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Case Report

Challenges and hurdles in managing giant inguinoscrotal hernia: A case report

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Abstract

Introduction: A giant inguinal hernia is described as an extension of the hernia below the midpoint of the patient's inner thigh in the standing position. It is relatively rare but severely affects a patient's quality of life and imposes specific challenges to the surgeons.

Aim: The aim of this paper is to describe the management of giant inguinal hernia and its related challenges.

Case study: A 51-year-old man, a chronic smoker, and a labourer at a construction site complained about a rapidly growing reducible right groin swelling with heaviness, and discomfort. He was counselled for surgical intervention a year earlier but defaulted on follow-up. There was a right giant inguinoscrotal swelling extending beyond the mid-thigh on standing position. He underwent inguinal hernioplasty successfully without any intra- or post-operative complication.

Results and discussion: Challenges in managing giant inguinal hernias include loss of domain and a higher risk of cardiovascular compromises, intra- and post-operatively. Compared to other inguinal hernias, a giant inguinal hernia is also at a higher risk of surgical site infections, scrotal haematoma, and hernia recurrences.

Conclusions: A giant inguinal hernia is a rare and challenging surgical problem for surgeons. Meticulous perioperative managements are important in ensuring such patients with a promising outcome.

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1. INTRODUCTION

A hernia occurs when there is a protrusion or bulge of an organ or part of an organ through the body wall that normally contains it. Abdominal wall hernia is a very common surgical entity, recording a prevalence of 1.7% among all ages and up to 4% among patients older than 45 years of age.[1] Over 3 quarters of these cases are attributed to inguinal hernias.[2,3] Inguinal hernia repair, also known as inguinal hernioplasty, is one of the most commonly performed procedures in the field of surgery, ranging from 10 to 28 cases per 100,000 population.[4]

A giant inguinal hernia is described as an extension of the hernia below the midpoint of the patient's inner thigh in the standing position.[5] Inguinal hernias of this size may cause difficulty in walking, sitting, lying down, or doing other daily activities, which severely affect the quality of life. In chronic cases, reports of urinary retention, hernia incarceration, skin excoriation, and social isolation due to embarrassment, are not uncommon.[6] Giant inguinal hernias usually develop as a result of neglect or delay in receiving surgical treatment, due to the fear of surgical or anaesthetic risks.

2. AIM

We describe a 51-year-old man, a labourer and a smoker who presented with a giant inguinal hernia; thus, the management of this uncommon and uncomfortable condition is discussed.

3. CASE STUDY

A 51-year-old man, a chronic smoker, who is a labourer at a construction site, had been suffering from a reducible swelling at his right groin for a year. The swelling, which was about the size of a golf ball, was initially reducible since there was no symptom suggestive of intestinal obstruction. The patient was diagnosed with a reducible right inguinal hernia in the surgical outpatient clinic, where the diagnosis was made. He was counselled on the condition, and surgical options were offered in view that the hernia had been causing him discomfort. However, he refused any surgical intervention and subsequently defaulted to a surgical follow-up.

A year later, the patient presented with a 2-day history of a sudden increase in the size of the right inguinal swelling. It was associated with severe abdominal colicky pain, abdominal distension, and a feeling of 'heaviness' at his scrotum. He could not tolerate orally but still had bowel motions. Upon physical examination, he appeared comfortable and his vital signs were normal. The abdomen was slightly distended but soft, and there was a giant inguinoscrotal swelling on the right side, extending as low as the mid-thigh in the standing position (about 20 × 25 cm) (Figure 1). The swelling was tense but non-tender. There was no erythema noticed on the scrotal skin. We were able to pinch the skin from the swelling. The normal-sized right testis was felt at the posterolateral aspect of the swelling. The penis appeared to be buried within the huge swelling. Bowel sounds were noted upon auscultation over the swelling. Cardiovascular and respiratory systems were unremarkable. Full blood count and biochemical tests were within a normal range. Plain abdominal radiography showed prominent dilated small bowels, especially within the scrotal swelling. Diagnosis of strangulated giant right inguinal hernia was made.

Figure 1. Giant right inguinal hernia (Type I – extending below the mid-inner thigh). The abdomen appeared distended and the penis was buried within the large hernia.

Figure 2. A total of 80 cm of small bowels were found within the sac of the giant hernia. Small sections (about 10 cm) of the bowel appeared congested but viable and the rest appeared normal. There was also an incidental discovery of a Meckel's diverticulum (as pointed out in the picture).

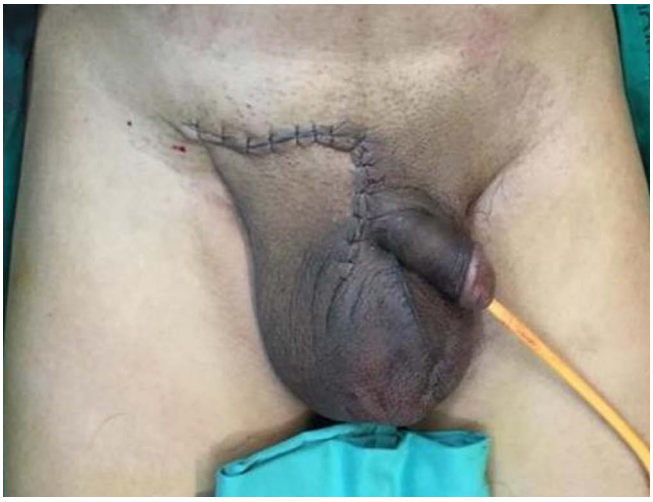

Figure 3. The appearance immediately post-operation. The incision was extended down vertically to facilitate the release of the superficial inguinal ring for the reduction of hernial contents. No scrotal skin trimming was done and compression dressings with scrotal support were applied to reduce the risk of scrotal haematoma.

The patient was admitted, and emergency surgery was arranged. After induction by the anaesthetic team, a Foley catheter was inserted. A horizontal inguinal incision was made over the top of the swelling and extended down to the right of the penis base. The superficial inguinal ring was identified and released. The inguinal sac was opened and a total of 80 cm length of small bowels with a Meckel's diverticulum was found in the giant inguinal hernia sac (Figure 2). The bowels were healthy with good peristaltic movement. The Meckel's diverticulum was short (3 cm), not inflamed, had no palpable tumour in it, had a broad base (2 cm), and did not have any fibrous band attached to its tip. The diverticulum was left alone. The bowels were easily reduced back into the peritoneal cavity and the deep inguinal ring was closed with an absorbable suture. The rest of the hernioplasty procedure was performed using Lichtenstein's tension-free mesh repair technique (Figure 3).

Post-operatively, the patient was put under close monitoring and supplementary oxygen was given for 24 hours. There was no sign of any abdominal compartment syndrome. He regained bowel motions the next day and was discharged home with a notice for light duty at work. Three months post-operative follow-up in the outpatient clinic showed no hernia recurrence.

4. RESULTS AND DISCUSSION

Even giant inguinal hernias are relatively rare in modern clinical practice; they carry specific challenges to surgeons, anaesthetists, and in severe cases, urologists and plastic surgeons. Patients with a giant inguinal hernia may be managed electively with proper investigation, pre-op evaluation, and counselling in the outpatient setting. Any patient with risk factors (smoker and labourer as in this case) must be advised on the modification of the inducers and if possible for surgery if deemed required. However, some patients present with an acute setting when a complication has occurred. They may be incarcerated or obstructed, leading to strangulation if left untreated. Bowels are the most commonly reported content in the giant inguinal hernia. Inguinoscrotal hernias containing the stomach, ovaries, urinary bladder, or kidney have also been reported.[7–9]

Challenges specific in the context of surgical management of giant inguinal hernias include loss of domain and a higher risk of cardiovascular compromises, intra- and post-operatively. Compared to other inguinal hernias, a giant inguinal hernia is also at a higher risk of surgical site infections, scrotal haematoma, and hernia recurrences. A giant inguinal hernia can be further divided into 3 types, depending on the lower extent of the hernia and its relation to the level of the mid-inner thigh and suprapatellar lines.[5] Open surgery is the gold standard in managing a giant inguinal hernia and there is no role for a laparoscopic approach.

Giant inguinal hernias are usually chronic. 'Loss of domain' is said to have occurred when the peritoneal cavity has 'adapted' being empty for a long duration of time. A sudden reduction of hernia contents from a giant hernia sac back into the peritoneal cavity may result in an abrupt increase in the intra-abdominal pressure. This leads to a reduced venous return, a reduced pre-load to the heart, and a splinting of the diaphragm, which reduces the tidal volume and vital capacity, produces defects in gaseous exchange and causes a basal lung collapse. Various methods have been described to overcome the issue of loss of domain: debulking of abdominal contents or performing the preoperative progressive pneumoperitoneum.[10,11] Debulking can be omentectomy, splenectomy, hemi- or total colectomy, or small bowel resections. Preoperative progressive pneumoperitoneum helps to improve cardiorespiratory function and reduce the risk of perioperative complications by gradually increasing the intra-abdominal pressure. It involves in a daily gradual insufflation of 500–2000 mL of carbon dioxide gas into the peritoneal cavity for 7–14 days with occasional botulinum toxin A injection in the abdominal wall to paralyze and elongate the abdominal muscles.[11] These have a risk of longer hospital stays, introduction of infections and higher cost. In our case, after the reduction of the small bowels back into the peritoneal cavity, there was no notable difficulty in ventilating the patient. Hence, hernioplasty was continued without any debulking procedure. However, given the high risk of basal atelectasis and respiratory complications, supplementary oxygen was given for 24 h and the patient was put under close monitoring.

Scrotal haematoma commonly occurs after surgeries for a giant inguinal hernia, owing to the extensive adhesiolysis of the hernial sac. Meticulous haemostasis is essential and the insertion of a closed drainage system may reduce the risk.[12] Excessive residual scrotal skin may be trimmed, or reconstruction for a neo-scrotum can be considered for cosmesis. However, due to the retraction of the subcutaneous

dartos muscle, a considerable amount of scrotal skin shrinkage usually occurs. Some surgeons may opt to leave the loose scrotal skin intact as a backup option, so that if a respiratory compromise occurs post-operatively, the contents may be temporarily shifted back into the scrotum.[5] In our case, the operating surgeon was confident that the possibility of haematoma is minimal, hence no drain was inserted.

The recurrence of giant inguinal hernias treated surgically by conventional repair is high. Despite the description of repair techniques without using mesh, most surgeons prefer the use of mesh.[8] Lichtenstein's tension-free mesh repair was performed for this patient to strengthen the posterior wall of the inguinal canal. As higher recurrences had been reported in patients with giant inguinal hernias, this patient was advised for a regular follow-up every 3 months. Study has shown that in the events of smooth course and healing after the first operation, subsequent postoperative hernia can be repaired after 6, 8, or 10 months, but severe recovery requires longer duration which is approximately 12–18 months.[13] Other efforts were also made to reduce the risk of recurrence, including light-duty and smoking cessation advice.

5. CONCLUSIONS

(1) A giant inguinal hernia is a rare and challenging surgical problem for surgeons.
(2) Any patient with risk factors must be advised on the modification of the inducers, or else complications such as giant inguinal hernia might develop.
(3) In type I giant inguinal hernia, simple open hernioplasty with monitoring for features of abdominal compartment syndrome and respiratory complications postoperatively is mandatory.

Conflict of interest
Authors declare that there is no conflict of interest.

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Ethics
Patient's permission was obtained to publish this case report.

Data availability
The data used to support the findings of this study are available from the corresponding author upon request.

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