ally effectual is 15 drops of carbolic acid, 10 grains of powdered camphor to the ounce of simple ointment or unguentum petrolii.

Operative.—Palliative treatment may have failed, or the case from the first may be one better treated by operation. If the ulcer is of old standing and the muscular fibres exposed, or if the edges be undermined or a sinus present, palliative treatment is mere waste of time, for by an operation properly performed the patient may be cured. It should be done as follows: At bedtime two days preceding that of operation the patient should take two pills (pil. col. co. gr. iv, pil. rhei. 10 gr. vi, mix and divide into two pills); this will ensure the bowels being well opened the day before the operation. On the morning of the operation, and an hour before its performance, the bowels should be washed out by an injection of a pint of hot water. The patient being under ether in the lithotomy position, the sphincter is gently dilated. The ulcer is now thoroughly examined with a fine probe to see if any fistulous tract exists, and the extent to which the edges may be undermined. If a sinus exists it must be laid open; if there is no sinus, or if present after it has been divided, a speculum is introduced into the rectum. The surface of the ulcer is then divided in the middle by a clean cut. The incision should commence on the mucous membrane half an inch above the ulcer, and end on the skin half an inch or a little more below it. The depth should be such as partly to divide the external sphincter, and to accomplish this it would have to be at least a third of an inch in depth in the middle. It is quite true that in many cases a more superficial incision will suffice, but as superficial incisions are often insufficient, it is better to make a bolder one at once. Moreover, the depth of the wound makes little difference in the time taken in its healing. After the incision has been made, a narrow strip should be cut with a pair of scissors off the two edges, which will otherwise overlap and interfere with the healing. A strip of lint smeared with eucalyptus ointment laid in the cut, and covered with a pad of aseptic cotton wool, completes the operation. For a fortnight the patient should be kept in the recumbent position, and as in all other rectal operations, the wound should be thoroughly washed and redressed night and morning. A dose of castor oil is given to open the bowels on the fifth day, and after this a mild laxative every alternate evening. When the patient is allowed to get up, it will do him no harm to walk about a bit, but he should sit as little as possible till the wound is completely healed. Nothing retards the healing of a rectal wound so much as the congestion produced by long sitting.

Gentlemen, no doubt you will think that the operation and subsequent treatment is rather elaborate for so small a lesion as an anal ulcer. It is quite true that many of these cases are cured by caustics, slight scarification of the surface, or simple dilatation; but if you wish to do the best for the patient and yourself by making a certainty of the cure, let me advise you to try no half measures, but perform a carefully-planned operation, as otherwise you will certainly from time to time have a percentage of failures.

CELIOTOMY FOR VOLVULUS OF THE SIGMOID IN A MAN AGED 85: INTESTINAL DRAINAGE: RECOVERY.

BY

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THIS case seems worthy of a short notice from the great age of the patient. In recording the case the opportunity is taken of giving a short description of the method of intestinal drainage which is believed to be most suitable in such cases.

The patient was under the care of Mr. Charles E. S. Flemming, of Freshford, Somerset; operation was performed on January 30th, 1895. There had been complete obstruction for a week. The symptoms were of the usual

character, and need not be detailed. The abdomen was distended to its utmost capacity, the parietes being hard and drum-like. There was a small umbilical hernia, which was very tender but not tense. The diagnosis was made of volvulus of the sigmoid flexure of the colon, but the presence of the umbilical hernia was recognised as a possible *vera causa*, and the parietal incision was made to enter the umbilical opening and to extend for 2 inches below it. Anæsthesia with the patient's stomach full of fluid was not free from risk, but Mr. Terry, of Bath, skilfully succeeded in establishing and keeping up without mishap complete unconsciousness with chloroform.

The umbilical hernia was only omental, and was easily detached. The fingers easily reached the sigmoid, which was enormously distended, and seemed to fill the whole pelvis and much of the lower abdomen. A fold was pinched up, pulled through the wound, and incised, when enormous quantities of gas escaped. The whole of the involved gut, as soon as it was small enough, was delivered through the wound, when the twist was at once manifest. There was one complete twist, perhaps a little more; the gut was only slightly inflamed at the seat of twisting, completely collapsed, and almost cord-like below, and ballooned up to great size immediately above it. The untwisted gut was further emptied, and replaced in the abdomen. As the abdomen was still greatly distended, it was decided to fix and drain the bowel for a few days.

The arrangements for drainage were made as follows. A piece of rubber tubing, about two feet long, and of the calibre of a crowquill was introduced, stretched over the point of a probe, through the small opening already made in the gut; this it fitted tightly, putting it on the stretch. Then a safety pin was made to transfix the peritoneal and muscular coats of the bowel by the side of the tube, and to pass through the side of the rubber tubing. This pin served to keep the tubing and gut attached, and, when the dressing was arranged, to prevent indrawing or extrusion of the gut. The peritoneum was not drawn forwards. Sutures were placed closely above and below the drainage opening, which were not to be tied till the gut was returned inside. Rolls of boric lint were placed around the gut under the pin, and one roll above it (Fig. 1). Over all was placed a broad strip of strapping carried round the back and split in front so as to interdigitate. This strapping effectually keeps the parts at rest, and prevents any chance of extrusion of the bowels (Fig. 2). The free end of the tubing was placed in a bottle which lay by the side of the patient.

Fig. 1.—Diagram to show method of draining the intestine. B, bowel; M, mesentery; r, rubber tubing; p, peritoneum pulled outwards. 1. Strapping; 2, pin holding tube. On the right (x) an enlarged drawing shows the details of fixation. 3. Dressing.

In this case it was necessary to provide only for the escape of gas and liquid fæces, so the tube was small. If a larger tube has to be used, it is possible to fix it in the bowel by the help of a suture so placed that when the pin is removed the mere tying of this suture serves to close the opening in the bowel. Such suture should never be made to grip the walls of the gut bodily, otherwise sloughing may take place. The dressing presses the bowel against the rubber tubing; there is no risk of extravasation of the fæces if this is properly attended to. In the diagram the peritoneum is shown as brought up to the opening in the gut; this is advisable in most cases to avoid the firm adhesion, preventing easy replacement, which takes place when bowel is laid on the raw surface. In this case the great age of the patient made strong adhesion improbable, and the parietes were thin, so the peritoneum was not brought up with the bowel.

Fig. 2.—Diagram to show arrangement for intestinal drainage.

The patient was fed by nutrient and stimulating enemata, and was soon able to take a little nourishment by the mouth. Flatus passed in quantities through the tube; the tube occasionally became blocked, but either pinching it or passing a small soft catheter down it into the bowel always cleared it.

On the third day the abdomen was nearly flat, and the patient was so well that Mr. Flemming removed the tube, the dressings being then removed for the first time. The wound in the bowel was closed by a Dupuytren's suture, the bowel was invaginated, and the parietal wound brought together over it.

Flatus was passed by the rectum on the same night, but there were two slight attacks of pain in the abdomen. Next day flatus did not pass by the rectum till the rectal tube was inserted and worn, when it passed freely. On the following day (February 5th) a turpentine enema resulted in the passing of liquid fæces and great quantities of flatus. On February 6th castor oil produced two copious evacuations in two hours. The condition of the patient was now excellent.

On the night of the 8th, however, the patient had an attack of pain, with collapse, which suggested an attempt at the formation of another volvulus. Opium, strychnine, and belladonna were administered; and after two somewhat anxious days he recovered, and at once picked up.

On the 12th, compound liquorice powder, followed by a turpentine enema, produced a free evacuation. On the 19th he sat up in his chair. He had some swelling of the left foot and leg which retarded his recovery. A week later, he was out in the garden.

The latest note is on May 18th, which states that the patient has quite regained his strength, and is in fact better than before the operation, for he has quite lost his old attacks of pain in the abdomen; and, with the help of a dinner pill, has a daily evacuation of the bowels. The swelling in the left leg has not disappeared, and may be due to thrombosis in the left iliac vein, where it is crossed by the sigmoid mesocolon.

REMARKS BY MR. GREIG SMITH.—Ten years have now elapsed since I began to advocate and to practise evacuation and drainage of the intestines in obstruction. My

experience, which now covers one hundred cases of operation for obstruction, goes steadily to raise my estimation of the proceeding; and it is gratifying to note that the same holds true with respect to other surgeons. Intestinal drainage as an accessory is scarcely inferior to removal of the cause of the obstruction in many cases as a means of getting the patient well. Properly managed it can scarcely do harm, and adds nothing to the operative risk, while its benefits in reduction of the mortality are very conspicuous.

In the process of drainage of the intestine after an operation for obstruction, one element of supreme importance is simplicity in method. It ought to be capable of rapid application by the surgeon, and of being easily managed by the usual attendant. For the drainage tube, at first I used rubber tubing; then I tried celluloid, and, in several shapes and forms, I used it chiefly for two years. I have also used vulcanite and have tried Paul's glass tubes. But I have finally abandoned all hard and unyielding material, and have returned to the use of the simple pliable rubber tube. Tubes of hard texture, which do not yield to the constantly contracting intestine, set up irritation and cause a secretion of mucus, which necessitates dressing and is difficult to collect. Ligation of the gut round the hard tube, as in Paul's method, causes sloughing of a ring of bowel; I have tried it once, and, although the patient did well, was not satisfied with it. Perfectly satisfactory drainage up to the full size of the bowel, as for colostomy, can be carried out by rubber tubing without any outward secretion of mucus, and without any necrosis of intestinal wall.

The rubber tube has incidental advantages. If it becomes blocked it can easily be cleared by pinching—"milking" its contents onwards. It permits movement to the patient without any addition of risk. It can be introduced on the stretch, of a smaller calibre than the opening in the bowel, and, when resilient, it distends and accurately fits the intestinal opening. It can be fixed in the bowel with great ease and rapidly, a simple transfixing pin or ligature holding bowel tissue to tube wall. The whole process can be carried out in less time than it takes to describe it.

The tubing in every case should have stout walls; it must be capable of being bent well beyond the right angle without kinking. Its calibre varies according to the nature of the material it has to drain. For gas a tube of very small calibre suffices; for fluids in the small intestine a tube the size of a crow-quill suffices. In these cases the fluids are probably poisonous to the system, and they are secreted abundantly after the obstruction is relieved, therefore I think they should be quickly drained. For drainage of the large bowel, even if the fæces are liquid, a larger tube may be used, because drainage is not so easy and also because rapid evacuation is very important. In all such cases of temporary drainage the tubing is fixed as described. In a young patient with a thick parietes I believe that replacement of the everted bowel is facilitated by bringing out the parietal peritoneum and fixing it to the bowel at the opening which holds the tube. In old patients with thin parietes this does not matter. It is possible to fix the tube in position by a suture so placed round the pin that merely tying this suture closes the opening in the bowel when the rubber tube is removed. A suture placed in the parietes in the line of drainage may be left untied till the drainage tube is removed; the opening is closed over the returned gut simply by tying the suture.

A similar proceeding with a larger tube converts drainage into the formation of an artificial anus. For this purpose I think Reclus's method of using a skewer to transfix the mesentery and support the extruded loop of bowel the best and simplest. A loop of colon pulled through the wound is supported on a skewer (I now use one of the vulcanite stirring rods used by chemists), the gut is opened by a cut with scissors and a large rubber tube is inserted, stretched over forceps. It is fixed to the margin of the incision in the bowel either by a running suture or by a couple of safety pins. It is dressed as shown in Fig. 3. As permanent fixation is desired the peritoneum is ignored. Colostomy may thus be performed under five minutes, and it need never require two stages. The subsequent perfection or imperfection of the artificial anus depends on the judicious arrangement of

muscular fibres and fascia around the gut, and on other considerations which pass beyond the limits of this paper.

Fig. 3.—Diagram to show method of performing colostomy. B, bowel above spur; B', bowel collapsed below spur; T, rubber tubing; sp., spur. At the top of the spur the black circle represents section of a supporting stiff rod.

As regards the age of the patient, special remark is scarcely called for, for it is now well recognised that mere age is no barrier to surgical operation. I have successfully amputated for gangrene the great toe of a gentleman, in his 98th year. I have made a complete excision of the mamma for cancer in a lady, aged 89, who is still alive and well in her 91st year. I have performed at least ten ovariectomies in patients between 70 and 80. If the patient is well guarded against shock and the operation is quickly performed recovery is quite as satisfactory in the aged as in the young.

A MODIFICATION OF THE OPERATION OF PYLOROPLASTY,

WITH A REPORT OF TWO CASES.

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THE principle of obtaining increased calibre in a strictured channel by dividing the narrow passage longitudinally and suturing the wound transversely, is as ingenious as it is efficient, and in no situation can such a procedure be of more service than in simple stricture of the pylorus, where the operation is known as pyloroplasty.

The invention belongs to Heineke, who performed his first operation in March, 1886, though the name of Mikulicz, who did the second in January, 1887, is sometimes attached to the procedure.

Simple stricture of the pylorus is far from common, and therefore the experience of any one surgeon must be somewhat limited: this must be my excuse for basing my conclusions on so small a number as two cases.¹

I think there can be no doubt that pyloroplasty will completely replace Loret's operation, since with no greater or perhaps even less immediate risk, it affords a more certain prospect of freedom from relapse.

¹ Since writing this paper I have had an equally successful third case in which, after operation, the patient gained 2 stones in weight within the month.

The modification of the operation by the use of the bone bobbin which I have adopted, not only expedites the procedure, but in my opinion renders it safer than when simple suture is employed. The following diagrams show better than words the original and the modified operations:

Fig. 1. First stage.

Fig. 2.—Second stage.

Fig. 3.—Third stage of the original method.

Fig. 4.—Third stage of the modified method as employed in the cases related.

It will be seen that by the use of a decalcified bone bobbin only two continuous sutures are required, the first to unite the mucous margins, the second the serous. The bone tube further secures an immediately and thoroughly patent channel, and affords protection to the line of sutures for from twenty-four to forty-eight hours, when union should be well established. The account of the following cases proves that the operation is both feasible in execution and satisfactory in results.

CASE I.—R. F., aged 34, residing in Scarborough, was sent to me by his medical attendant, and admitted to the Leeds