occupying the renal area; no trace of the kidney or ureter could be found, but a large track led from this cavity downwards into the pelvis.

On opening the abdomen a remarkable appearance was presented; the peritoneal cavity was quite normal, the peritoneum being glistening and unchanged. Between the abdominal cavity and the pelvis a thick roof of peritoneum, shiny on its upper and black on its under surface, was seen. This was the peritoneal covering of the bladder stripped upwards. The pelvis was occupied by several pints of fetid pus. No trace of the bladder could be discovered—merely a black-walled cavity bounded by the pelvic bones remaining. The urethra opened directly into this cavity. The rectum could be seen apparently uninjured. The horizontal ramus of the pubis on the right side was fractured about its middle, the ununited ends projecting into the cavity. The left ureter and kidney could not be found, but in their place an abscess cavity with black walls, and a long track joining the two cavities.

I found two handfuls of blackened slough lying at the bottom of the pelvic cavity, apparently the remnants of the bladder walls. The inflammation, after destroying the bladder, had tracked up the left ureter and destroyed the left kidney.

ON DOUBLE LOOP HERNIA (W HERNIA). WITH REPORT OF A CASE.

BY

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WHILE a case of strangulated umbilical hernia containing two loops of bowel was reported by Benno Schmidt in 1880, the credit belongs to Lauenstein, of Hamburg, of drawing general attention to the subject of double loop herniae by reporting a case of strangulated inguinal hernia containing two loops in 1894,¹ of reporting a first series of cases in 1905,² and a further series in 1909,³ while he has also performed many experiments on animals with a view to elucidating some of the difficulties met with in explaining the formation of such herniae.

Although during the last few years a number of such W herniae cases have been reported (over 30 in all), the condition is not apparently a common one, even when allowance is made for some cases which, as I am aware, have occurred, but have not been published. So far as I have been able to ascertain, all the cases reported have occurred in the inguinal region, with the exception of the umbilical case already referred to and 5 cases which occurred in the right crural region, and, further, both loops of bowel have always been strangulated. The case which came under my care, on the other hand, was one of left femoral hernia and only one loop was strangulated, and both on account of the rarity of the condition and the possibility of its peculiarities throwing light upon some of the theories regarding the formation of such herniae, I consider it worthy of record.

D. B., a man aged 66, a miner, was admitted to the Royal Infirmary, Glasgow, under my care, when acting for Mr. Paterson, on December 14th. The patient was suffering from symptoms which pointed to intestinal obstruction. Five days prior to admission the patient had a sudden attack of pain, which he referred to the umbilicus and which lasted for several hours, and on the day following he had a similar attack. During the next three days, and prior to admission, the pain was almost constant and severe. The bowels moved fairly well with enemata, but no flatus was passed, while he suffered from severe eructations of wind from the stomach. The bowels again moved at 4 a.m. on the day of admission, but still no flatus was passed, and he became sick and vomited faecal matter.

Condition on Admission.

The patient was in a generally unsatisfactory condition and distinctly shaky; the pulse was 100 and the temperature normal. The abdomen presented no distension, rigidity, or tenderness. A large tumour, however, about the size of an ostrich egg, was found projecting from the left groin, and extending from the pubes to within an inch of the anterior superior iliac spine. He seemed to attach little importance to this swelling, and did not refer his present condition to it. When questioned regarding it, he said that the tumour had been present for a very long time, probably from childhood, and that, while it had been slowly increasing in size for some years, it had become markedly larger during the last few months. The tumour was hard to the touch, immovable, not tender, and gave no impulse on coughing. It became, therefore, a question whether this tumour was a very large femoral hernia, containing strangulated bowel, or whether it was, as the history seemed to suggest, a tumour which might or might not

be connected with the symptoms of strangulation. As the tumour mass was slightly tympanitic at one point, hernia appeared the more probable diagnosis, and it was decided to operate.

Operation.

A vertical incision was made over the mass through the skin and cellular tissue, exposing first one and then within it a second glistening sac. These sacs were perfectly free from one another, and, when the second was opened, a quantity of dark, blood-stained fluid poured out, while a dark solid mass presented, which still suggested the possibility of tumour. On opening up the sacs more widely, however, a loop of dark, bluish-purple, congested, and considerably distended small bowel about 1 ft. in length was exposed, and easily brought out through the wound. The portions of this strangulated loop which had been opposite the neck of the sac, together with a short portion above the constriction on either side, were found not to have suffered greatly from pressure, and then the loop, which apparently consisted of ileum, was with little difficulty returned to the abdomen. The remaining mass was still very large, and, on careful unravelling, was found to consist of two distinct portions. First, there was a large coiled mass of congested livery omentum, which, when ultimately disentangled and spread out, was found to be some 10 in. long, 6 in. broad, and fully $\frac{1}{2}$ in. thick. When in position it practically enveloped the second portion of the remaining mass, and to a less extent concealed the loop of bowel already referred to. The neck of this mass was both thin and narrow, rendering its ligature and removal very easy. Probably the size and thickness of the omental mass is accounted for by long presence in the hernial sac, with slight constant pressure at the neck causing venous congestion, and hence hypertrophy, just as is seen in the case of the mesentery of a herniated appendix of some standing.

The second portion of the mass now remained alone in the large cavity, and on introducing the finger and hooking it forward, it was seen to consist of bowel, into which the finger appeared at first sight to have penetrated. On closer inspection, however, it was found that the finger had gone into a little pocket and not into the lumen, and that the mass which now presented, and which was of the size of a large orange, was composed of bowel. The pocket into which the finger had gone was one of many with which the surface was covered, and which apparently represented positions where the original coils of which the mass was composed had not fused as they had done elsewhere. Save for these pockets, the surface was smooth and glistening, as in normal bowel, but here and there, particularly in the neighbourhood of the pockets, traces could be made out of fibrous adhesions running from one loop to another (see diagram).

Diagram of the bowel mass which had been long present in the hernial sac, was covered by omentum, and was not strangulated.

An attempt was made to determine the portion of intestine to which this mass belonged, but proved abortive, as neither limb of the loop could be drawn through the ring sufficiently for careful inspection. Both limbs were composed of perfectly healthy but thick-walled bowel, and it was thought that an imperfect longitudinal band could be recognized running along the front of the anterior limb into the bowel mass, but the point could not be definitely decided.

As this mass was perfectly normal in colour and there was no constriction whatever at its neck, the intestinal obstruction was obviously entirely due to the first, strangulated, loop, and as the patient had never experienced trouble from the condition, it was determined to try to reduce it in mass. This proved a comparatively easy proceeding, owing to the very large size of the crural opening, which extended out from Gimbernat's ligament, over the femoral vessels, for a distance of fully $2\frac{1}{2}$ in. The peritoneal sac was next freed from adhesions to within the crural ring, threaded in the ordinary manner, and drawn up behind Poupart's ligament, while the large outer sac, composed presumably of transversalis and iliac fasciae of the crural canal, but enormously enlarged and thickened, was similarly coiled and drawn up in front of the opening beneath Poupart's ligament. The wound was then stitched up.

Save for slight collapse after the operation the patient made an uninterrupted recovery, and he has been well since, regulation of the bowels occasioning no trouble.

It will be noted that the probable period of strangulation in this case was a long one—not less than five days—from which, together with the condition of the bowel as found at the operation, it may be inferred that the strangulation was not complete, but was more of the nature of obstruction of the lumen of the bowel than of marked interference with the blood supply of the affected loop. It is a question whether the loop became strangulated immediately on entering the sac, or whether it had been present for some time previous, as the history of the sac, increasing markedly in size, seems to suggest. As the loop was perfectly free in the sac, and there was not even a constricting band at the neck, I am inclined to think that the loop had become strangulated immediately on its entrance into the sac five days previously.

One theory put forward as to the formation of W herniae is that a single large loop of bowel comes down into the sac, and that subsequently the central portion of the loop slips back into the abdomen, thus forming the W. In favour of this theory is the generally very large size of such herniae, and also the fact that in many cases the connecting loop of bowel, notwithstanding its position in the abdominal cavity, is damaged. If the connecting loop be not damaged while in the sac, how is the damage to be accounted for?

So far as the case under consideration is concerned, this mode of formation is definitely negatived. The one loop had undoubtedly been constantly present in the sac for many years—indeed, enveloped with omentum as it was, reduction would have been impossible, notwithstanding the large size of the ring—while the other loop had equally certainly only been present for a short period. The entire absence of pressure symptoms upon the bowel mass loop is probably to be accounted for by this very long presence in the sac, the bowel having become thickened and easily capable of resisting any pressure upon it. The loop of ileum, on the other hand, being composed of normal thin, easily compressible bowel, was completely obstructed more or less immediately, notwithstanding the absence of any constricting band. It is unfortunate that the patient's condition, and also the impossibility of pulling down the bowel leading from and to the bowel mass prevents a statement being made as to the probable amount of bowel forming the abdominal loop. It is a curious fact that, in a number of the cases reported, this middle loop has suffered severely, even perforation having occurred in it, without the portions of bowel in the sac having suffered proportionately. Lauenstein has performed many experiments on animals with the object of finding out why this should occur, from which it appears that neither undue distension of the intermediate loop, as suggested by de Beule, nor traction on the mesentery can alone be held responsible. Probably both have an effect in diminishing the blood supply to the loop, and of lowering its vitality, thereby permitting undue bacterial action. In the case now reported, apart from its scientific interest, there was little object in bringing out the entire intervening loop, as only one herniated loop was strangulated, and the bowel above it on both sides was quite normal.

Lauenstein suggests as aids to diagnosis in cases of double loop herniae (1) the size of the hernia, which is generally right-sided, scrotal, and of long standing; (2) signs depending upon the condition of the middle loop, such as marked asymmetry of the lower half of the abdomen where the loop is much distended; furrowing of the scrotal tumour, indicating the line of separation between the two loops, which may further yield differences in percussion (for example, one full of fluid, the other of gas); effusion of fluid into the abdominal cavity. In the present case the size and long duration of the condition were the only features present of these suggested, the tumour being uniform in contour (owing probably to its thick envelopes as compared with a scrotal hernia), and the abdomen uniform and free from effusion (owing to one loop only being affected, and there being thus no affection of the middle loop).

In conclusion, it may be stated that one of some three cases of herniae containing three loops of bowel has been reported by Pringle of Glasgow,⁴ and in this case one of

the loops was less affected by strangulation than the others.

REFERENCES.

¹ *Archiv f. klin. Chir.*, 1894. ² *Deut. Zeit. f. Chir.*, 1905. ³ *Deut. Zeit. f. Chir.*, 1903. ⁴ *Edinburgh Med. Journ.*, June, 1906.

A CASE OF GLUTEAL ANEURYSM. TRANSPERITONEAL LIGATURE OF THE INTERNAL ILIAC.

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THE following case is of interest on account of the rarity of the condition and the fact that the treatment adopted involved an operation not often performed:

G. S., a farm labourer, aged 64, was admitted into the Wallingford Cottage Hospital in September last with a swelling of the right buttock.

History.

For six or seven years the patient had suffered from unilateral sciatica. The pain had been much more severe during the last two years, and for two weeks before admission had been almost insupportable. It was usually worse at night, and extended from the right buttock over the back of the thigh and calf of the leg down to the heel of the same side. On account of the pain the patient had been compelled to give up work and take to his bed. The swelling had been noticed in the buttock for about three years; it had been very slowly increasing in size during that time. Beyond the fact that the man remembered that when acting as shepherd some twenty years ago he had occasionally been butted in this region of the body by rams, there was no history of trauma, nor was there any of syphilis (though the latter fact is scarcely worth recording, since patients of his class undoubtedly often suffer from this disease in a mild form, and scarcely notice it till tertiary symptoms or nervous diseases supervene). His habits had always been temperate.

Condition on Admission.

A tense pulsating tumour was present in the right gluteal region. The pulsations were expansile, and a marked thrill could be detected at one point. Auscultation revealed a loud bruit. The centre of the swelling was situated above and a little to the outer side of the point of junction of the middle and lower thirds of a line drawn from the posterior superior iliac spine to the ischium. The tumour measured, roughly, 8 in. from above downwards, and 6 in. from side to side; it extended down to the gluteal fold, which was almost obliterated, and, apparently, deeply into the pelvis. The muscle over it was thinned, and the flexors of the thigh were a good deal atrophied (though this does not show well in the photograph). The hip-joint could not be fully extended. Rectal examination revealed the presence of a pulsating swelling in the pelvis. The arteries throughout the body showed slight atheromatous changes, but not to a greater degree than one would expect to find in a man of the patient's age and occupation. It was noted that the right femoral artery commenced 1 in. external to the mid-point between the anterior superior iliac spine and the pubic symphysis. The patient showed some interesting deformities. The thumb and index finger of the right hand were fused together, the middle and ring fingers of the same side were absent, though the metacarpals of each were present, that of the middle finger being, however, rudimentary; the little finger was represented by two complete digits articulating with a common metacarpal.

Owing to the severe pain and the possibility of rupture of the aneurysm, it was decided to tie the internal iliac artery.

Operation.

Having opened the abdomen by an incision 5 to 6 in. in length along the right linea semilunaris, I attempted to obtain an exposure of the division of the right common iliac vessels at the brim of the pelvis by holding the intestines aside with sponges and retractors. Though the arteries could, of course, be plainly