the iliac crest and the last rib and parallel to the latter. I entered the peritoneum rather suddenly, being only aware of the fact when a coil of small intestine presented. To get more room the incision was carried forward another 2 inches. The sac was easily found, brought to the surface by two pairs of artery forceps, a nick made in the posterior peritoneum, and a small trocar and cannula inserted. The quantity of fluid was not measured, but there was fully a pint and a-half. It was at first watery, then mucilaginous and soapy, and streaked with white towards the end. The sac wall was exceedingly thin. A well-fitting drainage tube was then inserted, the tube invaginating a portion of the sac wall, and then fixed with a suture through the skin. A drain was also inserted into the peritoneum. The child was very collapsed after the operation, with a very slow and intermittent pulse, but it was wrapped in wool and given brandy and strychnine.

Progress.—After six hours the child was recovering from the shock, and had a pulse-rate of 170. From that time on the child did well. The temperature never rose beyond 100.5° until the fifth day, when the sinus became foul, and caused a temperature of 102°. For the first week the dressings were soaked through and through, but the drainage gradually lessened, and by October 13th, five months and a half after the operation, the sinus closed, there being no further drainage. The cavity was well washed out daily with weak carbolic lotion. Three weeks after the operation, the drainage tube was removed altogether, as a permanent fistula seemed to have been established; about this time, also, the child began to waste rapidly, and was given cod-liver oil inunctions and small doses of an oil emulsion internally. This had the desired effect.

There seems to be some confusion as to the true meaning of the word "congenital" as applied to hydronephrosis. According to Morris¹, congenital hydronephrosis is "hydronephrosis in the foetus and newborn, not hydronephrosis which occurs some time after birth, and is due to a congenital cause." Bland-Sutton,² however, has reported a case of congenital hydronephrosis in a woman, aged 44. I think there can be little doubt that my case was a true congenital one. The cause of the obstruction was not sought for. The operation had to be done hurriedly on account of the weak state of the little patient. There were no other congenital deformities or malformations, with which the condition is sometimes associated.

As regards treatment, in my case aspiration was not tried. Mr. Thornton³ thinks the chance of cure by such means very slight, but that there is a good chance of cure by nephrotomy. In my case the kidney was reached through the peritoneum for the simple reason that it was much easier, and the fluid in the sac aseptic.

The cure, in my opinion, was due to the fact that the sac had reached the utmost limit of distension, and that thereby the secreting structure had been destroyed, or almost entirely destroyed. Would aspiration, then, alone have been quite as effectual? I hardly think so, considering the very free escape of fluid for some time after the operation, followed by the discharge of purulent fluid, which meant granulation of tissue and the disintegration of the few remaining more highly-developed secreting cells.

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BILOCULAR INTRAPELVIC AND SCROTAL HYDROCELE.

By J. LACY FIRTH, M.S., F.R.C.S.,

Assistant Surgeon, Bristol General Hospital.

A HYDROCELE may have an hour-glass shape, constituting what the French term a hydrocele *en bissac*, either because a localised inflammatory thickening of the tunica vaginalis renders one part more unyielding than the rest, or because the tunica becomes pouched at some part from local weakness. Curling pointed out that such a pouch might form in the digital fossa between the epididymis and the back of the testicle, and might push its way towards the opposite side of the scrotum. Similarly pouches may form on the front or sides of the tunica vaginalis, and the pouches may, by reason of the relative weakness of their walls, become larger than the tunica vaginalis itself. Such a pouch may bulge far into the opposite side of the scrotum and cause a single hydrocele to resemble superficially a double one. These varieties of bilocular hydrocele are contained in the scrotum. The case of bilocular hydrocele described below is of the rarer form in which one loculus is in the scrotum and the other within the abdomen, and the orifice or channel of communication between the two lies in the inguinal canal.

W. L., a labourer, aged 20, came to the out-patient department of the Bristol General Hospital in October, 1899, complaining chiefly of a swelling in the left side of the scrotum, but also of a swelling of the prepuce and of a discharge from the penis. The latter was due to a chancre which in due course proved to be syphilitic. On questioning him closely, it was ascertained that he had had some degree of swelling in the left side of the scrotum as long as he could remember, though it had given him no serious trouble until about a month previously. Further, his father had told him that when an infant he had had a swelling there, and had been turned head downwards on two or three different occasions in order to reduce the swelling when it had become tense. The swelling always became smaller when he lay down. About a month before coming to the hospital he had had a blow with a plank on the lower part of the scrotum, and the effects had kept him in bed a fortnight, during which time a black bruise mark formed where he had been struck. At the end of the fortnight he returned to work and had to carry heavy sacks of cement.

After three days he had to give up work again, owing to pain in the left groin and scrotum. The swelling at this time was of the same size as it had been before the accident. It was then tapped by a practitioner, and a bowl of fluid, said to be like urine, was drawn off. The swelling soon came back when he returned to work, and it was again tapped in the hospital casualty room. It was after this second tapping that he came under my care. No active treatment was given to the hydrocele until March 20th, nearly five months later. By that time the scrotal swelling had increased in size, and was painful whenever he attempted to work, and these facts induced him to come into the hospital and submit to an operation. The following note of the patient's condition was made on March 3rd: As the patient lies upon his back in bed, the left side of the scrotum is seen to be enlarged to the size of a big lemon. When he coughs or strains the swelling immediately expands, returning again to its former size as soon as the cough ceases. It is very translucent. It feels like a rather flaccid sac of fluid. The testicle is felt lying in the posterior part of the swelling, and is very sensitive, so that examination of it is hardly possible. The globus minor and body of the epididymis feel indurated and nodular. The swelling can be almost entirely reduced through the inguinal canal, but quickly returns again when the pressure is relaxed. When the scrotal swelling is suddenly and smartly pressed upon, a slight bulging of the abdominal wall in the left iliac region is produced, and on laying one hand on that region and the other on the scrotum fluctuation is readily perceived. Similarly a thrill is transmitted by gently tapping either part. The area of the abdominal parietes through which fluctuation can be felt is roughly pyriform in shape. The inner border is the middle line, and extends 5 inches above the symphysis pubis and to within an inch of the umbilicus; the outer edge is at Poupart's ligament, and extends to a point 2 inches from the anterior superior iliac spine, and the upper border is a curved line, with its convexity upwards, joining the distal ends of the two borders mentioned.

A sudden tap made upon any part of the abdominal wall, even in the right hypochondriac region, immediately produces a visible expansion of the scrotal swelling. There is no visible prominence of the abdominal wall in the fluctuating area either when the patient is lying or standing. Both flanks are resonant in all positions, showing the absence of ascites. A rectal examination was made, and an attempt to obtain fluctuation between the examining finger and the other hand placed over the iliac fossa or in the scrotum, but without success. This examination was very unsatisfactory, owing to the patient's intolerance. The patient had a small and very flaccid hydrocele of the right tunica vaginalis.

Operation.—On March 20th an incision was made over the external abdominal ring and inner part of the inguinal canal, and after a little dissection the wall of the hydrocele sac was exposed and incised. Ordinary-looking hydrocele fluid flowed freely away. Through the opening and through the neck of the sac the forefinger was easily passed backwards into a large cystic cavity lying in the iliac fossa. The neck of the sac and inguinal canal would easily have allowed two fingers to pass. The intra-abdominal part of the hydrocele sac was extraperitoneal. The scrotal portion, which contained the testicle, was separated from the spermatic cord a short distance above that organ and cut across there, and the lower part closed by a few points of suture, so as to form a tunica vaginalis for the testicle. The rest of the scrotal sac was freed from the structures of the spermatic cord which lay behind it, and from other structures up to the inguinal canal, just as a hernial sac is separated in the operation for the radical cure of hernia. Gentle traction was made upon the free portion, and the remaining portion of the sac, the intra-abdominal portion, gradually came down, and was separated easily from the surrounding structures, until in a very short time it was found, rather to my surprise, that the whole of it had been removed, and the cavity where it had been had become simultaneously obliterated. The inguinal canal was closed after Macewen's method. The dressing was removed for the first time eight days after the operation. The testicle then felt enlarged and soft, and it was clear that some fluid had collected in the newly-formed tunica vaginalis. A week later, at the second dressing, the wound had healed by first intention except in a minute area at the upper end. The hydrocele was the same as at the last dressing, and extending from its upper end to the external abdominal ring the spermatic cord was felt considerably thickened and indurated. Also the hydrocele on the right side was as before. In November these hydroceles remained, the left one being the size of a hen's egg, and tense and irreducible, but giving no trouble. There was no inguinal weakness manifest.

The existence of this type of bilocular hydrocele with an intrapelvic and a scrotal sac probably depends upon a faulty obliteration of the funiculo-vaginal process of the peritoneum. In the infantile form of hydrocele, not uncommonly seen in infants and young children, its obliteration has taken place near the external abdominal ring, and the whole of the rest of the process below that level, including the tunica vaginalis, has become distended with fluid. In bilocular hydrocele there is a sac of fluid in the scrotum and inguinal region like that in the infantile form, and in addition an intra-abdominal

sac continuous with the other, and suggesting that a higher unobliterated portion of the funiculo-vaginal process has become distended with fluid. Jacobson¹ says that in these cases the funiculo-vaginal process has probably become obliterated high up at the internal ring, and the rest of the process below has become distended with fluid which has ascended in the inguinal canal and formed an upper sac, and that the relative size of the upper and lower sacs depends upon the resistance met with from the surrounding parts. Macewen² admits the possibility of great distension of such a sac obliterated at the internal ring, causing some intrusion towards the peritoneum, though, owing to the abdominal pressure, this would be much resisted, but he does not consider the formation of such a hydrocele outside the internal ring sufficient to explain the formation of intrapelvic and scrotal hydroceles. He suggests that these latter are due to the funiculo-vaginal portion of the peritoneum existing as a sheath lying along the anterior aspect of the pelvic portion of the cord beyond the internal ring, and becoming shut off from the general peritoneal cavity at the deepest part of the pelvic portion of the cord, so that the process is continuous and patent from the testicle to the deepest part of the vas deferens. If such a tube became distended with fluid a bilocular hydrocele would form, with a constriction where it passed through the abdominal muscles.

Macewen further suggests, in order to explain the sudden appearance of the scrotal swelling in some of the cases, that a slight adhesion might have existed in the funicular process where it passed through the abdominal muscles, and that the pelvic cyst having formed first, a sudden strain has broken through the adhesions and allowed the fluid to pass down into the scrotum. In both the cases he reports the patients ascribed their trouble to the sudden strain of lifting a weight, and the scrotal swellings appeared shortly after the strain. On the other hand, the scrotal hydrocele might form slowly if it merely received the overflow from the pelvic sac.

The relation of the intra-abdominal cyst to the peritoneum is interesting, and the descriptions of it vary. Bazy believes that the abdominal sac, as it enlarges, passes backwards and downwards, following the constituents of the cord into the iliac fossa, and that it raises the peritoneum in front of it. If that is the case, an incision through the abdominal wall would have to divide the peritoneum twice before it exposed the sac of the hydrocele. Tillmanns is quoted by Jacobson as having expressly stated that in his case the cyst lay between the parietes and the peritoneum. It would appear that the abdominal cysts are not in exactly the same position in all cases—for example, in Macewen's cases they partly occupied the true pelvis, but in my case did not extend below the brim of the pelvis.

B. G. A. Moynihan,³ in his recent Arris and Gale Lectures, drew attention to the close relationship which seems to exist between properitoneal and interstitial herniæ on the one hand and bilocular hydroceles on the other. He suggests including these herniæ under the title of bilocular herniæ. The anatomical arrangement of the sacs in these herniæ and hydroceles appears to be practically the same in many cases, with the exception that communication with the peritoneal cavity is persistent in the herniæ, but has become shut off in the hydroceles. He points out that in properitoneal herniæ the upper of the two sacs may pass either (1) upwards and outwards or (2) directly backwards, occupying the inner part of the iliac fossa near the brim of the pelvis, or (3) downwards and inwards into the true pelvis, lying by the side of or near the bladder. If the upper sac of a bilocular hydrocele may also take any one of these positions, then the varying accounts of the relationship of the parietal peritoneum to the hydrocele sac in different cases may be explained.

Moynihan regards the congenital peritoneal pouches met with in the inguinal region near the internal abdominal ring, and described many years ago by Rokitansky, as an important cause of the development of properitoneal hernia, and suggests that these pouches may result from an aberrant attachment of the gubernaculum to the peritoneum. This suggestion is based upon Lockwood's explanation of the origin of infantile herniæ. In a similar way the gubernaculum may be concerned in the development of bilocular hydroceles.

The relative size of the two sacs in these hydroceles varies.

In Bazy's cases, for instance, the upper sac extended above the umbilicus and formed a conspicuous swelling when the abdomen was inspected, whereas in one of Kocher's two cases the upper sac was only the size of a nut. Similarly, the scrotal sac may vary in size, and probably in some cases will not reach so low as to communicate with the tunica vaginalis of the testicle, and will then constitute a bilocular hydrocele of the cord only.

The chief signs and symptoms of bilocular hydrocele have been sufficiently indicated in the notes of the case. In some cases the abdominal cyst has pressed upon the bladder and caused frequency of micturition, but this symptom was not present in my case. Whether or not the upper sac will produce a swelling of the abdomen visible on examination will naturally depend upon the size and tension of the cyst, and the thickness of the abdominal wall. In my case the only visible sign of the presence of an abdominal cyst was the wave-like movement of the parietes over the cyst produced when pressure on the scrotal swelling was suddenly made. Reference to the literature of the subject shows that 18 cases were collected by Villeneuve in 1890, all of them foreign, and that additional cases have been described by Lister, Syme, Humphry, Macewen (2 cases), and 1 reported by F. von Winiwarter is mentioned by Moynihan, making, with my example, a total of 25 cases. Doubtless others have been observed, and it appears likely that many have been mistaken for ordinary hydroceles. In the following case a hydrocele of the cord was of the bilocular type.

CASE II.—W. E., aged 11, was admitted to the Bristol General Hospital complaining of a swelling in the left groin, which had been present seven or eight months, and which a truss had failed to keep back. The swelling was situated over and just below the external abdominal ring, and was not larger than a medium-sized plum. It was very readily and completely reducible, but as easily came down again. It was a soft and ill-defined swelling. At an operation this swelling was exposed by an incision over the external abdominal ring. It was found that it could be forced down so as to present in the wound by dipping the fingers deeply into the iliac fossa, close above Poupart's ligament. On opening the sac clear fluid escaped. The finger was easily passed through the wall of the sac into the iliac fossa, and was momentarily thought to have passed into the peritoneal cavity because the intestines in front, and the brim of the pelvis and the iliac vessels behind were felt with such extreme distinctness. In reality the finger had passed into an intra-abdominal sac continuous with that of the hydrocele which had been exposed externally, where it lay in front of the spermatic cord. The ready reducibility of the swelling before operation was obviously due to the fact that the fluid could be displaced from the external portion of the sac into the internal portion. Both portions of the sac were easily removed without incising the external ring or inguinal canal. Lower in the cord a second small encysted hydrocele was found and removed. The pillars of the external ring were approximated with sutures. Primary union followed and complete cure.

The analogy between this case and the last and the bearing of anomalies in the mode of closure of the funicular process are obvious.

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- ¹ Jacobson, *Diseases of the Genital Organs*, p. 112. ² *Practitioner*, August, 1896, p. 132. ³ *Lancet*, February, 1900, p. 515.

A CASE OF EXCISION OF THE VESICULÆ SEMINALES FOR PRIMARY TUBERCULOUS DISEASE.

REPORTED BY J. F. HODGSON, M.B., CH.B.VICT.,
Senior House-Surgeon, Oldham Infirmary.

THE following case is of some interest on account of the rarity of primary tuberculous disease of the vesiculæ seminales, and also because the operation of excision for that condition has not, as far as I can make out, been recorded before.

Ullmann, of Vienna, extirpated the seminal vesicle and the vas deferens on the right side of a boy, aged 19. Some weeks before he had removed the right testicle for tuberculous disease. In this case the operation was performed to prevent the infection of the healthy genital organs on the left side. His patient made a good recovery.¹ His method of operating was similar to that followed in this case.

The patient (H. H.) was admitted into the Oldham Infirmary on January 13th, 1901, under the care of Dr. Robertson, to whom I am indebted for permission to publish these notes. He was aged 32, married, and by occupation a painter. He sought relief for frequent and painful micturition.

History.

As near as the patient can remember, his troubles commenced three years before. Up to that time he had ailed nothing of any consequence. His first and most prominent symptom was a frequent desire to micturate