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Some Cases of Abdominal Cysts following injury. By RICKMAN JOHN GODLEE, M.S. *Read May* 13, 1887.

I PROPOSE in the following paper to call the attention of the Society to three cases in each of which a large cystic tumour was developed as the result of the passage of a cart-wheel over the abdomen. As that which occurred last in point of time is the only one in which the diagnosis is quite clear I will proceed at once to describe it, and will begin by saying that it is a case of ruptured ureter.

A little girl (M. A. E., No. in hospital register 1422), four years of age, was admitted into University College Hospital on July 21, 1886, having been run over by a cab on the previous day. She then complained of pain and tenderness in the abdomen, principally in the left inguinal and lumbar regions; here there was considerable bruising, and there was also bruising about the left elbow. The temperature was about 100° F. and the pulse 122.

She had been examined by a medical man at another hospital before admission, and nothing except the symptoms mentioned above had been detected, and nothing further appears to have been noted for the first few days. In fact for the first fortnight, at the end of which time I first saw her, she remained much in the same condition. The bruising of the abdomen, however, disappeared, but increasing tension of the region previously bruised declared itself, and a little dulness was detected at the lower part of the chest on the left side. There was occasional but very slight vomiting and a dry cough, apparently the remains of an attack of whooping-cough; the temperature, which occasionally rose to 101° and over, sometimes sank to normal, and on the whole had a downward tendency. The urine, I regret to say, was not then examined, but nothing was ever noted amiss with it, and when it was examined on August 14, 15, and 16, it was acid, sp. gr. 1026—1028, and to the naked eye and under the microscope normal.

The indefinite swelling gradually gave place to a large well-defined elastic and fluctuating tumour which by August 12 extended inwards to within half an inch of the middle line, downwards to the umbilicus and the anterior superior spine of the ilium, backwards to the erector spinæ and upwards under

the ribs. The stomach and spleen appeared to be pushed up by it and there was dulness in the left back to the level of the eighth rib. The tumour was quite dull; the rest of the abdomen was resonant as were the upper part of the left side and the whole of the right side of the chest.

On this day (August 12) I drew off with the aspirator, through a puncture between the iliac crest and the ribs, three inches from the spine, 550 c.c. of turbid, slightly alkaline urine containing ·3 per cent. urea (total 1·53 grammes), half albumen, a large quantity of mucus, a small quantity of pus, and some phosphate crystals.

The child was not in any way upset by this proceeding, but the cyst rapidly refilled and in two days was about as large as before. The urine passed amounted to 250 c.c. on the 13th, 290 c.c. on the 15th, and 150 c.c. on the 16th, and was normal in character. The temperature remained slightly raised.

On the 19th (that is just a month after the accident) I opened the swelling, making the incision across the puncture previously made. The cyst wall was carefully exposed before opening it and was dense and fibrous, the lining perfectly smooth. The kidney was felt projecting into the upper and anterior part and seemed rough at its lower end; a drainage-tube was inserted and the wound was dressed with salicylic wool, the deeper parts of which were soaked in 1—2000 corrosive sublimate solution.

The amount of fluid drawn off was 1214 c.c.; it contained ·15 per cent. urea, some pus, and $\frac{1}{10}$ albumen.

For three weeks the patient was quite comfortable except for the copious leakage of urine from the wound, which showed no sign of diminution; the tube had been removed and the cavity and the sinus had both very much contracted. Then began the first of a series of pyrexial attacks, no doubt due to some accumulation of pus and urine in the deeper parts of the wound, which continued off and on till the middle of October. In these, the temperature often rose to 103° or 104° and the child was becoming pale, thin, and pasty-looking. The reinsertion of a tube had no effect in stopping these attacks.

I could not doubt that the ureter was completely ruptured, because no blood had appeared at any time in the urine, and I argued that if the laceration had been in the kidney it would probably by this time have closed. I accordingly thought it best to remove the kidney, and this was done on October 28, through a crucial incision in the loin. The operation was very

difficult; it was very difficult to find the organ at all, as it was embedded in dense fibrous tissue, very high up, and, of course, small. However, the nephrectomy was accomplished, but I fear that the upper end of the ureter was left behind and is the cause of the non-closure of the sinus, which still discharges a little pus. The temperature remained high, 101°—103°, for nearly a week and then fell to normal, the ligatures coming away *en masse* on November 25, a month after the operation. The child has made an excellent recovery and is now fat and strong, but, as was said, a minute sinus still remains.

It is difficult to collect all the urine of a child of this age. It may be said, however, that there was no marked diminution in amount after the operation. It varied from 10 or 12 up to 20 or 30 oz., the sp. gr. and the percentage of urea varying in proportion from 1030 to 1008 and from 2 to 1·2 respectively.

Other cases of this sort have been recorded. I submit that it is the best treatment to adopt when the patient is distinctly loosing ground and there is evidence that the other kidney is healthy. In fact in this instance, after the first opening, no other cause seemed open to me as it appeared likely that if the pyrexial attacks continued the child would ultimately fall a victim to them. Undoubtedly cases may arise where a permanent fistula communicating with the ureter does no harm beyond the inconvenience it causes, and then the patient must weight this inconvenience against the dangers of a nephrectomy.

Whether it might have been better to have delayed interference longer on the chance of the kidney becoming atrophied is another question. Possibly an answer may be suggested by the two cases which are to follow.

The first of these almost certainly received some injury to the kidney, but I am quite unable to say what the natures of that injury was and how far it accounted for the symptoms.

J. R., æt. 23, a valet, was admitted under the care of my colleague Mr. Beck, on July 13, 1885 (No. in hospital register 1420), having been knocked down on that day and run over by a heavy waggon as he lay on his back, the wheel passing over his abdomen from the right hip to the left hypochondrium. He was suffering from shock on admission and vomited the contents of the stomach, flecked over with streaks of bright arterial blood. There was considerable pain all over the abdomen. A drop of blood was found at the end of the catheter when the water was drawn off; on this and the following two days, as he was unable to pass his water, it was drawn

off and was on each occasion found to be smoky, but after this it was passed naturally and was normal. Vomiting of bilious matter, not continued nor excessive, lasted till the 18th. The temperature rose to 100° on the second day and gradually mounted to 101·8° on the sixth day. After the eighth day it did not rise to 100°, but it remained over 99° till the day before his discharge, July 29, sixteen days after the accident. He became slightly jaundiced during his stay in the hospital, but left it feeling fairly comfortable and apparently without any tumour or dulness in either flank.

On August 12, a fortnight after his discharge, he came back, telling us that since that time he had been occasionally sick after taking solid food and had suffered slightly from diarrhœa. We found him pyrexial, with a temperature of 100° to 101·8°, with the abdomen slightly but uniformly distended and giving no signs of free fluid nor of a localized cyst; there was pain, however, in the hypogastric region and the left flank. He was put upon spoon diet and the vomiting did not recur. Hot fomentations were applied to the belly and the symptoms referred to this region subsided. There was no trouble of any kind with the water. In about four days the temperature came down almost to normal.

Between the date of admission and September 10, nearly a month, he was kept mostly in bed, and for a considerable part of the time on spoon diet, as it seemed clear that vomiting was on more than one occasion started by giving him solid food and allowing him to get about. Ultimately, however, this restriction was relaxed and the vomiting did not reappear. In the meanwhile a tumour developed itself, projecting slightly below the margin of the ribs on the left side, dull on percussion (the dulness extending in the axilla to the level of the nipples) and apparently pushing the heart up, for marked pulsation was apparent in the second intercostal space.

On September 10 an aspirator needle was passed through the seventh intercostal space a little in front of the line of the posterior axillary fold and so no doubt through the attachment of the diaphragm. It entered a cyst, and 7 oz. of turbid fluid were drawn off, containing a mere trace of urea (·01 per cent.), a certain amount of albumen, and showing, under the microscope, blood-corpuscles, some indefinite granular cells, and some flat epithelium.

On the following day it is noted that the heart's apex was beating in the third space; that dulness in the back began at

the eighth rib and extended forwards as far as the sixth rib in the posterior axillary line; that in front of this there was stomach resonance as high as the fifth rib on the mid-axillary line; and that no tumour was to be felt below the ribs. The intercostal spaces were collapsed.

Four days after the aspiration (September 14) the physical signs were the same as before the fluid was drawn off. About this patient there is little more to be said; he gradually improved in general condition, though suffering occasional attacks of sharp pain in the abdomen, modified apparently by position, but he had no more actual sickness. The temperature, which rose to 100° the day after the aspiration, came down on the following day to normal and remained so until his discharge on October 9. There were still signs of unnatural distension of the stomach, the tympanic note varying in extent but sometimes reaching the third interspace. The dulness in the back and axilla did not alter, but breath-sounds could be heard over the dull area. The intercostal spaces were again collapsed and no tumour was to be felt in the abdomen.

He has kept well since, though he appeared the other day at the hospital complaining of some pain in the abdomen, again of a dragging character, due, I believe, to a left inguinal hernia, for which he was supplied with a truss.

It seems almost useless to speculate upon the exact nature of the injury in this case. I do not think that the fluid was in the pleura, though it is not possible to prove the contrary. I think it most probable that it was contained in a cyst above the kidney and resulted from a laceration of the organ, and that by pressure on the stomach it gave rise to the troublesome gastric symptoms, and also as it extended backwards it pressed the diaphragm against the ribs and so caused the dulness in the back and axilla. The possibility of the existence of a diaphragmatic hernia was discussed, but the idea was discarded.

The third case is not like either of the others, and is perhaps more remarkable than the last.

W. W., a boy æt. 7 (No. in hospital register 2450), was knocked down by a van-horse about September 23, 1885, and the front wheel of the van pressed against him on the right side between the iliac crest and the ribs, but did not pass over him. He remembered being pulled out and thinks that he could have walked home. He was seen by Mr. Adams Clarke, of Bushey, who found him suffering from pain in the abdomen,

and administered some medicine, after which vomiting took place and the patient was relieved. He was kept in bed and fed with spoon diet for four days, after which he was able to go out for a walk and in the following week he went to school. At the end of this week he vomited after eating some fresh pork, and from that time to November 28, about two months, he had occasional attacks of indefinite illness and gradually lost flesh.

I saw him on November 28, and found him with a temperature of 103° and felt, when he was under chloroform, a distinct tumour in the left side of the upper part of the abdomen; but when he was admitted into the ward this tumour could not be made out. The next day the temperature was normal.

He was kept in the hospital for nine weeks, during the whole of which time the temperature was slightly raised, being generally a little below, sometimes a little above normal. The tumour, which was sometimes only detected with difficulty, gradually became more distinct, occupying the epigastric and the left hypochondriac regions; it extended to the middle line in front and downwards to an inch above the umbilicus. There was a resonant percussion note over it, and a curious, splashing sound was heard on sharply tapping it above. This was no doubt caused by the movements of the contents of the stomach, and as I was convinced that I could feel the transverse colon crossing the lower part of the cyst I did not think it safe to explore with the aspirator needle, and so the boy was sent home for a while.

He never had any urinary symptoms and all his other functions were natural. There were no signs of tubercle. The weight remained stationary: about 3 st. 2 lbs.

On August 24, 1886, he came back (eleven months after the accident). The tumour had much increased in size; it occupied the whole of the epigastric region and was mesial in position, reaching on each side to the cartilage of the eighth rib and below to the umbilicus. It was movable from side to side and descended during inspiration. The stomach was clearly above it and the transverse colon apparently crossed its lower part as before. The boy's general health was good. His temperature was normal.

On August 25 I made an incision through the abdominal wall 3 inches long, the lower end of which was 1½ inches from the umbilicus. There were no peritoneal adhesions. Omentum (probably great omentum) appeared in the wound and also a piece of a viscus, presumably flattened great intestine, but I

am not prepared to assert that it was not the pyloric end of the stomach. I tried to pull up the omentum but failed. So I incised it above the exposed viscus and so laid bare the surface of the tumour. In doing so the small sac of the peritoneum was distinctly opened; we had thus not to do with a dropsy of the small sac.

After protecting the abdominal cavity with sponges, an aspirator needle was inserted into the cyst and 43 oz. of turbid, whitish-yellow fluid were drawn off, neutral, sp. gr. 1015, containing ·5 per cent. urea and albumen in large quantity, but no sugar. As the cyst became lax, it was seized with forceps and incised and the margins of the opening in its wall were attacked by stitches to the margins of the incision in the abdominal wall, the upper and lower parts of this latter incision being approximated above and below the opening into the cyst; a drainage-tube was inserted.

The wall of the cyst was dense fibrous tissue one sixteenth of an inch or more in thickness. The lining of it was perfectly smooth and soft and fell into folds when the fluid had escaped. The cavity extended back to the spine, up to the loin, and laterally as far as the kidney on each side.

The wound was dressed with salicylic wool, the deeper parts of which were soaked in 1—2000 corrosive sublimate solution. It behaved perfectly well and the boy did not have a bad symptom. The sutures came away in good time, and after occasional fluctuations in the amount of discharge (it was at first very slight, then very copious and watery, then gradually diminished), closure of the wound was complete by October 13, seven weeks after the operation.

The amount of urea in the fluid obtained from this case, ·5 per cent., was larger than that found in the cyst resulting from the ruptured ureter in the first case. Yet there is no evidence that any injury of the kidney had occurred at any time. I thought on examining with the finger that it might possibly be an enormous hydronephrosis; but the mesial position and the fact that closure took place so comparatively quickly would seem to negative this hypothesis.

In view of the length to which this paper has already attained, and the obscurity of the last two cases, I will not add any further comment, but will simply leave these notes on record for comparison should similar cases occur to other members of the Society.

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