

CASE REPORTS

Surgical management of a giant inguinoscrotal hernia: A case report

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ABSTRACT

Inguinal hernias are among the most common clinical entities encountered by general surgeons. Most defects are small, relatively benign, and easily repaired using standardized and broadly accepted techniques. Large hernias that extend below the mid-point of the inner thigh in the standing position, known as giant inguinal hernias (GIH), are uncommon in the Western world. We present the case of a 71-year-old man who presented with a giant left inguinoscrotal hernia that extended below the knee and was complicated by symptoms of intractable constipation, exercise intolerance, and weakness. This hernia was repaired utilizing an open abdominal midline approach, with retroperitoneal reinforcement of the fascial defect using prosthetic mesh according to the method first described by Stoppa. A long segment of sigmoid colon was entrapped within and densely adherent to the scrotum, necessitating segmental resection with creation of an end colostomy. This was reversed in a subsequent procedure. Several months after his operation, the patient has returned to normal activities without recurrence of prior abdominal symptoms. Although challenging even in the hands of experienced surgeons, surgical correction remains the only mode of treatment that offers patients with GIH satisfactory quality of life.

Key Words: Inguinal hernia, Giant inguinoscrotal hernia, Stoppa hernia repair

1. INTRODUCTION

Giant inguinoscrotal hernias (GIH) are defined as “hernias that extend below the mid-point of the inner thigh in the standing position”. These hernias are rarely seen in the Western world.^[1] Patient who do develop these hernias typically present after years of neglect and suffer from significant physical discomfort, disability, and compromised activities of daily living.^[2] Surgical repair of these hernias is challenging due to the lack of evidence-based guidelines and complicated by distortion of normal anatomy and tissue changes resulting from chronic inflammation, scarring, and lymphovascular congestion. Longstanding extension of abdominal viscera

can result in loss of abdominal domain, leading to increased abdominal compartment pressure when the contents of the hernia sac are reduced back in the peritoneal cavity. Restoration of abdominal wall integrity can also result in increased cardiopulmonary complications and in extreme cases abdominal compartment syndrome.^[2] Herein, we present the case of a 71-year-old man with a GIH extending below the knee, which was repaired with pre-peritoneal prosthetic mesh in the method described by Stoppa.^[3]

2. CASE REPORT

A 71-year-old man presented to our general surgery clinic with a massive left inguinal hernia involving the left hemi-

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scrotum, extending approximately 40 cm below the inguinal crease. He was morbidly obese (BMI 45.8 kg/m²) with no other significant past medical or surgical history. His review of systems was notable for chronic, severe constipation, difficulty with urination, exercise intolerance, and weakness. On physical exam, the skin of the left hemi-scrotum was erythematous and indurated and massively distended with bowel visibly peristalsing through the skin. His penis was not visible due to the size of the hernia. The patient reported severely restricted level of physical activity but had self-constructed a scrotal sling to that he attached to suspenders to improve mobility. Pre-operative computed tomography (CT) confirmed herniation of mesenteric fat and a portion of the descending colon along with a large volume of ascitic fluid within the hernia sac (see Figure 1).



Figure 1. Pre-operative CT (coronal section) demonstrating the giant inguinoscrotal hernia containing abdominal contents including colon and ascites

After discussing the risks of the repair, the patient signed an informed consent and was taken to the operating room for exploratory laparotomy (see Figure 2). Upon entry through a midline incision, seven liters of ascites were evacuated from the peritoneal cavity and from the hernia sac that was easily accessed through the large fascial defect at the level of the deep inguinal ring. The colon was markedly enlarged and

stool-filled with a significant portion of the sigmoid colon was found to be firmly incarcerated within the hernia sac. A transverse counter incision was made over the left scrotum to allow better visualization and mobilization of the hernia sac and viscera. We dissected down to the level of the left testicle and mobilized the hernia sac completely from within the left scrotum. The sac was markedly thickened and abnormal appearing with multiple 1 cm - 2 cm reddish nodules lining the serosal surface (see Figure 3). The entrapped portions of the colon were mobilized and reduced back into the peritoneal cavity. The scrotal component of the sac was excised, and the testicle and hernia sac were removed en bloc from the scrotum (see Figure 3). The left colon was markedly dilated and elongated causing concern for compartment syndrome if the abdomen was closed. As a result, we performed an extended left hemicolectomy, removing 180 cm of colon. Next, we entered the pre-peritoneal space of Retzius, being careful to identify and protect the iliac vessels and left ureter. A large rectangular piece of double-sided Parietex mesh was placed in the retroperitoneal area and secured to the pubic symphysis with spiral tacks. The left peritoneum and bladder was closed over the mesh and the scrotum was closed in layers with a closed suction drain placed. An end-colostomy was brought out, the fascia was closed, and a negative pressure incisional vacuum closure device was placed, and the ostomy was matured. The operation took 8 hours in total, with an estimated blood loss of 500 ml and no intraoperative transfusions given. The patient remained intubated after operation and was transferred to the intensive care unit for fluid resuscitation and replacement of his ascitic fluid losses with albumin. He was extubated on post-operative day 1, and able to ambulate on post-operative day 3. Starting on post-operative day 5 after his colostomy became productive, he was started on a real diet. He received physical therapy and was discharged to home on post-operative day 21. In the weeks following the operation, the redundant left hemiscrotum shrunk by greater than 50%, obviating the need for a planned scrotoplasty. His colostomy was reversed in a subsequent procedure without complication. One year out from the procedure, he is able to ambulate without difficulty and denies any abdominal discomfort.

3. DISCUSSION

The management of patients with GIH is complex. Several challenges exist with regards to surgical repair, including prevention of cardiopulmonary compromise and abdominal compartment syndrome subsequent to forceful reduction of herniated and redundant viscera, prevention of recurrence in the presence of attenuated fascia, and finally, obviating the need for scrotoplasty. Additionally, many of these pa-

tients have significant medical comorbidities, in addition to advanced age and obesity that further complicate the matter. Despite these challenges, surgical repair remains the only option to correct the defect and improve quality of life for these patients.



Figure 2. Operative positioning and preparation of the patient



Figure 3. Hernia sac with left testicle after surgical removal

A number of approaches have been described in the literature for operative repair of GIH.^[3-11] We utilized a repair based on Stoppa's method first described in 1975.^[3,12] This approach involves a midline incision that allows the surgeon to directly visualize and expose the hernia orifice without enlarging the defect or injuring nearby vessels or nerves. This technique does not involve primary repair of the hernia orifice but instead uses preperitoneal placement of mesh to cover and reinforce the defect. After careful dissection, the iliopsoas muscle and external iliac vessels are exposed and the hernia sac is isolated from the spermatic cord. Pros-

thetic mesh is inserted deep into the abdominal cavity in the pre-peritoneal space to cover the hernia defect and prevent recurrence. The mesh is tailored in shape but large enough to cover the area between the umbilicus and the pubis and extending laterally to the level of the anterior superior iliac spine.

The excess scrotal tissue may or may not be resected at the time of surgery. Scrotoplasty with removal of redundant scrotal skin has been successfully performed at the time of hernia repair to prevent the development of a postoperative scrotal hematoma and lymphedema in several cases.^[1,13] In the majority of patients patients, the redundant scrotal skin is left intact and allowed to naturally shrink over time due to retraction of the dartos muscle.^[4,14-17] If sufficient retraction does not occur in the postoperative period, scrotoplasty can be performed successfully at a later date. The abdomen is closed primarily, and the patient can be discharged home once recovered with minimal restriction on activity. A review by Stoppa of 230 patients who underwent repair of a GIH demonstrated a recurrence rate of 3.4% compared to 27.5% reported by others.^[18] In addition, 81.9% of his patients experienced a simple postoperative recovery without complications and an overall post-operative mortality of 2.4%. These single-experience data demonstrate the ability of an experienced surgeon to shepherd patients through the repair of a GIH with a low recurrence and minimal morbidity, culminating in an improved quality of life.

We chose to use Stoppa's method of repair for several reasons. Given the large size of the defect there was considerable concern for recurrence. We wished to utilize a method of repair that would minimize the risk for recurrence and prevent the need for re-operation. Repair was achieved using synthetic mesh which eliminated tension in the area of the defect. In addition, it was not possible to repair this hernia using a traditional inguinal hernia incision given its size and extensive bowel contents. This incision also allowed for greater ease of dissection without damage to nearby vital structures and was essential to success since the sigmoid colon was firmly incarcerated in the scrotum and has to be resected after mobilization to securely close the abdomen and prevent abdominal compartment syndrome. In this individual patient's specific case, the entire sigmoid colon was fused to and surgically inseparable from the lining of the scrotum. In addition, the sigmoid colon had significantly elongated and become incarcerated. Despite extensive mobilization, it could not be reduced without making a large counter incision in the scrotum necessitating the creation of an end colostomy. However, we do not advocate for routine colon resection and proximal diversion unless absolutely necessary. If the sigmoid colon had been salvageable, it would have

been reduced into the peritoneal cavity with compartment pressures measured prior to leaving the operating room and during the first 24 hours postoperative.

Despite the challenges and extensive nature of the operation, the patient tolerated the procedure well. Within the first few days he was able to ambulate without difficulty with the assistance of physical therapy, and was discharged to home without complication. One year later and after reversal of his colostomy, the patient has no signs of recurrence and has

experienced significant improvement in his quality of life. While uncommon, GIH should not be an absolute contraindication to surgery. With appropriate pre-operative planning, surgical correction utilizing Stoppa's procedure can be successfully performed in patients with GIH and will provide satisfactory repair with a low risk of recurrence and allow patients to return to a satisfactory quality of life.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflict of interest.

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