

Case Report

Giant Inguinoscrotal Hernia: The Challenging Surgical Repair and Postoperative Management

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Abstract: Inguinal hernia operations are compulsory surgical skill assessment for residence in surgical field and most centres practice day care services for such cases. Giant inguinal hernias usually occur in neglected long standing diseases and repair of these condition added challenges in term of content reduction as well as managing postoperative complications. This case was a unique case of a giant inguinal hernia which was left untreated for 40 years. The contents of the hernia which include greater omentum, small and large bowel were reduced successfully after extension of the deep inguinal ring. The patient was ventilated and paralyzed for 48 hours in view of anticipating intraabdominal hypertension. Post operatively the patient recovered well and discharged on Day 6 post operatively.

Keywords: Inguinal Hernia, Deep Inguinal Ring, Intraabdominal Hypertension

1. Introduction

Giant inguinal hernias are defined as the extension of hernia sac below the midpoint of the inner thigh or beyond in the standing position and are uncommonly encountered in developed countries. Nevertheless, they may still present after years of neglect with poverty, illiteracy and poor healthcare access. [1, 2, 3]

2. Case Report

This is a case of a 60-year-old gentleman who had presented to the surgical clinic with right inguinoscrotal swelling for 40 years. Initially, it was only ping pong ball size at the groin region. It was spontaneously reducible and had not caused much symptoms to the patient. However, the swelling had progressively enlarged to a size of a football and irreducible for the past 9 years. It had started to cause some pain at the swelling and right lower abdomen over the past 3

months prompting the patient to seek medical attention. No symptoms of intestinal obstruction. History of lifting heavy weight earlier in his life prior retirement 4 years ago when he was a store keeper. Otherwise patient has no lower urinary tract symptoms, no constipation and no chronic cough.

On examination; patient was comfortable lying supine. Patient could walk but with an open stance gait due to the large inguinoscrotal swelling pushing his both thighs to abducted position at the hip joint. There was a large right inguinoscrotal swelling which cannot get above when palpated from the scrotum, measuring 45 cm obliquely from the deep ring to the lower edge of the swelling at the scrotum. The consistency of the swelling was mostly doughy as well as granular at certain areas with visible peristalsis. (Figure 1)

The patient had undergone right Lichtenstein mesh hernioplasty with repair of the deep inguinal ring which had to be incised during reduction of the hernia contents into the peritoneal cavity. The hernia contents were; 1 meter length of small bowel proximal from the ileocaecal junction, caecum

with appendix, ascending colon, nearly the whole transverse colon along with its mesentery and greater omentum. (Figure 2) The contents were incarcerated to the sac and greater omentum had formed a hard omental fibrotic adhesion making the procedure of reducing the contents back into the peritoneal cavity difficult. Omentectomy was performed and contents which was viable, successfully reduced into the peritoneal cavity.



Figure 1. The Giant Inguinal Hernia before attempt of reduction.

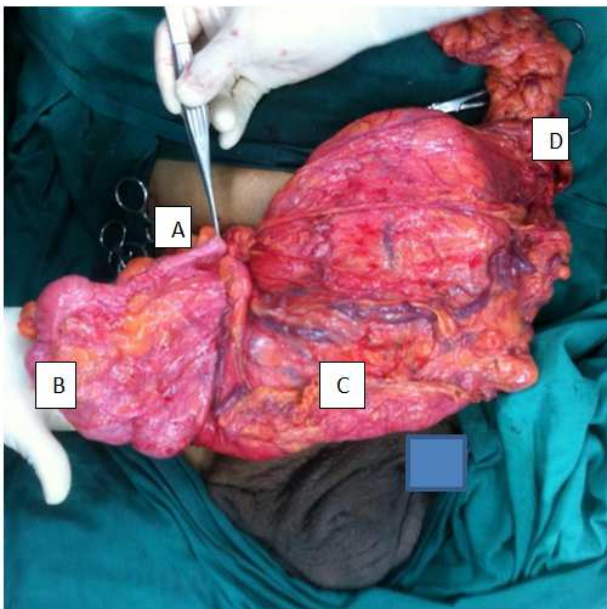


Figure 2. The contents of the hernia A.appendix B.cecum C.transverse colon D.omentum.

Post operatively patient was ventilated and nursed in the intensive care unit with full sedation and muscle relaxants for 48 hours in anticipation of abdominal compartment syndrome. The intraabdominal was maintained below 10 mmHg throughout the postoperative period. On postoperative day 4, patient was tolerating soft diet and was discharged to the

general ward for recuperation. On post operation day 6, patient was discharged home well.

3. Discussion

Giant inguinal hernia poses significant problems either in the aspect of the *patients* or the *management*.

1. Potential risks and complications of neglected Giant Hernia

It dramatically impairs quality of life of the patient [4]. This enormous hernia sac interferes with walking, sitting, lying down, sexual intercourse and routine work [2, 4, 5]. Bowel irregularities and urinary problems can occur as well. The penis can be buried inside the scrotum causing urine to dribble over the scrotal skin which is already congested by lymphatic and venous edema. It eventually causes excoriation, ulceration and secondary infection. [2, 4, 6, 7] With time, the ipsilateral spermatic cord will be greatly elongated and subsequently prone to torsion. [4, 8] Testes are often atrophic, or even necrotic which may warrant orchidectomy in addition with remarkable lengthening of the cord [2, 4, 8]. Avoiding it would expose the patients to the risk of recurrence in the future [5]. Giant inguinoscrotal hernia will also cause extreme visceroptosis and tissue expansion of vascular pedicles with concomitant stretching of inguinoscrotal skin [2, 4] Intestinal obstruction, incarceration and strangulation of the contents may also occur. [2, 8]

4. Difficulty in Operative Management of Giant Hernia

There are *three* specific problems arisen from the management of the inguinoscrotal hernia.

1 Firstly, there is loss of domain within the abdominal cavity. [4, 7, 8] With the abdominal cavity adapted to being empty as the abdominal viscera is situated outside the cavity, reduction of the herniated viscera can cause the closure of the fascia not possible. It can lead to high intra-abdominal pressures, fascial dehiscence or abdominal compartment syndrome. Sudden increase in intra-abdominal pressure in addition to postoperative ileus and elevation of diaphragm can provoke fatal cardiorespiratory failure which is associated with high mortality. Thus, preoperative chest physiotherapy and postoperative mechanical ventilation play crucial roles. [1, 2, 7] Post-operative bladder pressures and airway pressure are being monitored to determine the need to enlarge the abdominal compartment [7]. Several techniques have been described to address this loss of domain.

2 The giant inguinoscrotal hernia was stated to have higher risk of recurrence than other inguinoscrotal hernias. The high recurrence rate is contributed by large hernia defect [7, 8]. Tahir et al had also mentioned in those treated surgically with conventional repairs tend to have higher recurrence rate [8]. Repair of defects without the use of mesh graft has been described but most have preferred the use of mesh. The Lichtenstein technique of repair was shown to be effective in managing giant inguinoscrotal hernia [7, 9, 10].

3 There will be residual scrotal skin after abdominal wall construction with mesh hernioplasty. Some authors suggested excision of large residual scrotal skin and reconstruction of neoscrotum for cosmetic reasons. [2, 3, 11] For better cosmetic results, a single stage or double staged scrotal reconstruction can be planned [3, 12]. However, considerable shrinkage of the scrotal skin occurs because of retraction of the dartos muscle. It may be safer to preserve all the redundant scrotal skin to serve as a safety net; in case of failed repair or early postoperative severe respiratory compromise the bowel contents may temporarily return or shifted back into the scrotum [2, 5, 7]. Extensive dissection of a huge sac can worsen lymphatic obstruction which can lead to trophic changes of the scrotum [4, 13]. Reductive plastic surgery of the scrotum, however should be performed if there is insufficient retraction of the dartos muscle as the abnormally huge scrotum will predispose to a form of elephantiasis due to lymphedema, for which an unpleasant surgery needs to be carried out subsequently [3, 5, 12, 14].

A firm compression bandage and adequate drainage can prevent scrotal hematoma [7].

Several reported cases with complication have been published such as giant inguinal hernia with intestinal malrotation [1], cecum, appendix, ascending colon and ileum were found in a left-sided inguinal hernia. [7, 8], giant inguinal hernia with hematemesis due to strangulation of stomach in the hernia [15] and hydroureteronephrosis with the herniation of kidney and ureter [16].

5. Surgical Treatment & Reconstructive Techniques

In order to reduce the intra-abdominal pressure or prevent the occurrence of an abdominal compartment syndrome: debulking the abdominal contents such as omentectomy, bowel resection and splenectomy; or procedures for enlarging the abdominal cavity such as preoperative pneumoperitoneum, skin and muscle flaps, mesh patches, and phrenectomy can be done [4].

1 Use of elemental diets to reduce fecal residue and gastrointestinal secretions [17].

2 Resection of parts of omentum, small bowel or colon [2] which is more effective and commonly used method [6, 18, 19, 20].

3 Older techniques like phrenicectomy, iatrogenic incisional hernia and musculoskeletal flaps are no longer used to tackle the problems.

4 Moreno et al had first described the use of artificial pneumoperitoneum preoperatively in ventral hernias to overcome the acute respiratory insufficiency but it is time-consuming and painful [22, 23, 24]. Few authors have reported an increase in size of the hernial sac in place of abdominal cavity after artificial pneumoperitoneum and hence this procedure was aborted in those cases. [12, 21]

5 Merret et al. have created a *midline anterior abdominal wall defect* which increased the volume of abdominal cavity. Marlex mesh was then used to cover both hernial and the

midline defect as well as further strengthening the midline mesh by a rotation flap of the inguinoscrotal skin, which would have been otherwise discarded [12].

Mehendale et al. have *debulked the contents by performing right hemicolectomy and small bowel resection with reconstruction of the abdominal wall using marlex mesh and a tensor fascia lata flap*. [2] Marlex mesh has been used to construct the abdominal wall during the repair of ventral hernia as well as huge inguinoscrotal hernia.

6. Conclusion

Giant inguinoscrotal hernias are uncommon in modern surgical practice. There is no consensus on the standard surgical procedure. The management poses unique challenges to the treating surgeon; careful preoperative preparation and close postoperative monitoring are essential for its successful repair and ultimately, to improve the quality of life. Close cooperation between surgeon, the plastic surgeon and anesthetist will result in better outcomes.

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