

Modified Stoppa transabdominal preperitoneal (TAPP) laparoscopic repair of a giant inguinal bladder hernia and a contralateral inguinoscrotal hernia

Abstract

Inguinal bladder hernia (IBH), is a rare event in which the urinary bladder herniates into the inguinal canal. It can be only a bladder diverticulum or a large part of it. Its incidence is reported from 1 to 4% predominantly in older men. They are difficult to diagnose preoperatively because in many cases, the patients are asymptomatic or their symptoms are imputed to prostate disease. Most of them are repaired by an open approach, but there are some reports of laparoscopic repair. This report presents a case of modified Stoppa transabdominal preperitoneal (TAPP) laparoscopic approach, to repair a large direct inguinal bladder hernia and a big inguinoscrotal contralateral bowel hernia.

Keywords: bladder hernia, inguinal hernia, inguinoscrotal hernia, laparoscopy, tapp repair, stoppa repair

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Case presentation

A 70-year-old male patient, who denied any relevant past medical history, except for an open repair of a right inguinal hernia 40 years before. The repair had a recurrence 4 years later, and the progressive growth of an inguinoscrotal left hernia for more than 30 years. But since the inguinal hernias were asymptomatic, he decided not to have them operated again.

The patient, a normal-weight man who had an active life, a tennis player, presented to our office complaining of 8 months of progressive dull bilateral lower quadrant abdominal discomfort, and groin pain that made it difficult to play tennis. Physical examination revealed normal vital signs, a small umbilical hernia, a palpable painful incarcerated right inguinal mass, and a 17cm reductable inguinoscrotal hernia. An ultrasound scan reported a right direct irreducible inguinal hernia it's content undefined, and a left inguinoscrotal hernia with hydrocele and intestinal content.

The pneumoperitoneum was induced through an open umbilical incision reducing the umbilical hernia to insert a 12mm trocar. Two more 5mm trocars were inserted 5 cm above the level of the umbilicus over the midclavicular line at each side. The camera was inserted through the 5mm left trocar and the surgeon on the right side working through the umbilical and right-side ports. Dissection began on the left inguinoscrotal hernia, with the patient in the Trendelenburg position, which reduced the small bowel spontaneously (Figure 1 & 2).

The peritoneal flap was done with ultrasonic energy, 5 cm above the upper limit of the 12mm diameter indirect defect, from the midline to the level of the anterosuperior iliac spine to dissect the space of Bogros medial and lateral to the hernia sac. The sac was dissected entirely with the harmonic scalpel avoiding damage to the spermatic vessels and vas deferens which were adhered closely, but because it was a 20cm sac, a central incision was performed on the sac (open book incision) to facilitate its dissection and obtain the critical view and expose completely the Cooper's ligament, the space of Retzius, the iliac vessels and the femoral and obturator orifices.

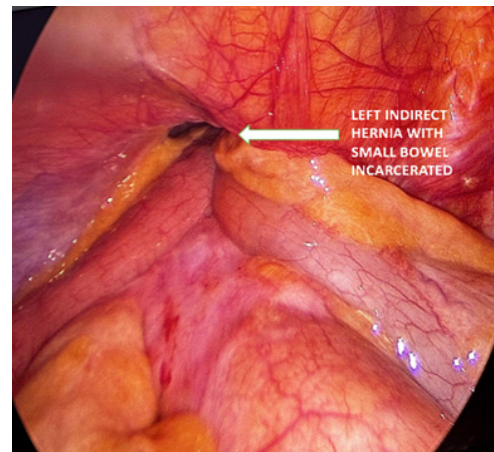


Figure 1 Left indirect Hernia with small bowel Incarcerated.

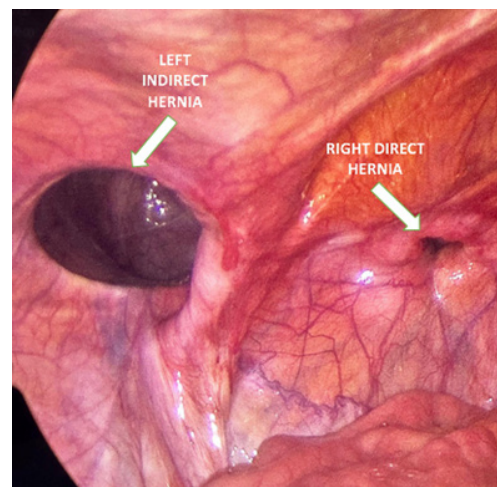


Figure 2 Left indirect Hernia and right direct hernia

We then switched sides between the surgeon and the camera. The right hernia was a direct defect 5cm in diameter and practically over the midline on what appeared to be de suprapubic space, with heavy fibrosis on the ring and no apparent content in the sac. The peritoneal flap was done the same way, but when we progressed to dissect the sac, we noticed that the peritoneal sac covered completely an incarcerated bladder hernia, so dissection continued with extreme caution to avoid bladder injury. Approximately eighty percent of the bladder was reduced from the defect. The peritoneal flap was extended and joined with the one on the left side to obtain a complete view of the pelvis and the bladder which had no signs of injury and it started to fill with urine (Figure 3).

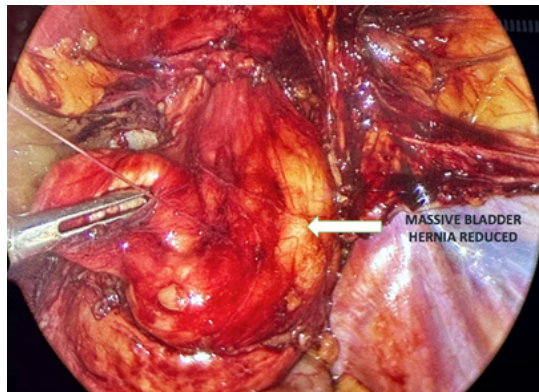


Figure 3 Massive bladder hernia reduced.

Then we used two 15x15cm polypropylene meshes tailored to fit the area completely as described by Stoppa for giant bilateral hernias and secured them with Ethicon Securestrap™ absorbable tacks (Figure 4). The peritoneal flap was then closed with three running sutures of 2-0 Stratafix™. A Foley catheter was inserted to prevent urinary retention because of high risk for bladder atony, and a bilateral inguinal support belt was used to prevent seromas. The Foley catheter was removed at 48hs postoperatively and the patient was discharged tolerating oral diet without complications.

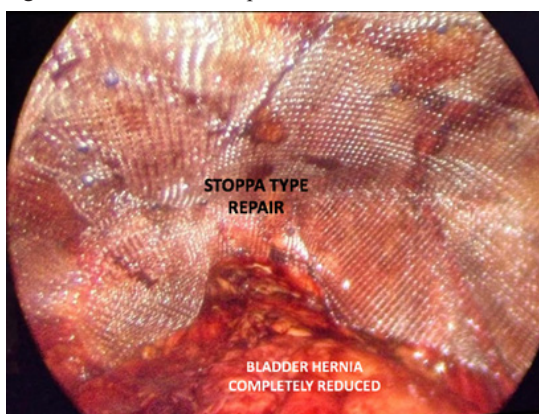


Figure 4 Stoppa TAPP repair with the bladder completely reduced.

Discussion

The inguinal bladder hernia (IBH) is an infrequent pathology, it was first described by Platter and Sala in the sixteenth century.¹ The incidence varies from 0.5% to 4%, reaching up to 10% in obese patients over 50 years of age, more frequent on the right side, as in the case of this patient.^{2,3,4} They usually occur through the inguinal floor (75%), more frequently direct type than indirect or femoral (23%).

But they may also occur through the rectus abdominis muscle, the perineum, suprapubic, obturator, ischiorectal, and abdominal wall openings.

The factors that may contribute to the development of IBH are bladder outlet obstruction, weakness of pelvic musculature, decreased bladder tone, benign prostate hyperplasia, and obesity.⁵ Along with the fact that advancing age weakens the bladder tone and supporting structures.⁶ But structural supporting tissue defects of the abdominal wall, probably due to decreased type I/III collagen ratio in the connective tissue, or an inordinate extracellular matrix degradation may be an important factor as in this patient who had a recurrence of his previous hernia repair, umbilical hernia, direct hernia with a significant bladder displacement, and a huge indirect inguinoscrotal hernia. This possibility should be taken into account to plan the best surgical approach to avoid recurrences.⁷

According to the classification of IBH described by Soloway based on its anatomical relation with the parietal peritoneum, this patient had a type two intraperitoneal hernia, in which the bladder segment herniated is entirely covered by the peritoneum, so laparoscopy by a TAPP approach facilitates the dissection as in this case.^{8,9}

Symptomatic patients may present with inguinal swelling, dysuria, pollakiuria, hematuria, or urinary obstruction symptoms.^{10,11} Most patients are asymptomatic. A two-stage micturition process facilitated by pressure on the hernia, with the mass disappearing after emptying the bladder, the so-called Mery's sign, is diagnostic of a bladder hernia. Ultrasonography is the most accessible diagnostic modality. Sometimes it can demonstrate a hypochoic mass lesion protruding from the bladder through the inguinal canal, but it can fail as in this case.¹² Other helpful imaging options for IBH are intravenous urography, retrograde cystography, and computed tomography which is preferred to evaluate the hernia content and its relationship with the abdominopelvic structures.¹³

Rarely, patients with IBH may have complications such as urinary obstruction, acute incarceration, or renal failure. Less than 10% of patients with IBH are diagnosed preoperatively, the majority (77%) are found intraoperatively, and some post-operatively due to complications.^{2,10,14} So, clinicians should have a high index of suspicion when assessing old male patients with big inguinal hernias.

The majority of the reports of IBH repairs are open surgeries, but in recent years laparoscopic techniques transabdominal, extraperitoneal, and even by robot have emerged showing their security and feasibility. Laparoscopy is probably the gold standard to repair these bilateral complex hernias not only because of the faster recovery time, and better cosmetic results but also because it permits superior evaluation of the magnitude of the defects treating them better, enabling to overlook the entire bladder and replace the herniated bladder to its original position after a secure dissection, without injury to the bladder. It also decreases tissue trauma, postoperative morbidity, and complications.¹⁵

Applying a large preperitoneal mesh that covers the entire posterior wall of the groin, using a technique similar to the one described by Stoppa for these complex hernias is the better way to repair them.¹⁶⁻²³

Conclusion

Massive bladder inguinal hernias are rare and they are diagnosed mainly intraoperatively as the majority of the patients are asymptomatic. Sometimes they present with other hernia defects making them complex hernias. The laparoscopic approach is safe and it has advantages over the open procedures. When bilateral

complex defects are present or medial bladder herniation is observed, laparoscopic Stoppa-type repair may be a useful option as was in the case of this patient.

Acknowledgments

None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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