Giant Inguinal Hernia: Two Case Reports and Literature Review

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Abstract

Giant inguinal hernia is a rare entity in developed world but are still occasionally encountered among rural dwellers in developing countries mostly as a result of ignorance, believe in alternate therapy and fear of surgery. Its management is very challenging and requires adequate preoperative preparation. We present two patients with giant inguinal herniae, one of which was left sided Amyand’s hernia, who successfully had mesh hernioplasty in our center.

Keywords: Inguinal hernia, Giant hernia, Reductive surgery, Mesh
1.0 INTRODUCTION

A giant inguinal hernia is an inguinal hernia that extends below the inner thigh's midpoint in the standing position [1]. Cavalli et al., [2] described it as a hernia with an anteroposterior diameter of at least 30 cm or a laterolateral diameter of about 50 cm with non-reducibility for more than 10 years. An older definition described it as hernia bigger than the average human head [3]. They are not commonly encountered in developed countries nowadays but are still seen occasionally among rural dwellers in developing countries, usually due to ignorance, negligence, absence of complications, belief in alternate therapy, and fear of surgery and anaesthesia.

The treatment of giant hernia is very challenging, and no surgical procedure has been adjudged as the standard. As such, treatments are better individualized, and the appropriate surgical technique is best taken intraoperatively. We present two patients with giant inguinoscrotal herniae who underwent successful surgeries in our center.

2.0 CASE REPORTS

2.1 Case 1

A 59-year-old driver who presented with left groin swelling of 13 years duration. It was initially reducible but increased progressively in size to involve the hemiscrotum. It became irreducible 5 years before presentation with associated heaviness and dragging feelings, but there was no pain, vomiting or constipation. He had a history of not being satisfied with his sexual life. There was no history of chronic cough, constipation, difficulty with micturition, or medical co-morbidity. Examination revealed a middle-aged man who was clinically stable. His blood pressure (BP) was 120/80 mmHg.

His abdomen was scaphoid, and there was a left inguinoscrotal mass measuring 22cm by 34cm and extending below the mid-thigh. It was irreducible and not tender. The bowel sound was heard on auscultation of the mass. The phallus was buried, barely revealing the glans (Figure 1). The right testis was palpable. Rectal examination was unremarkable.

The patient was admitted for mechanical bowel preparation. He was counselled on the possibility of bowel resection and anastomosis.

At operation, under general anaesthesia with endotracheal intubation, a long oblique incision about 12 cm was made in the left inguinal region and deepened through sharp and blunt dissections. Intraoperatively, an indirect hernia sac was found and carefully dissected free from other cord structures. An opening was made into the sac, and the findings were thickened hernia sac containing loops of small bowel along with its mesentery, long and redundant large bowel up to mid-transverse colon and appendix inside a left-sided hernia sac. The manual reduction was attempted but was unsuccessful. The patient subsequently had a right hemicolectomy with ileotransverse anastomosis. Repair of the widened internal ring was done with nylon 2/0 suture. Also, Lichtenstein’s tension-free technique using polypropylene mesh was performed to repair the weakened posterior wall. The mesh was slit to create channel for the spermatic cord and was then sutured with nylon 2/0 at multiple points to the conjoint tendon superiorly and the inguinal ligament inferiorly. Haemostasis check was satisfactory. Wound closure was done in layers, and the procedure was well tolerated. The

Figure 1. Giant Left Inguinoscrotal Hernia with Buried Penis (Type I)
scrotum was strapped with a crepe bandage for 5 days. The patient did well, and there was no postoperative complication. He was discharged home on postoperative day 9.

2.2 Case 2
A 57 year old farmer presented with left inguinoscrotal swelling of 25 years. The swelling was partially reducible and associated with difficulty with walking. There was no obstructive symptom and no history of straining at micturition or constipation. He claimed to have used herbal concoction and had scarification marks on the swelling but to no avail. He was not a known hypertensive or diabetic. On examination, he was a middle-aged man with BP of 170/100 mmHg. He had a left inguinoscrotal mass, about 20cm by 40cm, that almost reached the suprapatellar region and partially reducible (Figure 2a).

His full blood count, electrolytes, urea and creatinine, and urinalysis were essentially normal. His chest radiograph revealed cardiomegaly, while echocardiography had features of hypertensive heart disease. The patient was referred to a cardiologist for management. When his BP was normalized, he was admitted and had mechanical bowel preparation and preoperative respiratory exercise in the form of incentive spirometry for 5 days.

At surgery, the hernia sac contained loops of the small and large intestine with bulky greater omentum. Omentectomy was performed, and the bowel loops were carefully returned into the peritoneal cavity. Polypropylene mesh was used in the hernia repair. The scrotum was strapped with a crepe bandage for 5 days.

He did not have signs of respiratory compromise postoperatively and was discharged home the 5th day after surgery. Six months follow-up visit revealed an acceptable cosmetic outcome (Figure 2b).

4.0 DISCUSSION
Giant hernia is rare in developed countries and can be associated with a myriad of problems: difficulty with
walking and doing routine works, decreased quality of life, skin ulceration (the medial aspect of the thigh and scrotum), dermatitis, dysuria, failure of sexual intercourse due to buried penis, testicular atrophy, psychological problem and social isolation [4-6]. The social implication could be very significant as this may cause fear or delay seeking medical intervention and subsequently worsen the condition [6]. Other life-threatening complications include intestinal obstruction, strangulation with peritonitis, and sepsis [7,8].

The management of this hernia is quite challenging and needs good anaesthetic support. The specific problems associated with management include, contracted abdominal cavity resulting from loss of domain, cardiopulmonary complications, need for postoperative ventilatory support, abdominal wound dehiscence, hernia recurrence, redundant scrotal skin and hematoma [6].

Giant inguinal herniae are classified into three types [9]. Type 1 extends below the mid inner thigh, but above the imaginary line at the lower thigh (the line between the middle point of the inner thigh and supra-patellar). Type 2 extends below the imaginary line at the lower thigh but above the line joining superior borders of patellar bone, while type 3 extends below the line joining the superior borders of patellar bones. Forced reduction with hernioplasty is feasible in type 1, though with meticulous postoperative monitoring. In contrast, types II and III will almost always require additional procedures to prevent intra-abdominal hypertension.

The additional procedures required to achieve successful reduction and repair are either to reduce the hernia contents or increase the intra-abdominal volume as the loss of domain within the intra-abdominal cavity makes the reduction of the contents difficult. Debunking surgeries may involve extensive bowel resections (small or large bowel), omentectomy, and splenectomy [9]. Bowel preparation should be considered in all patients as colonic resections may be necessary. Although our patients had bowel preparation, only one required intestinal resection.

Different techniques have been employed to increase the intra-abdominal capacity. Preoperative application of progressive pneumoperitoneum can be used [10,11]. However, its limitations are prolonged hospitalization, widening of the hernia sac, and technical failure (resulting from further increase in sac contents). Enlargement of the abdominal wall surface by components separation technique has also been described [12,13]. In this technique, a ventral hernia can be created to facilitate reduction, and the anterior abdominal wall defect can be repaired using a prosthetic mesh. At the same time, the latter is then covered with myocutaneous scrotal flap or tensor fascia latae musculocutaneous flap to achieve optimal results [14]. Older techniques for abdominal rooming like iatrogenic incisional hernia, phrenicectomy, and musculoskeletal flaps are not currently in use [15-17].

Successful laparoscopic repair of giant inguinal hernia can be done using either a transabdominal preperitoneal approach or a totally extraperitoneal (TEP) repair technique [18,19]. If this approach is being considered, the volume of the herniated contents must be reduced prior to the operation to facilitate the repositioning maneuver. Redundant scrotal skin is common after a successful giant hernia repair. It might be necessary to preserve it as it could serve as a safe haven in the event that the patient develops intra-abdominal hypertension or cardiorespiratory compromise after reduction [14]. Furthermore, the scrotum has a good contractile ability and could shrink over time when persistent tension of the giant hernia is relieved. However, reducing the scrotal skin or reconstruction for a more cosmetically acceptable result has been described in the literature. It could also be of advantage in preventing postoperative hematoma or seroma [1,2]. Excision of the scrotal skin was not done for our patients, and the outcome was quite satisfactory to them a couple of months after follow-up.

Orchidectomy may be performed as an adjunct operation, especially in the elderly patient, to facilitate an adequate closure of the hernia defect [20]. Other reasons for orchidectomy are dense adhesions between hernia sac and contents and the possibility of traumatic orchitis after an extended dissection of the spermatic cord.

In conclusion, a giant inguinal hernia is an uncommon entity with a lot of surgical challenges. However, the outcome is rewarding if there is careful attention to preoperative work-up, meticulous surgical technique, and postoperative monitoring.

**Conflicts of Interest**

The authors declare no competing interests
Authors’ Contributions

JGO conceived and designed the study, contributed to data collection, data analysis tools, performed the operation and manuscript writing. JTI contributed to study design and was involved in the operation. IAK contributed to study design and manuscript writing. OKW contributed to data collection and was involved in the operation. All authors approved the final copy of the manuscript.

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