faradism were used to hasten the return of movement. After ten weeks the patient could walk with a little assistance, spasticity not having quite disappeared. Movements of the left arm and hand were perfect, and she could lift a glass to her mouth with the right hand.

The operation described by Mr. Beresford:

On November 8th, 1927, under intratracheal anaesthesia (Dr. Eccles), the laminae of the second, third, fourth, and fifth cervical vertebrae were removed. The dura was not pulsating and felt hard in the second, third, and fourth cervical region. On opening the dura a tumour was seen in the postero-lateral aspect pressing into the right side of the cord. The tumour, which was attached by a pedicle to the dura, was enucleated without difficulty. Its appearance was rather like a large raspberry, fleshy to feel, and not very vascular. It measured 2.75 by 1.5 by 1 centimetres.

The dura was closed with continuous catgut, and, after closing the wound, the head, neck, and shoulders were supported in a plaster cast. The patient left the theatre in good condition, and got immediate relief from her intense headache. Sections of the tumour show it to be an endothelioma. This tumour is said to be non-malignant, and therefore the prognosis in this case is good.

COMPLETE TRANSVERSE RUPTURE OF THE JEJUNUM WITHOUT EXTERNAL WOUND.

BY

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COMPLETE transverse rupture of the intestine is rare in the absence of external wounds. Moreover, recovery from such a condition is exceptional. The following details of a case of such rupture of the jejunum seem worthy of record, particularly in view of the satisfactory issue.

A man, aged 46, was brought to the Nelson Hospital on July 20th, 1927, suffering from severe abdominal injury. The history given was that while riding a motor bicycle he had lost control and crashed into a wall, his abdomen striking a projecting corner.

On arrival at hospital the patient was in great pain and suffering from severe shock. He was in a cold sweat, and complained of intense pain in the abdomen, which at times caused him to writhe in agony. The pulse was 64, and the temperature 97.5° F. Breathing was laboured with grunting expiration and almost entirely thoracic; vomiting did not occur. The pupils were equal and contracted, and reacted to light and accommodation. The whole of the anterior abdominal wall was intensely rigid and motionless, while the only external sign of injury was a slight discoloration or contusion just below the ribs in the left hypochondrium. On palpation the abdomen was extremely tender everywhere, and a point of maximum tenderness could be elicited in the region of the tip of the spleen. There was definite dullness in the flanks, especially on the left side, but the patient was so ill that shifting dullness was not investigated. Liver dullness was present. The bladder was not distended; a catheter was passed and normal urine withdrawn. A diagnosis of grave abdominal injury with rupture of a viscus, possibly the spleen, was made, and the patient was treated for shock, 1/2 c.cm. of pituitrin being given together with a rectal saline injection, morphine, and atropine.

Two hours later Dr. Martin Randall opened the abdomen; a large left paramedian incision was used, with the centre opposite the umbilicus. No gas escaped on opening the peritoneum, and no fluid or odour suggestive of rupture of a hollow viscus was perceptible. There was a large quantity of almost pure blood in the peritoneal cavity. Examination of the liver, spleen, stomach, and pancreas revealed no injury, but while the last-named was being investigated a loose torn end of bowel came into view. This proved to be the jejunum, about four inches beyond the duodeno-jejunal flexure. The other end was found without difficulty, the tear separating the two pieces of bowel extending a full inch into the mesentery. The edges of the severed bowel were somewhat irregular, but it was practically a clean transverse tear. The removal of about half an inch on each side sufficed to form a clean-cut edge for suture, and an end-to-end anastomosis was performed. The peritoneum having been sponged quickly, the incision was closed, but a drainage tube was placed in the left loin and another in the pelvis, since some fluid was still present in each of these situations. After the operation the temperature was 97.4° F., and the pulse 88. The patient was given 1/4 grain of morphine at midnight, and saline by the rectum and subcutaneously.

At 6 a.m. the next day he was given a further 1/6 grain of morphine, and throughout the day continuous rectal saline. The temperature rose to 99° F., and the pulse to 116. Throughout the day the patient was given an ounce of water at a time, and during the day 1 drachm of brandy. In the evening he was given

an enema, and he passed a considerable quantity of flatus, with a slight action of the bowels. At night he was given 1/6 grain of morphine and at 4 a.m. on the next day a further 1/12 grain. During the day he seemed to have improved, the temperature being 98.6° F., and the pulse 104; vomiting occurred four times, and in the evening the stomach was washed out with sodium bicarbonate, which arrested this. From this time onwards the patient continued to progress satisfactorily; distension was relieved by turpentine enemata. The temperature remained normal or slightly subnormal, and the pulse rate had fallen to 70 by July 24th. The patient suffered from some distressing hiccup, which however, responded to a simple mixture of bismuth, and he continued to progress until he was discharged from hospital on August 27th, 1927, in good health.

A series of cases recorded by Massie¹ at Guy's Hospital between the years 1899 and 1922 shows that rupture of the intestine occurred in 34 instances. Of these, 26 were situated in the small intestine, and the jejunum was more commonly injured than the ileum; of the 14 jejunal cases, 7 occurred within eighteen inches of the duodeno-jejunal flexure. It was also shown that the part most susceptible to injury is that part which crosses the vertebral column, and that the second and third loops of the gut are most frequently involved. Most of these lesions were partial, and nearly all cases where the duodenum was involved were associated with other severe injuries in the upper abdominal wall. This writer also points out that whereas cases of ruptured stomach and duodenum are accompanied by other injuries, generally intra-abdominal, cases of rupture of the small intestine are usually single, and are not associated with any other injury. This fact is borne out by the present case.

The main symptoms and signs are pain, shock, and rigidity. It has been said that impairment of liver dullness is to be expected, but in the series collected by Massie this occurred in only 3 out of 34 cases; in the present case there was no impairment. Of 31 cases reported of complete ruptured small intestine the mortality was found to be 78 per cent., and in 9 cases in which the rupture was complete the mortality was 87 per cent. The high mortality in cases of complete rupture is said to be due to the increased amount of shock as compared with cases of partial rupture.

Another series of cases, numbering 22, and occurring at the London Hospital between the years 1913 and 1922, is recorded by Huddy.² This writer emphasizes the importance of early operation, the significance of pain as an indication for operation, and the fallibility of relying on the pulse rate—that is, not operating because it is slow. Again, such signs as loss of liver dullness, surgical emphysema, and distension are not of great clinical value; the latter is generally a late result, and is often found with other injuries, such as damaged kidneys or fractured pelvis; emphasis is also laid on the fact that the mortality increases with the length of the history, and that operation should not be delayed if there is no improvement after three hours. In the present case diagnosis of grave internal injury was easy on account of the extreme rigidity, great shock, and the definite evidence of effusion into the peritoneum.

The decision to operate depends on the diagnosis of grave internal damage and not on a diagnosis of any exact form of injury, and the earliest moment at which the condition of the patient is such as to make it possible should be the time chosen for operation.

The points that seem to be of special interest in this case are the following. On opening the abdomen no gas was detected, nor was there any fluid or smell suggestive of a rupture of a hollow viscus. The only fluid that escaped was blood, possibly diluted by peritoneal serous exudate. Nothing resembling food could be found in the effusion, and the inevitable presumption is that the intestine was empty when injured; the shock was followed by a pyloric spasm, which persisted until the operation was performed, because the stomach was not empty, the patient having had tea a short time before the accident occurred. The success of the operation was probably largely due to its being undertaken early.

I am indebted to Dr. Randall for assistance in describing this case and for permission to publish it.

REFERENCES.

¹ Massie: *Lancet*, 1923, ii, 640. ² Huddy: *Clinical Journal*, February 6th, 1924, p. 66.