material has completely paralysed or caused actual gangrene of the appendix. The recrudescence of symptoms in the last stage is due to the establishment of acute septic peritonitis.

The symptoms of the first stage are very similar, and are often mistaken for the symptoms of strangulated hernia or other form of intestinal obstruction, or perhaps for those of acute gastritis. To this class of appendicitis belong most of the wrong diagnoses, cheerful prognoses and tragic emergency operations.

SOLITARY CYST OF THE KIDNEY.

By ADAMS A. McCONNELL.

LARGE, solitary cysts of the kidney are of interest, in that they present neither clinical similarity nor pathological uniformity, whilst their ætiology is largely speculative.

This communication on the subject contains something of clinical interest, little of pathological fact, and nothing at all of speculation.

The patient, the mother of sixteen children, noticed that she was getting thinner for the past year, but that the only indisposition noteworthy in the course of her sixty years excited no comment and occasioned no anxiety. In December, 1919, she had a slight chill, with pain in both lumbar regions. The pain started behind and radiated towards the front of the abdomen. That on the left side lasted longer, and was of greater severity than that on the right. There was no vomiting during this attack, but the patient felt weak and lost her appetite.

On admission to hospital under Dr. Purser's care, in January, 1920, examination showed an extremely pendulous abdomen, with the recti muscles widely separated. On the left side of the abdomen was a tumour about the size of a cocoanut, firm, but giving the sensation of a tense cyst rather than a solid mass.

The centre of the tumour was on the level of the umbilicus. There was slight mobility, but it was impossible to raise the growth to a higher level in the abdomen.

On the right side a similar swelling was similarly situated, but it could be completely reduced under the right ribs in the recumbent position to return immediately when the patient assumed the erect posture. She volunteered the information that on occasion she passed a large amount of urine, and then the swelling on the right side disappeared.

The urine was normal, with the exception of a slight amount of albumen. Cystoscopic examination showed a normal bladder. I considered the case to be one of double hydronephrosis associated with general visceroptosis, due to the extreme laxity of the abdominal wall. This laxity being brought about by over-distension, sixteen times repeated inside twenty years. As it was possible to replace and retain the right kidney, I determined to explore the left fixed one in order to restore it to a position which would permit of a belt being worn. In order, however, to gain some more preoperative data I passed a catheter into the left ureter, and injected thorium solution. The ureter showed a right-angled bend at its junction with the pelvis, but the outstanding result of the pyelogram was the proof that there was no hydronephrosis.

The pelvis contained only 110 minims (6.6 c.c.) of fluid, and its somewhat distorted outline suggested a tumour of the kidney.

We then considered the possibility of a hypernephroma, but the complete absence of hæmaturia with a tumour of this size made such a condition appear unlikely. Our preoperative diagnosis, therefore, was a cystic tumour of the kidney, not a hydronephrosis. I exposed the kidney by a lateral incision, and found that it was ectopic in position, the blood supply coming off the aorta below its usual level, and the kink of the ureter being due to the distortion of the lower pole of the kidney itself. A cyst as large as the foetal head occupied the centre of the kidney.

I passed a hand across to the right kidney, and found it small, irregular and adherent to the liver, the enlarged pelvis being empty at the time. As the right kidney was definitely hydronephrotic and of questionable value as the sole organ of urinary excretion, and as there was a considerable amount of normal renal tissue on the left side, a nephrectomy was out of the question and an excision impossible with safety, I therefore decided to perform a conservative operation, and simply marsupialize the cyst. I opened it, and removed a large amount of dirty, hay-coloured fluid, some of which was immediately examined, and found to contain pus and pieces of necrotic tissue. No organisms were present and no organisms grew.

The wall of the cyst was about a quarter of an inch thick, and was formed of dense fibrous tissue without any epithelial lining.

The cyst was stitched to the abdominal incision and dressings applied. There was a profuse watery discharge from it for twelve hours, the dressings and bed being soaked with fluid, after which period there was no further profuse discharge.

A mixture of glycerine, alcohol and iodoform was injected into the cavity once a day for a week, after which the discharge diminished to a few drops in the 24 hours. The patient left hospital in three weeks with a small sinus.

Large, solitary cysts of the kidney are rare, only 63 cases having been reported. They are somewhat more frequent in women than in men, and in the right than in the left kidney.

The cyst is usually situated at one or other pole of the kidney. The size varies within wide limits: in one case the cyst practically filled the abdominal cavity, and weighed 16 lbs., but the majority are about the size of an orange.

The content of the cyst is usually clear, serous fluid, but sometimes the fluid is turbid, bloody or caseous. Suppuration is very rare. In the majority of cases the thin cyst wall was formed of fibrous tissue without an

epithelial lining, but in some such a lining was present, the cells being either flattened or cuboidal in form.

The only relatively constant change in the renal tissue was slight interstitial nephritis in the immediate neighbourhood of the cyst wall. The pathological evidence has not yet led to a satisfactory theory of causation. There is no reason to believe that these solitary cysts are congenital, and, as far as my knowledge goes, in but one case—and that one a cyst of small size—was there any definite indication of retention. In it there was dense sclerosis of a papilla with incrustation of calcium phosphate. This condition seemed to be responsible for retrodilatation of the tubules and cyst formation (Caulk, "Annals Surg.," June, 1913). The paucity of symptoms renders a diagnosis difficult, and in the majority of cases the diagnosis has been made at operation. In this case the connection of the tumour with the left kidney was established, the absence of hydronephrosis proved, and a cystic tumour of the kidney prognosticated, but to differentiate between a hypernephroma and a true cyst on palpation alone is, I think, impossible. I must confess that the consistency of the tumour accorded, in my mind, just as much with a hypernephroma which I had seen as with a cyst of the kidney which I had not seen. Of course, the absence of hæmaturia, which is common in the former and very rare in the latter, pointed to a cyst.

The ideal treatment is excision of the cyst and suture of the kidney. Such a proceeding was impracticable in this case, for the pelvis of the kidney would have been encroached upon, and the state of the other kidney was too precarious to take risks.

The last remark applies also to nephrectomy. Moreover, in many cases the loss of function is small, and the sudden imposition of the total excretion on the other kidney may lead to a uræmic fatality.

Marsupialisation was eminently satisfactory in this case, though in 33 per cent. of the cases in which it has been done an intractable fistula resulted.