Operation.—An incision was made through the rectus muscles in the right hypochondriac region, and the peritoneal cavity opened. The tumour at once presented itself, and was about the size of a cricket ball, and growing from the lesser curvature of the stomach, between the layer of the lesser omentum. The rough sketch given may better explain this. There were no adhesions. There was a short pedicle, along which came the vessels supplying it, arising from the edge of the lesser curvature. An incision was made through the peritoneal surface round the base, and after ligaturing the pedicle the tumour was easily removed by blunt dissection. There was practically no haemorrhage. The cut peritoneal surfaces were united by Lembert sutures. The stomach and other abdominal viscera appeared to be perfectly normal. The abdominal wall was closed in layers. The operation lasted fifteen minutes. There was very little sickness or discomfort afterwards.

Result.—The convalescence was uneventful. Stitches were removed on the eleventh day, and the patient got up on the eighteenth day, and went home on the twentieth day.

The tumour excised weighed 4 oz. Its surface was smooth. It was softish in consistency, and at places almost cystic. The pathological report was as follows:

The tumour has the structure of a fibromyoma, composed of interlacing bundles of smooth muscle cells enclosed in a scanty stroma. It shows some areas of mucoid degeneration, and is in parts infiltrated with leucocytes. At one end of the tumour the appearance to the naked eye suggests the red degeneration so often seen in uterine fibromyoma. It appears to be an encapsuled growth, and is not malignant.

In conclusion, the disappearance of the tumour may be explained by its having been drawn underneath the liver while the stomach was very empty. Its origin, its lack of symptom, and its structure all combine to show how difficult may be the diagnosis of these cases, a difficulty which can only be overcome by an exploratory operation.

I wish to express to Mr. Pendlebury my best thanks for his kind permission to publish these notes.

A METHOD OF TREATING DAMAGED INTESTINE WITHOUT RESECTION.

WITH ILLUSTRATIVE CASES.

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FREQUENTLY when doing emergency work one meets with intestine which is torn, gangrenous, or perforated over a limited area; or, after separating adhesions, free oozing is so persistent as to necessitate immediate treatment.

In many cases of this kind resection appears to be the only resource, but if the patient is old and feeble, exhausted, or suffering from severe shock, time is an important consideration, and the following simple method will be found most useful:

Where there is a perforation—for example, from a bullet wound—a suture or two of chromicized catgut passing through all the coats approximates the edges of the rent; then with Pagenstecher's thread the adjacent sides of the damaged area of intestine are brought together by means of Lembert suture—either continuous or interrupted—thus enclosing the weak spot.

At first sight it appears as though obstruction would result from the kinking of the bowel, but this complication has not ensued after repeated trials.

The method is so simple, and occupies so short a time as compared with resection and subsequent anastomosis, that I thought it desirable to publish it, together with one or two examples illustrating its application.

For the drawings illustrating Case II I am indebted to Mr. F. C. Pybus, Surgical Registrar at the Royal Victoria Infirmary, Newcastle-on-Tyne.

CASE I.—Bullet Wounds of the Intestine and Bladder.

A girl, aged 18 years, was admitted into the Royal Victoria Infirmary on June 25th, 1911, after having been shot with a small saloon rifle from behind. The accident occurred at 4 p.m.

On admission (at 5.15 p.m.) there was a small round wound on the left side of the buttock with inverted and slightly burnt edges. The pulse was 80; temperature, 98.4° F.

On examination there was a little abdominal tenderness and slight abdominal rigidity. Half an hour later she complained of severe abdominal pain, and vomited; the face was pale, the

mucous membranes blanched, the pulse 120, feeble, and poor in volume, the pupils dilated. There was marked abdominal rigidity, with general tenderness. A catheter passed into the bladder evacuated a large quantity of bloody urine. On passing a probe into the wound and with a finger in the rectum, the probe was felt to pass into the pelvis.

Operation (at 6.45 p.m.).—Chloroform and open ether were administered, and a median laparotomy below the umbilicus revealed free intestinal contents flooding the whole peritoneal cavity. The intestines were examined, and six irregular perforations with protrusion of the mucous membrane were discovered—three together—in two loops of small intestine, which were lying in the pelvis. The edges of each aperture were drawn together by a single transverse suture passing through all the coats. The damaged areas were now shut off by suturing all around them, approximating the adjacent surfaces of each loop by means of Pagenstecher's thread. The peritoneal cavity was flushed with normal saline at a temperature of 110° F. No hole was felt or seen in the bladder from the peritoneal aspect, so the abdomen was closed, a large drainage tube inserted.

Subsequent Progress.—There was haematuria for a day or two. The patient had a little chest trouble, and the wound suppurated for a while. She made an excellent recovery.

July 22nd.—She left the hospital well; the scar is stretched.

Readmitted August 29th, and her abdominal wound was sutured in layers on account of commencing hernia. At the same time the bullet was extracted under the skin of the right side of the pubes. The wounds now healed by first intention, and the bowels act normally.

At the second operation the two damaged loops of gut were inspected, and not the slightest trouble was found at the site of operation. The intestinal contents apparently passed through quite freely, the gut on either side of the kink being equally distended.

CASE II.—Bullet Wounds of the Small Intestine.

A young man, aged 25, was admitted into the Royal Victoria Infirmary on October 16th, 1911.

History.—When loading a small air-rifle, with the barrel directed towards his abdomen, the trigger went off and the bullet entered his belly. The accident happened at 10.45 a.m.

Operation at 6.30 p.m. (seven and three-quarter hours later). Median laparotomy performed. In the jejunum, 1 ft. away from the duodeno-jejunal junction, a loop of intestine was

found with two perforations. Two feet away from the duodeno-jejunal fold another loop of intestine showed three wounds, one large and jagged, and two smaller ones. The apertures were drawn together by sutures passing through all coats, then the damaged areas were covered by approximating the adjacent surfaces of the bowel by means of Pagenstecher's thread.

End view of anastomosis.

These sutures only penetrated peritoneal and muscular coats. The peritoneum was irrigated with normal saline, and the abdomen closed.

Result.—Uninterrupted recovery, bowels act normally. The patient returned seven weeks after the operation in perfect health. The accompanying drawings give a good idea of the nature of the injury, and shows the method of treatment.

CASE III.—Intestinal Obstruction from Band with Adhesions.

A woman, aged 58, was admitted into the Royal Victoria Infirmary on July 26th, 1910.

History.—She had had attacks of pain in the abdomen and vomiting since July 10th, bowels moved only by enemata. Five years previously she was in bed for ten months with pain and vomiting.

On Admission.—She looked ill and emaciated; temperature 100.2° F., pulse 120. There was no abdominal distension; tenderness present over the right iliac fossa and rigidity of the lower half of the right rectus. Nothing felt in pelvis.

Operation.—August 3rd, 1910. An oblique incision was made over the right iliac fossa; the appendix was found to be normal. Down in the right side of the pelvis the small bowel was obstructed by a band adherent to the pelvic brim. This was ligatured and the gut released. On pulling up the small intestine from the pelvis about 3 ft. of it presented thickened, oedematous, and hypertrophied walls. At one point a tight simple stricture was seen as if a band had compressed it. This narrow stricture was divided longitudinally and enteroplasty was done. Further along (about 4 in.) the gut presented a raw and profusely bleeding area, which had been adherent in the pelvis. The bleeding was so persistent that it was necessary to approximate the two sides of the bowel with Pagenstecher thread, so as to shut in the raw area. This decidedly kinked the bowel, so much so that the Surgical Registrar thought we should have further obstruction.

Result.—The patient got quite well and the bowels act normally.

SOLID CARBON DIOXIDE IN THE TREATMENT OF HAEMORRHOIDS.

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HAEMORRHOIDS and naevi have an almost identical histological structure, and, having had excellent results in the treatment of the latter by means of solid carbon dioxide, I determined to try it in the former. Both naevi and haemorrhoids show congeries of dilated vessels in a connective tissue basis; but the histological appearances of haemorrhoids differ much from each other, the differences depending on their duration and the irritation, mechanical and bacterial, to which they have been exposed. Thus it is difficult to demonstrate by means of the microscope any selective action on the part of the solid CO₂. Its action depends on its extremely low freezing point (−79° C.). Morton has advanced the ingenious theory that the tissues are cooled and become rigid and the individual cells, with their semifluid contents, become hard and firm; now water and water-containing substances undergo expansion progressively as the temperature falls below 4° C., and this expansion following on rigidity causes fracture of the cell wall and injury to the nucleus. I have not examined haemorrhoidal tissue immediately after freezing, but have done so after fourteen days. Then the changes seen are inflammatory—effusion of blood, round cell infiltration, etc. In one case there was distinct ulceration where the snow had been applied.

The snow is easily prepared from the gas cylinder; a crayon $\frac{3}{4}$ in. in diameter is used. The patient is prepared in the ordinary way, gas is given, and the anaesthesia prolonged for a little by means of ether, the whole operation being over in from three to five minutes. The sphincters are lightly stretched, and the piles brought down by means of pressure forceps. The crayon is then applied with fairly firm pressure for twenty seconds to each haemorrhoid in turn, white saucer-like depressions being produced where the crayon has been applied. The frozen tissues are returned within the anus, and, as no bleeding occurs, a tube is not required, but a simple gauze dressing completes the procedure. No pain should be experienced; the bowels can be opened on the third day and the patient allowed up after that time.

I have now treated 5 cases of piles in this way.

CASE I.—L. L., aged 28, tailor, admitted to Metropolitan Hospital August 30th, 1910, with haemorrhoids of thirteen years' duration. He had haemorrhage, some prolapse, slight pain and constipation. On September 4th solid CO₂ was applied to four uncomplicated haemorrhoids—twenty seconds to each. He had no pain, slept well afterwards, and had no difficulty with micturition. Bowels were opened on the third day, and he was allowed up at the end of a week. The anal canal was examined each day and felt quite smooth. He was dismissed on September 17th and was seen again in the out-patient department, when he was free from symptoms.

CASE II.—H. K., aged 20, tailor, admitted to Metropolitan Hospital on September 25th, 1910, with haemorrhoids of ten months' duration. He had haemorrhage at intervals, slight protrusion, constipation, but no pain. On September 27th three small uncomplicated haemorrhoids were treated by CO₂, as in Case I. He had no pain, but the catheter had to be used for a day or two. He was dismissed on October 8th and seen again in December, when he was free from symptoms.

CASE III.—A. M., aged 29, housewife, admitted to Metropolitan Hospital on September 13th with haemorrhoids of twelve years' duration. She had prolapse, haemorrhage, and pain. On September 16th solid CO₂ was applied to three large internal haemorrhoids for twenty seconds each. There was also present a ring of oedematous external piles. She had no pain afterwards, slept well, and did not require the catheter. The bowels acted on the fourth day, and no prolapse occurred, but on rectal examination the haemorrhoids could be felt as before. All went well for another week, and then prolapse again occurred. On September 30th I did a ligature operation and examined the haemorrhoidal tissue microscopically, but, as stated before, the changes were those of an inflammatory nature.

CASE IV.—Female, admitted to St. Mark's Hospital with haemorrhoids of some years' duration. October 12th, 1910, three large internal haemorrhoids were treated for thirty seconds each with solid CO₂. But the haemorrhoids prolapsed again on the third day, and they were removed by Sir F. C. Wallis a week later by the Whitehead method. I cut sections of the tissue, which showed superficial ulceration where the snow had been applied.

CASE V.—Male, admitted to St. Mark's Hospital suffering from haemorrhoids. He had prolapse and haemorrhage. Three uncomplicated piles were found, and I applied snow to the two lateral piles for twenty seconds each whilst Mr. Gordon Watson, who had charge of the case, ligatured the perineal pile. The patient had no further prolapse or haemorrhage, and was dismissed well.

This treatment by means of solid CO₂ is only suitable for small, uncomplicated internal haemorrhoids, as in Cases I and II. With the good results obtained in the first two cases I believed I had found a simple remedy for the cure of piles, but, as the other cases show, it is only a remedy to be applied in selected cases.

A CASE OF RUPTURED LIVER AND RIGHT KIDNEY: OPERATION: RECOVERY.

BY

GATHORNE R. GIRDLESTONE, M.B.Oxon., F.R.C.S.,

OSWESTRY.

On August 26th, 1911, Thomas D., aged 14, received a severe blow in the right loin from a falling rope bridge at a quarry. He was bending forward when struck.

He was brought up four miles to Oswestry, and was seen by Dr. W. A. Lewis, who sent him straight to the Cottage Hospital, where I saw him at once. His appearance showed extreme shock; his pulse was only 76, small and regular; his pupils widely dilated. There was no external bruising, but his right loin and the right side of the abdomen were very tender and rigid. No abdominal dullness was detected. He was made warm in bed and closely watched.

Two hours later his colour was better, his pulse 88, no change in local signs was discovered. An hour later pulse 96, and shortly after it rose to 104. Exploration was decided on, although no other change was detected.

First Operation.

Chloroform was administered by my partner, Dr. J. H. Crofton. On opening the abdomen through the upper outer part of the right rectus sheath, much free blood and a loose triangular piece of liver about the size of a walnut presented. The anterior part of the liver was intact, and I did not at the first moment find the liver rupture, but on passing my hand into the right loin I felt the kidney with its inner border split and ragged. I then found that the liver in relation with the upper pole of the kidney was widely ruptured. There was a rapid flow of blood from this region, and the boy's condition was becoming very bad. I slightly enlarged my incision by cutting transversely outwards, rapidly shelled out the kidney, from which the whole pelvis, ureter, and vessels had been completely torn away, felt for the renal vessels and put a long-handled clamp on them, thus stopping all the haemorrhage except a slight oozing. I put a large gauze plug in the liver tear.

By this time the patient's collapse was extreme, and I had to cover the wound temporarily and infuse a pint of saline into the median basilic vein, leaving the cannula in place. The patient's condition was still extremely bad; the only hope lay in getting him back to bed as soon as possible. I left the clamp on the renal vessels and sewed the wound up with four stitches, finally infusing another pint of saline.