A CASE
OF
EXTRA-PERITONEAL VESICAL HERNIA.

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THE presence of the *bladder* in a hernial sac has been looked upon as a matter of pathological rather than practical surgical interest. But in these days, when the radical cure of hernia is so frequently undertaken, it may be expected that the surgeon will more frequently meet with the rarer forms of hernia, and that he may find difficulties in recognising them and dealing with them. I am not aware of any case published in this country in which the presence of the bladder in a hernial sac led to complications during an operation; and I think, therefore, the following brief notes will be of some interest.

H. K—, æt. 48 years, was admitted into the German Hospital on September 18th, 1893, under the care of my colleague Dr. Port, suffering from an intercostal neuralgia consequent on an old fracture of the ribs. The patient

had inguinal hernia on both sides, which caused him constant annoyance, and as a truss gave him much pain, and could only be worn at intervals, the patient assented readily enough when the radical operation was suggested to him. Dr. Port kindly transferred the case to me, and on September 30th a radical operation was successfully done on the left side, according to Banks's method.

On October 28th the right hernia was operated upon ; it was only small—of the size of a walnut—and apparently quite reducible. After reduction some thickening remained, which was thought to be due to the hernial sac. A longitudinal incision was made in the long axis of the hernia, and the external layers were cut through ; the parts were much matted together, and it was quite impossible to distinguish between the layers : among them some bundles of interlacing muscular tissue attracted attention, but their exact significance was not made out, as the matting of the parts had effaced all anatomical landmarks. At last what appeared to be the sac was reached, opened, and found empty, only a little clear straw-coloured fluid escaped ; the apparent sac was isolated from the surrounding structures, which was effected with some difficulty, owing to its dense adhesions and to its extraordinary softness and friability ; it was then tied at its neck, and the stump was returned into the abdomen. The walls of the inguinal canal were brought together by four deep sutures.

We were quite aware after the operation that we had to do with a most unusual case ; the anomalous layer of muscular tissue, the great softness and aptness to tear of the sac, the escape of fluid from an otherwise empty sac, were points which deserved and attracted our attention, but we failed to come to a correct interpretation until twenty-four hours afterwards.

At that time, after having been in an entirely satisfactory condition, the patient became restless, complained of sickness and of pain in the hypogastrium, and the urine he passed contained a large admixture of blood. I saw

him a few hours later, and now the unusual conditions which had remained unexplained at the time of the operation became perfectly intelligible. What I had taken for and treated as the hernial sac was, in reality, a diverticulum of the bladder which had descended through the inguinal canal, and had become adherent to the neighbouring tissues. The muscular bundles belonged to the bladder, and the clear fluid which had come away during the operation, and which we had believed to be peritoneal fluid (without inquiring sufficiently into its character), was urine. No hernial sac, in fact, had existed, and we had to do with one of the most unusual conditions in surgery, namely, hernia—or more correctly (since there was no sac) descent—of the bladder through the inguinal canal.

The question now arose how to repair the damage I had done. I thought it best to expose the injured bladder as fully as possible, to ascertain the extent of damage, and then to act accordingly. I opened the wound, removed the sutures closing the inguinal canal—the walls of which thirty hours after the operation showed distinct signs of commencing adhesion,—and, as this did not allow of a sufficiently free view, I prolonged the incision upwards and opened the abdominal cavity. With the help of a silver catheter and injection into the bladder, I was able to make out a wound a little more than one inch long in the extra-peritoneal part of the bladder. The bladder itself was considerably enlarged. A double row of sutures (avoiding the mucous membrane) was inserted until the wound was closed and watertight; the peritoneum and the upper part of the abdominal wound were closed, but the lower part of the wound was left open and plugged with iodoform gauze, to prevent infiltration of urine in case the sutures in the bladder should give way. A Jacques catheter was passed into the bladder and left there for six days; as long as it was retained the bladder was washed out twice a day with boracic lotion, carefully avoiding, of course, over-distension. On the following day the temperature rose to 101.2° F., but

from that date the patient made an uninterrupted recovery ; the urine became normal after thirty-six hours. As the lower part of the wound was allowed to heal by granulation, its closure took up a considerable time. The patient was discharged early in January with his wound completely healed, and quite free from any pain or discomfort in micturition. He was advised to wear a truss permanently, lest the healing of a comparatively large wound by granulation should tend to weaken the abdominal wall.

Continental surgeons have more frequently met with similar complications, and lately Iovars in the '*Revue de Chirurgie*' has collected a number of interesting cases ; other papers have been published by Mandry (Tübingen), Lanz (Berne), Roth (Berlin), and Reverdin (Geneva). I do not propose to enter into all the more or less interesting details of the cases, but will only call attention to some of the principal points.

It appears that we have to distinguish two entirely different forms of vesical hernia. The anatomical characteristics of the first and much more common form seem to be the following : an ordinary hernial sac descends through one of the hernial canals ; it is found either empty or containing some abdominal organ ; in descending, the sac has inverted and taken down through the canal a part of the intra-peritoneal portion of the bladder, which is now found behind the sac. If an operation either for radical cure or for relief of strangulation is done, after reduction of any contents of the sac which may be present, another structure is found behind the sac to which it is generally very closely adherent. In the great majority of recorded cases this obscure structure has been injured either inadvertently in the attempt to separate it from the sac, or intentionally in the belief that a second sac was being dealt with. Even then, only in a part of the cases was a correct diagnosis made and the proper treatment—suture of the bladder—adopted ; in other cases the apparent second sac was ligatured at its neck, and an urinary fistula followed which closed spontaneously after

some time. Reverdin had a case of this kind ; after the operation he had his suspicions, and microscopical examination showed that what he had removed as a hernial sac was in reality the mucous membrane of the bladder.

Some surgeons, however, have been successful enough to avoid injury to the bladder in these cases. Roth, Boekel, Lanz, who had the good fortune to meet with two or more cases of this kind, were enabled, after having cut into the bladder in their first cases, to profit by the experience so gained, and to avoid injury to the bladder in the subsequent cases. Krönlein cut through the serous covering of the viscus, but had his suspicions aroused by the well-marked muscular layer, which put him on his guard, and enabled him to recognise the organ he was dealing with. Kummer and Walter, who also found the bladder behind an omental hernia, were able to ascertain the real state of things by enlarging the inguinal canal, passing the finger into the abdomen, and tracing the connections of the structure before them.

The cases of the second variety—descent of the extra-peritoneal part of the bladder through a hernial ring—of which my case is an example, are much less frequent. They are, nevertheless, of great surgical interest, not only since injury to the bladder seems unavoidable, but also because in most cases the real state of things was not discovered till some time after the operation. I have found five such cases recorded.

In all these cases the diverticulum of the bladder was thought to be an empty sac, and was excised ; in Pilz's case the diverticulum had become gangrenous in consequence of very tight constriction. Polaillon and Postemski recognised the true state of things by the flow of urine from the apparent sac, and closed the wound of the bladder by sutures. Aue stitched what he believed to be the empty sac to the skin ; the next day the dressing was soaked by urine. Siegel's case (Würzburg) is exactly like my own ; symptoms of extravasation of urine and hæmaturia indicated the injury to the bladder, and laparotomy and subsequent

suture of the bladder (two days after the injury) saved the patient's life.

In conclusion, I think the following points are of practical clinical interest :

1. It is almost impossible to make the diagnosis of vesical hernia previously to operation. One case only is recorded (from Buenos Ayres) where the clinical symptoms pointed to the presence of the bladder in the hernia ; in Pilz's case the signs of urinary trouble were due more to the long-standing cystitis and pyelitis than to the hernia. In all other cases the bladder was found quite unexpectedly.

2. It is extremely difficult to avoid injury to the bladder. If, after opening the sac and reducing the contents, another sac-like structure is found behind the first sac and adherent to it, it seems the best proceeding to enlarge the inguinal ring, pass the finger into the abdomen, and try to make out the nature of the case in this way. In those rare cases where the extra-peritoneal part of the bladder descends through the inguinal canal perhaps the peculiarly arranged muscular bundles may be detected and recognised ; but even this sign will fail in cases where a diverticulum of the mucous membrane passes through a gap in the muscular coat : in any case, if suspicion has been once aroused, it is easily verified by the introduction of a silver catheter, and better still by the injection of fluid into the bladder.

3. The prognosis in these cases is fairly good, only two fatal cases being recorded : in one of them (Pilz) death was due to the pre-existing cystitis and pyelitis ; in the second, shock was the cause of death (Polaillon). All the other cases recovered, some of them after formation and spontaneous closure of an urinary fistula.

4. If the bladder has been wounded, it should be sufficiently exposed as soon as the nature of the injury is clear ; and the wound closed by suture. This seems almost needless to say, but it is only fair to mention that a number of cases have recovered without suture, generally

after having gone through the stage of an urinary fistula. Reverdin, for instance, trusted to the ligature he had tied round the neck of the diverticulum, which he hoped would hold till adhesions had shut off the peritoneal cavity; he was quite successful in his case, but he thinks himself that full exposure of the wound and closure by sutures would have been the safer and therefore preferable treatment.

The majority of the cases published up to the middle of 1892 have been collected and tabulated by Iovars, 'Revue de Chirurgie,' 1893, 1, 2.

More recent cases and additional references will be found in the following papers:

Mandry, 'Beiträge zur klinischen Chirurgie,' 1893.

Roth, 'Deutsche medicinische Wochenschrift,' 1892, No. 23.

Laur, 'Berliner klinische Wochenschrift,' 1892, Nos. 30, 31.

Of special interest are—

Reverdin, 'Revue médicale de la Suisse romande,' 1890, p. 698.

Pilz, 'Wiener klinische Wochenschrift,' 1891, No. 19.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Surgical Society,' New Series, vol. vi, p. 89.)