improbable that the abdominal wall could be made strong enough to resist the pressure of the prolapsed intestines, therefore, in them obliteration of the hernial sac and suture of the abdominal wall should be followed by the wearing of a truss.

In conclusion I ought, perhaps, to refer to the operations of radical cure which may be performed after ketotomy. But so much has been written and said upon this subject that this may be done very briefly. First, however, it is not to be expected that any of these procedures can be undertaken without danger unless perfect aseptic precautions are used and attained, and too much stress cannot be laid upon the importance of sterilizing the sponges, ligatures, instruments, and materials used in the operation.

No operation for radical cure can be relied upon which does not achieve two things: first, absolute obliteration of the sac without leaving a depression at its opening into the peritoneum; and secondly, the repair of the abdominal wall. Macewen's operation fulfils these conditions, and, as he and others have shown, can be practised with safety.

However, I have found that as regards the treatment of the sac it has not always seemed wise to fold it into a pad, as Macewen recommends. In femoral herniæ the sac is sometimes in such a condition that it has been impracticable to convert it into a pad, and therefore I myself have usually dealt with it as follows. Its neck is transfixed and then encircled with a long and moderately thick silk ligature, and securely tied. Next the ends of the thread are passed separately, about an inch apart, through the abdominal wall, well above Poupart's ligament, so that when they are pulled upon the neck of the sac ascends the crural canal and is fixed by tying the ligature. Afterwards Hey's ligament and the pubic portion of the fascia lata are brought together by suitable sutures, and the wound closed after having been irrigated with perchloride.

The operation for the cure of inguinal hernia is more difficult to perform, and is now described in all the recent works on operative surgery. However, before undertaking its performance, it is highly desirable to take opportunities to practise its several steps. Macewen's operation, as regards its difficulties, seems comparable to staphyloraphy and requires a good knowledge of anatomy and considerable dexterity for its efficient execution.

OVARIOTOMY PERFORMED FOR THE THIRD TIME IN THE SAME PATIENT.

By GEORGE BUCHANAN, M.A., M.D., LL.D.,
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OVARIOTOMY has never been the monopoly of gynecologists in Glasgow. Indeed, the first successful case was performed by myself in 1864. Since that time it has been done by the operating surgeons in the hospitals as one of the ordinary operations of their service; and of late years with an amount of success equal to that of the gynecological operators in special hospitals or wards elsewhere. All the particulars with regard to preparation, operation, and after-treatment are so well known and practised that we look forward to an ovariectomy with less apprehension than to most of the major operations of surgery.

In consequence, there is little written about it at the present day unless when some specialist desires to compare his results per hundred or per thousand with those of some other operator, or when a case which has been seen by one gynecologist, or become known to him, appears among the cases of another, with, perhaps, a slight difference of phase from that which it appeared to possess when first seen, or the result has been somewhat different from what appears in the report.

As, however, the following case appears to me, if not unique, at least most unusual, I shall report it in a few lines.

Miss F., a patient of Dr. Robert Pollok, Pollokshields, is at present aged 42.

In December, 1877, with Dr. Pollok's assistance, I removed a large unilocular cyst. The pedicle was tied with a silk liga-

ture, and dropped into the cavity. Recovery was rapid. She continued to menstruate.

In October, 1882, I again operated, and removed a large multilocular ovarian tumour from the left side. Recovery was rapid; menstruation continued afterwards, but gradually became somewhat irregular.

About January, 1891, she again became aware that the lower part of the abdomen was becoming fuller, with occasional pains. An ovarian cyst was again diagnosed by Dr. Pollok.

On June 30th, I again operated, and removed a cyst about the size of an adult head—thick-walled, with limpid fluid contents—but with a number of cysts projecting into the interior from the walls, and also a few thin-walled cysts on the exterior, near the pedicle, which was long. There were no adhesions, and no difficulty was experienced in the manipulation. The third day after the operation menstruation came on; thereafter the progress to recovery was regular.

REMARKS.—I presume that the first cyst was parovarian, and that the pedicle being long and slender, the ligature was applied to it distal to the substance of the ovary. The second cyst was decidedly the ovary; either the one not formerly involved, or the other, from which the unilocular cyst had proceeded. The third cyst was multilocular, and therefore probably ovarian. The menstruation which occurred on the third day was imminent before the operation.

A METHOD OF PERFORMING INGUINAL COLO TOMY, WITH CASES.

By F. T. PAUL, F.R.C.S.,
Surgeon to the Liverpool Royal Infirmary.

ONLY a few years ago lumbar colotomy was regarded as one of the most satisfactory of surgical operations. Its mortality was low, and the relief granted by it in some cases almost unequalled. Now the advocates of the inguinal operation give us a host of reasons intended to show how many may be the causes of failure in the lumbar operation. Strange that one practically meets with them so seldom. In my experience the only marked source of failure, in either right or left lumbar colotomy, has been the difficulty in completely cutting off the passage of *faeces per rectum* in some cases in which it was very important to do so. In the light of recent experience, I consider that when it is only necessary to open the bowel to relieve urgent distress the extraperitoneal operation is the more prompt, safe, and suitable; but that when it is desirable to divide the bowel, cutting off all communication with the part below, the inguinal operation is safer, easier, and better than Madelung's modification of lumbar colotomy.

The inguinal operation is undoubtedly easier to perform than the lumbar, but it has a source of danger from which the other is or ought to be free, and that is the danger of allowing faecal discharge to bathe a wound directly communicating with the peritoneal cavity. So serious is this that the pioneers—Messrs. Harrison Cripps, Jessett, and H. Allingham—all counsel delay in opening the bowel until adhesion has taken place between it and the wound. Each has his own special method of performing the operation, but the variation is directed in each case chiefly towards the ultimate opening of the bowel without risk of contaminating the peritoneum.

The object of the present communication is to point out how, by a very simple plan, this desirable result may apparently be safely accomplished without the usual delay.

CASE I.—In February, 1890, Dr. T. Eyton Jones, of Wrexham, sent me a case of extensive cancer of the rectum, occurring in a man, aged 46. His illness began in May, 1889, with diarrhoea, which continued off and on until he was operated on. In June he first noticed blood and slime in the motions. Sometimes they consisted of slime alone. He often suffered severely from pain over the lower part of the abdomen and back, which was usually relieved by the passage of motion. The constant loss of blood had rendered him very weak and anæmic. On admission he was well nourished, but very pallid. The rectum was painful and irritable. There was a copious discharge of mucus and a daily loss of blood. On in-

roducing the finger the anus was found to be normal; but $1\frac{1}{2}$ inch above a mass of cancer was met with surrounding the bowel and constricting it. Beyond the thick cancerous margin was a smooth, hard-walled cavity corresponding to the base of the malignant ulcer. The roof could be touched with the finger, but its limits were beyond reach. The growth was fixed posteriorly to the sacrum, but was slightly movable anteriorly.

Having ascertained that the full extent of the growth could not be determined previous to operation, I thought it best to cut off all communication with the alimentary canal above before excising the rectum. Consequently, on March 3rd, the patient was prepared for operation. An incision was made in the left inguinal region, through which the sigmoid flexure was withdrawn. With the usual precautions the bowel was divided in the middle, the distal end invaginated as in Senn's operations, and returned into the abdominal cavity. Into the upper or proximal end a glass tube of an inch in diameter was tied, its fore end being attached to a rubber tube to convey the fecal discharge away from the wound. This piece of bowel was sewn to the edges of the wound by green catgut sutures passing through its musculo-serous coats, and the rest of the wound closed with the same. About 2 inches of bowel projected beyond the wound, which

A. Diagram illustrating a method of performing inguinal colotomy. (1) The upper end of the divided sigmoid flexure brought out of the wound. (2) A glass tube tied into the bowel. (3) Rubber tube for conveying feces away from the wound. B. Improved form of glass tube.

was then dressed with iodoform and salicylic wool. The patient did remarkably well. Each day more or less motion passed through the tube, while the wound remained aseptic. After three days the projecting piece of bowel was cut away, good union having taken place, and in a short time a very satisfactory artificial anus resulted.

The rubber tube in the diagram was found to be inconveniently heavy, and was changed for a bag of jaconet filled with absorbent wool, which is preferable except for the first copious discharge of feces in obstruction.

The patient was much benefited by the diversion of the feces from the cancerous rectum, and was in somewhat better condition when three weeks afterwards he submitted to the second operation of excision of the entire rectum. This was performed on March 24th, after the manner recommended by Dr. Wm. Alexander.¹ It was, of course, necessary to open the peritoneal cavity, but no harm resulted from this, and in six weeks he returned to Wrexham. He lived about twelve months after the first operation, the artificial anus continuing satisfactory throughout, there being no tendency to proclivencia.

CASE II.—In February, 1891, my colleagues, Dr. Davidson and Mr. Bickersteth placed under my care a man, aged 57, suffering from cancerous disease at the junction of the rectum and sigmoid flexure. The symptoms commenced six months

before admission with abdominal pain, and blood and mucus in the stools. Soon afterwards a sausage-like tumour was discovered in the left groin, which varied in character, and would almost entirely disappear on manipulation. A diagnosis of cancer in the region of the sigmoid flexure of the colon having been made, it was decided to open the abdomen in the left inguinal region and explore the growth. If not suitable for removal a colotomy was to be done, but if suitable the diseased portion of bowel would be excised, and the cut ends either reunited or treated as in inguinal colotomy according to circumstances.

On February 20th the patient was put under chloroform, the incision made, and the parts explored with the finger. It was at once ascertained that excision was out of the question on account of the extent of the growth and its attachments at the brim of the pelvis. Consequently the upper part of the flexure was brought out of the wound, and treated as has just been described in the last case. This time wind only passed through the tube, the patient having suffered less from obstruction, and the bowels having been emptied by diarrhoea before operating. On February 24th the projecting portion of bowel was cut off and further sutures introduced. On the 26th the bowels were first moved by enema of warm water. On March 10th he was allowed up, and a week later was discharged.

CASE III.—On April 14th Mr. Bickersteth placed another case of extensive cancer of the rectum under my care. It was quite beyond the limits of excision, as the bladder was already affected. There was very little obstruction, but the state of the bladder called for complete diversion of the feces from the rectum.

On April 20th, with Mr. Bickersteth's assistance, I performed inguinal colotomy, as in the previous cases, with the exception that the flexure being here very extensive it was thought advisable to excise 8 inches of it. In this case repair was very slow, and there was a great want of plastic adhesion about the wound, which suppurated. For this reason the glass tube was retained *in situ* for seven days, and before cutting off the projecting end of the bowel a curved needle was passed through it from one side of the wound to the other. This was done in case it might be retracted into the abdomen. The cut edges were then well sutured to the wound, and a warm water enema given, for in this case also nothing but wind had passed by the tube. There proved to be very little in the colon. From this time healing progressed slowly, and he was discharged well on May 20th.

These cases, I take it, are quite sufficient to show that the bowel bears very kindly what at first appears to be somewhat rough treatment. If it has the disadvantage of using the living intestine too much like a piece of hose pipe, it has the manifest advantage of not interfering with its function, whilst securing an aseptic wound. Besides colotomy, there are other conditions in which this treatment might be useful. Thus, in cases of excision of the rectum, where the peritoneum has been freely opened, and a good deal of bowel pulled down, it would surely be safer to tie in the tube and carry the feces clear of the wound. Also, in cases of excision of cancer at any other part of the large intestine, if it were found not to be practicable to reunite the bowel, the upper end could at once be brought out of the wound in this manner, and enterectomy under such circumstances ought to be but little more fatal than colotomy. It might also be worth putting this plan into practice as a temporary means of averting death when a patient is *in extremis* from internal strangulation. I think it might be done with much less immediate danger than opening a distended coil of bowel in the usual way, though there is the serious consideration that it would render a subsequent operation imperative to re-establish the continuity of the small bowel.

HYDROPHOBIA IN AUSTRIA.—Official statistics show that the number of cases of rabies in dogs which occurred in Austria in the decennium 1880-1889 was 7,800. The number of human beings bitten by these dogs was 3,021, of whom 822 died of hydrophobia. This high rate of mortality presents a striking contrast to the figures recently published by the Pasteur Institute (see BRITISH MEDICAL JOURNAL, June 6th, 1891, p. 1244), which show that of 9,433 persons treated there during the five years 1886-1890, only 58, or 0.61 per cent., died.

¹ *Liverpool Medico-Chirurgical Journal*, July, 1887, page 1.