of the right Fallopian tube, in marked contrast to the surrounding peritoneum. It has been thought that the infection may ascend from below, but here there had never been observed, nor was there present, any vulvo-vaginal discharge. A point that has been urged in favour of this possibility of origin is the curiously undue proportion of cases in females, but this excess is regarded by most as only accidental. The most accepted explanation, however, is that, as in the former group, the infection comes from the blood, and this is infected by absorption from a mucous surface without any discoverable lesion. No further pneumococcal lesion was found in this case, nor was the blood examined for organisms.

The symptoms of onset agreed with those described by previous observers. In a child of apparent good health there was a history of sudden severe abdominal pain, free vomiting, but no diarrhoea, with rapid development of peritoneal signs. The localizing of the pain, first about the umbilicus and then in the right lower quadrant with the most marked tenderness and some rigidity in the same region, seemed to point to the appendix as the probable source of the trouble; in fact, it is difficult to see how one could exclude this view, bearing in mind the many cases seen of a severe first attack and where there had been previously no warning that the appendix was not healthy. In this child there was some previous history of abdominal pain and vomiting, suggesting appendix trouble.

The character of the peritoneal fluid at the operation was quite distinctive; it was odourless and of a yellowish-green colour, of gummy consistency, and with a limited number of greyish-white flakes of fibrinous coagula in it. The fluid was very little turbid, and this is explained by the early period at which the operation was performed; it later became typically purulent, but remained odourless throughout.

The treatment employed was by incision and drainage. Whether it would have been wiser, after mopping out the fluid, to have closed the cavity, as recommended by some, must remain unanswered; there are not sufficient recorded observations to support one view or the other. It may certainly be urged that the closed cavity runs little or no risk of staphylococcal contamination from outside, which is very likely to occur, and did do so in this case. If the fluid should re-collect, or circumstances should otherwise determine it, the wound could be easily opened again and then drained. In another early case I shall be disposed to adopt this line of action.

With the advice and assistance of Dr. Dudgeon, pneumococcal vaccine was employed in the treatment of the case, which was considered a favourable one for such a course. It was started on the fifth day after operation, when, after an initial reduction of pulse, temperature, and symptoms, there was a marked increase again of the pulse and temperature. The injections, eight in all, were given in increasing doses (see chart), at intervals of five or six days. The satisfactory influence of the first two is well shown in the chart; after that the pus became contami-

nated, and it was from this cause that the well-marked rises of temperature occurred, masking the effect of the vaccine. On counter-drainage in the loin the temperature rapidly subsided, and she made a speedy recovery. It must be considered, I think, that the use of vaccine contributed in a large degree to the successful issue of the case.

INCISIONS FOR OPERATIONS ON THE UPPER ABDOMINAL ORGANS.

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THE incisions practised for operations in the upper abdominal organs are numerous, which indicates that none of them are entirely satisfactory. Kocher's and Mayo-Robson's are the most used in this country, and those described by Bevan, Kehr, and Czerny less frequently. The first three have the merit of giving very free access to the biliary apparatus, the duodenum, the pylorus, and the head of the pancreas, while similar incisions on the left side are available for gastric, splenic, and pancreatic operations. The objection to these incisions is that they cut off the nerve supply of the whole upper half of the rectus and overlying skin. A central quadrilateral area undergoes atrophy in consequence. The family doctor knows best that this is no imaginary sequel. It would be of little moment were the patients to remain invalids, but to an active man or woman the injury is serious. Hernia is not common, but the anaesthesia of the skin leads to abrasions, ulcerations, and other injuries, which are more serious from their being less painful, and therefore liable for a time to escape notice and treatment. Kehr's incision leaves a part of the rectus intact, and is in this respect an improvement on the others, but he cuts off more of the blood supply, while Czerny's merely produces another fibrous intersection in the rectus, and leaves a weak median scar.

The following incisions have no doubt been often employed by others, and there seems nothing against their universal adoption. They are anatomically correct, give ample room, and, when healed, produce a firm cicatrix. The blood and nerve supply is intact, the only vessel severed being the deep epigastric artery near its anastomosis with the internal mammary.

The first incision through the rectus is used by most surgeons for exploratory laparotomies. The skin and anterior sheath are divided a fingerbreadth to the right or left of the middle line from opposite the seventh costochondral junction to the umbilicus. The sheath is dissected off the muscle on the inner side, and the muscle freed by blunt dissection from its posterior sheath, and retracted outwards as far as possible. The posterior sheath and peritoneum are then incised as far out as

convenient, and parallel to the whole length of the skin incision. Through this opening the whole of the upper abdomen can be explored, and if operation on lateral organs is deemed advisable, the horizontal limb is then added. The best point for dividing the rectus is at its umbilical intersection, but it may be divided anywhere. This intersection is readily exposed by prolonging the vertical incision if necessary, and from the lower end of this a curved incision is made upwards and outwards to the lowest part of the costal margin. This divides skin and superficial fascia only. The muscle with the skin and anterior sheath is now raised up with the left hand, and the whole cut straight outwards through the middle of the fibrous intersection till the whole thickness of the rectus is divided. The deep epigastric, or a branch, may bleed and require securing. The posterior sheath is divided $\frac{1}{2}$ in. higher up for ease in suturing later.

In very fat subjects the ends of the skin incisions are prolonged and gradually shallowed out at their ends. This gives considerably more room, and does not weaken the cicatrix in the least. When turned up the base of this flap lies along Kocher's incision. The costal cartilages can be cut from the peritoneal side if necessary for operations on the spleen or cardiac end of the stomach. With the sandbag under the patient excellent exposure is got, and the edges of the opening are not too rigid. Only one

The thick line indicates incisions in skin; the dotted line, incisions in posterior sheath and peritoneum; the fine lines, prolongations of skin cuts for stout people; the shading shows ribs, cartilages, nerves, and muscles. (Diagrammatic.)

retractor is required, and when the liver and gall bladder are rotated upwards this, too, may be dispensed with. There is thus no danger of damage to the organs. This sickle-shaped wound is closed in layers with silk, cotton, or celluloid thread as follows: The sandbag is removed, and the vertical peritoneum together with the posterior sheath is closed first. Efficient drainage may be secured through the upper end of the lateral wound before the peritoneum and transversalis fascia are brought together. When the inner end is reached the rectus is sutured at the fibrous intersection, where the suture holds well. The anterior sheath is made to overlap a little, and the fibres of the external and internal oblique and transversalis muscles are gently approximated. The skin is closed by celluloid thread or Meckel's clips.

A more perfect cicatrix can hardly be obtained, and hernia need not be feared. Bevan speaks of the possibility of necrosis at the angle, but in my own cases the union has always been perfect. To round off the angle is more difficult, and can be done with the skin incision only. The exposure obtained need not be described, as the opening must be tried to be appreciated.

THE fifth International Congress of Medical Electrolgy and Radiology will be held at Barcelona from September 13th to 18th, 1910. The questions proposed for discussion are as follows: (1) The present state of electro-diagnosis; (2) measurements in radiology; (3) electricity as an anti-phlogistic agent; (4) the electrolytic introduction of medicinal ions compared with the therapeutic action of the constant current; (5) the use of the x rays in the examination of the abdominal segment.

INTESTINAL OBSTRUCTION PRODUCED BY AN ENORMOUSLY DISTENDED STOMACH.

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So remarkable and exceptional were certain features in this case that it seemed to me worthy of being put on record.

I have met with instances of great gastric dilatation reaching even to the pelvis, but I have never encountered anything at all approaching the somewhat extraordinary symptoms presented in this instance, nor do I know of any precisely similar illustration in the literature of gastric disease. The patient was a man suffering from advanced carcinoma of the stomach with symptoms of apparently only three weeks' standing, and these of a nature to suggest that the trouble was in the large bowel rather than in the stomach. But before venturing upon any comment upon the case I will let his history tell its own tale.

R. S., aged 66 years, was admitted to the Victoria Infirmary on May 21st, 1908.

History.

He stated that up to two years ago he had enjoyed good health, but at this time he began to lose his appetite, was conscious of a sense of oppression and fullness in the stomach, and suffered from pyrosis. Under treatment these symptoms disappeared. He then continued to take his food as before, and remained actively engaged in his work until three weeks ago, when his bowels commenced to be very costive and he was conscious of distension and gurgling in his abdomen. As the difficulty in getting the bowels to move increased, he used enemata, and thereby effected the discharge of some "little round balls." Neither blood nor mucus was seen. He had had no crampy or acute pains in the abdomen, but merely a sense of great discomfort from extreme distension. He had also noticed internal movements, evidently peristaltic. Position seemed to have some effect on his symptoms. When he lay on his left side they were increased, but diminished when he sat up, as he was then able to belch up some gas. He had not vomited, but pyrosis had been a frequent symptom. He was conscious that he was losing flesh.

Condition on Admission.

When admitted to the infirmary he was noticed to be in a poorly-nourished condition. His face was pinched and drawn in expression. His tongue was coated with a dirty viscid fur, and the teeth were in a bad condition. His temperature was 97.6° F., and his pulse 96. He complained of no pain, but only of an uncomfortable sense of distension. On examination of the abdomen, there was seen to be very marked bulging both in front and laterally, although it was more marked in the left iliac region. No peristalsis was observed; abdominal respiration was diminished. To percussion there was a tympanitic note in the epigastrium, becoming dull down towards the iliac regions and the flanks, and there appeared to be slight shifting with change of position. A suspicion of fluctuation seemed present in the epigastrium. By palpation, "splashing" was detected in the epigastrium, and resistance and tenderness existed in the left iliac region, where slight gurgling was also heard. The area of liver dullness was diminished. Neither the heart nor the lungs presented anything abnormal. The urine was normal. During the three hours that elapsed between his admission and the operation he did not actually vomit, but seemed to cough up a little dark fluid, and a 2-pint enema which was given returned with flatus and a few small round scybala of black colour.

Before continuing the report of the case, as taken by my resident assistant, Dr. N. McNeil, which proceeds to describe the operation, I will add a few additional observations taken at the time of my visiting the patient in consultation with Dr. George Halket, under whose care he had been for a short time prior to my interview.

It was three days before the patient was admitted to the infirmary that I saw him in his own house with Dr. Halket. In his general condition he was remarkably cheery, and, except that he was pale and somewhat emaciated, he in no way looked like a man suffering from advanced malignant and fatal disease. His chief complaint was abdominal discomfort from inability to obtain a movement of his bowels. His abdomen was greatly distended, and all indications of normal liver dullness had disappeared. There was dullness in both flanks, but tympanicity in the epigastric region and well-marked "splashing." The patient remarked that he had once before had a similar attack, which had completely passed off, and that, although this had lasted longer than the original one, he was confident that it would likewise disappear if only his bowels could be got to move. Dr. Halket, from his previous observation of the patient, had been under the impression that he was suffering from some gastric condition. The symptoms, however, which he presented at the time of our conjoint visit were so suggestive of intestinal obstruction that the suspicion was aroused in my mind that possibly we had to do with a malignant stricture of