the point of the instrument is cut down upon in the perineum.

Blood clot, irreparably damaged tissue, and foreign matter are removed, haemorrhage is arrested, and free drainage is established after thorough cleansing of the wound. The patient is now encouraged to pass his urine through the wound, hot compresses being used to relax his sphincter if necessary. If at first failure to pass urine should occur, it is better, in my opinion, to aspirate the bladder through healthy tissues above the pubes than to poke about in the perineal wound in the hope of finding the proximal end of the urethra or infect the healthy bladder by an instrument passed through a septic wound. When the sepsis has been controlled, dilatation, if necessary, can be carried out, and, later, plastic operations can be successfully attempted.

Here again the normal urine of the patient acts as an efficient cleansing lotion, and he flushed his wound from the depths outward every time he micturates. Treated on these lines cases of this sort heal with the greatest rapidity. The following two cases will illustrate some of the points I have tried to make.

CASE V.

Pte. J. W. H. was wounded on September 28th, 1915. A bullet entered the right groin in the region of the external abdominal ring and, passing obliquely across the pelvis, lodged in the left ischio-rectal fossa. A catheter was tied in at the front and the patient was passed on.

He was admitted to a base hospital on September 30th under the care of Captain Wolfenden. He was then in a toxic condition, though the temperature was only 99° and the pulse 100. He complained of pain and tenderness in the suprapubic region. No urine was passing through the catheter though the bladder was full. There was ecchymosis of the perineum but no extravasation of urine.

On October 1st the patient had a rigor, and Captain Wolfenden asked me to see him. We decided on perineal section. Captain Wolfenden accordingly explored the perineum, and found the bulbous urethra lacerated and a portion of the corpus spongiosum torn away. Unable to find the proximal end of the urethra, he opened the bladder above the pubis and drained it. The bullet, which had not injured the bony pelvis, was removed at the same sitting. The patient died from shock and toxæmia the same evening.

For a similar case in future I should suggest the following treatment: After injury, a perineal section should be done, so as to inspect the injured part, remove clots and tags, arrest haemorrhage, provide free vent for the urine so as to avoid extravasation, and thoroughly cleanse the wound, which should be left widely open. The patient should be encouraged to pass urine, and, if unable to do so, aseptic puncture of the bladder in the suprapubic region should be resorted to till micturition has been established through the perineum.

CASE VI.

Riflesman R. was wounded by a machine-gun bullet on February 17th, 1916. Blood flowed from the urethra after injury. There was a small, clear, circular entrance wound 1½ in. below and to the outer side of the left ischial tuberosity. The exit wound was on Nélaton's line, half-way between the great trochanter and the ischial tuberosity. The bullet had in its passage also made a figure-of-8-shaped wound in the perineum, close to the bulb. There was considerable ecchymosis of the perineum. The bullet had been extracted at the field ambulance. A No. 10 rubber catheter had been passed and tied in at the casualty clearing station.

On arrival at the base on February 18th, 1916, the catheter was found to be blocked, and no urine was passing through it. There was pus at the urethral orifice.

The catheter was removed, and I was asked to see the case with Captain Simpson. Perineal section, with treatment on the lines already indicated, was advised. Captain Simpson operated on February 19th and found the urethra divided as to three-quarters of its circumference, about one inch from the commencement of the bulb. He thought the case favourable for an attempt at suture of the divided urethra. The attempt failed, however, urine leaking freely on the third day. On February 25th, nine days after receipt of the injury, leakage from the perineum had ceased; on February 29th the perineal wound was almost healed; and on March 1st the patient was evacuated to England with his wound quite healed.

In this case an attempt was made by Captain Simpson to re-form the urethra round a catheter. This will rarely be desirable or feasible with gunshot wounds under war conditions. In case such an attempt were made I should suggest suture of the roof, leaving the floor of the urethra quite free for drainage, and the avoidance of a catheter.*

I do not know if the views expressed in this paper will meet with general acceptance. They are only put forward

* An operation on these lines was suggested for stricture by a writer in the *British Journal of Surgery* more than a year ago.

to stimulate those who are dealing with cases such as I have described to consider each on its merits rather than adopt any hard-and-fast rule for all.

A CASE OF CYST OF THE INTESTINE.

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Cysts connected with the intestine are rare, and, though usually found by chance at *post-mortem* examinations, may nevertheless be of occasional clinical interest and importance. They are found in newborn children and in the early years of life, but are quite likely to be met with in adults over thirty years of age.

Clinical History.

The subject of this communication was a baby 3 months old. It was admitted to University College Hospital under one of us (C. B.) on December 16th, 1915. The child was born at full term, when it weighed 8 lb., and was breast-fed till the age of 5 weeks. From birth it vomited a little after its feeds, the milk being returned unchanged. At the end of five weeks, this symptom becoming worse, the child was weaned and various kinds of foods administered without any relief to the vomiting. Wasting supervened after the first week. The bowels were from birth very constipated, being opened about once in four days until the end of the fourth week, when eight days elapsed on one occasion without an action occurring. The stools were otherwise normal. The vomiting, constipation, and wasting continued, and for a week previous to admission the bowels had not acted.

On admission the patient was a wasted female infant weighing 7 lb. 12 oz., and looked as if it would not live long. There was no general or local distension, neither could visible peristalsis be seen in the stomach or intestines. The liver could be easily felt. There was no tumour in the epigastric region, but a mass was palpable at the pelvic brim, which could be indented with the finger. The rectum was quite full of scybalous masses. The temperature was normal and the pulse varied from 108 to 135 beats per minute. There were no signs of disease in the heart or lungs. The child was not very hungry. It was put on feeds of cow's milk and water, and was given hyd. & cret. Olive oil enemata were administered.

Under this treatment the bowels acted from three to four times daily. The stools were green and very constipated. For the first five days the child vomited once a day, and for the next four days vomiting ceased, and the child appeared better. At the end of this time, however, the vomiting returned, the infant refused its feeds and died on January 1st, 1916.

Post-mortem Examination.

The body was emaciated and the abdomen considerably distended. The thoracic viscera showed no noteworthy changes.

FIG. 1.—Diagram to show the relation of the cyst to the ileo-caecal valve.

The peritoneum was normal. The stomach and small intestine were considerably distended with gas, and the large intestine was empty and contracted.

Adhering to the terminal part of the ileum was a cyst, measuring 3 cm. by 2.5 cm., ovoidal in shape, with its long axis parallel with that of the bowel. (Fig. 1.) The cyst lay on the

mesenteric aspect of the ileum, between the layers of the mesentery, its cavity having no communication with the lumen of the intestine. Its wall was of considerable thickness in some places, in others thin and semitranslucent; its contents consisted of a clear, colourless, ropy fluid. The surface of the cyst and the adjacent coils of intestine were free from recent or chronic inflammation. The terminal portion of the ileum, as it coursed over the cyst, was flattened against the convex surface of the latter and stretched transversely; consequently the lumen of the bowel was linear in transverse section, and its opposed walls were held in contact firmly. On opening the bowel its lining was found to be slightly thinned where it lay over the cyst and in the adjoining portions of colon and ileum.

The mucous membrane was swollen, congested, and its follicles were enlarged. The cyst extended slightly beyond the lower limits of the ileum, its lower pole causing a low convex projection of the wall of the caecum just beyond the ileo-caecal valve.

Microscopical Examination of the Cyst Wall.

A section was taken from the thicker part of the cyst wall at a point remote from the ileum. Six distinct layers were recognizable in the section (Fig. 2); these were, from without

FIG. 2.—Diagram of section of cyst wall, showing the mucous membrane, which consists of a single layer of epithelial cells and a few tubular glands embedded in loose areolar tissue.

inwards: (1) A layer of loose areolar tissue containing large vessels and small lobules of embryonic fat, the mesenteric layer; (2) a layer of smooth muscle fibres cut longitudinally; (3) a layer of smooth muscle fibres cut transversely, of about the same thickness as the last layer; (4) a layer of loose areolar tissue containing thin-walled vessels; (5) a layer of smooth muscle fibres of about one-third the thickness of each of the other muscle layers, the muscularis mucosae; (6) mucous membrane, consisting of a loose cellular tissue covered with a single layer of columnar epithelium, and containing tubular glands in small numbers lined with epithelium similar to the surface epithelium. The surface was thrown into elevations and depressions, but well-formed villi were absent.

The characters described refer to the thicker part of the section. In the thinner parts the outer muscular layers were rather narrower; the muscularis mucosae was much narrower, broken up by fibrous tissue, and in places almost entirely absent; the mucous membrane was greatly reduced in width, had lost its glands, and in most places also its surface epithelium, and the elevations and depressions were almost obliterated.

From the pathological point of view the chief interest of this case lies in the evidence it affords of the origin of the

FIG. 3.—Diagrams to illustrate the development of the cyst from an intestinal diverticulum.

diverticulum became shut off from the interior of the intestine at an early stage of development, and its cavity

distended by the accumulation of mucus secreted by its rudimentary epithelium. As the cyst grew it projected into the lumen of the gut, causing partial obstruction of the latter. Fig. 3 shows the various stages of this process. The absence of meconium, and also of signs of infection of the cyst by micro-organisms, are due to the early closure of the mouth of the intestinal diverticulum.

Towards the end of the third month of fetal life the intestinal villi began to form as folds in the mucous membrane, giving rise to projections into the lumen of the gut, and at about the same time the covering epithelium between the villous elevations begins to sprout into glands, which burrow into the underlying tissue. If the mucous membrane were subjected to pressure at this period, such as would occur in the enlarging cyst, the villi would be prevented from forming, but the rudimentary glands would grow to some extent. Finally, the mucous membrane would become more flattened, and the glands would atrophy and leave a single layer of epithelial cells lining the cyst wall, which would eventually tend to disappear. The cyst, therefore, probably commenced to form towards the end of the third month of fetal life.

With regard to the nature of the diverticulum it is impossible to say whether it originally was the termination of the Vitelline duct in the intestine or an abnormal formation. The Vitelline duct projects from the free convexity of the bowel, but it is possible that by twisting and adhesion it might acquire such a position as to appear to have been intramesenteric from the beginning. Unless one adopts the latter view the diverticulum giving rise to this cyst must have been an abnormal formation.

The commonly accepted idea is that these congenital cysts originate from Meckel's diverticulum, the position of which is subject to considerable variation, and which is stated to have been seen within the mesentery. It is true that such cysts are in most cases situated at the usual site of Meckel's diverticulum; but they occur quite often at or near the ileo-caecal valve, more rarely in the jejunum, and a cyst has been described as communicating with the vermiform appendix.

The size of the cysts may vary from that of a man's head to that of a small body three-quarters of a centimetre in diameter. The cyst commonly projects from the free convexity of the bowel or is intramesenteric, but it may be submucous or in the muscular coat of the bowel. It is shut off from the cavity of the gut, but cases have been described in which its interior was connected with the lumen of the bowel by a canal. It may also be attached by a solid pedicle. The cyst has been found constricted in the middle into an hour-glass shape, and in one case a single submucous cyst was associated with an intramesenteric multilocular cyst. The wall of the cyst contains muscular tissue and the cavity is lined with mucous membrane more or less well developed, which occasionally may show well-marked villi in places or grow out into adenomatous polypi. Ciliated epithelium has been noted. The wall was described in one case as being calcified.

From the clinical point of view the case is of interest in that the patient showed symptoms of chronic intestinal obstruction and wasting as the result of the pressure of the cyst. These symptoms were not sufficiently definite to suggest operation, nor even to distinguish the disease from simple constipation and malnutrition so often seen in hospital practice in infants.

If the tumour had been felt or the symptoms been more definite, an operation might quite well have been performed, but the ultimate recovery of the child would have been doubtful.

A cyst has been described as of such a size as to obstruct delivery. Generally, however, these structures have been observed to give rise to intestinal obstruction, as in our case, which may be finally brought about through intussusception, and sometimes they have been felt as movable tumours in the abdomen with or without ascites. Torsion of the pedicle connecting the cyst with the gut has been observed giving rise to gangrene, and also perforation of the cyst and bowel with resulting peritonitis.

THE Journeymen Barbers' International Union of America has recently recommended that a sanatorium should be established, at an estimated cost of £200,000, for the treatment of barbers suffering from tuberculosis.