CASE X.—*Traumatic Diaphragmatic Hernia of the Diaphragm, Fatal Seven Months after the Wound.*

Captain C. P. Symonds⁹ has reported in detail the case of a private, aged 29, who was admitted to the Connaught Hospital, Aldershot, at the end of August, 1916, for severe abdominal pain. He was wounded in the preceding February when fighting against the Senussi.

Six weeks after the original wound he had his first attack of pain, which was, however, very slight. The attacks of pain became more frequent and more severe, but the attack which brought him for relief to the Connaught Hospital was the most severe that he had till then experienced. On radiography, after a bismuth meal, the bismuth was seen to extend in the stomach right up to the second left rib in front, and above it could be seen the dense compressed lung. He was therefore transferred as an urgent surgical case to the Cambridge Hospital, Aldershot, to be under surgical care. Here, however, his condition rapidly improved; the pain disappeared, and in a few days he was able to take food without discomfort. He came under my observation and that of my colleague, Major James Taylor, and considerable doubt was expressed as to the validity of the diagnosis. The x-ray experts at the Cambridge and at the Connaught were not in agreement in their findings nor in the interpretation thereof. The man seemed very well, and surgery did not appear to be urgently called for.

In the beginning of October the patient had another severe attack of pain, and in my absence an operation was performed by Major James Taylor. A hole in the diaphragm was found, but the man's condition was desperate, and he died of shock.

At the autopsy a large circular opening, admitting a medium-sized hand, with quite smooth and rounded edges, was found near the centre of the left dome of the diaphragm. In the thorax were the stomach, great omentum, transverse colon, upper half of small gut, the last kinked in several places, distended, and of a deep plum colour. The stomach reached as high as the second left rib and was partly adherent to the chest wall.

The expanded copper casing of a rifle bullet was discovered in one edge of the diaphragmatic wound, but no trace of the leaden core was found. Presumably the latter had been removed in the earlier operation performed in Africa.

It is remarkable that, considering the number of abdomino-thoracic wounds which must have been operated on in the early part of the war, so few cases of diaphragmatic hernia have been recorded. Perhaps Lockwood's contention that very few of these cases survive is true. D'Oyly Grange¹⁰ has, however, recorded a case of diaphragmatic hernia which followed a bullet wound of the left chest. It was successfully operated on in Newcastle by the abdominal route.

P. Lecène¹¹ has recorded two cases of traumatic diaphragmatic hernia of the stomach which became strangled, and in one case underwent torsion as well. These cases were operated upon from the abdomen; in one the cartilago-osseous thoracic outlet was temporarily detached; in the other the eighth costal cartilage had been removed at a previous operation, and ready access was thereby afforded to the region of the hernia. I have knowledge of two more cases of diaphragmatic hernia, each consequent upon a bullet wound, which became strangled. One was successfully operated upon; the other proved fatal.

Experience has persuaded me that the thoracic route is the right method of approach for dealing with a diaphragmatic hernia. The Germans have painted too gloomy a picture of the dangers of an artificial pneumothorax, and have made too much of their negative-pressure chambers and positive-pressure anaesthetic arrangements.

In the treatment of abdomino-thoracic injuries, just as in that of wounds of most regions of the body, the successive years of the war have witnessed a steady progress; more and more abundant have become the triumphs that surgery has won. I am proud of the privilege I enjoyed of working for nearly two years in the casualty clearing zone, where these triumphs have been gained, and I am especially grateful to Major-General Sir Anthony Bowlby, K.C.B., through whose kindly offices I was enabled to share the labours of those who gladly and cheerfully toiled at "the back of the front."

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THE Belgian Surgical Society will celebrate the twenty-fifth anniversary of its foundation in September next at Brussels.

ACUTE DIVERTICULITIS OF THE TRANSVERSE COLON: RESECTION OF BOWEL: RECOVERY.

By H. F. VELLACOTT, F.R.C.S.,
PLYMOUTH.

Mrs. W., aged 36, was admitted to the Royal Albert Hospital, Plymouth, on December 28th, 1918.

History.

She had been subject to attacks of pain in the upper abdomen for about eighteen months. This pain was severe at times, but had no relation to food though she had to be careful what she ate. On the day of admission she had "had indigestion all day," which developed into acute pain quite suddenly about 5 p.m. Dr. Pullen, of Stoke, was called at 10 p.m., and immediately sent her to hospital where I saw her at 11 p.m.

Vomiting and the signs of acute appendicitis were all present with the exception that the maximum tenderness and rigidity were situated to the right of and close to the umbilicus. This was noted, but I made the diagnosis of appendicitis without hesitation.

The general condition was excellent, the pulse being 84 and the temperature 99.8° F.

Operation.

A right rectus incision was made. There was considerable excess of free fluid present in the abdomen with a faint smell of *B. coli*. The appendix was easily found, and seen to have been the seat of former disease, but was obviously not the cause of the present attack. It was rapidly removed. By introducing the finger I could now feel a mass higher up in the abdomen, and therefore enlarged the incision. Adherent to the transverse colon lying in relation to the second part of the duodenum was a small amount of "lymph" and a mass the size of a large walnut was felt in its upper and posterior wall. The omentum was wrapped round this. From the mass a thick band passed up in the transverse mesocolon towards the central group of lymph glands. This band and the mass in the bowel were so hard that I diagnosed malignant disease with perforation, and decided to resect. About six inches of the gut were accordingly resected, and an end-to-end union made. Great care was necessary in the resection, as the thickening in the mesentery involved the superior mesenteric vessels. The resected segment of gut was slit down and held out for my examination, and the true diagnosis became apparent. No other diverticula were seen on the exposed part of the bowel. It was noted that the gall bladder lay immediately above the area of resection, but was not involved in adhesions. Gall stones were felt, but it was not the time to remove them, so I closed the abdomen except for a rubber drainage tube.

The progress of the patient was uninterrupted, and I last saw her on June 12th, when she looked very well. She suffers from indigestion, which suggests that an operation may soon be necessary for removal of gall stones.

Description of Specimen.

On examining the part removed I could find no trace of malignant disease in the lumen of the gut, but on the upper posterior wall was a small opening, an eighth of an inch wide, leading to a cavity in the hard mass. This cavity was a little more than a quarter of an inch in diameter, and was neatly filled by a concretion which could be seen from the lumen of the gut. A perforation had taken place from the diverticulum forwards into the general peritoneal cavity in front of the transverse mesocolon. Microscopical sections showed no trace of malignancy. The concretion was composed of inspissated faeces.

The case is of interest as occurring in the transverse colon and at the early age of 36. Apparently it is not the first time that the inflamed and cicatricial mass has been mistaken for a growth in these cases. For the original diagnosis of appendicitis I make no apology.

THE INGUINAL ROUTE FOR RADICAL CURE OF OBTURATOR HERNIA.

BY

TEMP. MAJOR E. T. C. MILLIGAN, R.A.M.C.

ATTENTION has recently again been focussed on the inguinal approach in the operation for radical cure of femoral hernia. Above many other advantages, it ensures the obliteration of the sac. The suitability of the same approach for the radical cure of obturator hernia is worthy of note. The class of case to which it might be applied is represented by a patient who came under my observation recently.

He complained of dull pain over the inner portion of Scarpa's triangle in the right thigh, with indefinite tenderness over the inner and upper portion of the pectineus muscle; the symptoms,

he said, were aggravated many times during the day and once or twice at night while asleep, by any sudden turning of the leg outwards. His troubles were annoying rather than disabling.

He had been examined with great thoroughness and treated at several hospitals in an endeavour to diagnose his condition, which was suspected to be obturator hernia, but clinical methods had failed to bring about an accurate diagnosis, and his symptoms were unrelieved.

I decided that the obturator foramen should be explored, and adopted the following method of approach as causing the least disturbance to tissues and structures.

An oblique incision was made parallel to and just above the inner end of Poupart's ligament, exposing the external abdominal ring and the attachment of the external oblique aponeurosis to Poupart's ligament. The aponeurosis was incised in the line of the skin incision and the upper part retracted. The spermatic cord was also drawn upwards out of the way and the external iliac vein and the femoral ring defined. With deep retractors the peritoneum was pushed upwards from the pubic bone, when, about one inch behind the femoral ring, could be seen and felt the obturator foramen, through which the obturator nerve disappeared into the thigh after running along the wall of the true pelvis in a conspicuous manner.

The sac of the hernia was drawn from the foramen without difficulty and its obliteration was assured by this approach.

The above method is eminently suited for this class of case, but would not be recommended for strangulated obturator hernia, because it could not be diagnosed clinically with certainty as the origin of the mischief. Such an abdominal catastrophe would call for laparotomy in order to elucidate and treat the cause.

PERFORATED DUODENAL ULCER IN A MAN OF 83: OPERATION: RECOVERY.

BY

HERBERT H. BROWN, M.D., F.R.C.S.,

SURGEON TO THE EAST SUFFOLK HOSPITAL.

In each of the two successful cases of operation for perforated gastric ulcer recorded by Captain E. Huntley, R.A.M.C., in the JOURNAL of July 12th, the operation was performed within a few hours of the perforation, and he emphasizes the importance of operation at the earliest possible moment.

The following case was remarkable from the fact that the perforation occurred when the patient was more than 80 years of age, and I attribute the successful result mainly to the fact that I was able to see him soon after the occurrence, and operate within a few hours.

He was a fairly healthy old man and active for his years. On June 30th he was suddenly seized with very severe pain in the upper part of the abdomen, and vomited almost immediately, bringing up nearly two pints of fluid material. When I saw him, about 6 p.m., he was suffering great pain; the abdomen was very rigid but not much distended, and the liver dullness had not disappeared. I gave morphine gr. $\frac{1}{2}$ and arranged for his transfer to a nursing home.

On opening the abdomen at 9 p.m. only a few bubbles of gas escaped; there was a moderate amount of greenish fluid in the upper part of the abdomen, but no peritonitis. There was no fluid in the pouch of Douglas. A perforation was immediately evident on the anterior surface of the duodenum close to the pylorus. The edges were indurated, and apparently the ulcer was of some duration. It was closed with two layers of sutures, and posterior gastro-jejunostomy performed. A pint of food was introduced into the jejunum before the first row of sutures was completed. A drainage tube was left in the wound, extending to the site of the ulcer, but no other drainage seemed necessary. The tube was removed after forty-eight hours, and the patient made an uninterrupted recovery. I started feeding him with peptonized milk within twenty-four hours of the operation.

Captain Huntley mentions that in neither of his cases was irrigation of the abdomen performed, and expresses the opinion that in early cases irrigation may possibly do more harm than good. I would go much further than this. I believe that in no case, early or late, should the abdomen be irrigated, and that this applies to all forms of septic peritonitis.

In the early days of operation for perforations irrigation was the rule, but since it has become the general custom to mop out the superfluous fluid, drain the pouch of Douglas, and sit the patient up in the Fowler position, the prognosis has become far more favourable. This has been attributed to the shock, so called, of flushing the abdomen, to the diffusion of the septic material, etc.; but flushing the abdomen does not in itself cause any perceptible shock.

In cases of ruptured pregnant tubes the abdomen, which is full of blood, may be flushed out with large quantities of normal saline solution with only beneficial results.

I think the explanation is simple. With the onset of peritonitis an inflammatory reaction in the serous membrane is set up, the vessels are engorged, serum is poured out in quantities into the peritoneal cavity highly charged with leucocytes, which attack the deleterious organisms, and the result of the combat is the lymph and purulent fluid which are so evident. The osmotic current is from the circulation to the peritoneal cavity, and only to a moderate extent are toxins absorbed back into the circulation. But when we replace this fluid with normal saline we leave in the abdomen a large quantity of fluid highly charged with toxins which it has dissolved, and this fluid is rapidly absorbed into the circulation, carrying the toxins with it.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ENLARGEMENT OF ADRENAL IN STARVATION.

WHILE working as a prisoner of war behind the German lines in a prisoners' hospital laager it fell to my lot to carry out several autopsies on British and allied soldiers who died in the laager. Many batches of prisoners arrived from neighbouring working parties, where they had been systematically underfed, and had been worked until they were physically prostrated. From each batch some members died a very short time after admission. I was greatly impressed, in carrying out autopsies on these emaciated cases, by the size of the adrenal glands. In a series of eight cases of death from underfeeding the adrenals were definitely enlarged, almost to half as large again as normal, and the enlargement seemed, from naked-eye appearance, to be mostly in the cortex. Unfortunately there were no facilities for microscopy.

It would appear that the adrenals had hypertrophied to counteract the low blood pressure produced through insufficient nourishment. Perhaps this observation may lead others who have occasion to examine *post mortem* cases of extreme emaciation to pay special attention to the adrenal glands.

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Captain R.A.M.C.

IODINE IN VARICELLA.

ONE of the worst effects of chicken-pox is the scarring, particularly on the face. These scars are invariably caused by the pocks becoming secondarily infected; irritation is set up, and the patient cannot refrain from scratching, with the result that a permanent scar is formed, and the course of the disease greatly prolonged.

For some time past I have made it a rule to treat all these cases with iodine. From the first I give instructions that every vesicle shall be painted twice, or at least once, a day with tincture of iodine, applied with a small camel-hair brush. The result fully justifies the slight trouble involved, for not only is secondary infection prevented, but (perhaps in consequence) the itching, which in some cases is so intolerable, is almost entirely prevented; the pocks heal more quickly; the duration of the disease, and so the infectious period, is materially shortened; and scarring is entirely absent if the treatment is conscientiously carried out.

I always advise that not more skin than possible be painted, only the vesicles themselves; I have not seen irritation set up even in cases with a large number of pocks.

Cheam, Surrey.

CHARLES CORBEN, M.D., F.R.C.S.E.

COLLOSOL MANGANESE IN ANAEMIA.

For the last two years I have been using injections of colloidal manganese (1.0 c.cm.) in cases of anaemia in which the patient had a definite intolerance of iron. The results have been exceedingly good and the improvement in the women's general health marked. In several of the cases I commenced the manganese treatment for the relief of boils from which the patient suffered, and found that as