fixed in Douglas's pouch by dense adhesions at the back of the broad ligaments, external to the uterus. As the finger was passed into Douglas's pouch it entered on each side a sac lying under the ovary, into which the peritoneal surface of the ovary projected. On separating the adhesions and drawing up the ovaries they appeared normal and rather large. There was no sign of a corpus luteum nor of remains of blood clot. The broad ligaments were otherwise normal, the round ligaments being well marked.

I then proceeded as in the former case, of which the diagrams should be examined. Mr. Doran passed a uterine sound upon the point of which I cut down and laid open the uterine cavity. Then a drainage tube was passed downwards to reach from the upper end of the uterine cavity to the vaginal orifice. Next the ovaries and sacs were fixed over the uterine cavity, and all were covered in by an omental graft.

Progress.—Unfortunately the patient had been rendered very weak by the recurring attacks of peritonitis. As I began to separate the adhesions she became faint, and the anaesthetist, Dr. Bourns, had to start saline infusions, which were continued for several days. Her condition made me hurry, and I suppose I left some bleeding vessel unsecured, for broken-down blood clot escaped by the vagina and a little by the abdominal wound for some days.

RESULT.

Apart from this incident the patient made a good recovery. A month after the last attack of pain, when another could otherwise have been anticipated, the patient felt no disturbance whatever. This relief cheered her up, and she notably improved in colour, and put on weight. She went home, and is now quite well.

Since the operation the date for an attack has three times elapsed without the patient being in any way troubled. She thus resembles the first case, who has been again seen more than a year and a half after the operation, and has no feelings whatever relating to menstruation.

CASE OF PROLAPSE OF THE INVERTED UTERUS DURING LABOUR.

BY

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LOWESTOFT.

INVERSION and prolapse of the uterus during labour being a rare occurrence, the following notes of a case may be of interest. The patient was a married woman, aged 24, to whose second confinement I was called on November 6th, 1910, at 1.30 a.m.

Previous History.

The first labour had occurred two years and nine months previously, and was natural except that the placenta was adherent. She had never at any time had any gynaecological symptoms, and had always been strong and healthy. The second child was born about half an hour before I arrived. Labour began at 5 a.m. on November 5th. The pains increased in severity at 5 p.m., but there was a long interval between them.

State on Examination.

On entering the room I found the midwife attempting to deliver what she called a "false conception." A mass, with the placenta adherent, was protruding from the vulva, and, on closer examination, the case was found to be one of inverted uterus with complete prolapse, the whole organ appearing outside the vulva. The placenta was rapidly stripped off, there being absolutely no haemorrhage.

Treatment.

The uterus was returned to the vagina, no attempt being made to correct the deformity at the moment owing to the extremely critical condition of the patient. The entire absence of haemorrhage was considered a further justification for temporizing. Active stimulation was resorted to, strychnine and digitalin being administered hypodermically and friction to the extremities, pending the arrival of assistance.

Dr. Tyson soon arrived, and restored the uterus to its normal condition without much difficulty. The administration of an anaesthetic was considered inadvisable owing to the collapsed condition of the patient. A hot intrauterine douche of 1 per cent. lysol was given, and two pints of normal saline solution were introduced into the rectum; 1½ grain ergotin citrate was given hypodermically.

Progress.

During the night the patient felt stiff and cold, and did not sleep. The temperature varied between 100° and 102° for about a week. It fell to normal on November 13th. There was a slight rise for about three days, but on November 16th the temperature was again normal, and has remained so ever since. Quinine, strychnine and iron were given from the outset, and on November 9th 10 c.cm. antistreptococcic polyvalent serum were injected under the skin of the abdomen. As the pulse-rate was

inclined to be rapid, strophanthus was now added to the mixture with very beneficial results. The bowels acted naturally on the second day and were afterwards regulated by sulphate of magnesia.

Result.

The patient was kept in bed for a month, on a couch for a further week, and was then allowed to go downstairs. She now feels perfectly well. Menstruation occurred on December 17th, this corresponding to the time expected.

REMARKS.

There is some difference of opinion as to how to deal with the placenta if it be still attached to the uterus.

Galabin¹ says:

If the placenta is still attached, it should be peeled off first, because the size of the mass to be returned is by that means considerably reduced.

According to Whitridge Williams²:

If the placenta is still attached to the uterus, it is generally advisable to defer its separation until reposition has been effected, because, the contractile function of the inverted uterus being in abeyance, there is always the risk of profuse haemorrhage.

Herman³ states that:

If the placenta is still attached to the uterus it matters little whether you detach it or not. If you can peel it off quickly, do so; if not, reduce the inversion with the placenta attached.

In this particular case, the prompt removal of the placenta greatly facilitated further manipulations.

Referring to the frequency of the condition Williams⁴ says:

According to Beckmann, not a single case occurred in 250,000 labours in the St. Petersburg Lying-in Hospital, while Madden noted it once in 190,833 deliveries in Dublin.

I am greatly indebted to Dr. Wilson Tyson for his very valuable help and suggestions, and for permission to publish the case.

REFERENCES.

¹ Galabin, *Manual of Midwifery*, 1897, p. 741. ² Williams, *Obstetrics*, 1908, p. 825. ³ Herman, *Difficult Labour*, 1895, p. 342. ⁴ Williams, *Obstetrics*, 1908, p. 823.

THE TREATMENT OF RECTAL CANCER.*

BY

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THE subject under consideration is one to the study of which I have devoted a large part of my professional life, so it will be difficult for me to condense my remarks within the proper time limit. It is now over thirty years since I was awarded the Jacksonian Prize for the subject, and between that time and the present I have had under observation over 1,000 cases.

At first sight the pathology of rectal cancer may appear to be of secondary importance, seeing the precise subject of discussion is treatment, but a right knowledge of the pathology of the disease is really the secret of its successful treatment.

With the exception of two or three cases of melanotic cancer and two or three cases of sarcoma out of the large number of cases of rectal cancer I have seen, the whole of the remainder have been adenoid cancer; by this I mean a proliferation or overgrowth of epithelium of Lieberkuhn's follicles and the reproduction of those follicles on a large scale. There are two ways in which these growths appear from Lieberkuhn's follicles: one, when they commence on the summit of some of the folds of the rectum, and the other where they appear to commence at the base. It is the same disease but in a different situation.

Nevertheless there is a vast clinical difference. When the growth appears on the surface of the fold it has a free space to grow in, and grows like a tree in the free space of the rectal passage. What becomes of it? It grows with a pedicle or trunk; it becomes a polypus; it never grows to excess in size; it is not malignant, in that it does not affect the glands or general organs, and if removed properly at the base it seldom recurs.

Adenoid cancer is the same growth turned upside down. If instead of growing free towards the surface it grows

* A contribution to the discussion on this subject at the Royal Society of Medicine of January 10th, see p. 200.

into the muscular tissue, it no longer has the same beautiful tree-like arrangement, which makes such beautiful slides, as when it grows free, but it is the same growth. When it grows downwards it becomes irregular, for it has to insinuate itself between the muscular fibres and the fibrous tissue of the rectal walls. In this situation it is invariably malignant.

If I were shown a microscopical specimen of rectal growth and saw no muscular fibres in any part of the specimen, I should say I believed it was innocent, though I could not say this to a certainty. If, on the other hand, the growth were between muscular fibres, I should know it was malignant disease. I will not enter into theories on this point, but merely state that the two forms of growths are interchangeable. I have seen two or three cases in which there were multiple polypi of the rectum which had been going on for years. I know, also, of two cases in which polypi were removed at various times during fifteen years, and then a time came when growth started in the other direction, and the patient died of disseminated malignant disease.

With regard to treatment, I consider that the particular route by which rectal cancer is removed is a matter of quite secondary importance. The really important point in rectal cancer is whether it can be removed with advantage to the patient. Surgeons differ very much as to what they consider the class of case suitable for removal. Those which I myself consider suitable are cases in which the growth is still confined to the rectum, and does not extend beyond it. In very many cases one can ascertain whether it is confined to the rectum by noting its degree of fixity. If I feel disease in the bowel, and am able, with the finger, to push it up or down or rock it from side to side, I am sure it can be removed with advantage to the patient. But if the examining finger passes into a narrow part of the rectum and the disease extends round it, and I am unable to move the diseased part without at the same time moving the patient bodily, I generally find it useless to attempt removal.

I am speaking, it is to be remembered, from much experience of these cases, and it took me some time to learn what growths are removable and what are not. Some of my early cases on which I operated should not have had operation attempted, for the disease had gone through the rectal wall. Where that is the case and the neighbouring tissues are involved I have not had a case of successful removal, and I believe that the recurrent growth was more virulent and rapidly fatal than the original.

It is very important in the first examination to make out whether the cancer is movable or firmly fixed, and therefore whether it is removable or not. At the examination in the consulting-room one can conclude that a case is not obviously suitable for removal, or that it moves easily, and is suitable for removal. But there are some cases on the border line in which it is difficult to know whether the cancer is movable or not. As the point is a very important one, examination should be made in these cases under an anaesthetic. I have had many cases which, if I had been pressed for an opinion at the first examination, I should have said ought not to be removed, but which seemed more favourable when examined under an anaesthetic. No case should be condemned as irremovable until such further examination has been made.

With regard to recurrence of the disease: it has been stated by Mr. Sampson Handley, as suggested to him by his pathological specimens, that rectal cancer extends by the lymphatics far beyond the actual growth. I do not think it does; the lymphatics only become implicated very late in rectal cancer. Such widespread infection at an early stage is contrary to my clinical experience. I cannot say I have ever seen cases which have recurred in the sense that large areas of bowel—10, 12, or 14 in.—have been involved. When rectal cancer does recur after removal, where does it recur? Sometimes it recurs at the cut edge of the mucous membrane—that is, in cases where there has not been a sufficiently free margin of $\frac{1}{2}$ to 1 in.; but where it generally recurs is not at the cut margin of the bowel, but in the tissue surrounding the part from which the growth has been removed.

Cancer can be advantageously removed when the disease is still confined to the rectum, but not when it has passed this and penetrated into surrounding tissues.

With regard to methods of operating, a considerable number of cases can be reached from the anus by division of the sphincter. It will be generally agreed that a growth within 3 in. from the outlet can be removed in that manner. There are many cases situated in the common position for rectal cancer at about 4 to 5 in. which can be removed by the trans-sacral operation by sawing across the sacrum 3 or 4 in. up. This gives an astonishingly good view of the part. On the whole, it is one of the most successful operations for the disease.

There are a certain number of cases which obviously cannot be felt per rectum; they are in the pelvis, and can only be attacked by the abdominal route. It is absurd, therefore, to lay down a rule and say one or other operation should be done in every case; it discounts the surgeon's common sense. Who would dream of removing a cancer in the upper part of the pelvis by the sacral route, or who would remove a cancer at the bottom of the pelvis, below the peritoneum, by beginning in the abdomen?

In regard to the abdominal operation—which is suitable when the disease is high up in the rectum, especially if it merges on the sigmoid—there is a question of detail as to performing an anastomosis. Nothing is so successful in the sigmoid or the large bowel as the removal of a growth and at once performing an end-to-end anastomosis. The operator will see what he is doing; there is plenty of room, and suturing can be accurately done.

But when the growth is low down and there is difficulty in getting below it, and it is necessary to cut below the growth, and one has to cut across the growth above, there may be an interval of 4 in. between the two ends. Surgically I believe it is impracticable to make a safe join in these cases, for even if the ends can be brought together they have to be left in a condition of considerable tension, and there is nothing worse than to leave a junction of bowel with tension on the stitches. The junction is sure to separate, and death to ensue. It is better to cut off as low as possible, close by invaginating the lower opening of the rectum, which will otherwise be open, into the abdomen, and then finish the operation by fixing the upper end into the angle of the wound. This is far safer than attempting, in a doubtful case, to join the ends together by end-to-end anastomosis.

In doing the trans-sacral operation it is good, if possible, to join the ends together. But in many cases that is not practicable at the time. I have had two very successful instances of doing the joining by a secondary operation. One of them was a lady brought to me by Dr. Rushworth; in this I excised a piece of bowel by the trans-sacral operation and removed 4 in., including the growth. I expected to see the sacral nerves, but fortunately did not. I could not join the ends together. I left the patient, and it was agreed that I should see her again in a year's time, and, if there was no recurrence, see what could be done in the way of joining. I waited for more than three years, and there was no recurrence. Still, there gradually occurred a considerable prolapse of the upper end, and at the end of the three years I dissected out the prolapsed upper end and the remains of the lower end, made a very thorough anastomosis, and closed the soft parts over it. I did the original operation eleven years ago and the second one eight years ago, and I know that quite recently the lady was in perfect health, and she had absolutely perfect control over the anus. How could such a result have come about if I had taken the precaution of removing 13 in. of bowel, as recommended by Mr. Handley?

With regard to statistics, after examining my notes, I find that not more than 1 in every 4 cases of rectal cancer which I have seen was, in my opinion, the least suitable for operation, and I believe to operate on all cases must bring discredit on the operation. With regard to recurrence, I am sorry to say my statistics are not quite so good as those given by Mr. Edwards. Out of 85 private cases which I have published of excision the mortality was 5 per cent., corresponding nearly with Mr. Edwards's experience and where I have been able to follow them up, 35 were cured—that is, there was no recurrence after three years. The shortest case was three years and a few months, and the longest case twenty-three years. With regard to recurrence, it is fair to regard as a cure any case in which there is freedom from recurrence after three years, for if cancer of the rectum recurs it almost

always does so in the first year; many of them recur in six months.

I agree that in selected cases the operation is very valuable, and if there is doubt in a case as to removal, the benefit of the doubt should be on the side of operation. I may mention a case in illustration of this point. One of my old pupils at St. Bartholomew's Hospital was in the Indian Medical Service. He had an obstruction, and was operated upon by Major Bird, of Calcutta, for complete obstruction; colotomy was done. By passing his finger he could feel what he believed to be malignant disease. But owing to the hot weather the patient was advised to come to England for further treatment, and so consulted me. By passing my finger down the colotomy opening, I could feel a growth of considerable size down the pelvis, the examination being made under an anaesthetic. It felt so fixed that when the patient came out of the anaesthetic I explained to him that I could hardly advise its removal. The patient replied that I probably had in my mind that death might occur at the operation, but that he did not mind dying under the operation, but dreaded dying from cancer. He added that he would take the full responsibility for his life if I would attempt the removal.

I did the operation in St. Bartholomew's Hospital, and it was the worst I ever did. It occupied two and a half hours. The growth was not anatomically fixed, but was firmly set in adhesions deep in the pelvis. I removed a mass as large as my fist, with six or seven inches of bowel, and I never knew a patient who so nearly died. For forty-eight hours there was no sign of any pulsation at the wrist. His friends came, and I told them the patient was going in an hour or two. But the patient whispered he was not going to die, and he did not. Only a short time ago I had a letter from him from India, which was dated as his eighth birthday, for he dated his life from the operation. He sent me an 11-ft. tiger skin and his comment was:

I send you this tiger skin to show that I am in perfect health and I have not lost my nerve, for I shot this animal in one of the wildest parts of India, and I shot it on foot.

This case makes it clear that in such a disease it is well to err on the side of doing too much rather than too little. Believing, as I firmly believe, that a number of these cases are curable if operated upon early, it is a pity that practitioners do not spend more time in the study of the symptoms of rectal cancer, for they are obvious. Nevertheless, time after time cases come to me which have been treated for long periods as chronic dysentery, intestinal catarrh, piles, etc., without any examination having been made, whereas if that simple precaution had been taken, the nature of the disease would have been early apparent, and they might have been treated by operation with permanent success instead of having drifted into a hopeless condition.

I think we are greatly indebted to Mr. Edwards for the admirable way he has stated his facts and brought the whole subject so concisely before us.

A NOTE ON THE TREATMENT OF RHEUMATOID ARTHRITIS BY VACCINES.

BY

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For some time past the systematic examination of the blood in cases of acute rheumatoid arthritis has been carried out in the laboratory of the Royal Mineral Water Hospital, and in certain cases micro-organisms have been isolated and vaccines prepared.

The following is the history of two such cases, and the results have been so exceedingly satisfactory that we are encouraged to hope that in vaccines a cure may be found for many acute cases of rheumatoid arthritis.

CASE I.

J. M., female, aged 44, nurse. Was quite well till March, 1909. The first symptom was a throbbing pain in the proximal interphalangeal joint of the index finger of the left hand. This pain continued off and on (no other joint being affected) till June, 1909, when the left foot became very painful, inflamed, and swollen. She was, however, still able to walk and remained on duty as a hospital nurse till November, when the right foot also became swollen and inflamed. She was now unable to walk. The joint seemed to be more swollen at night than during the daytime, and there was slight oedema. She remained confined to bed till February, 1910, when she went to the south coast. While there she improved so much that she was able at one period to stand on her feet. Soon, however, she became worse, till the finger-joints, knees, ankles, hips, shoulders, and cervical joints were involved in quick succession. Ultimately she became completely bedridden, being unable to move her head, knees, or feet, and she could not feed herself. In May she came to Bath, where she was under treatment nine weeks, vapour and other baths being given. She was no better at the end of that time. On July 14th she was admitted to the Royal Mineral Water Hospital. On examination she presented all the features of acute rheumatoid arthritis. All the joints were affected. Evening temperature did not rise above 99.2° F. There was no albuminuria and there was no apparent infective focus. The teeth had all been removed some years previously. She had had an attack of influenza six years previous to the onset of the joint symptoms. There was no family history of joint troubles.

On August 6th she had her first injection of fibrolysin. This was repeated every fourth day till nine injections had been given. She was also having the thermal baths, but up to September 12th there was no improvement whatever, and she lay in bed with her knees drawn up, unable to move and unable to feed herself. On that date her blood was found to contain a micro-organism, and a vaccine was prepared and injected. The dose used was 5,000,000 throughout. The injections were given subcutaneously every third day. There was never any rise in temperature or other constitutional disturbance, but after the first and second injections she experienced a considerable amount of pain in the joints. From that time a rapid and continuous improvement took place in her general condition. The pains in the joints became much less; movement of the joints was speedily obtained, till, at the end of seventeen injections, she was able to move her head freely, feed herself, knit, and walk up and down stairs without assistance.

CASE II.

H. M. B., female, aged 41, married, was admitted to the Royal Mineral Water Hospital on August 13th, 1910. The onset of the condition, which occurred four months after a confinement, began ten years previously with generalized joint pains. On admission the case was seen to be a typical one of rheumatoid arthritis. There was no evening rise of temperature above 99° F. There was no albumen. The proximal interphalangeal joints of the fingers were fusiform, and the synovial membrane was thickened and pouched. The wrists, elbows, shoulders, knees, and temporo-maxillary joints, which had all been acutely affected, were in a subacute or chronic stage. There was a marked degree of atrophy of the interosseous muscles of the hands, also of the muscles of the forearms, thighs, and legs.

In addition to the thermal waters which the patient was having on September 5th, she was given guaiacol carbonate gr. v. t.i.d. On September 15th there had been no improvement in the condition of the patient and on this day a culture was obtained from the patient's own blood, and a vaccine prepared. Injections of 5,000,000 were given on alternate days. There was no rise in temperature after any of the eleven injections given. Immediately following on the administration of the second dose the patient lost practically all her joint pain. After three or four doses she was able to move her joints more freely than she had been since the onset of the condition. She improved steadily and continuously till she left hospital.

In both cases the micro-organisms were obtained from blood taken from the veins of the antecubital fossa of the arm, after every precaution had been taken to ensure the impossibility of skin contamination. The media on which the cultures were obtained was blood agar, and during the period of growth the incubator registered 35° C.

In Case I a growth was observed on the third evening, the appearance of the colonies being that of semi-transparent points. The appearance microscopically was that of a diplococcus aggregated in clusters. The stain was retained after employing Gram's method.

In Case II a growth was observed on the second evening in the form of single colonies less transparent than in the