of danger. Apart, however, from these conditions, the fibroids themselves are mainly sources of trouble on account of the degenerate and septic changes to which they are liable.

At the outset of this address it is essential to bear in

* From 'The Lancet,' June 6th, 1903.

mind that the presence of a fibroid in the uterus in a very large proportion of women has a very malicious influence in delaying the menopause. Many times I have removed fibroids from the uterus in patients between the fiftieth and sixtieth years of life in whom the monthly losses of blood were more profuse than at the age of 25 years. It is an important question whether the irregular and long maintained vaginal fluxes of blood in women with uterine fibroids after the fiftieth year of age should be regarded as menstruation in the proper acceptation of the term. On the other hand, a woman may enter on the menopause at 42 or 45 years of age though a large fibroid may occupy the cavity of the uterus. In October, 1896, I removed from a woman, aged 45 years, a fibroid weighing 10 pounds sessile on the fundus of the uterus. She ceased to menstruate at the age of 42 years.* An early menopause under these conditions is about as rare as is a fibroid taking on rapid growth after the menopause. My earliest experience of this is very vivid in my mind, because it happened in the first patient on whom I performed hysterectomy with intraperitoneal treatment of the stump. The patient was a childless married woman, 48 years of age, who was known to have had a fibroid for nine years, associated with metrorrhagia; in October, 1889, the catamenia ceased. Subsequently the tumour increased in size and became impacted in the pelvis and interfered with the rectum, and I performed hysterectomy on March 12th, 1890, after a consultation with my colleagues and an understanding that the stump would be dropped into the pelvis.†

The fact that a fibroid may shrink after the menopause is in itself occasionally a source of danger, especially when pedunculated, for the tumour may be so big that its size prevents it from tumbling into the pelvis, but after the shrinking consequent on the menopause, such a fibroid may fall into the true pelvis and become impacted. This,

* 'Obstet. Soc. Trans.,' 1897.

† 'Middlesex Hospital Reports,' 1890.

I admit, is a very rare complication, but it happens. In 1902 a patient, 55 years of age, who had her menopause at her forty-seventh year, was placed under my care in the Chelsea Hospital for Women for recurrent attacks of retention of urine due to a tumour of this kind. So long as the patient remained quiet she had no trouble, but a long walk, jolting in an omnibus, or running downstairs, caused the tumour to fall into the true pelvis and to obstruct the urine; the patient would send for her medical attendant and he would push the tumour out of the pelvis and relieve the retention. At last the retention occurred so frequently that I was asked to remove the tumour; it was pedunculated, grew from the fundus of the uterus, and was equal in size to a turkey's egg, and very hard. Since the operation she had remained free from retention of urine. Rare as complications of this kind undoubtedly are, they are outdone on the score of rarity by the remarkable case recorded by Arnott. A maiden lady, aged 72 years, was knocked down by a large dog and fell forwards on the pavement; she died in thirty-four hours. At the necropsy a circular hole was found in a coil of ileum which lay between the anterior abdominal wall and a large calcified fibroid of the uterus.

Let us now deal with what I regard as the most frequent and the greatest danger connected with uterine fibroids after the menopause, viz. necrotic and septic changes. During the menstrual period of life fibroids generally possess an abundant supply of blood. In some instances they are so vascular that they are like huge cavernous angiomata, as those who have occasion to deal with them surgically know full well. In patients who retain their tumours till the menopause (and they are numerous) the cessation of menstruation is accompanied by a remarkable abatement in the blood-supply, and the tumour ceases in many instances to grow, but the very fact that the nutritive irrigation, so to speak, of the tumour is arrested, leads to degenerative changes, and the fibroid becomes in many instances a dead sequestered

body, and so long as septic organisms are denied access it will remain inert; when from various causes putrefactive organisms gain access to these essentially dead tumours the results are often dire in the extreme.

It is far easier to prove that putrefactive organisms do obtain access to these dying or dead fibroids than to tell how they get to them. There is, however, one mode of access which to my mind is undeniable. The fibroids which give rise to most trouble after the menopause are the submucous variety, and there seems a strong tendency when the uterus passes into its resting stage, and the fibroid is shrinking and dying, for the organ to attempt the extrusion of the tumour. A careful study of the cases which have come under my observation shows that in the majority of troublesome post-menopause fibroids a large proportion of them have undergone partial extrusion, or the mouth of the uterus is widely dilated and renders the ingress of germs an easy matter. It is, of course, desirable to furnish some facts as to the relative frequency with which fibroids become necrotic and septic after the menopause. For this purpose there are some records available of an extremely valuable kind.

Recently Dr. C. J. Cullingworth has published a useful paper on the surgical treatment of uterine fibroids, in which he has particularly analysed the conditions which rendered operative interference necessary, and in some imperative. Among 100 consecutive cases of this kind distributed between the twenty-third and sixty-first years of life ten of the patients had attained the fiftieth year and onwards. The changes in the fibroids in these elderly women were in all instances necrotic or septic in character. Subsequently Mrs. Scharlieb reported an analysis of 100 consecutive cases, their ages ranging from 18 to 68 years, carried out on Dr. Cullingworth's lines. Seven of the patients were over 50 years old. Mr. C. J. Bond, of Leicester, published a consecutive series of fifty cases in which hysterectomy was performed for fibroids. Four of his patients were 50 years old and upwards. The oldest

patient on the list is noteworthy. She was operated upon for a fibroid in her fifty-sixth year, but she had her menopause at 40 years.* Dr. Lionel Provis, registrar to the Chelsea Hospital for Women, at my suggestion, made a list of 100 consecutive cases of operation for fibroids treated in this institution by the staff generally. The results are instructive. The youngest patient was 25 years of age and the oldest was 66 years of age, and of this number eleven of the patients were aged 50 years and upwards. The distribution is as follows :—From 25 to 29 years, five operations; from 30 to 39 years, thirty-seven operations; from 40 to 49 years, forty-seven operations; and from 50 to 66 years, eleven operations. The oldest patient in this particular series was aged 66 years, and she had a very large septic submucous fibroid which had to be removed piecemeal. In 1902 I performed hysterectomy on a woman 69 years of age, for a very large septic fibroid and an incarcerated ovarian cyst. The peritoneum had been infected through the left Fallopian tube before the operation, and the patient died.† My oldest patient was 73 years of age, and I removed a mass of fibroid weighing 28 pounds with success. The operation, which took place at the Middlesex Hospital, was a necessity because the tumour had become so cumbersome that she could not rest in bed.‡

It will be clear to an impartial observer that even by fixing the menopause at the late age of 50 years, uterine fibroids are very often sources of trouble, ill-health, and great peril to those who unfortunately possess them. One of the greatest perils which can happen to a woman with a fibroid in her uterus is to become pregnant, but after the forty-fifth year she is beset with a danger of quite another kind—namely, cancer of the endometrium. I have dealt with this serious subject so recently§ that here

* 'Lancet,' January 17th, 1903, p. 162.

† 'Obstet. Soc. Trans.,' 1903.

‡ Ibid., vol. xli.

§ 'Clinical Journal,' October 23rd, 1901.

I need only express it in the form of an aphorism. *When a woman with uterine fibroids has passed the menopause and begins to have irregular profuse uterine hæmorrhages it is extremely* probable that she has cancer of the body of the uterus. In a remarkable case of this kind under my care the patient had primary cancer of the Fallopian tube. Her case is fully recorded in the 'Transactions of

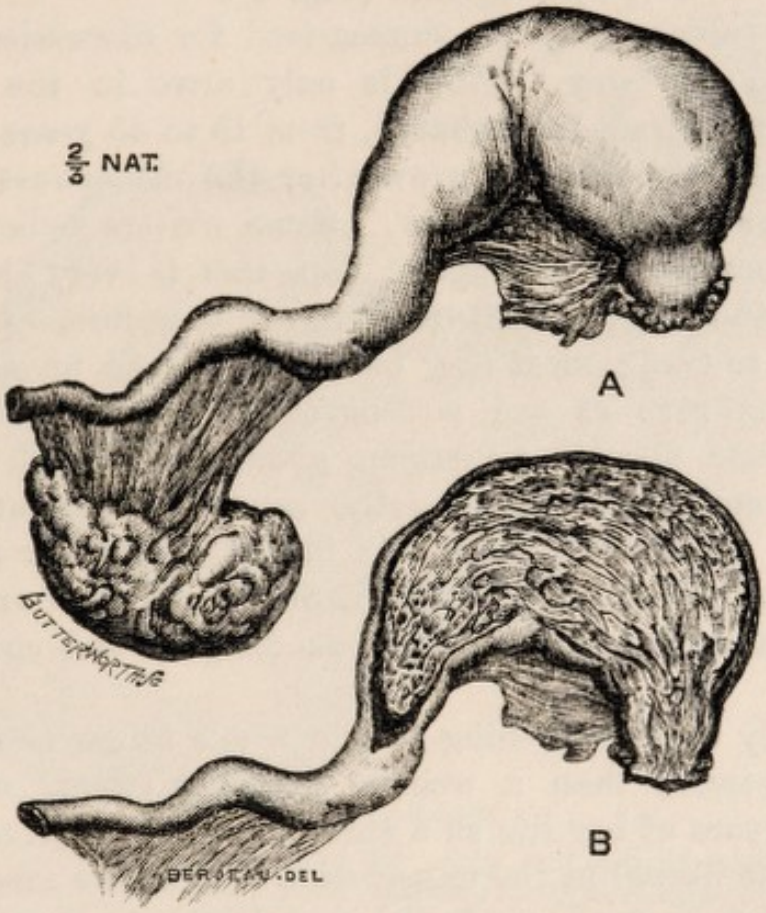

FIG. 4.—A. The ampulla of a Fallopian tube with cancer. B. The tube in section showing a portion of the cancer making its way through the cœlomic ostium.

the Obstetrical Society' for 1902. She was a childless married woman, aged 57 years, and had had her menopause at the age of 49 years. For many years she had suffered from what was regarded as a large fibroid tumour. Some months before coming under observation the patient complained of irregular, frequent, and rather abundant fluxes of blood from the vagina, and this led me to suspect that the fibroid had become septic or that cancer had

developed in the uterus. However, when an operation was performed I found the fibroid to be quite healthy, also the endometrium, but the ampulla of the left Fallopian tube contained a soft vascular tumour (*vide* illustration), which proved, on microscopical examination, to be a typical example of cancer, and a portion of it had made its way through the cœlomic ostium of the tube, and infected the peritoneum (Fig. 4).

The subject may be summarised for discussion something in this way. Fibroids only arise in the uterus during menstrual life—that is, from 15 to 45 years of age. As a rule they cease to grow after the menopause : after this event they may shrink. Some writers believe that they occasionally disappear, but this is very hard to prove, and harder still to believe; therefore, as a concession to tradition, it may be described as a phenomenon about as rare as the advent of a comet. After the menopause fibroids sometimes grow, and though an unusual condition, it rests on the accurate observations of trained observers. Though a fibroid may cease to grow after the menopause it is still liable to extrusion from the uterus and gangrene, with all its dangers and enmity to life.

Surely there is nothing in the whole range of surgery more ironical than a woman spending twenty or even thirty years of her life as a chronic invalid on account of a uterine fibroid in the expectation that at the menopause she will be restored to health and begin a new life, and then to realise that far from this dream being fulfilled, the fibroid becomes necrotic, extruded, or septic, and places her life in the gravest peril, and that she may die in spite of surgical intervention.

Note.—The subsequent history of the patient with primary cancer of the Fallopian tube may now be given. After the operation she enjoyed excellent health for eleven months, then signs of recrudescence appeared in the pelvis, and she succumbed a few weeks later.

A second case of primary cancer of the tube com-

plicating uterine fibroids has come under my notice. The disease arose in the ampulla of the tube, sealed the ostium, and crept along the tubal lumen towards the uterus (Fig. 5). The growth could be traced through the uterus, but confined to the tubal tissues, and we were able to satisfy ourselves by a careful microscopical examination that it had not infected the uterine tissues.

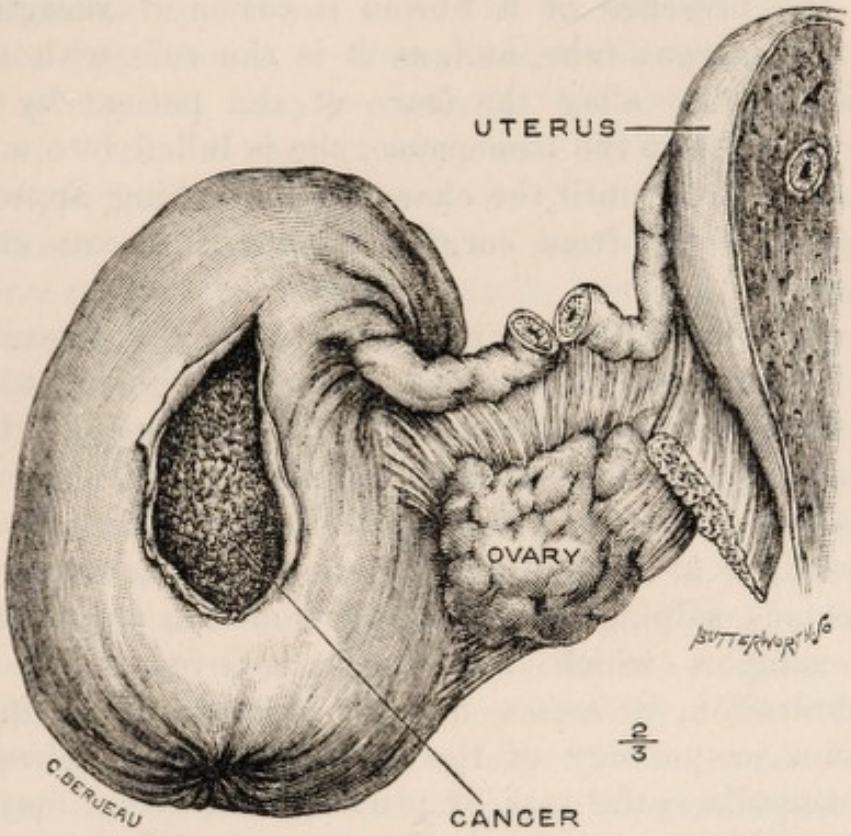

FIG. 5.—A Fallopian tube with the ovary, mesosalpinx, and adjacent portion of the wall of the uterus. The ostium of the tube is closed and the ampulla distended with a soft cancerous mass, which has extended along the lumen of the tube and can be traced in the tubal tissues in its course through the uterine wall. The endometrium was not implicated. The uterus contained several large fibroids. The chief symptom was profuse bleeding, which led the patient to submit to operation.

The appearance of the tube when extracted from the pelvis was like that of a parsnip with a long thin root; its crimped appearance in the drawing is due to the distortion produced by the preservative solution, in which it was placed immediately after operation.

I am unaware of any records relating to the combina-

tion of fibroids of the uterus and primary cancer of the Fallopian tube. Doran has carefully analysed twenty-three records of primary tubal cancer, but in none was it associated with fibroids of the uterus ('Trans. Obstet. Soc. London,' vol. xl, p. 197, 1899). The interest of the co-existence of the two diseases centres in the fact that as hæmorrhage is an equally significant clinical feature of both, the presence of a fibroid is easier of recognition than a cancerous tube, and, as it is the rule with many practitioners to allay the fears of the patient by false hopes of relief at the menopause, she is lulled into a false sense of security until the chances of anything approaching good result from surgical intervention are out of question.

I cannot pass from the consideration of this interesting case in my series without drawing attention to the important feature connected with the occlusion of the cœlomic ostium. It is needless for me to refer to the value of this event in septic infection of the tube, gonorrhœal or puerperal, or to its far-reaching effect in connection with tuberculous salpingitis. Judging from the study of the two examples which have been referred to in this communication, it seems not at all unlikely that the occlusion or patency of the cœlomic ostium, when the tubal ampulla is the seat of primary carcinoma, may not only exercise great influence in determining whether the course of the disease shall be towards the peritoneal cavity, and therefore of necessity rapidly fatal, or shall tend to traverse the narrow course of the tube and expend its violence on the uterus. In this direction it may be assumed that its clinical course will run less violently, though its final effect can in no sense be mitigated.

There are at present no facts available to enable an opinion to be expressed with anything approaching reliance, but it is a matter to which attention may with advantage be directed.

ON LATENT FIBROIDS.

Botanists apply the adjective latent to buds which remain undeveloped or dormant for a long time but may at length grow. It is precisely in this sense that the word "latent" will be used in relation to fibroids of the uterus in this article, the object of which is to point out the significance of latent fibroids in regard to the operative treatment of such tumours; it will, however, be useful at the outset to justify the title.

Let anyone take the trouble to examine a number of uteri obtained from individuals between the twenty-fifth and the fiftieth years of life, by the simple means of sectioning them with a knife, he will, in a very large proportion of the specimens, find small rounded bodies resembling knots in wood more than anything else, their whiteness being in strong contrast to the redness of the muscle tissue in which they are embedded. These discrete bodies, in many instances no larger than mustard seeds, are embryonic fibroids, and in their histologic structure are identical with the fully grown tumour. An investigation of this kind is very useful, for the observer quickly realises that a uterus may contain many of these small bodies (ten or more) without the least distortion of contour or alteration in its size,—indeed, nothing to indicate to sight or touch that the organ contained anything abnormal. These small fibroids may never cause trouble, may never pass beyond this stage, and in women who have attained the ages of seventy and even eighty years such minute fibroids may be detected, though in many instances they have undergone calcification. When a uterus contains many fibroids they are seen of all sizes; one or two may weigh several pounds, others a few ounces, but a careful

examination will invariably reveal some no bigger than a mustard seed. A careful consideration of the great frequency of seedling fibroids, and their multiplicity when compared with the number of fibroids which attain proportions sufficient to render them clinically appreciable, makes it undeniable that an enormous proportion of them remain latent. That they may appropriately be compared to latent buds is shown by the fact that they may remain dormant through a long life, or assume active growth and become formidable tumours.

It is not an uncommon experience for an operator to dilate the uterine canal and abstract two or more submucous fibroids. However carefully the procedure be conducted, and no matter the thoroughness with which the walls of the cavity are examined for minute fibroids, no honest assurance can be given to the patient that other fibroids will not grow in her uterus.

A careful study of cases in which this has happened is instructive, as it affords some information as to the rate at which fibroids grow.

In April, 1901, I saw a patient aged 40 with Dr. Gavin Stiell, on account of severe menorrhagia due to fibroids. Dr. Horrocks had enucleated a fibroid from her uterus six years previously, which was probably of some size, as it was extracted piecemeal. The husband was disappointed at the recrudescence of the fibroids, and wished me to remove the uterus. I was anxious to avoid this if possible, and succeeded in removing through the vagina six fibroids, two as big as acorns, three of the size of walnuts, and one as large as a bantam's egg. From what we know of fibroids the rate of growth in this instance was slow, even making allowance for the fact that the tumours in this case were of the very hard variety. In my book on 'Tumours' (second edition) I have briefly described a case in which I enucleated from the uterus through an abdominal incision a fibroid measuring 15 cm. in its major and 5 cm. in its minor axis. The patient was twenty-three years of age, and mother of one child. She

was delivered of a second baby at full time eight months after the operation, so that it is reasonable to believe that she was pregnant at the time of the operation. Three years later she again came under my care on account of a pelvic tumour, and this grew so rapidly that I performed hysterectomy three months later, and found the uterus occupied by twenty fibroids, varying in size from a ripe currant to a hen's egg. The largest tumour occupied the cervix. There were no signs of these tumours when the first operation was performed three years previously.

The tumours in this case attained a larger size in three years than those in the preceding case had reached in six years. This may be explained in two ways. The patient was younger and had been pregnant since the primary operation, and I feel satisfied, from observations on similar cases, that *pregnancy exerts a quickening influence on latent fibroids.*

In June, 1901, a woman aged 39 came under my observation with a large abdominal tumour. She stated that Mr. Meredith had removed a large fibroid from her abdomen. This surgeon kindly informed me in a letter that he removed from this patient in November, 1895, an extremely hard multiple fibro-myoma of the size of a large fœtal head; it was impacted and very firmly adherent in the pelvis, with a coil of adherent bowel (sigmoid) overlying it. The uterine connection was a thick fleshy pedicle springing from the left anterior aspect of the fundus. This was dealt with by ligature. The uterus was normal as to size and consistence—no trace of other growths being discoverable by palpation.

When she came under my care the crown of the tumour reached the level of the umbilicus, and it was extremely tender when the hand was placed on the abdomen; the woman also complained of profuse menorrhagia. I came to the conclusion that it was a uterine fibroid undergoing secondary changes. Since the primary operation she had been living at Mafeking, South Africa, and had come to London to have the tumour removed.

On opening the abdomen I found the uterus uniformly

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enlarged and of a deep purple; it bled freely from any slight abrasion. Moreover its surface presented a peculiar villous appearance due to a multitude of short single tags of organised lymph. There were no adhesions except on the anterior face of the uterus near the right cornu, where it was in firm union with the lower angle of the abdominal cicatrix, the result of Mr. Meredith's operation. I performed what was practically a pan-hysterectomy, and removed both ovaries and tubes. The bleeding was free because the manipulations were somewhat hampered by the extreme fatness of the abdominal walls and the markedly funnel-shaped features of the pelvis. The patient recovered quickly and satisfactorily.

The uterus contained several fibroids, but the chief one was of the submucous variety, and lodged in the posterior wall. It was quite soft and of the myxomatous type. At first I thought the softening was due to infection, but the microscope did not support this view. It is well known that these soft (myxomatous) fibroids not only grow more quickly than the hard kinds, but they are associated with profuse menorrhagia. It is also an important fact to bear in mind that after enucleation they sometimes quickly recur.

Up to this date I have enucleated fibroids from the uterus on very many occasions. In four of the patients there has been a recrudescence of the fibroids which has necessitated a second operation. In two instances I have had to deal with recrudescent fibroids where other operators removed the primary tumour; these form the subject of this communication.

That similar cases have occurred to other workers there can be no doubt, but there is very little reliable information available to enable an estimate of their frequency to be even guessed at; under certain conditions, which easily suggest themselves to the minds of those who are engaged in performing these operations, this may have a very important bearing when an operator is deciding whether to be content to enucleate a uterine fibroid, or whether it is in the best interests of the patient to remove the uterus.

A TOPOGRAPHICAL AND CLINICAL STUDY OF FIBROIDS OF THE NECK OF THE UTERUS (CERVIX FIBROIDS).*

In May, 1897, I exhibited at the Obstetrical Society of London some large specimens of fibroids growing in the neck of the uterus, and drew attention to the fact that tumours of this kind had not received adequate attention at the hands of those who had given close attention to the surgery of the uterus. These tumours are by no means rare, they possess very characteristic features, and sometimes offer formidable difficulties when submitted to operation. In order to obtain some notion of their relative frequency I carefully analysed 500 cases of fibroids which have been under my care for operative treatment during the past eight years, and find that in every 100 cases there will be five in which the fibroids occupy the cervix, and of these five, three, and sometimes four, will be fibroids exceeding the dimensions of a fist; in the early stages of growth cervical, like the common forms of uterine, fibroids are more or less globular, but when they exceed this size tend to become ovoid. Fibroids may grow from any part of the cervix; commonly they arise from its walls in such a way as to occupy the cervical canal (Fig. 6). These are known as intracervical or submucous cervical fibroids. Less frequently they grow from the periphery of the cervix and do not invade the canal, but burrow under the peritoneum on the anterior or the posterior aspect of the uterus (Figs. 7 and 8). These are known as subserous cervical fibroids.

The oval character of the cervical fibroid is best dis-

* 'Lancet,' April 2nd, 1904.

played in the submucous variety, for as it grows it pushes the body of the uterus, which is perched on its upper pole, high into the abdomen and in the case of very large tumours the fundus of the uterus can be detected as high as the navel. The topography and shape of this kind of tumour are best displayed when the parts are sectioned in a sagittal direction. The ovoid shape of cervix fibroids is determined by the osseous boundaries of the true pelvis. In a normal female pelvis the pelvic diameters at the

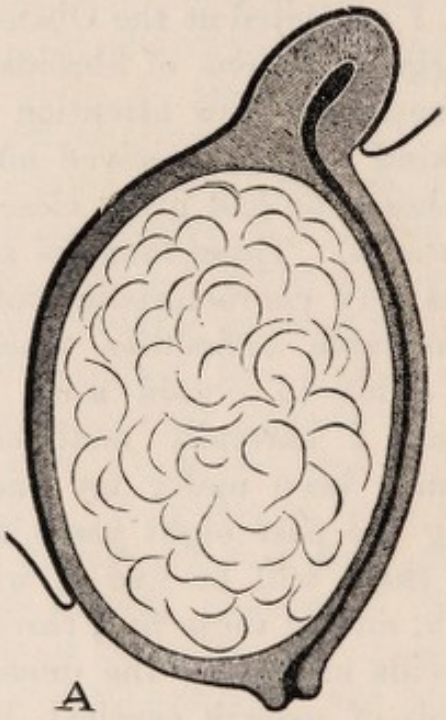

FIG. 6.—A diagram to show the relation of an intracervical fibroid to the cervical canal.

level of the middle of the cervix measure, with the soft parts in position, about ten centimetres (four inches); thus the lower segment of a large cervix fibroid is a solid cast of the true pelvis. In one of my specimens the minor (transverse) axis of the tumour measured 12·5 centimetres, this excessive measurement being due to the slow but steady expanding effects of the tumour on the bony walls of the pelvis. It is well to bear in mind that the oval condition of the vaginal pole of a large cervix fibroid corresponds with the shape of the occiput of a

recently delivered fœtus at term. The ovoid shape is also attained by subserous cervical fibroids when they grow from the posterior aspect of the cervix as shown in Fig. 7. This kind of tumour as it increases in size pushes the body of the uterus high out of the pelvis on its upper pole, but its relation to the cervical canal is worth some attention. The intracervical fibroid, as shown in Fig. 6, uniformly expands the cervix, and in very large specimens its tissues form a thin covering to the tumour; but a fibroid of the

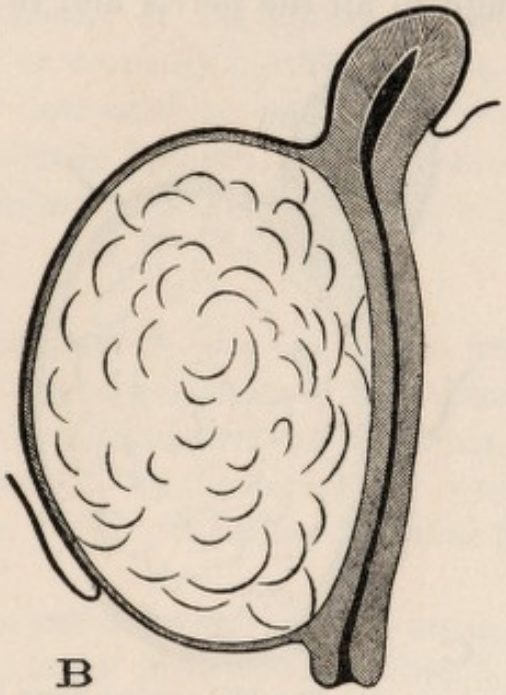

FIG. 7.—A diagram of a fibroid growing from the posterior wall of the cervix, showing its relation to the peritoneum.

posterior aspect of the cervix elongates it without expanding the canal, and is really situated between the cervix and the peritoneum. This is a topographical distinction of some importance in connection with the clinical aspect of these tumours.

Fibroids on the anterior aspect of the neck of the uterus remain more or less globular, and do not distort the shape of the cervix as a rule; when of large dimensions they push their way upwards, between the peritoneum and the anterior abdominal wall; in one example under my care the whole of a large tumour of this kind had

become extraperitoneal. It is a noteworthy feature of the cervical fibroid that in more than two-thirds of the cases the tumour is solitary. All varieties of cervix fibroids are furnished with a distinct capsule; the tumour tissue on section presents the characteristic whorled arrangement of the common form of uterine fibroid, and is microscopically identical with it. Fibroids of the neck of the uterus when they do not cause menorrhagia are very insidious and rarely give rise to serious symptoms until large enough to fill the pelvis and to exert pressure

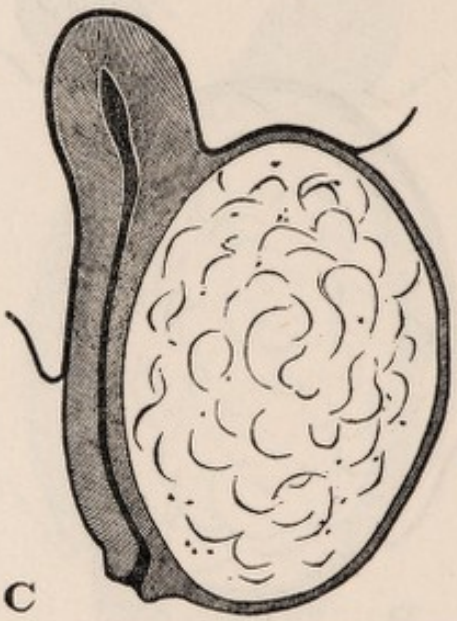

FIG. 8.—A diagram of a fibroid growing from the anterior wall of the cervix to show its relation to the peritoneum as it passes from the anterior wall of the uterus to the bladder.

on the urethra, the vesical segments of the ureters, and the rectum. In some cases, especially variety C (Fig. 8), there is direct pressure on the bladder. The frequency of micturition, dysuria, and retention of urine, which are such frequent concomitants of the varieties A and B, are due to the bladder being dragged upwards by the uterus as this organ is pushed out of the pelvis by the growing tumour.

I am induced to prepare this paper with the hope of reconciling some divergent opinions as to the frequency or otherwise of menorrhagia in connection with cervical

fibroids. With this object in view I analysed the clinical reports of twenty cases under my care in the Chelsea Hospital for Women and the Middlesex Hospital. I have appended brief notes of ten consecutive cases in which two points come out very clearly: (1) menorrhagia and metrorrhagia are only noticed with the intracervical variety and bear no relation to the size of the tumour; and (2) hæmorrhages (menorrhagia and metrorrhagia) only occur with intracervical fibroids when the uterus has made attempts to extrude, or has succeeded in extruding, the tumour wholly or partially into the vagina. The corollary is plain. An extruded or partially extruded fibroid is exceedingly liable to become septic and as surely as this happens menorrhagia and metrorrhagia are unfailing consequences.

Case 1.—The patient was a single woman, aged 41 years. She had a large intracervical fibroid. There was profuse metrorrhagia and profound anæmia. The os uteri was widely opened. Panhysterectomy was performed on December 14th, 1899. (Chelsea Hospital for Women.)

Case 2.—The patient was a single woman, aged 45 years. She had a very large intracervical fibroid. The os uteri was a mere dimple. Menstruation was normal. She complained of pelvic pressure and retention of urine. Panhysterectomy was performed on May 7th, 1900. (Chelsea Hospital for Women.)

Case 3.—The patient was a single woman, aged 45 years. She had a large fibroid growing from the posterior aspect of the supravaginal cervix. There were menorrhagia and dysuria. Panhysterectomy was performed on September 9th, 1901. (Chelsea Hospital for Women.)

Case 4.—The patient was a married women, aged 52 years, who had had six children. She had a large intracervical fibroid. The os uteri was patulous. There was

profuse and prolonged menstruation. Panhysterectomy was performed on October 21st, 1901. (Chelsea Hospital for Women.)

Case 5.—The patient was an unmarried woman, aged 38 years. She had a large intracervical fibroid pushing the uterus high out of the pelvis. Menstruation was scanty but regular. There was frequent micturition. The os uteri appeared as a dimple at the lower pole of the tumour. Abdominal enucleation and supravaginal hysterectomy were performed on January 27th, 1902. (Middlesex Hospital.)

Case 6.—The patient was a married woman, aged 36 years. A large fibroid was growing from the anterior aspect of the supravaginal cervix. There had been amenorrhœa for three months. She had frequent micturition. Abdominal enucleation of the tumour was performed on May 12th, 1902. She was delivered of a boy at full term on January 2nd, 1903. (Chelsea Hospital for Women.)

Case 7.—The patient was a married woman, aged 49 years, who had had two children. She had an intracervical fibroid. There was dysuria. Menstruation was irregular. There was painful pressure on the rectum. Panhysterectomy was performed on March 17th, 1902. (Chelsea Hospital for Women.)

Case 8.—The patient was a married woman, aged 45 years, who had had six children. There was a very large fibroid growing from the anterior aspect of the cervix, and extending upwards beyond the umbilicus. The tumour is described in the notes "as big as a football." Menstruation was irregular, but not profuse. Supravaginal hysterectomy was performed on September 10th, 1902. (Middlesex Hospital.)

Case 9.—The patient was a married woman, aged 43

years. She had had one child, and one miscarriage. She had an extruded intracervical fibroid of the size of a turkey's egg. There was profuse metrorrhagia. Vaginal myomectomy was performed on November 10th, 1902. (Chelsea Hospital for Women.)

Case 10.—The patient was a married woman, aged 31 years. She was sterile. She had a fibroid of the size of a turkey's egg growing from the anterior wall of the cervix and pressing on the bladder. This filled up the vagina, hindering coitus. Vaginal enucleation was performed on May 18th, 1903. (Chelsea Hospital for Women.)

The largest intracervical fibroid known to me is a specimen (Hunterian) preserved in the Museum of the Royal College of Surgeons of England. It measures 30 centimetres (12 inches) in length by 12·5 centimetres (5 inches) in width. Unfortunately it is without history.

A close study of these ten cases brings out some further facts. It will be noticed that in some of them the condition of the mouth of the womb is described in this way: "The os uteri was a mere dimple"; wherever this sentence appears it almost certainly follows that menstruation is described as normal, scanty, or irregular, and a closer study of the records shows that the patient is usually a spinster or, if married, sterile. On the other hand, the great majority of the women in whom the intracervical fibroid is a source of menorrhagia have borne children and present a patulous and often widely patulous os uteri. It should also be borne in mind that cervical fibroids of all varieties, though commonly solitary tumours, are occasionally complicated by a submucous fibroid in the body of the uterus and this is, of course, a notorious agent in producing metrorrhagia (Fig. 9).

A glance at the brief notes of the ten cases shows that these cervix fibroids do not lend themselves to any routine kind of operation. When of moderate size and associated

with a capacious vagina the intracervical kind and those which arise on the anterior aspect of the supravaginal cervix may be easily, expeditiously, and safely enucleated through this channel. Tumours which attain and exceed the bulk of a fœtal head at term almost invariably demand treatment by the abdominal route. I have tried

FIG. 9.—Uterus in sagittal section. A large subserous fibroid is shown attached to the posterior aspect of the cervix. There is also a submucous fibroid, which accounted for the very profuse menorrhagia which rendered operation imperative.

a variety of methods. When the uterus with the tumour in its cervix can be raised out of the pelvis far enough to allow the necessary manipulations then panhysterectomy can be performed easily and quickly. Occasionally the tumour is wide and so fixed in the pelvis that it will be necessary to split the uterus longitudinally and to enucleate the fibroid from its bed; then an ordinary supravaginal hysterectomy can be carried out. The enucleation of a large impacted cervix fibroid requires to

be conducted carefully without undue display of force or so much shock is produced that the patient's life will be placed in the gravest peril. However, large cervix fibroids can be safely enucleated even when the uterus is gravid, as Case 6 testifies.

Perhaps the acme of difficulty is that met with when the body of the uterus is occupied by a large fibroid and another, even larger, grows from the posterior aspect of the cervix and tightly blocks the pelvis. In this particular condition the fibroid can be enucleated from the cavity of the uterus; the larger tumour is then shelled out of the pelvis and the uterus is removed as in an ordinary supravaginal hysterectomy. The lower extremity of the capsule forms a pouch and the unexpanded vaginal portion of the cervix lies in its anterior wall; before suturing the stump in order to secure free drainage into the vagina I split the cervix longitudinally with scissors. In one instance in which I divided the uterus longitudinally in order to extract a large, tightly impacted intracervical fibroid, instead of removing the uterus I sutured the two halves and left the organ intact. The patient recovered without even a rise of temperature. In conclusion, there is no form of uterine fibroid likely to test the judgment, resources, and common sense of the surgeon to such a degree as a large cervix fibroid tightly incarcerated in the pelvis. The three diagrams used to illustrate this article were drawn by my colleague Dr. A. E. Giles, who has assisted me in the removal of many difficult cervix fibroids.

ON CANCER OF THE CERVIX AFTER SUPRA-VAGINAL (SUBTOTAL) HYSTERECTOMY FOR FIBROIDS.

THIS paper is written in pursuance of what should be considered a duty incumbent on all those surgeons who are practically interested in hysterectomy, for its object is to record two cases in which, after the performance of abdominal hysterectomy for fibroids, squamous-celled cancer occurred in the cervical stump. This is a subject of great importance, because some writers urge that when it is necessary to remove the uterus for fibroids, it is in the patient's best interest to remove the neck of the uterus also (panhysterectomy), in order to protect her against the occurrence of cancer in the cervical stump.

This matter, which has attracted much attention in France, especially by the writings of Richelot, has not escaped attention in England, for it has been critically considered by Doran, in his 'Harveian Lectures,' 1902. The importance of recognising malignant disease as a sequel of supravaginal hysterectomy cannot be denied. The subject presents itself for consideration in three phases:—

1. A distinction must be drawn between sarcoma and carcinoma of the stump.

2. The disease may have existed in the cervix at the time of the primary operation.

3. It may occur subsequent to the operation.

This communication is concerned only with cancer of the cervical stump. It is by no means uncommon for a woman known to have fibroids in her uterus to lead a tolerably comfortable life, in spite of fairly profuse and even long-

drawn-out menstrual periods. Occasionally a patient of this kind suddenly experiences a marked increase in the flow, or has what she terms a "flooding," is alarmed, and seeks advice. Cases of this kind require careful consideration, for this alteration in the symptoms may indicate changes in the fibroid, or the supervention of cancer. If the patient is a spinster, or married but barren, there may be concurrent cancer of the body of the uterus. If married and fertile the co-existence of cancer of the cervix must be considered, and it is well to bear in mind that an early cancer a short distance up the cervical canal will give rise to bleeding and escape detection by the examining finger. This is illustrated in the following record :—

In 1901 I saw a married patient, 49 years of age, in consultation with Dr. Kockmann on account of excessive menstruation, which we supposed to be due to uterine fibroids. It had long been known that this patient had fibroids in her uterus, but they had caused very little inconvenience until some few months before I saw her, but recently the menorrhagia had become so marked as to render surgical interference desirable. I performed abdominal hysterectomy October 22nd, 1901, and at the express request of the patient removed only one ovary and Fallopian tube (the right). The whole of the cervical canal was excised, but I left two thin flaps of the vaginal portion of the cervix. The patient recovered and went into the country. Three months later she complained of recurrence of the bleeding ; this puzzled me, and I asked for an examination. To my great distress I realised that the vaginal vault was thoroughly infiltrated with cancer. This opinion I subsequently substantiated by an examination under an anæsthetic and a microscopic examination of a piece of the growth. The patient, being rich, passed from one consultant to another, and after a trial of Schmidt's serum died April 6th, 1903, from uræmia. Fortunately the parts removed at the primary operation had been preserved by Dr. Kockmann, and they were carefully examined and

reported upon at the London Hospital. From this "report" the following extract is made :—

"*Naked-eye appearance of uterus and fibroids removed by Mr. Bland-Sutton.*—They consisted of (1) "The body of the uterus, in which was present a large submucous myoma, several small, peritoneal myomata, and interstitial myomata the size of walnuts"; (2) "The cervix of uterus: the os uteri has an irregular shape, and is eroded. The substance of the cervix immediately surrounding the canal near the os is soft and readily breaks down. Within the muscle tissue of the cervix is a small myoma undergoing calcification."

"*Microscopic examination of the os uteri removed at operation.*—This shows undoubted epithelioma; the growth is of the ordinary variety; it had penetrated to a considerable degree into the muscular walls of the cervix; typical pearls are seen, as well as outlying chains of cells in the more distant lymphatics. The epitheliomatous growth is accompanied by an inflammatory reaction which is not excessive. In some places the growth had penetrated the glandular crypts, bringing about a destruction of the columnar cells of the latter. Little breaking down of the cells of the epithelioma is to be seen."

It is quite clear from this independent report that an early unsuspected squamous-celled cancer existed in the cervical canal at the external os at the time of the primary operation in October, 1901, and I may add: although panhysterectomy was performed in ignorance of this, it failed to exercise any influence for good on the progress of the disease.

The second case is instructive in another way :—In February, 1901, Mr. A. E. Rook, of Eastbourne, asked me to operate on a patient aged 42 years, and mother of one child 18 years old, on account of a large abdominal tumour, suspected to be a fibroid, which had undergone some change and rendered her gravely ill. The patient's abdomen was occupied by a lump as big as a uterus at the eighth month of pregnancy; this lump was very tender

and the patient appeared to be in a serious condition. Pulse 116 per minute, and the temperature 102°.

An operation was decided upon without delay. By means of a very free incision, a large tubo-ovarian cyst, reaching as high as the liver, was exposed; as it had a very broad connection with the uterus, and this organ contained an interstitial fibroid as big as a cricket ball, it was decided to make the operation a safe one by removing the body of the uterus with the tumour. In addition the left Fallopian tube had been converted into a hydrosalpinx of the size of a man's fist, so there were no particular indications to be too conservative in dealing with the case. When the huge right cyst had been removed, we found it to be filled with offensive pus, and the cut section of the cervix showed me that the uterus was septic also. Under these conditions I adopted the precaution of stitching the flaps of the cervical stump to the lower angle of the abdominal incision. This proved a wise decision, for an abscess formed in it and gave much trouble. In spite of this the patient made a good recovery under Mr. Rook's care.

In September, 1902, Mr. Rook asked me to see the patient on account of some bleeding from a suspicious ulcer on the vaginal aspect of the cervical stump. I soon decided that this ulcer was a squamous-celled cancer, and without any delay and with very little difficulty, enucleated the stump by the vaginal route. Recovery followed quickly and uneventfully, and the patient allowed Mr. Rook to examine her in February, 1904, and he reports to me that "the local condition is perfectly satisfactory." The roof of the vagina was soft, freely movable, and the patient's general condition excellent. The cervical stump was examined microscopically and found to be the seat of a typical squamous-celled cancer.

The occurrence of cancer in the cervical stump after supravaginal hysterectomy for fibroids is a matter which requires the fullest consideration. All cases should be carefully recorded in order that it may be determined

whether cancer occurs more frequently in women who have submitted to this operation than in other circumstances. It is no argument that it is advisable to remove an organ for fear that it may become cancerous. It is quite certain that a uterus may become the seat of cancer after bilateral ovariotomy, but this is no valid reason for excising the uterus when both ovaries require ablation.

Literature.

Richelot.—" De la dégénérescence maligne du moignon cervical aprés l'hystérectomie subtotale : remarques sur la myomectomie." *La Gynécologie,* Paris, October, 1903. (In this paper he records three cases under his own care, and epitomizes the recorded, and refers to many unrecorded cases mentioned to him by contemporaries.)

Doran.—*Harveian Lectures,* London, 1902. (At the end of the third lecture there is a critical summary of this important subject.)

SOME POINTS IN THE DIAGNOSIS AND TREATMENT OF UTERINE FIBROIDS.*

Surgical aggression in obstetric territory has brought many new things to light. To my mind one of the most astonishing facts thus revealed is the great uncertainty of clinical methods in determining the nature of pelvic tumours. I propose in this communication to draw attention to some examples of erroneous clinical judgments in regard to uterine fibroids which have been exposed in the surgical treatment of these tumours, and it is certain that this method of radical treatment has led to increased accuracy in our knowledge of their pathology.

There is no tumour in the human body which in many instances can be so surely recognised clinically as the uterine fibroid, yet this occasional certainty in diagnosis is in itself a source of danger when the question of operative interference is under consideration. The recognition of an uncomplicated fibroid is usually regarded as a very simple clinical exercise; nevertheless the conditions with which such a tumour has been confounded make a very long list, and include ovarian cystic and solid tumours, pyosalpinx, gravid tubes in all stages, including fœtuses of the full period sequestered in the mesometrium, normal uterine pregnancy, cancer of the body of the uterus, ecchinococcus colonies of the uterus, tumours of the kidney, and displaced spleens. If errors arise when the tumours are single, how much more must be the chances of false diagnosis when two or more pathological swellings co-exist in the pelvis, and especially if these

* An address delivered to the Pathological Society of Reading, October 11th, 1901.

should be associated with a normal or an abnormal pregnancy.

I am sure that few to-day scarcely realise that twenty-five years ago it occasionally happened that even after a tumour had been removed from the pelvis surgeons would wrangle as to whether it was uterine or ovarian ; and the accounts of these remarks made on specimens exhibited at the London medical societies will be found very amusing in relation to this point, to any one who takes the trouble to hunt them out in the current literature of that period.

The chief signs on which a diagnosis of a "fibroid" is based are these :

The existence of a tumour which may be, and usually is, incorporated with the uterus. The tumour may be so large as to reach as high as the diaphragm, or no bigger than a potato of average size. The enlarged uterus may be of a smooth contour or irregular, and tuberose.

Age is an important factor, for fibroids are rarely recognisable and troublesome before the twenty-fifth year, and there is every reason to believe that they arise only during the menstrual period of a woman's life.

In many cases fibroids, especially those which encroach on the endometrium, give rise to excessive and prolonged menstruation. In some instances the bleeding may be so free that the women die.

As a rule, a fibroid large enough to be troublesome adds to the length of the uterine cavity, and in a certain proportion of instances yields a distinct hum to auscultation.

Any tumour of pelvic origin which furnishes two or more of these signs will often successfully simulate a fibroid ; on the other hand, a fibroid which fails to furnish all these signs causes doubt in diagnosis. It is common experience that it is impossible sometimes to distinguish between a very large fibroid and an ovarian cyst, especially when the fibroid does not disturb menstruation and yields no hum on auscultation.

In 1899 I saw at the Cottage Hospital at Ealing a

woman about forty years of age with a large tumour filling and distending the belly uniformly; it was smooth in contour, dumb to auscultation, and had grown slowly for five years: there was no fluctuation. The uterine cavity was of normal length, and menstruation occurred regularly and normally. At the operation this proved to be a huge globular fibroid (weighing 36 lbs.), sessile on the fundus of a uterus, which in size was proportionate to the age and stature of the woman. It was successfully removed, but before the operation all who examined the patient believed the mass to be in all probability a solid ovarian tumour.

It used to be a fairly frequent event for a surgeon to perform cœliotomy with the intention of removing a suspected ovarian cyst, but, on finding a fibroid, to close the wound and leave the tumour. I have on several occasions subsequently had charge of such patients and successfully removed their tumours. On the other hand, ovarian and parovarian cysts very frequently simulate fibroids. Three years ago a cook of forty years of age was seen at the Samaritan Hospital, and Mr. Meredith, who examined her, came to the opinion that she had a large fibroid. The case being urgent, and as the hospital was closing for the annual cleaning, she applied to St. Thomas's Hospital. The gynæcologist at this institution told her that she had a fibroid. Eventually she came under Dr. Fenton's care at the Chelsea Hospital for Women, and he confirmed the diagnosis and transferred her to my care. After careful examination I regarded the tumour as a fibroid, but at the operation I found bilateral ovarian cysts, one, as big as a cocoanut, impacted in the pelvis. In this case four individuals thoroughly accustomed to examine pelvic tumours were in error; fortunately, in this case it did not interfere with the appropriate treatment. It is, however, a much graver matter when a pelvic tumour is considered to be a fibroid of the uterus, and because it is a fibroid operative treatment need not be entertained; subsequently serious complications arise, and the supposed fibroid turns out to

be a suppurating dermoid, or something equally obnoxious and inimical to life. The following case illustrates the ill-effects of such erroneous diagnosis :

A married woman, aged 40, suffered from a pelvic tumour which extended well into the right iliac fossa. She was under the care of an experienced gynæcologist, who regarded the tumour as a fibroid of the uterus, an opinion confirmed by an eminent obstetric physician. An inactive mode of treatment was pursued for several years, then bladder symptoms became so urgent and distressing that it became a pressing necessity to attempt the removal of the tumour. A large dermoid filled with hair, teeth, macerated fragments of bone, phosphatic masses, and horribly offensive pus was found communicating with the bladder. The operation succeeded, and the patient completely and quickly recovered ; but what a lot of misery and suffering this poor lady endured because of an erroneous diagnosis.

Two very important signs will, when present, enable us, in a large number of instances, to distinguish between an ovarian cyst and a fibroid :—An ovarian tumour yields no sound to auscultation and very rarely causes metrorrhagia. I have seen two instances in which irregular losses of blood from the uterus were associated with an ovarian tumour ; both patients were twenty-eight years of age and the tumours had twisted their pedicles.

In the case of an ovarian cyst with a long pedicle, and a single pedunculated subserous fibroid, the physical signs are so similar that the distinction is very often mere guess-work. This is also true of many cases where an impacted fibroid softens to such a degree that it fluctuates on manipulation. Intuition, the outcome of long experience, will sometimes embolden men to venture on a differential diagnosis, but operation-records indicate that in more than half the cases the inferences are very erroneous. This is not a matter of any serious moment so long as it is not allowed to bar necessary surgical intervention.

Still confining our attention to the uncertainty of the differential diagnosis of simple uncomplicated tumours of the uterus and ovary, it is obvious that if there be so much difficulty in determining in which of these two organs a given tumour arises, how much greater must be the liability to error when attempts are made to decide the nature of the tumour.

Altormyan, of Aleppo, has related the facts concerning a woman of thirty-five years of age, who had a rounded mobile tumour of the size of a head which was thought to be ovarian in origin, but at the operation it was found to be an ecchinococcus colony in the fundus of the uterus. An even more striking case has been reported from Martin's Klinik, in Berlin. Cœliotomy was performed for the removal of two pedunculated tumours attached to the fundus of the uterus and suspected to be subserous fibroids. On lifting them out of the belly they burst in the operator's hands. They were ecchinococcus cysts the size of a fist.

In order to more strongly emphasise the occasional difficulties which are encountered in the diagnosis of uterine tumours it may be mentioned that a wandering spleen is very apt to drop into the pelvis. Sir Spencer Wells performed cœliotomy in a lady, expecting to remove a uterine myoma; in the course of the operation a large purple-coloured mass was exposed; on manipulating it, his hand suddenly broke into a large, soft bleeding organ which proved to be an enlarged spleen lying in contact with the uterus.

Varneck had a stranger experience, for he operated on a woman and with great difficulty succeeded in removing piecemeal what he regarded as a firmly adherent uterine myoma. When the fragments were examined in the laboratory it was discovered that the supposed myoma was an enlarged, displaced, and adherent spleen.

On one occasion I performed cœliotomy on a woman for what I regarded as a wandering spleen. On exposing the tumour, a mass of the shape and colour of a large

spleen was seen lying on the uterus. It proved to be a subserous myoma with a slender pedicle. It was not until I had exposed the spleen that I succeeded in convincing the onlookers that the mass was really the tumour and not the spleen.

On several occasions in performing splenectomy for "wandering" spleen, I have found this viscus in the pelvis in contact with, and displacing the uterus.

It must also be remembered that bias often counts for much in erroneous diagnosis. McGraw has recorded a good instance, in which a woman in the fifth month of pregnancy complained of severe pain in the belly, which led to the detection of a "lump" in the left lumbar region. The case was seen by a gynæcologist and a surgeon in consultation and regarded as a renal tumour. Cœliotomy was performed, and the lump proved to be a sessile subserous fibroid weighing four pounds. It was successfully removed, and the pregnancy went to term and ended happily.

A woman under my own care, four months pregnant, complained of pain due to a lump in the left iliac fossa. This was thought to be a pyosalpinx by one gynæcologist and regarded as an ovarian cyst by another; I regarded it as a sessile fibroid, and so it proved at the operation, when I was able to remove it, and the patient recovered without disturbance.

Of the various signs on which reliance is placed in the diagnosis of "fibroid" the two most important are profuse menstruation and often metrorrhagia associated with a tumour incorporated with the uterus. Any condition which can produce a combination of these two signs usually renders diagnosis as uncertain as navigation in a fog. This combination is very common in diseases of the Fallopian tubes and especially in tubal pregnancy, and it comes to pass that of all pelvic swellings liable to be mistaken for fibroids, pyosalpinx, gravid tubes, and mesometric pregnancy hold the first place. Quite a large number of records may be gathered from the literature of the last

ten years, where experienced men like Thomas Keith, Angus Macdonald, and Duncan, among others, have performed cœliotomy for the purpose of removing a suspected fibroid and have found a sequestered fœtus instead, and in some of the cases the swelling has been excised and the operation completed, when a subsequent examination of the parts removed has disclosed a fœtus. In spite of every care it is occasionally impossible to make an accurate diagnosis, as the following details prove:

In 1897 a woman aged 38 came under my care for profuse metrorrhagia. The history and the physical signs indicated very strongly the presence of a submucous fibroid. The patient was anæsthetised and the cervical canal dilated; a large rounded mass could be felt as though a large sessile submucous myoma, embedded in the posterior wall of the uterus, was projecting into the uterine cavity. I consulted with two of my colleagues who were present at the examination as to the advisability of enucleating it. After careful examination it was regarded as a safer measure to perform abdominal hysterectomy. The patient decided to defer so serious a measure, but the bleeding continued to be so profuse during the succeeding three months that she sought relief. At the operation the supposed myoma proved to be a gravid left Fallopian tube containing a "mole" as large as a turkey's egg. The cœlomic ostium of the tube was completely occluded. The operation was followed by arrest of the metrorrhagia. The right ovary and tube were not removed, and menstruation became subsequently normal in rhythm and in quantity. This case is also significant, as it favours the view that blood effused into a Fallopian tube with an occluded cœlomic ostium may escape by way of the uterus.

If difficulty and doubt arise in uncomplicated cases, how great must be the risks of error when two or more conditions co-exist. Uncomplicated pregnancy is, as a rule, diagnosed with certainty, but when pregnancy occurs

in a uterus also occupied with fibroids it is not always a simple exercise. Some months ago a married woman came under my care, stating that she knew she had fibroids and was afraid also that conception had occurred. Her distress on this account was due to the fact that five years ago she had been in the same straits, and, though prematurely confined, had been so ill and ran such a narrow risk of dying that she wished to avoid the repetition of such a contingency if possible. On examination a fibroid was found to occupy the true pelvis, and a larger one the false pelvis on the left side: the uterus from the history and signs had probably been gravid two months. A colleague, who examined the patient, satisfied himself that if the pregnancy continued it was quite certain that the fœtus could not enter the world through the natural passage, and after very careful consideration of the facts she was advised to submit to hysterectomy. This was carried out with the preservation of one ovary, and the patient left the hospital convalescent, grateful, and happy in eighteen days. If time permitted I could furnish quite a number of references where normal pregnancy and retroflexion of the gravid uterus have been mistaken for fibroids and *vice versâ*; and even when an operation was undertaken a retroflexed gravid uterus has been mistaken for a fibro-myoma.

Probably one of the most extraordinary examples of diagnostic difficulties where fibroids were concerned, is the case recorded with great care and detail, by Cullingworth ('Trans. Obstet. Soc.,' vol. xl, p. 285), in which fibroids and tubal pregnancy co-existed. The physical signs so simulated retroversion of a gravid uterus that on September 4th deliberate but unsuccessful attempts were made to reduce the supposed displacement. On October 5th a further but equally ineffectual effort was made. Misgivings then arose as to the correctness of the diagnosis, and on October 21st cœliotomy was performed, and a large fibro-myomatous uterus, complicated with a gravid tube containing a fœtus four and a half inches long was

removed. It is gratifying to add that the operation was followed by an excellent recovery.

It is not my intention to attempt an exhaustive or systematic account of the differential diagnostic signs of uterine fibroids, but merely to show that in many cases it is very difficult and often impossible to decide between these common tumours and other very grave conditions, this being a matter of great importance. For instance, a woman aged 25 came under my care with an abdominal tumour bigger than a football, stating that she had been in a hospital and the surgeon refused to remove it. This seemed curious, and my house surgeon communicated with him and received a letter to the effect that the tumour was a uterine myoma and did not require an operation. I did not agree with the diagnosis, acceded to the patient's request, and removed this very large tumour, which arose in the ovary and proved to be a solid sarcoma composed of oat-shaped cells. The issue of the operation was all that could be desired, but it is impossible to forecast the results of an unfortunate delay of three months in the removal of the tumour, on the future of the patient. This is an example of the great injury sometimes unconsciously inflicted on patients by an overweening confidence in our powers of diagnosis. It is also certain that women often endure unnecessary misery by our blind belief in the fact that "fibroids" are tumours capable of easy clinical recognition. Fortunately surgeons are now realising that with the employment of strict aseptic measures in pelvic surgery, uterine fibroids can be removed with a measure of success which has lately been astonishing, so that in the future women with pelvic tumours of uncertain nature will be spared much suffering by the timely intervention of surgery.

THE INIMICALITY OF PREGNANCY AND UTERINE FIBROIDS.

The title of this communication has been chosen with great care, because it is my wish that it should convey a particular meaning. The banefulness or harmfulness of the association of pregnancy and fibroids is of three kinds:

(1) *Obstructive.*—The harm which may arise from the obstruction offered by a fibroid to a gravid uterus sometimes occurs early in the pregnancy because it may lead to impaction and even slow torsion of the uterus. If the fibroid be pedunculated the upward movement of the uterus may cause it to rotate and twist the pedicle; occasionally it will be incarcerated by the uterus.

(2) *Septic infection.*—An interstitial or a submucous fibroid may be infected from careless attention to antiseptic details following miscarriage or delivery at term. Occasionally a submucous fibroid may be extruded into the vagina during delivery, but this is rare.

(3) *Degeneration of the fibroid.*—This is an insidious danger, and one which has not been fully appreciated by obstetricians. It is this peculiar change which I wish to discuss under the title *Inimicality of Pregnancy and Uterine Fibroids,* for it is a condition often associated with pregnancy apart from septic infection; or mechanical injury which the tumour may receive in the course of the gradual enlargement of the uterus, or during its sudden diminution after delivery. Moreover, the change which pregnancy induces in fibroids has interested me for many years, and I have been able to collect a large number of facts from personal observation.

The usual colour of a uterine fibroid is pale yellow; in many degenerating and necrotic fibroids this colour deepens. In the course of pregnancy a fibroid, especially one of the interstitial kind, assumes a deep red or mahogany tint. In the early stages the tumour exhibits the colour in streaks, but as the pregnancy advances it permeates the whole tumour. Occasionally, even in the mid-period of pregnancy, this necrotic change may be so extreme that the central part of the tumour is reduced to a red pulp.

In 1903 Fairbairn wrote an excellent paper on this necrotic change in fibroids, and it is now becoming familiar as the "red degeneration." Until Fairbairn began to accumulate the material for this paper I held the opinion that this change was only seen in association with pregnancy, but he soon convinced me that it occurred in spinsters, and I have myself seen since two well-marked examples in women who have never been pregnant. At the same time it must be stated that the largest number, the best marked, so far as colour goes, and the most extreme examples of this red degeneration occur in association with pregnancy.

In the early cases which came under my notice, the redness of the cut surface of these tumours so strikingly resembled beefsteak that it suggested to me, and appears to have done so to other observers, that the change in colour might be due to an increase in the muscle fibres in consequence of the physiological enlargement of the uterus. The microscope, however, dispelled this illusion, showing the colouring material to be blood pigment diffused through the necrotic tissue of the tumour.

This red degeneration is of interest outside the pathological laboratory, and the appended reports of actual cases will, I hope, show that it is of clinical importance.

Case 1.—A well-developed woman, aged 28, sought advice for an abdominal swelling which she said had recently grown much larger and had become painful.

Menstruation had been in abeyance three months. A hard rounded swelling as big as a fist occupied the right iliac fossa; a larger rounded tumour could be felt immovably impacted in the pelvis to the left of the cervix, whilst the vaginal portion of the cervix was pushed to the

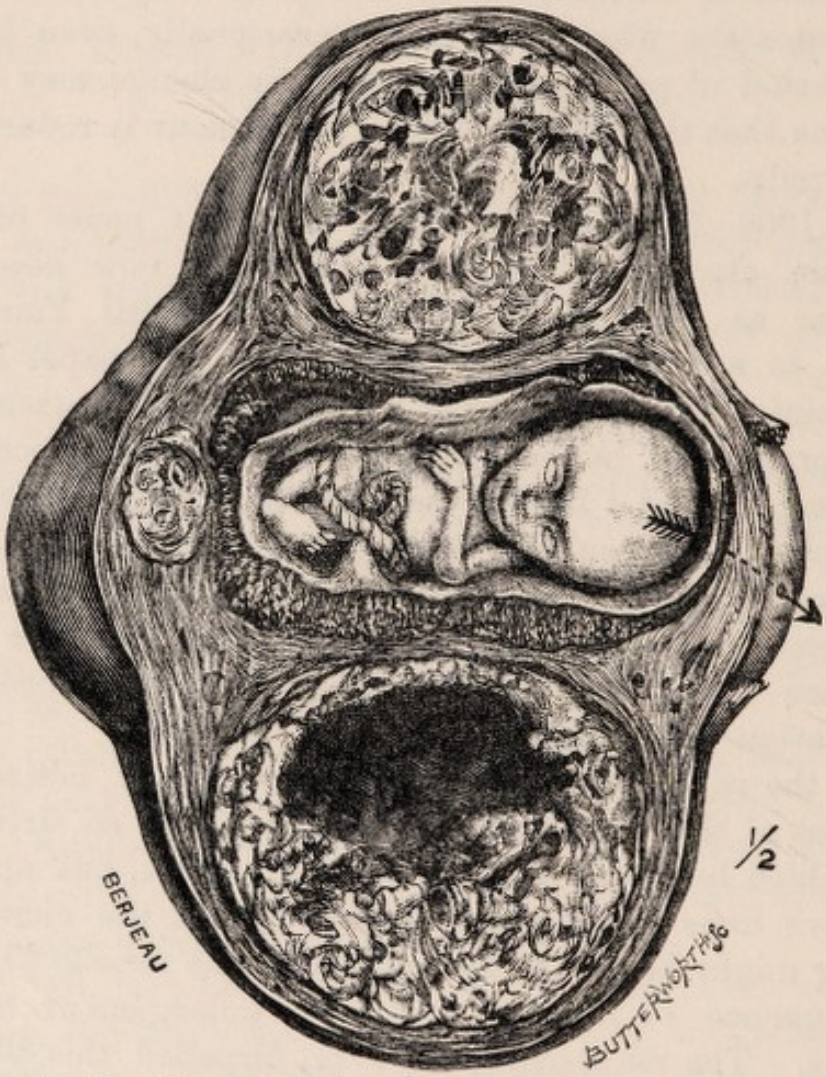

FIG. 10.—Gravid uterus deformed by fibroids which were soft, red, and one was diffluent. Removed from a woman aged 28 on account of pain, impaction, and rotation of the uterus. The arrow lies in the cervical canal.

left side, and in order to reach it the finger had to sweep over the rounded contour of the impacted tumour, which appeared to usurp all the available space in the true pelvis. Pressure on the tumour caused pain, and there was some difficulty with the rectum, but fortunately there

was no interference with the bladder. These signs led me to diagnose fibroids impacted by pregnancy. At the operation a large tumour in the anterior wall of the uterus was found impacted in the pelvis, the body of a gravid uterus occupied the hypogastrium, and a tumour in the posterior wall of the uterus was lodged in the right iliac fossa, so that the uterus was not only rotated through 90° but also acutely flexed. On removal the organ was carefully hardened and sectioned in its sagittal axis. The tumours when divided exhibited irregular red streaks; these were most marked in the larger fibroids, and its central parts were soft and diffluent (Fig. 10). The pregnancy had advanced beyond the third month ('Lancet,' January 4th, 1902, p. 17).

The interest of the case is threefold. The pregnancy had not only produced impaction of the uterus, but had also caused it to rotate, a condition of things which would require surgical intervention quite apart from any consideration of the degenerative changes which had happened in the fibroid. It is also impossible to decide whether the pain of which the patient complained depended on the impaction and rotation of the whole organ or on the molecular changes in the tumour. That red degeneration is a cause of pain the following cases well illustrate.

Case 2.—A woman, aged 34, and advanced to the sixth month of pregnancy, suddenly felt acute pain in the abdomen. On undressing and examining herself she found a lump in the right iliac fossa. She was admitted into the Chelsea Hospital for Women two days later. A rounded, smooth, exquisitely tender tumour closely attached to the uterus was found; the patient's temperature had reached 100°, and she anxiously demanded relief. The swelling was thought to be an ovarian tumour with a tightly twisted pedicle. The tumour, when exposed through a median subumbilical incision, was found to be a subserous fibroid, sessile on a gravid

uterus. Its removal offered no difficulty; the patient recovered and the pregnancy ended successfully.

After removal the tumour was bisected and a quantity of red fluid escaped. The solid parts of the tumour had a dull red mahogany tint throughout.

(This case is briefly mentioned by Fairbairn, 'Journal of Obstetrics and Gynæcology of the British Empire,' 1903, p. 13.)

Case 3.—This patient was a married woman, aged 36. In 1896 she gave birth to a healthy child. Two years later a fibroid the size of a turkey's egg appeared in the epigastrium. Towards the end of 1900 she became pregnant a second time, and was delivered in July, 1901. A few days after the birth of the child the fibroid became tender; irregular losses of blood occurred and became so alarming as to induce Mr. W. K. Loveless to place the patient under my care. At this time the woman was profoundly anæmic and had a tumour the size of a cricket ball, very tender, freely movable, but sessile, in a puerperal uterus. Hysterectomy was successfully carried out by the abdominal method. The fibroid on section was the colour of mahogany throughout; its central parts and the segment of its circumference in relation with the uterine cavity were soft and diffluent. Bacteriologic examination of the solid peripheric portion of the tumour was negative ('Lancet,' January 4th, 1902, p. 17). In 1904 the patient was in excellent health.

The next case is of interest because it shows that when a fibroid with red degeneration is enucleated from the uterus of a woman during the child-bearing period it is well to bear in mind the probability of a co-existing early pregnancy.

Case 4.—This patient was 36 years of age and married. For some months she had noticed an enlargement in the hypogastrium and believed herself pregnant, an opinion supported by the fact that she had missed two menstrual

periods. She was examined in consultation by two doctors, who found the signs consistent with pregnancy, but inconsistent with two months' amenorrhœa. She came under my care, and I had no doubt of the existence of a large uterine fibroid growing from the anterior aspect of the uterus, bulging into the hypogastrium, compressing the bladder and producing pain. I could not satisfy myself in regard to the pregnancy, and as the tumour caused much inconvenience and pain I decided, with the consent of the patient's brother (a doctor), to remove it. The patient was extremely anxious to have the uterus spared if possible, for she desired to have a child. May 12th, 1902: I succeeded in removing a very large fibroid from the anterior aspect of the cervix through an incision in the abdominal wall with very little difficulty. The uterus, somewhat enlarged and soft, appeared healthy and was left in accordance with the patient's keenest wishes. The fibroid on section presented a uniform mahogany colour, but showed no traces of softening. August 31st: Her doctor informed me that the patient was advanced in pregnancy to between the fourth and fifth month. January 2nd, 1903: The patient became the happy mother of a fine boy. It is quite clear that the enlargement of the uterus and the redness of the fibroid were due to pregnancy which had been in progress for about six weeks.

In 1901 I published some Lectures on "The Surgery of Pregnancy and Labour complicated with Tumours" ('Lancet,' 1901, vol. i, p. 452), and recorded some cases in which fibroids complicating pregnancy had given rise to trouble, and the pain which they set up was of such a kind as to demand surgical interference. It is also noteworthy that in some of the cases recorded by other surgeons which are tabulated in those lectures, the operations were undertaken for the relief of the pain and under the impression that the tumours were ovarian and had become incarcerated by the gravid uterus, or had undergone axial rotation.

Not the least remarkable feature in the clinical aspect of these tumours is the fact that a sessile fibroid may be enucleated from the walls of a gravid uterus even as late as the fifth month without disturbing the fruit. This is another example of the manner in which the uterus tolerates surgical interference even when pregnant. In my last communication to the 'Clinical Journal,' April 20th, 1904, p. 5, I briefly described a case in which a large fibroid growing from the anterior aspect of the cervix was associated with a retroverted and firmly incarcerated gravid uterus. The organ was with great difficulty replaced and the fibroid enucleated through an abdominal incision. The patient recovered and went to the eighth month. The child survived its birth two months. It is well for surgeons to appreciate uterine tolerance under these conditions, for they may save their patients much bodily suffering as well as mental anguish. Of this the following record may serve as an illustration:—

Case 5.—A patient aged 28 years, and in the third month of her first pregnancy, complained of pain which led to an abdominal examination and the discovery of a tumour in the left iliac fossa, which an experienced gynæcologist regarded as an ovarian cyst complicating pregnancy. Median subumbilical cœliotomy was carried out, and a sessile uterine fibroid discovered instead of an ovarian cyst; the incision was at once closed for fear of disturbing the pregnancy. The patient recovered and went to term, but the child lived only thirty-six hours.

After the confinement the mother had so much discomfort from the tumour that she decided to have it removed. Four weeks after labour I succeeded in enucleating a sessile fibroid the size of my fist. Its central parts were diffluent and its harder parts here and there streaked with red, but the bulk of the tumour had the colour of wash-leather. Her recovery was quick and uneventful.

Myomata and fibro-myomata of the uterus are ex-

ceptional among tumours in several ways, and their life history is in accordance with that of the organ in which they grow. They arise during the functional period of the uterus, and usually their growth ceases with the cessation of the uterine activity, and they may shrink coincident with the atrophy of the uterus.

Another striking feature of the myoma and the fibromyoma is its painlessness; and yet, as the cases recorded in this essay show, when they undergo red degeneration painfulness and tenderness are very marked clinical features, and especially when the degeneration is associated with pregnancy.

Continued observations on pelvic tumours convince me more and more of what I have often expressed in my writings, that when a tumour suspected to be a fibroid of the uterus becomes painful and tender, it signifies that the tumour is undergoing secondary changes, and especially red degeneration, or that some complication has arisen in the pelvis; in a fair proportion of cases it means that the tumour is not a fibroid—in plain words, the diagnosis is probably erroneous.

It is also worth noting that the painfulness and tenderness associated with red degeneration is only markedly observed in fibroids when associated with pregnancy. This, at least, is my experience, but wider observation is necessary. It is, however, a clinical feature worth close observation. It is also a matter of interest to decide whether red degeneration occurs as frequently in cervical fibroids as in those which grow in the body of the uterus when complicated with pregnancy.

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