ON PREVESICAL HERNIA

WITH THE

RELATION OF A CASE IN WHICH SUBACUTE STRANGULATION OCCURRED.

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CASES of prevesical hernia appear to be sufficiently rare to warrant me in the relation of a case lately under my observation, and also in an attempt to draw some general conclusions as to the etiology of the condition from it, and the few cases which have been previously published.

My chief object will be to draw a sharp distinction between cases of true prevesical hernia, and those of so-called pro-peritoneal hernia, or "hernie en bissac." Up to the present time (since the paper by Parise (1), the first observer of an uncomplicated case, and the author of the name of the condition), cases of prevesical hernia have been included under the same heading as the true pro-peritoneal cases, and regarded as of the same essential nature. In making this statement, however, I must mention that Krönlein (2), in his criticism of a case of

Baer's (3), and another quoted by Baer and Linhart of a retro-cæcal hernia existent together with an inguinal hernia, does give some support to what he styles the diverticular theory, and suggests the names of hernia diverticuli, parieto inguinalis, resp. cruralis, for cases in which a common abdominal opening does not exist for the two sacs.

Before proceeding to the relation of my own case, and some other published ones more or less resembling it, I will quote the theses laid down by Breiter (4) in his paper, which completes the essays previously published by Krönlein, and shall then be in a position to indicate in what particulars true prevesical herniæ differ from the commoner pro-peritoneal variety.

In pro-peritoneal herniæ :

1. The hernial sac has two loculi, one situated in the inguinal or crural canal, and a second within the abdominal cavity.

2. The internal loculus lies between the peritoneum and the fascia transversalis. The layer of peritoneum, forming the wall of the sac directed towards the abdominal cavity, blends with the area of parietal peritoneum against the outer surface of which it is applied, so as to form one single layer.

3. The outer sac may be interstitial.

4. The two sacs communicate by a common aperture with the general abdominal cavity.

5. No constant proportion exists between the capacity of the two sacs ; it suffices to class the hernia even if the outer one be quite small.

The details of my own case are shortly as follows :

H. H—, male, a tailor, aged 41. The patient, a healthy and strongly-built man, had had no previous serious illnesses, but eighteen months before he came under observation he developed a right inguinal hernia, this was of the acquired variety and unaccompanied by any abnormality in the position of the testicle. He wore no truss, although the hernia descended into the scrotum, and, in fact, had

taken little notice of the rupture as it gave rise to no inconvenience.

Five weeks prior to his admission into St. Thomas's Hospital, after getting wet through, he was seized with a violent attack of abdominal pain, accompanied by retching. The pain was most acute in the right iliac fossa, but at the same time he suffered with pains over the whole body.

He was seen by Mr. Randolph of Milverton, who found him suffering with abdominal symptoms, distension, pain, and rapid pulse. The right inguinal hernia was down but not strangulated.

To obtain relief from pain he had a way of violently and roughly pushing up the hernia, and this he did frequently.

When seen again, there were vomiting and symptoms of obstruction, and Mr. Randolph thought of "reduction *en masse*" and took him into the Taunton Hospital. The patient remained in the hospital three weeks, during which time he was treated by rest, low diet, and the application of poultices to the swollen abdomen. The bowels were constipated and had to be moved by enemata; for some time previous to the attack there had been some difficulty in getting them to act.

He left the hospital apparently well, both pain and swelling having disappeared, but three days later a similar severe attack of pain in the right iliac fossa, accompanied as before by general swelling of the abdomen, occurred. On this occasion the hernia was not down, there was neither sickness nor constipation, but a considerable degree of fever. He again improved rapidly, and when the pain and fever had abated the abdominal tumour was found, and he was sent to St. Thomas's Hospital.

On his admission into the medical ward the man had few symptoms beyond slight pain in the right iliac region, attended by tenderness, resistance, and rigidity of the abdominal wall. The bowels acted after the administra-

tion of enemata and castor oil, and after a week he was placed on full diet.

No definite opinion could be formed as to the condition of the right iliac fossa, owing to the persistent rigidity of the abdominal parietes, so my colleague Dr. Hawkins had the patient placed under the influence of an anæsthetic on September 18th. A hard nodular swelling was now discovered, most prominent in the right iliac region, but dipping into the pelvis, and extending across into the left iliac fossa. The tumour was hard, and felt much like an ordinary fibroid of the uterus except for its fixity; rectal examination confirmed the presence of the pelvic swelling, but revealed no evidence of inflammatory induration on the right side of the pelvis. After consultation the patient was transferred into a surgical ward, and on September 26th an abdominal section was performed.

A median incision was selected as most suitable to the position of the swelling, and an opening three inches in length in the linea alba immediately above the pubes revealed the fact that the tumour was practically extra-peritoneal, the reflexion of the peritoneum being raised at least half the distance between the pubes and umbilicus. A number of large veins lay on the surface of the swelling, which was tense and elastic, and as the possibility of an old hydatid naturally occurred, a small trocar and canula was passed into it. The result of the puncture being negative, the incision was prolonged upwards, and the peritoneal cavity opened to allow of freer exploration. The upper surface of the tumour was found to be peritoneum-clad, extending into the hollow of the sacrum, and evidence of past peritonitis was revealed by the adherence of two coils of small intestine to its central part. *Beyond the adhesion of the intestine, the right extremity of the great omentum was so firmly attached to the tumour that it seemed like a direct continuity.*

On gently introducing the hand into the cavum Retzii it was found that the tumour readily stripped out, so it

was decided to remove it. In order to gain more space the right rectus was now separated from its pubic attachment, a catheter was passed into the bladder to decide the exact position of that viscus which was found displaced backwards and to the left, and the tumour was rapidly stripped out of its pelvic connections and delivered. It now only remained to separate the adherent small intestine, divide the peritoneum along the back limit of its reflexion on to the tumour, and to ligature and divide the omental stalk to set the tumour free. The enucleation was easily carried out, accompanied by very moderate hæmorrhage, and except for the enigmatical mode of connection with the great omentum, there seemed little difficulty in regarding the tumour as one developing in the subperitoneal tissue of the *cavum Retzii*.

The divided rectus muscle was now sutured, as also the abdominal wall, in layers, but no attempt was made to shut off the general peritoneal cavity as a considerable defect in the pelvic peritoneum had resulted, and the absence of any oozing fortunately rendered this not a matter of great moment.

The after history of the case was uneventful ; the urine had to be drawn off on the first day, but later no difficulty with either the bladder or the bowels occurred. On the fourteenth day a small stitch abscess formed at the lower angle of the wound, but on no occasion did any rise in the general temperature occur. The patient left the hospital on the twenty-ninth day, and has since remained in excellent health.

The right inguinal hernia persists in the same condition as before the operation, and seems to have been in no way influenced by it, and the descent of the bowel is so readily controlled by a strap from his pelvic belt that the patient is unwilling to have the rupture interfered with.

On removal the tumour in outline somewhat resembled a hydronephrotic kidney, the left extremity being somewhat the larger. It measured seven and three quarters

inches in transverse diameter by five and a half in depth from above downwards.

The surface was mottled in colour, yellow and purplish red, resembling a piece of marble of those tints; about a sixth of the whole surface area was covered by peritoneum, elsewhere it was rough and shreddy, and the general appearance suggested recent inflammatory infiltration.

On section a large irregular cavity containing bloody fluid and some old clot was disclosed; this space was mainly occupied, however, by an irregularly branching mass of fibrous tissue highly loaded with lobulated fat.

In the light of a true conception of the nature of the tumour it may be described as follows:

The sac is of reniform outline, but somewhat asymmetrical, the left enlarged extremity which forms the fundus being the more capacious of the two. It is peritoneum-clad for about one sixth of its whole surface area, over the convex margin opposite the hilus. The remainder of the external surface is rough and shaggy, corresponding with the portion torn out of its areolar connections to the pelvic wall and organs (Fig. 1).

When opened the wall is seen to be thick and the interior is evidently lined with peritoneum where free from omental adhesions. The contained omentum appears to have been originally arranged in radiating folds, but as the result of inflammation these are now adherent together, and towards the fundus several large ball-like masses are seen.

The omentum enters by a rounded neck about three-quarters of an inch in diameter, situated at the posterior aspect of the small or right extremity of the sac, at nearly its highest point. The opening is, however, completely closed by the adhesion of the omentum to its circumference. A small secondary sac is seen on the anterior surface (Figs. 1 and 2).

The condition of the contained omentum, and the nature of the bloody fluid evacuated on section, in fact,

exactly resembled that often seen on opening a large, old, irreducible umbilical epiplocele, the omental stalk, as is often the case, having undergone considerable condensation and atrophy as the result of continuous pressure and tension.

On removal of the tumour my first impression was that it offered an example of a subperitoneal fatty tumour similar in nature to those occasionally met with in the subperitoneal tissue elsewhere, as behind the anterior abdominal wall, or between the layers of the broad ligament. The presence of the irregular cavity containing bloody fluid was, however, opposed to this view, and Mr. Shattock, when he saw the section of the tumour, at once raised the question of a retro-peritoneal hernia; to him, therefore, I am indebted for being put upon the right track in determining the nature of the case.

Regarded from this point of view the case may be rapidly disposed of. The patient had, no doubt, been for years the subject of a prevesical epiplocele, which became subacutely strangulated, giving rise to the symptoms observed at the first attack of pain, and rightly attributed to a hernia, although, as the sequence proved, not to the reducible right inguinal hernia observed. Rest in bed, &c., allowed the urgent symptoms to subside, only to reappear as soon as the man resumed his ordinary mode of life, but this time in a somewhat less acute form.

The first attack was probably responsible for the adhesion of the contained omentum to the sac wall, and its subsequent irreducibility, and I am the more inclined to adopt this theory from the fact that in many recorded cases of pro-peritoneal hernia, the strangulation at the neck of the sac has been noted as slight, or as due rather to a sharp bending than to actual constriction, and the contents have been found adherent to the wall of the sac.

The henceforth irreducible nature of the hernia by fixation of the lower end of the great omentum no doubt rendered it much more liable to undergo tension on movement or distension of the abdominal viscera; hence the

speedy recurrence of signs of strangulation on the resumption of ordinary life after the first attack.

One point of great importance is unfortunately incapable of a direct answer from observation at the time of operation. In ignorance of the nature of the condition with which I was dealing, I neglected to determine the relation of the neck of the prevesical to that of the inguinal sac, hence I can only offer the following presumptive evidence in favour of my belief that a common abdominal opening did not exist.

The contents of the external sac were readily reducible without affecting the signs of strangulation, while those of the prevesical sac still exhibited signs of strangulation.

The prevesical sac was removed, together with its neck and contents, without producing any obvious change whatever in the inguinal hernia, which has continued to descend in the same way as before.

It seems evident, moreover, that the retching and constipation observed depended on pulling on the omentum and stomach, and on direct pressure upon, and obstruction of the rectum, and not on incarceration of bowel. Beyond this also the general symptoms at the time of the attacks, and the adhesion of the small intestine to the peritoneal surface of the upper aspect of the sac found at the time of operation, show that a degree of plastic peritonitis capable of producing these symptoms had been present.

With this evidence in favour of the distinct opening of the two sacs, I should regard the prevesical sac as due to a hernial protrusion of the peritoneum into the middle inguinal pouch, between the deepepigastric and obliterated hypogastric arteries (in fact, in the position usually taken up by a direct hernia). The protrusion commencing in this position, being successfully resisted by the strength of the conjoined tendon, took a further subperitoneal course transversely, superficial to the obliterated hypogastric artery, and entered the *cavum Retzii*, where it

gradually attained the dimensions met with at the time of operation.

The external hernia I regard as a coincidence, possibly the result of the same conditions as favoured the development of the internal pouch, but absolutely distinct from it at its neck.

I will now give a short *résumé* of five cases more or less resembling my own.

The first case (5), that of Parise, almost exactly coincides; it differs only in the absence of any external hernia, and in the fact that, as far as is known, it gave rise to no inconvenience during life, and was only discovered on the postem-mortem table.

In June, 1845, a municipal guard, killed by a gunshot wound, was brought to Val-de-Grace. The body was that of a strong man of tall stature, about thirty years of age, and somewhat stoutly built.

The abdomen having been opened by a crucial incision, it was found that the great omentum was drawn towards the right side, and engaged in a hernial opening about the level of the internal abdominal ring. This opening, a typical hernial neck, was situated in the middle inguinal pouch, the epigastric artery external to it, and the obliterated hypogastric artery to its inner side. The opening was rigid, not puckered, capable of admitting the middle finger, and occupied by a piece of non-adherent omentum. The direction of the opening was outwards and upwards, its inner margin being adherent to the obliterated hypogastric artery which held it back.

The sac, in place of entering the inguinal canal, passed transversely inwards in front of the bladder, behind the lower attachment of the recti muscles; its fundus crossed the external border of the left rectus, and lay about the level of the left internal abdominal ring.

The contents consisted of omentum alone; this was healthy, but matted at the neck of the sac, and gathered up into two masses, arranged one to the right and one to

the left of the bladder. In spite of the swellings thus formed, the omentum could be drawn out of the sac without any incision of the neck.

There was no sign of external hernia either on the right or the left side of the body.

In commenting on this case, Parise remarks: "This epiplocele had probably given rise to no signs of importance, but if a loop of intestine had happened to become strangulated in it, what would have been the signs of such an occurrence?" The case already related offers a partial answer to this question asked forty-four years ago.

The second case, that of Hernu, I quote also from Parise (6).

This occurred in a man about forty years of age, who had suffered with a right inguinal hernia since early youth. The hernia descended to the centre of the scrotum, and for many years had been neglected and supported by a bandage only. In attempting to lift a heavy weight seven days before he came under observation, the rupture descended to the bottom of the scrotum, but it remained soft, and with the exception of a small part of its contents reducible.

In spite of these characters, signs of strangulation developed and persisted, and on the seventh day an exploratory operation was performed; the sac proved thick and indurated, but only a mass of omentum in good condition was found within it, the latter being easily reducible, as a finger could be passed through the ring at its side. Three parts of the presenting omentum were removed, and the remainder returned without any incision of the ring. The omentum had, however, scarcely been returned when it reappeared, and a pad had to be applied to retain it within the belly. From this moment the patient was relieved, and the persistent signs of obstruction were referred to the pull of the omentum on the colon and stomach. The bowels began to act at once, and during the remainder of the day and

during the night a large quantity of fæces, at first hard, then liquid and bilious, were passed.

The relief afforded, however, was short lived. On the following day the patient recommenced to hiccough and vomit, the belly became again swollen and tender, and the condition was worse than before.

The dressings were removed, and a part of the omentum was found to have again escaped; hence it was thought wise to incise the neck of the sac, and a finger was introduced into the belly, but no further information was gained. Further attempts to get the bowels to act proved fruitless, and the patient died on the fourth day after the operation, or the eleventh after the commencement of symptoms.

At the autopsy general purulent peritonitis was found, and beyond the sac already alluded to a second sac, formed by a fold of the peritoneum, situated behind the internal abdominal ring of the same side, and extending inwards between the pubes and the bladder. The second sac contained a loop of reddish-brown intestine, gangrenous in spots, and adherent to the wall of the sac. The two sacs combined formed a "besace," which, attached at its centre to the horizontal ramus of the pubes, descended on the one hand by the inguinal canal to the bottom of the scrotum, forming the external sac which contained the omentum, and on the other descended between the pubes and the bladder, forming the internal sac, which contained the intestine. The aperture of entry of the latter was almost at the level of the internal abdominal ring; it was hard and rounded like a ligament, and the loop of intestine in order to enter the sac was necessarily sharply reflected over the margin at almost an acute angle.

The remaining three cases are quoted from the paper by Krönlein (7) already referred to.

Baer's (8) case. Male, aged 52. Strangulated right scrotal hernia, probable simultaneous co-existent internal strangulation; herniotomy.

The patient had suffered for some years from pain in the right half of the scrotum, this being from time to time severe, and accompanied by swelling in that region. Four days previous to coming under observation, great swelling of the scrotum, accompanied by severe pain and evident signs of strangulation, developed after a strain.

A thick, hard, cylindrical swelling, dull on percussion, was discovered in the right half of the scrotum, the skin of which was œdematous and rigid from inflammatory infiltration.

A herniotomy discovered no hernial sac in the scrotum, but showed the swelling to consist of a much enlarged spermatic cord. High up in the inguinal canal a soft reducible hernial sac was palpable, but was not opened.

Three days later the patient died with all the signs of peritonitis; this was confirmed by the autopsy. Examination of the right lower abdomen and inguinal region revealed the existence of a double hernial sac, the smaller loculus of which, about the size of a walnut, projected into the internal abdominal ring, forming the sac which had been felt during the course of the herniotomy. The larger one was situated in the pelvis against the urinary bladder, it was of general rounded form, and of sufficient capacity to accommodate two fists. The two sacs were in free communication, and a common opening, about the size of a kreutzer, led from them into the general abdominal cavity. The anterior and posterior sacs embraced the horizontal ramus of the pubes, and thus exactly fulfilled the conditions of a "hernie en bissac." The posterior sac lay between the peritoneum and the pelvic fascia, and contained about a foot and a half of small intestine which showed manifest signs of incarceration. The spermatic cord was greatly swollen and hard, and, where exposed in the wound, dry and black.

Streubel's (9) case. Male, aged 73. Double reducible inguinal hernia, with signs of obstruction, possibly connected with the rupture of the right side. The herniæ

had existed some years and a truss had been worn, but on the right side only.

He had been suffering for seven days with vomiting and pain in the abdomen, and when examined was in a state of complete collapse. The belly was enormously distended, the left hernia evident and easily reducible, but on the right side no sign of the rupture was discoverable. The inguinal canal was open, an empty hernial sac being palpable in it, and there was no pain or tenderness in the region. The patient said he had reduced the right hernia seven days previously. The collapsed state of the patient was held to contra-indicate operation, and on the ninth day after the commencement of symptoms he died.

At the autopsy a reducible inguinal hernia containing free coils of small intestine was found on the left side. On the right side a large empty sac, extending by the dilated inguinal canal and internal abdominal ring to a spacious cavity lying upon the pubic bone and extending to the bladder, with the upper and anterior wall of which it was intimately connected. This sac was situated between the peritoneum and fascia transversalis, and measured three inches long by two inches from before backwards. Its abdominal opening was situated behind and above, about an inch above the internal abdominal ring at the margin of the psoas, and was about the size of a five groschen piece. In its interior was a knuckle of small intestine about four inches long, black, and almost devoid of polish. The inner margin of the opening seemed particularly responsible for the strangulation.

Richter's case (10). Male aged 54. Replaced left inguinal hernia; internal strangulation; herniotomia interna.

The patient had a left inguinal hernia of several years' standing, and for several days had suffered with symptoms of obstruction, although the hernia was readily reducible.

Herniotomy showed the inguinal canal to be free, but the spermatic cord swollen ; hence the case was regarded as one of internal strangulation ; nothing further was done, and the patient died five days later.

At the autopsy the obstruction proved to be due to the incarceration of a coil of small intestine in a peritoneal diverticulum which extended behind the inguinal canal in the direction of the internal ring towards the vesical region, with an opening into the general abdominal cavity a little behind and below the internal ring, that is to say below the opening of the inguinal hernia. The two combined resembled a *hernie en bissac*. In the combined neck of the two the intestine was firmly strangulated, if not already gangrenous.

In commenting on these six cases, I should separate my own and that of Parise from the remainder, placing them in the same category, as *true prevesical herniæ* ; that is, as herniæ into a peritoneal pouch independent of any inguinal sac.

The remaining four cases come under the headings laid down in the theses of Breiter already quoted.

The distinction is probably of more genetic than practical importance, but none the less in regarding the two groups some differences may be noted both in the morbid anatomy and symptoms.

Both the prevesical herniæ were epiploceles, in each the sac was of large proportions and occupied a position directly across the front of the bladder. In neither had its presence given rise to any unpleasant pressure symptoms. Thus in my own case there had never been any disturbance of the power of micturition, in spite of the displacement of the bladder ; and constipation from pressure on the rectum had, at any rate, never assumed sufficient importance to lead the patient to obtain medical advice.

The internal sacs of the four pro-peritoneal herniæ were of lesser size, and somewhat more deeply and laterally situated, in fact approaching to the condition in

which the internal sac dips down into the pelvis directly behind the pubes. All were enteroceles.

In all four the strangulation was of an acute character, and this, I think, is possibly to be accounted for by the greater fixity of the common abdominal aperture, due to the anchorage afforded by the external sac.

With regard to mode of development my own case offers little support to the old mechanical theory of backward pressure from a truss, or other obstacle to regular descent such as a retained testis, still advocated by Krönlein for pro-peritoneal herniæ; but Mr. Randolph's account of the patient's treatment of the external hernia on the occasion of the first attack of strangulation may be regarded as of etiological significance. I think, however, that the fact that this forcible manipulation of the hernia was carried out as a mode of relief of pain from which the patient had never suffered before deprive it of any serious import. The case is also opposed to the contention of Baer, that the external sac is a diverticular protrusion of the anterior wall of the pro-peritoneal one. The manifest proximity of the two openings in my case, however, separated probably by the deep epigastric artery alone, brings the condition into a somewhat close resemblance to the case reported and discussed by Baer and Linhart, in which a peritoneal gutter had developed between the openings of an inguinal hernia and a retro-peritoneal pouch situated behind the cæcum.

Mr. Macready (11), in discussing the mode of development of such pouches, speaks as follows:—"By what means these internal pouches are formed is not apparent, nor have I met with any explanation of the process sufficiently plausible to be reproduced here."

The theory I advance for the development of my own case, viz. that of an interrupted and diverted pouch starting in the same position as a direct inguinal sac, seems however to me to explain at any rate the course taken by the sac, though it naturally leaves the cause of the original commencement of the hernia in the

obscurity which enshrouds the genesis of such a large proportion of ordinary acquired inguinal ruptures.

In conclusion I would sum up as follows :

I. True prevesical herniæ are similar in nature to the so-called retro-peritoneal variety, forming in distinct peritoneal pouches independent of the development of previous or subsequent inguinal ruptures.

II. They bear no relation to congenital herniæ, or to abnormalities in the descent of the testicle.

III. In these characters they are distinctly separable from the pro-peritoneal herniæ of Krönlein, which latter are commonly congenital, connected with vagaries in the descent of the testicle and tunica vaginalis, the sacs resembling in their general arrangement those met with in the various forms of congenital hydrocele ; while if in acquired pro-peritoneal hernia the sac descends into the pelvis, this lies rather to the side of the bladder than in the prevesical space.

REFERENCES.

1. PARISE.—Mémoires de la Société de Chirurgie de Paris, tome ii, 1851, p. 418.

2. KRÖNLEIN.—Ueber Hernia Inguino-properitonealis, von Langenbeck's Archiv für klinische Chirurgie, Bd. ix, p. 408 ; Bd. xxv, p. 548 ; Bd. xxvi, p. 521.

3. BAER.—Vierteljahrschrift für die Praktische Heilkunde 22 Jahrgang, Bd. iv, p. 88.

4. BREITER.—Beiträge zur klinischen Chirurgie, von Bruns, Bd. xiii, 1895, p. 659.

5. PARISE.—Loc. cit.

6. PARISE.—Loc. cit.

7. KRÖNLEIN.—Von Langenbeck's Archiv, Bd. xxv, p. 548.

8. KRÖNLEIN.—Loc. cit., p. 559.

9. KRÖNLEIN.—Loc. cit., p. 560.

10. KRÖNLEIN.—Loc. cit., p. 561.

11. MACREADY.—A treatise on ruptures, p. 148.

FIG. 1. Prevesical Sac. External Surface viewed from behind.
A Neck of Sac. B Fundus. C Peritoneal clad area.

FIG. 2. Prevesical Sac laid open; the spaces around the matted and adherent omentum were filled with bloody fluid at the time of operation.

APPENDIX.

ON PREVESICAL HERNIA, AND ITS TREATMENT BY MEDIAN LAPAROTOMY.

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THE case now recorded is an example of strangulation of small intestine in a pouch alongside of the male bladder, and might therefore be more strictly termed para- than prevesical, but already too many terms are used with reference to this rare form of internal hernia, which is characterised by the sac lying in immediate contact with the bladder, and by the almost invariable presence or history of an external hernia in the same patient.

This latter point is of importance in explaining the origin of these curious sacs, which can hardly be due to any fact in the development or normal anatomy of the bladder, such, for instance, as is found with regard to the peritoneal fossæ in the neighbourhood of the cæcum and duodenum.

STRANGULATION OF SMALL INTESTINE IN A POUCH ALONGSIDE
OF THE BLADDER ; MEDIAN LAPAROTOMY ; SUTURE OF
THE NECK OF THE SAC ; RECOVERY.

A man, aged 35, came up to the London Hospital on December 19th, 1898, having suffered for about eighteen hours from abdominal pain, with, at first, vomiting. For seven years he had worn a truss on account of a right inguinal hernia, but he was positive that the hernia had not come down during the last seven weeks. He was at work on December 18th, and that evening, without apparent cause, the lower part of the abdomen became suddenly painful, and he vomited six times during the night. Then the sickness ceased, and he had a free evacuation of the bowels without pain ; he came up to the out-patient department about mid-day, and was admitted by my colleague Mr. Dean. When I saw him in the afternoon the region of the right groin above Poupart's ligament was distinctly tender, and there was perhaps slight fulness corresponding to the upper part of the inguinal canal. With the tip of the invaginating finger a softish swelling, not really in the canal, but bulging against it, could be felt. There was no general distension of the abdomen, and no sickness during the last eight hours, but the suspicion that some internal obstruction still existed in connection with the former hernia led me to urge the patient to submit to an immediate exploratory operation. A true *reductio en masse* was excluded by the fact that there had been no descent of the hernia for seven weeks, and therefore no attempt at taxis had been made during this time by the patient or by a medical man. Except the tenderness about the inguinal canal, and the slight bulging felt by the invaginating finger, together with the man's anxious expression, there were no symptoms on which to found a diagnosis.

On the evening of the patient's admission I performed abdominal section in the middle line below the

umbilicus. A ring was found immediately to the right of the bladder leading down into a small pouch behind the pubes; a loop of small intestine was tightly nipped in this pouch, resting directly against the bladder. The cæcum lay immediately behind the normal position of the internal inguinal ring, which was empty, and the vermiform appendix lay parallel to Poupart's ligament, with its apex close to the neck of the sac.

Diagram of prevesical hernia from sketch made at the time of operation. The neck of the sac is seen to be placed horizontally behind the pubes and close to the bladder. The relative position of the inguinal canal and cæcum to the hernia is indicated.

The ring of peritoneum which nipped the intestine was very accessible through the median wound, but would have been extremely difficult to reach if the inguinal canal had been slit up by the latter route. The intestine was released after notching the margin of the orifice with a hernia knife, and the sac was found to be about two inches in depth. With a view of preventing a recurrence of the strangulation the margins of the orifice were sewn together with catgut, and the operation then

completed in the usual manner. The wound healed by first intention, and the patient left the hospital about three weeks later.

So far as I can ascertain, this is the only case of the kind operated on at the London Hospital during the last twenty years.

The following points, suggested by the case just recorded, deserve consideration :

1. *The relation between the prevesical sac and the external hernia.*—It seems to be an almost invariable rule that the formation of the intra-abdominal sac is preceded by or accompanies an external hernia, usually inguinal, on one or both sides. In the remarkable case recorded by Mr. Makins there was a history of a right inguinal hernia, and of probably vigorous taxis having been applied. Nevertheless, Mr. Makins contends that “true prevesical herniæ are formed in distinct peritoneal pouches independent of the development of the previous or subsequent inguinal ruptures.” The evidence seems hardly to justify this conclusion, though certainly the idea that all these cases are due to *reductio en bloc* of hernial sac and contents cannot for a moment be held; equally false would it be to contend that some are not due to vigorous taxis and displacement of part or the whole sac within the abdomen.

The occurrence of *reductio en masse*, though probably becoming rarer every year, is proved by some hundreds of recorded cases. In one which I had the opportunity of dissecting some years ago, a hernial sac with its strangulated contents had been pushed down into the pelvis between the bladder and the pubes.

One of the earliest recorded examples of this is given in the ‘Clinique de Dupuytren,’ vol. iii. A man aged 55 years, had for several years a left inguinal hernia, which after reduction would stay up for several months. Strangulation came on, and the symptoms persisted after vigorous efforts at taxis by a medical man had apparently reduced the rupture. Six days later M.

Dupuytren performed herniotomy, there being then some intestine present in the inguinal canal, which was certainly not strangulated. The operator discovered what he took to be a tight band within the abdomen, and liberated some more intestine, but the patient died of peritonitis two days later. At the post-mortem it was found that the supposed band was really the neck of a sac placed alongside the bladder, and opening into the general peritoneal cavity close to the internal inguinal ring.

In many cases, as was clearly proved by Mr. Bryant and Mr. Birkett, the reduction has been effected through a rent in the neck of the hernial sac; and the resulting pouch, although perhaps becoming perfectly smooth, is not really lined with peritoneum. An example of this where the sac was of exceptional size and extended right across the pelvis, pushing the bladder and uterus backwards towards the sacrum, was recorded by the late Mr. Hulke (4).

The prevesical pouch contained no less than eight feet of inflamed small intestine, and a small portion of this had originally become strangulated at the femoral ring. The operation, which had included division of Poupart's ligament, had enabled the surgeon to detect some abnormal condition within the abdomen, but as no median laparotomy was made the true nature of the case was not made out until after the patient's death.

Besides these two forms of prevesical hernia due to vigorous taxis, there is a third variety, in which the sac is really double, and these, as Krönlein has pointed out, are often instances of imperfect descent of the testis.

A great many cases could be cited, the internal pouch being either interstitial or prevesical. One of the first records of this form is given by Leneveu in 1837 (1). A man died with symptoms of internal strangulation, at the time of death he had a freely reducible inguinal hernia on both sides. At the post-mortem, below the orifice of the left inguinal hernia (that is at the internal ring) was found an old hernial sac, reaching down behind the pubes

in which a loop of intestine was strangulated at the neck.

In a fourth variety, of which the case recorded by Parise and the one I have now brought forward are examples, there is no question of *reductio en masse* or of any obstacle to the descent of the external hernia. In Parise's case there was no history of any external hernia, in my case the external hernia had given no trouble, and had not once descended for seven weeks before the onset of the obstruction. It may, however, be urged that even in these rare cases there is a relation between the internal or prevesical hernia, and an external one. It is well-known that the bladder not infrequently lies in close relation with the internal inguinal ring, and that part of it may descend into either an inguinal or a femoral hernia.

I have myself met with this in three or four herniotomy operations, and if in performing radical cure of inguinal hernia by torsion of the sac, the surgeon makes much traction on the latter, he may quite easily draw out part of the vesical wall. We have also positive evidence that sometimes a hernial sac retreats into the abdomen, and of this I could not give a better instance than a case of lumbar hernia described by me in the 'Path. Trans.' for 1889. During life intestine could readily be made to protrude into the hernia, and could be reduced with a characteristic gurgling sound, but after death no peritoneal pouch was present in the mass of fat protruding through the abdominal wall, though it could easily be pushed into it. Arguing from these two facts, the occasional presence of the bladder in a hernia, and the mobility of the peritoneal pouch in a hernia, I would suggest that occasionally the bladder may draw inwards such a pouch, and thus predispose to the development of a hernia within the pelvis.

The following case bears out this suggestion in a striking manner :

M. Havage ('Bull. Soc. Anat.,' 1878, p. 559) records a

fatal case of paravesical hernia, in a man aged fifty-eight, who had worn a truss for some fifteen years on account of a reducible right inguinal hernia. Symptoms of intestinal obstruction slowly developed during eleven days, and the patient died of peritonitis in the hospital, without an operation having been performed. At the post-mortem a fatty hernia was found in the inguinal canal, and within the peritoneal cavity a small hernial sac was present, containing an inflamed loop of small intestine, not very tightly nipped; this intestine had, however, perforated. The neck of the sac was situated between the obliterated hypogastric artery and the bladder, and the sac was situated between the bladder and the pubes, in the subperitoneal tissue. The testis on each side had only descended as low as the external ring, and was atrophied.

In the case just quoted, if we believe M. Havage's statement, there must have been a peritoneal sac in the inguinal canal before the formation of the prevesical one, and the fact that a fatty hernia was found after death, to some extent confirms this (see illustration of lumbar hernia, 'Path. Trans.,' 1889, p. 118, and papers on Fatty Herniæ, Ibid, 1888, p. 451, and 1886, p. 451). A small pouch thus drawn inwards may engage intestine as in the cases recorded by Havage and myself, or omentum as in the cases brought forward by M. Parise and Mr. Makins. There may be no limit to the size that such a hernia may ultimately attain.

2. *What is the best treatment for these cases of pre-vesical hernia?* I think it will come to be generally recognised that median laparotomy gives the patient by far the best chance in these and allied complications of external hernia. In searching the records of pre-vesical hernia one is struck most by the fact that if an operation was done the surgeon contented himself with exploring the inguinal or femoral canal, and that the patient was allowed to die unrelieved when a median abdominal incision would soon have revealed the true

condition of affairs, and in all probability have saved the patient's life (see cases narrated by Hernu, Streubel, Hulke, Richter, Dupuytren, &c.). It is true that sometimes a prevesical or properitoneal hernia may be successfully dealt with without a median incision.

Max Oberst (5) reports a case thus treated, although, since the incision was made only through the inguinal canal, great difficulty was experienced in recognising and relieving the strangulation.

The patient was a labourer aged 35, who had for eight years been troubled with a left inguinal hernia, only partially kept up by a truss. Symptoms of partial obstruction led to repeated efforts at taxis. The patient when admitted to the hospital at Halle presented a swelling in the inguinal canal, and marked fulness above Poupart's ligament. Further attempts at taxis merely increased this bulging of the abdominal wall, vomiting and distension came on, and an operation was undertaken. The inguinal canal was incised, and after easy reduction of some intestine a large sac was detected, the neck of which was situated some 6 cm. above the position of the external ring, and which contained strangulated gut. The narrow opening in this internal sac was gradually dilated with the finger, and the intestine thus liberated. An atrophied testis was situated below the external ring. The scrotal portion of the sac was stitched to the skin, the wound drained, and the patient recovered after an illness complicated by delirium tremens. In reading the account of this case by Oberst, it is obvious that a return of the hernia either into the inguinal or the properitoneal sac had been in no way guarded against by the operation, and that its difficulties would have been diminished if a median section had been carried out. How hard it is to recognise and relieve the internal strangulation through the ordinary herniotomy wound is proved by Krönlein's collection of twenty-three cases, *all fatal*, since the publication of which, however, instances of successful operation (chiefly with the aid of median laparotomy)

have been recorded by Rossander, Neuber, Krönlein, Trendelenburg, and Bolling.

Disappointing on the whole as are the results of abdominal section for acute intestinal obstruction, no cases are more favourable for operation than those of internal strangulation following external hernia. I have myself operated on three such cases, and all recovered. One was found to be strangulation of a Littre's hernia at the internal inguinal ring, the second was a case of strangulation in a wholly detached ring, and the third has just been narrated. With regard to *reductio en masse*, the evidence afforded by Mr. Birkett's classical paper (3) is most striking. He quotes thirteen cases in which with more or less difficulty the site of obstruction was reached through the inguinal canal (at the time the paper was written hardly anyone thought of performing median laparotomy), but sixteen cases are contrasted with these in which the operator could neither define nor relieve the obstruction by this route.

In cases where symptoms of intestinal obstruction co-exist with a history of recent hernia, the patient's safety will generally depend upon the prompt performance of a median abdominal exploration.

REFERENCES.

1. LENEVEU.—Bull. de Soc. Anat., 1837, p. 289.
2. DUCHAUSOY.—Archiv. gén. de Méd., 1860, vol. i, pp. 129 and 316.
3. BIRKETT.—Med.-Chir. Trans., 1859, p. 247.
4. J. W. HULKE.—Ibid., 1864, pp. 97 to 102.
5. OBERST.—Centralblatt für Chir., 1883, pp. 65 to 68.
6. NEUBER.—Arch. für klin. Chir., vol. xxvi, p. 509.
7. HAVAGE.—Bull. de Soc. Anat., vol. liii, p. 559.
8. Gaz. méd. de Lyon, 1863, p. 496.

Other references are given in Mr. Makins' paper, and various ones by Krönlein.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. xi, p. 97.)