from the cord to its actual junction with the peritoneum—a point which Kocher has shown to be marked by a pad of subperitoneal fat, which forms an outlying spur of the pre-vesical fat; after being thus freed, it is displaced upwards and outwards by drawing it through an opening in the internal oblique and transversalis muscles at a point $\frac{3}{4}$ in. above and to the outer side of the internal ring. The whole of the lax peritoneum present in the neighbourhood of the internal ring is thus rendered taut, and there is no trace remaining in the form of dip or dimple.

Kocher formerly recommended that the sac should be laid down over the roof of the inguinal canal and there pressed down into it, as it were, through the roof, and retained by sutures, but this suturing, combined with transfixion and torsion, occasionally led to necrosis of the sac, and has been abandoned in favour of simple removal after dislocation upwards and outwards.

I remember particularly one of my cases in which this necrosis took place, and I quite expected the operation would fail, especially as the man was a repairer of motor cycles, and often had the severe strain of pedalling those unwieldy machines some distance; but I have seen him lately, and am glad to say that he has no hernia.

Mr. Stiles, of the Royal Sick Children's Hospital in Edinburgh, has long discarded all suture of the canal or rings, and I learnt from him that he recently completed a series of 1,000 cases with a mortality of 6–700 of them with a mortality of 2 only, a total mortality of much less than 1 per cent. Results could hardly be better, and would compare favourably with those of the operation of circumcision. The best age for operation is 5 to 6 months, before dentition begins.

Mr. Stiles has given up the use of trusses at the Sick Children's Hospital altogether, being guided to this conclusion mainly by the fact that cases which were apparently cured by truss pressure were those of the congenital type, which were really cured by the natural obliteration of the funicular process occurring from below upwards. That this view is correct is shown by the number of waiting cases which, on being sent for for operation, are found to be already cured.

It may seem difficult sometimes, when dealing with infants, to say positively whether a rupture exists or not; the parent will assure you that a lump does come in the groin, but, on inspection and examination of the two rings, they seem of equal size. If, however, the cord be carefully isolated, it is quite possible to feel in all cases of hernia that something, the empty sac, is present coming down the inguinal canal.

The surgeon must be prepared to find other structures than small intestines and omentum inside a hernia sac. I myself in the last year have met with the Fallopian tube, the caecum with appendix, and the urinary bladder, but such findings do not materially increase the gravity of the operation and are readily dealt with.

Children.

Strangulation is rare in children, and when it occurs it is generally in infants under 1 year. This condition is most frequent on the right side, because it is the caecal herniae that usually become strangulated. Moreover, it must not be thought that irreducibility is a very urgent matter in a young child. There is no hurry about operation, for in them strangulation is a slow process. A dose of chloral and bromide may be given by mouth or rectum and hot fomentations applied to the hernia, the knees being bent over a pillow so as to relax the structures about the external ring, where the tightness is usually greatest, and a delay of twelve hours advised. Failing reduction in this way, it may often be effected under chloroform; but if this with mild manipulation fail, the operation must be performed exactly as in non-strangulated cases.

I would advise that all preparations for operation be made before taxis under chloroform is resorted to, so that valuable time may not be lost.

A few words may be said about the dressing and the after-treatment. It is necessary to protect the wound in some way, yet ordinary dressings are very difficult to keep clean; dry collodion has been tried, but it does not give free exit to the serum, which must be produced in any wound where the tissues have been much separated and handled. Stiles always uses a paste consisting of iodoform one part, bismuth subnitrate two parts, kept in a

solution of 1 to 1,000 mercury perchloride. A piece of gauze is placed over this and a small flannel binder over all as a temporary dressing. When the child is put to bed the temporary dressing is removed, leaving nothing on the wound but the paste. The legs are controlled by clove-hitch bandages applied to the ankles over a layer of lint. Over the body is a small wire cradle, from which hangs a diaphragm of towelling, on to which he micturates. The shoulders are lightly fastened to the mattress by the usual reins of knitted material, and the hands are prevented from coming in contact with the wound by another small draw sheet pinned under the reins and over the cage. A piece of boracic lint is pinned over and under the child's vest, which reaches to about the umbilicus. No sepsis has occurred in connexion with this method of treating the wound in children.

A mattress stitch or two is used to obliterate the deep wound, which is removed on the second day; the skin is sewn with horsehair, which is removed on the sixth or seventh day, and the child is discharged on the eighth or ninth day. It is not necessary that the child should be weaned.

Adults.

In adults the wound is dressed in the usual way with dry gauze and wool, drainage being very seldom employed, and bandaged with a flannel or domette spica 3 inches wide; it is well to bandage the opposite side also, including the two in a St. Andrew's Cross. This serves to support the scrotum, preventing oedema, and rendering the after-treatment much more comfortable.

Finally, I always use an elastic bandage applied in St. Andrew's Cross fashion, as this keeps the edges of the superficial dressing secure and prevents any accidental contamination by involuntary movements of the patient's thighs during the first few hours.

There are, of course, many other forms of abdominal hernia to which I have not referred (one author describes fifteen in all), but it would only lead to confusion if I attempted to include the treatment of these in my brief paper. I will therefore simply say once again that the treatment of all is essentially the same, and that the great underlying principle is to find the neck of the sac and to occlude it thoroughly. You may then do what you please with the other parts, varying the detail according to circumstances, and putting in such supporting and obliterating sutures through canal and rings as your experience may determine.

A CASE OF PERFORATED PEPTIC ULCER OF THE OESOPHAGUS COMPLICATED BY PYOPNEUMOTHORAX.

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THE following case is of interest because it is a very typical example, both as regards history and pathological appearances, of a rather rare condition, though one probably more common than is generally believed. The author is indebted to Professor Wyllie for allowing him use of the clinical notes taken by his resident, Dr. Leslie.

History.

W. A., aged 42 years, admitted to Ward 34 on March 18th, 1910, under Professor Wyllie, complaining of pain across the lower part of the chest, worse on the left side, and pains across the back.

Up till the beginning of January, 1910, he was in good health. He had been accustomed to take considerable amounts of alcohol in bouts about every other week for the last eight years. Subsequent to these drinking attacks he suffered from his stomach, being unable to take food and vomiting bile. Since January, 1910, he had suffered from lassitude, uneasiness in the stomach, flatulence and vomiting about an hour after each meal, followed by relief to symptoms. He has been afraid to eat and thus has lost weight considerably. On March 14th, after vomiting his dinner, he went to bed, and has not got up since then. The day before admission, when suffering from severe pains in the chest, he called in a doctor, who diagnosed pleurisy, and recommended his admission to the hospital. During the days that intervened he had been unable to retain anything in his stomach. The vomited food was tinged brown. The patient suffers severely from thirst; he has no difficulty in swallowing, but has some uneasiness in the lower part of the chest, between the ribs where they join the sternum. No

tumour can be made out on palpation, but there is some rigidity of the muscles of the upper part of the abdomen. The respirations are 28 per minute.

He has pain in the chest, both in front to the left side low down and behind across the lower part. Cough not marked.

There is practically no movement of the left side of the chest, except a little at the apex of the lung. Vocal fremitus is absent over the whole of the left side, normal on the right. On percussion a resonant note is obtained all over the chest with just a slight loss of tone at the left base. Over the left side, however, true pulmonary resonance is not obtained. On auscultation, the breath sounds are faint all over the left side of the chest, but are present over the right side. They have the character of normal vesicular breathing, with a slight prolongation of expiration at the right apex. Over the bases, especially the right, there is well-marked friction. Vocal resonance not much affected; on the whole, not quite so good over the left side generally. No Hippocratic succussion tried for, as patient was so ill, but the bell sound test with coins gives a positive result, especially above the bend of the seventh rib space all round the heart.

The blood was examined and showed 14,000 leucocytes. There was no glycolytic reaction. On admission, the temperature was 101°, but it gradually fell to subnormal.

Result.

On March 21st the left pleura was explored; some foul-smelling gas escaped; afterwards pus was obtained and about 25 c.cm. was removed. Next day more pus was removed. The patient vomited at frequent intervals, and died during the afternoon.

A post-mortem examination was held on March 23rd, the following observations being made:

Body well developed, but shows some emaciation. Rigidity well marked. The left lung is adherent to the chest wall towards the apex. It is completely collapsed in its lower part, and covered with grey fibrino-purulent exudate. There is a considerable amount of stinking fluid in the left pleura. There are also adhesions at the apex on the right side.

On opening the stomach and duodenum, an ulcer is found just beyond the pylorus in the anterior wall of the duodenum, with a considerable amount of thickening around.

Immediately above the cardiac orifice in the oesophagus there is a large ulcer measuring about 1½ in. in its greatest diameter. There are two perforations in its floor, opening into an abscess cavity in the mediastinum, lined with grey necrotic material communicating with the pleura. The margin of the ulcer is rounded, and the floor is formed by the muscular coat of the oesophagus.

The stomach is dilated. The mucous membrane is swollen, injected in places, and covered with glairy mucus. The pericardial sac contains a small amount of fluid, with flakes of lymph suspended in it. The heart is covered with a layer of recent fibrinous exudate. The left lung is largely collapsed; the apex shows a considerable amount of fibrosis. Lower part covered with fibrinous exudate. There is scarring also at the apex of the right lung, and what appears to be a small bronchiectatic cavity. There is some recent fibrinous exudate at the base. The spleen is somewhat enlarged, firm, and shows chronic perisplenitis. The kidneys are somewhat enlarged, cortex swollen and pale, soft and friable.

Summary of Post-mortem Findings.—Ulcer of lower part of oesophagus perforating into left mediastinum and left pleura. Pyopneumothorax. Old tubercle at both apices. Chronic ulcer of duodenum. Recent fibrinous pericarditis. Cloudy swelling of organs.

According to Tileston¹ (1906), peptic ulcer of the oesophagus was first described by Albers in 1839. Tileston has been able to collect 41 authentic cases of the condition, to which number he adds 3 which came under his own notice.

Ewald² (1910) describes 1 case diagnosed by means of the oesophagoscope, and which was cured. Probably, therefore, at least 46 have been recorded up to date, including the author's.

The most typical and constant symptoms of the condition are: Pain, which is severe and comes on immediately after food, the site of the pain being at the lower end of the sternum and a little to the left of it. Pain is also felt between the shoulders. Vomiting is the next most constant symptom. Dysphagia is present in more than half the cases. It is due to reflex spasm of the muscle of the oesophagus from pain, and it is the main diagnostic point between the condition and gastric ulcer. Haematemesis is also a very common symptom. Perforation has occurred in 8 cases—thrice into the right pleural cavity, once into the left (author's case), once into both (in each case with pneumothorax), once each into the aorta, pericardium, and lesser omental sac.

The ulcer is usually single. It may extend into the stomach, and independent ulcers may occur in the stomach or duodenum (author's case). The situation is usually close to the cardiac orifice, and the right postero-

lateral wall appears to be the commonest site. The condition is usually found in middle life.

As regards sex, of 45 cases in which the sex was specified 31 were males and 14 females. This preponderance in the male corresponds to what one knows of duodenal ulcer. Healing not infrequently occurs, as in the recent case described by Ewald,³ and one mentioned by Quincke.⁴

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¹ Tileston, *American Journal of the Med. Sciences*, 1906, vol. cxxxii, p. 240. ² Ewald, *Berl. klin. Woch.*, 1910, No. 5, S. 180. ³ Ewald, *Zeitschr. für klin. Med.*, 1892, xx, S. 524. ⁴ Quincke, *Deutsch. Archiv f. klin. Med.*, 1879, xxiv, S. 72.

A CASE OF TYPHOID FEVER COMPLICATED WITH CHOLECYSTITIS.

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TYPHOID inflammatory affections of the gall bladder and large biliary passages are described at some length by Curschmann in the Nothnagel Encyclopaedia. He states that typhoid bacilli are almost constantly present in the gall bladder, that gall stones have only been found present in about half of the cases, and that the result of infection varies, in many cases there being no ill effects whatever while in others inflammation is produced, which may go on to pus formation or ulceration. Distension and slight swelling of the gall bladder has not been uncommon in my experience, but the case about to be described is the first instance in which I have seen any serious conditions arise in the gall bladder. Our hospital records do not show a single case of cholecystitis.

In respect of general literature, fatal forms only seem to have been noted when the condition was first recognized, but Westcott, quoted in Keen's *Surgical Complications*, tabulated 74 cases of typhoid infection of the gall bladder, of which 30 resulted in perforation. Osler mentions 3 cases operated upon at the Johns Hopkins Hospital, and Sir Hector Cameron, in a recent issue of the BRITISH MEDICAL JOURNAL, mentioned a case which he operated on years after the patient had suffered from typhoid fever.

The case here described was that of a married woman aged 23. She was one of a series of cases which occurred in a mining village, where the disease was spread by personal contact. A brother of hers had been removed to the Shotts Fever Hospital on December 15th, 1910, and just before his removal the patient, who was eight months pregnant, admitted having kissed him. Within fourteen days she began to complain of feeling unwell, and on December 31st, 1910, took to bed.

Next day I was consulted, and found her suffering from symptoms suggestive of typhoid fever, including severe frontal headache, high temperature, and furred tongue. A specimen of blood was taken for Widal's reaction, and proved negative, but two days later (January 3rd) another specimen of blood gave a positive reaction, and arrangements were made for removing the patient to hospital.

State on Admission.—The conditions upon admission to hospital, January 5th, 1911, were those of classical typhoid fever, and the case presented no unusual symptoms during the first eight weeks of illness. During the first week of illness the patient was nursed at home, and admitted to hospital about the beginning of the second week of illness, with her temperature ranging from 102° to 103° F.

Progress.—During the third week of illness the oscillations were of the usual type, and the temperature fell by lysis, becoming normal at the end of the third week. On February 6th she gave birth to a healthy female child. Labour was easy, as the child was very small and emaciated, weighing only 4 lb. The temperature rose to 101° F. on the day of confinement, but was down on the following day. The pulse was rather weak. On the following day the patient was rather stronger, and gradually improved. On the third day after being confined, as the breasts became engorged with milk, the child was put to the breast, and continued to suckle along with artificial feeding until February 23rd.

On February 11th the patient was able to get out of bed, and with a gradually increased and more liberal diet she gained strength rapidly.

Treatment.—For the first four weeks in hospital the treatment was of the simplest nature. To the ordinary milk diet was added thin Benger's food, and sanatonogen, 1 oz. per day. A dilute sulphuric acid mixture four times a day was also administered. Afterwards strained soup and thin flour gruel was given.