CASE REPORT

Scrotal cystocele versus incarcerated inguinal hernia: Perils of misdiagnosis

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SUMMARY

Scrotal cystocele or sliding bladder hernia occurs when part of the bladder herniates into an inguinal hernia, forming part of its wall. While some patients may present with urinary tract symptoms that can raise suspicion of such diagnosis, others may be completely asymptomatic, leading to an initial misdiagnosis, which if not picked up, can lead to avoidable complications. We report a case of a 49-year-old man, who presented with clinical signs of an incarcerated right inguinal hernia and was put up for open right hernioplasty. Intra-operatively, a diagnosis of sliding bladder hernia was made through the discovery of the Foley's catheter balloon within the hernial sac. An on-table urology referral was made, and through cystoscopy and cystography, the diagnosis of sliding bladder hernia was confirmed. Using fluoroscopy guidance, the Foley's catheter balloon was reinserted into the herniated part of the bladder and inflated, and using it as a guidance for dissection, the excess peritoneum and preperitoneal fat is dissected away from the bladder, allowing reduction of the bladder into the peritoneal cavity. This is then followed by a herniorraphy to repair the posterior wall defect leading to the sliding hernia. In our case, a mesh was not used as a breach of asepsis was a concern, owing to the manoeuvers and manipulation performed in order for cystoscopy and cystogram to be carried out.

INTRODUCTION

Sliding inguinal hernia occurs when part of the intra- or retroperitoneal organ forms part of the hernial sac wall. When the urinary bladder is involved, it is termed a sliding bladder hernia or scrotal cystocele.[1] While rare, knowledge of such hernias needs to be kept at the back of a surgeon's mind, as most cases are only diagnosed intra-operatively.[2] If proper precautions are not taken, injury to the urinary bladder may occur, which not only will increase the complexity of the surgery, but also can lead to post-op complications that can lead to increased morbidity among patients. Up to 16% of sliding bladder hernias are diagnosed post-operatively due to complications following the operation. The surgical approach of such hernias are similar to most other inguinal hernias, which is to explore the inguinal canal, identify and reduce the sac content (bladder), and perform a hernia repair. We report a case of irreducible sliding bladder hernia, with the absence of any urinary tract symptoms, thus mimicking an incarcerated indirect inguinal hernia. Intra-operative diagnostic and surgical techniques used to clinch and facilitate the management of this patient will be further discussed.

CASE REPORT

A 49-year-old obese man presented with a sudden pain in his right inguinal swelling associated with right scrotal enlargement.

On further history, patient claims that he has had this inguinal swelling since he was a child, which was not reducible, but did not seek any medical attention until 6 years ago, when it started becoming symptomatic with on and off dragging pain. He was initially planned for surgery, but it was delayed due to the ongoing CoVID-19 pandemic.

Otherwise, he denies any obstructive symptoms, still able to pass flatus and passing stool as usual. He denies any frequency of urination, dysuria, strangury, nocturia, pis en deux, or hesitancy. He does not have any history of heavy lfiting, chronic cough, and does not have any previous abdominal surgery done.

Examination of this patient showed a right inguinal hernia, with extension into the scrotum. Cough impulse was negative, and the swelling is irreducible and non-tender to touch. There is otherwise no overlying skin changes, and both testes are palpable within the scrotum. Abdominal examination was otherwise soft and non-tender. Initial blood works were unremarkable, and blood gases showed no acidosis with a normal lactate level of 0.7. Chest X-ray showed no air under diaphragm, and abdominal X-ray showed no dilated bowels.

An initial diagnosis of incarcerated right inguinal hernia was given. The patient was admitted, started on analgesia and put up for right inguinal hernioplasty under emergency setting.

Intraoperatively, upon entering the inguinal canal, a hernia sac was noted protruding out of the Hesselbach triangle. During the assessment of the sac content, it was noted that the Foley's catheter balloon was palpable within the sac, thus an impression of a sliding hernia containing part of the bladder was made. An attempt to reduce the hernia content was made, but unsuccessful as part of the bladder herniated

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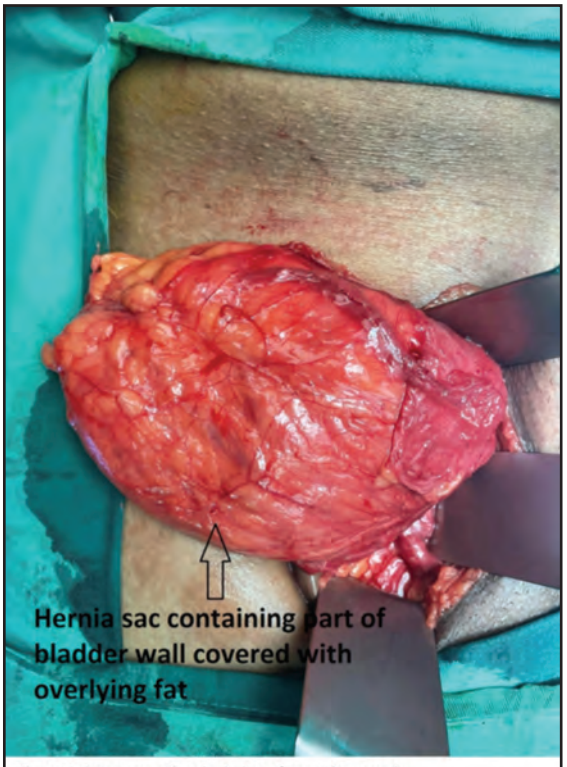

Figure 1: Intra-operative depiction of scrotal cystocele

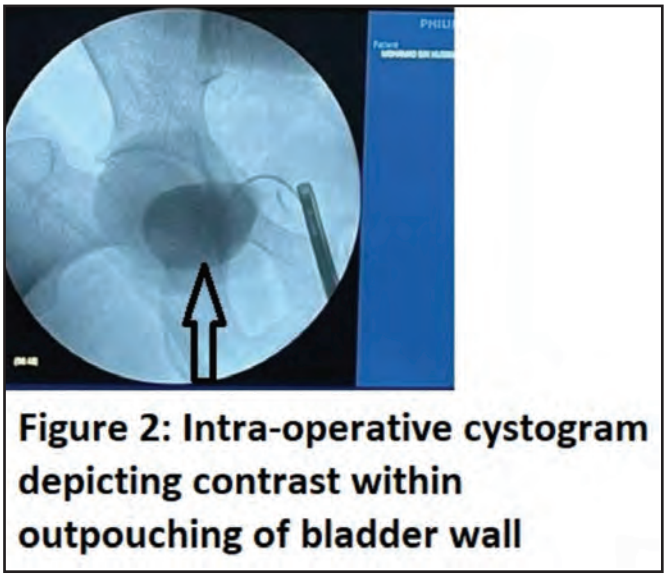
Figure 2: Intra-operative cystogram depicting contrast within outpouching of bladder wall

together with excessive peritoneum with its preperitoneal fat. A urological consult was made on the table and was attended by the urologist oncall. A rigid cystoscopy was done, showing a normal urethra with non-occlusive prostate. The right bladder wall was seen herniating into the hernia sac. This was followed by a cystogram demonstrating the herniation of the bladder wall. Bladder capacity was approximately 200ml, whereas hernia sac is approximately 100ml, and both ureterovesical orifices are seen on cystoscopy. The urological team proceeded with a right retrograde pyelogram, and the pyelogram showed no hydronephrosis or hydroureter. However, the distal ureter appears in close contact with the hernia sac, hence a right ureteric stent was done using a Boston stent size 24Fr/6cm. A urinary balloon catheter was then placed into the hernia sac via guidewire guidance and inflated using 30cc water as a guidance during dissection. Methylene blue solution was then used to inflate the bladder, to confirm no leak or perforation was seen.

The hernia sac was then identified, and the overlying fat was dissected and released away from the bladder wall. The bladder was reduced into the pelvis and excessive peritoneum excised and sutured. This is followed by a herniorraphy with Prolene 2/0 using Bassini's repair.

On post-operative day 1, hematuria was seen within the urinary bag, which cleared up on post-op day 3. Patient's vital signs remained stable and his pain remained well controlled with adequate analgesia, and he was subsequently discharged well on post-operative day-7.

He was later seen in our outpatient department 2 months post-operatively, with a well healed wound and no recurrence of hernia evident. He was subsequently discharged from our care.

DISCUSSION

Sliding inguinal hernia is defined as an inguinal hernia in which part of its wall is formed by an intraperitoneal or retroperitoneal organ Scrotal cystocele, or sliding bladder hernia, occurs when the urinary bladder forms part of the hernial sac wall.[1] It is a rare occurrence, and a retrospective study in 2006 involving 1950 patients with inguinal hernias revealed that only 0.36% had sliding bladder hernia.[3]

While most cases are asymptomatic and are diagnosed intra-operatively, some cases present with urinary tract symptoms.[2] In cases in which a large portion of the bladder is herniated into the scrotum, patients may describe a two-stage urination, the first of which is spontaneous and the second following manual compression of the scrotum.[4] Some may also describe a reduced hernia size following urination.[4] And some cases, especially large sliding bladder hernia can lead to complications including obstructive uropathy, vesicoureteric reflux, hemorrhage, incarceration, or even necrosis of the bladder.[2] While the association between sliding bladder hernia and bladder cancer is not properly established, a review of 190 cases in 2004 demonstrated that approximately 11.2% of such hernias were associated with urological malignancies.[5]

Most cases of sliding bladder hernia are found either on radiography or intra-operatively.[5] Only less than 7% of sliding bladder hernias are diagnosed pre-operatively, and 16% are diagnosed post-operatively following complications,

whereas the rest are diagnosed intra-operatively.[4] Intra-operative discovery and diagnosis may follow incidental findings during hernia repair, or following injury to the bladder.[5] In fact, literatures have reported up to 12% risk of injury to the bladder in hernia repair of this variety.[4] In our case, the identification of a Foley's catheter balloon within the hernia sac intra-operatively led to the suspicion of a scrotal cystocele. In cases where sliding bladder hernia is suspected before operation, cystography remains the gold standard, which can show an indentation of the bladder wall,[6] such findings often mimic and can be confused as a bladder diverticulum.[4] This is utilized in the intra-operative management of our patient, which along with cystoscopy, helped confirm the diagnosis of scrotal cystocele. Ultrasonography may also be utilized to differentiate a bladder hernia from other possible differential diagnosis, including hydrocele, epididymal cyst, scrotal abscess, and spermatocele.[7] CT scan can be useful in allowing a rapid and accurate diagnosis and evaluation of ureteric herniation, which could be imperative in guiding the operative approach.[8] The authors, however, do not recommend the routine use of these imaging modalities for all cases of inguinal hernia. This is due to the fact as mentioned, scrotal cystocele is a rare occurrence (0.36% of all inguinal hernias), and the cost benefit analysis will put this out of favour. However, we would recommend further imaging if patient presents with symptoms that can suggest the presence of this diagnosis i.e., two stage urination, reduction of hernia following urination or recurrent urinary tract infection.

As expected, pre-operative diagnosis of this hernia allow modifications to the surgical techniques and allow precautionary steps to be taken in order to reduce the risk of such injuries.[9] In our case, no pre-operative imaging asides from abdominal X-ray was done, as we suspected an incarcerated inguinal hernia with bowel or omental content, and further imaging was not done in hopes of not delaying the operative management of this patient.

To date, there are no literatures that are available that discuss regarding intra-operative clinical features that could suggest or point towards the diagnosis of sliding bladder hernia. In our case, the presence of the Foley's catheter balloon within the herniated sac led to our suspicion and eventual diagnosis of a scrotal cystocele. However, other findings we find that may point towards this uncommon diagnosis is the presence of thick adipose tissue within the hernia sac. While this can be confused with the omentum, from what we observed intraoperatively, this fatty layer appears less vascular, and is not easily reducible back into the peritoneal cavity.

The standard management in sliding bladder hernia is surgical repair, through exploration of the inguinal canal, identification of the bladder, and reducing it into the pelvic cavity with or without resection of the herniated bladder wall. While resection of the involved bladder wall used to be a norm in past practice in large hernias cases, current literatures favour against such practices as it is deemed "unnecessary" and will only impose extra risk and potential complications to such patients.[4] However, in cases where there is a true herniation of bladder diverticulum, bladder wall necrosis or if the hernia occurs with a combination of a suspected malignancy, bladder resection is recommended.[2] Hernia repair is then performed, and the technique used is largely up to the surgeon's preference and choice.[9] In the patient discussed in this case report, bladder resection was not carried out, as the herniated content is not a true diverticulum, but is rather a part of the bladder wall.. A choice of herniorraphy was used instead of hernioplasty in our patient, as due to the manoeuvres and exposures required for performing on table cystoscopy and cystography, there is a concern of breach of asepsis, thus the worry of infected mesh if hernioplasty was performed.

In our case study, a rigid cystoscopy and cystogram were performed to assess the proximity of the right ureteric orifice to the herniated bladder and to look for the presence of a bladder diverticulum, which is an indication for diverticulectomy.[2,4] A similar approach was reported in a case report in 2017, whereby an on-table cystoscopy was performed on a patient with a sliding hernia containing a bladder diverticulum in order to assess the location of the diverticular orifice.[10] The authors would, however, like to point out that the usage of intra-operative cystoscopy and cystogram need not be performed routinely in all cases of sliding bladder hernia, but if difficulty arises, as in our case, it is useful in confirming the diagnosis and differentiating it from a bladder diverticulum.

CONCLUSION

While rare, the occurrence of sliding bladder hernia, also known as a scrotal cystocele, should always be kept in the back of a surgeon's mind, as it can be oftentimes be missed. If this diagnosis is missed intra operatively, complications, particularly inadvertent bladder injury can occur, resulting in increased morbidity among patients. While most patients are asymptomatic, certain features including two-stage voiding and a reduction in hernia size following voiding could suggest the possibility of a sliding bladder hernia. If this diagnosis is suspected pre-operatively, certain investigations including an ultrasound, cystogram, or a CT scan can guide the intra-operative approach of such patients. Intra-operatively, the presence of a thick fat layer within the hernial sac that is not easily reducible into the peritoneal cavity should raise the suspicion of this diagnosis. The principle of the intraoperative management of sliding bladder hernia remains the reduction of the herniated bladder, and repair of the hernia, with or without a mesh. Resection of the bladder wall is only reserved in certain situations, where there is a true bladder wall diverticulum, or in cases in which complications such as incarceration and necrosis have occurred.

**Patient has consented for the use of his case and photographs for the purpose of this publication.

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