



A SCROTAL ABDOMEN IN AN ELDERLY PATIENT MANAGED BY HERNIOPLASTY WITHOUT DEBULKING OF THE HERNIA CONTENTS: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT **Background:** Scrotal abdomen is not a common today, but most challenging case even in experienced general surgeon, as there is no standard surgical procedure. They present as a huge inguinoscrotal swelling for a longstanding, neglected to treatment, because fear of operative intervention and remote places where medical service is inadequate. The morbidity and mortality also high because of forced reduction of the herniated viscera to the abdominal cavity, which is accustomed to being relatively empty for long duration, may cause alteration in the intra-abdominal and intra-thoracic pressures, leading to complications such as ACS, precipitation of cardiovascular or respiratory compromise, hernia recurrence and wound dehiscence. **Case presentation:** We present this case of giant inguinoscrotal hernia of a 72 years old male who had difficulty in performing his daily activities. Patient underwent emergency mesh repair after reduction of content through inguinal approach. Giant inguinal hernia containing almost whole abdomen with terminal 50 cm ileum, caecum, appendix, ascending colon, hepatic flexure of colon and transverse colon with omentum in the hernia sac and the patient had an uneventful recovery with eventual discharge on postoperative day 8. **Conclusion:** The giant inguinal hernias are uncommon in today's surgical practice. Management of which is challenging with grave complications but early intervention and postoperative monitoring to raised IAP and its complications which can save the patient. We report this case of an elderly patient with an acute presentation of scrotal abdomen with contents as both direct and indirect component which has been managed successfully with tension free open mesh hernioplasty and biological repair without debulking of the hernia contents and this case supported by a review of the literature.

KEYWORDS : Scrotal Abdomen, ACS- Abdominal Compartment Syndrome, Mesh Hernioplasty, IAP -Intra Abdominal Pressure (IAP), Biological Repair.

1. INTRODUCTION:

Scrotal abdomen/ massive inguino- scrotal hernia are those which extend below the mid- point of inner thigh in the standing position^[1]. An older definition puts it as that bigger than the average human head^[2]. These patients usually present late, either due to the fear of surgery and lack of knowledge for those living in rural areas where media service is inadequate. Large Inguinoscrotal hernias pose a serious complication if not intervened as timely fashioned.

Giant inguinal hernia, in addition to the classical symptoms of inguinal hernia, constitutes major complication and impairs quality of life of a person. They interfere with daily work, walking, sitting and other daily activities^[3,4].

Repair of these hernias is a big task, because of the size of the hernia recurrence rate is high^[5]. The patient is likely to develop abdominal compartment syndrome and intra abdominal hypertension due to "loss of domain" in the abdomen^[6].

2. CASE PRESENTATION:

The patient is 72 years old male with low social background, filed worker by occupation presented to emergency department with the complains of swelling in right groin since 4 yrs. Patient was asymptomatic initially, at the beginning the swelling was small in size, confined to the right inguinal region and used to appear only on exertion and used to disappear on lying down. The swelling was initially reducible and since last 1 year it is not reducible. The swelling gradually increased in size to attain its current dimensions but since past 2-3 months the swelling became painful which hampered his daily activities and compromised his quality of life. Patient had difficulty in walking and performing his daily activities. He had history suggestive of bronchial asthma, but no history of chronic constipation, chronic cough or urinary complaints. He was not a known case of diabetes mellitus or hypertension or smoker. Patient denies any surgery in the past.

On physical exam, He was afebrile and hemodynamically stable. Local examination revealed a huge right sided inguino-scrotal swelling of approx. (25x15) cm, which was large scrotal abdomen on standing position extend below the mid- point of inner thigh with burred penis. Cough impulse could not be elicited. His left testis was palpable but right side not was palpable. The swelling was not reducible. The lower end of the swelling was about 25cm from the root of scrotum and reached beyond the midpoint of inner thigh. Overlying scrotal skin was normal, penis buried. There was no palpable organomegaly or intra-abdominal masses. Ascites was not clinically demonstrable. Bowel sounds were normal with normal digital rectal examination. Further systemic examination was unremarkable. His haematological investigations revealed normal white blood cell count of $10.5 \times 10^9/L$ with Hb 10.2 gm/dl. His liver enzymes were unremarkable.



Figure 1. Large scrotal abdomen on standing position extend below the mid- point of inner thigh with burred penis (yellow arrow)

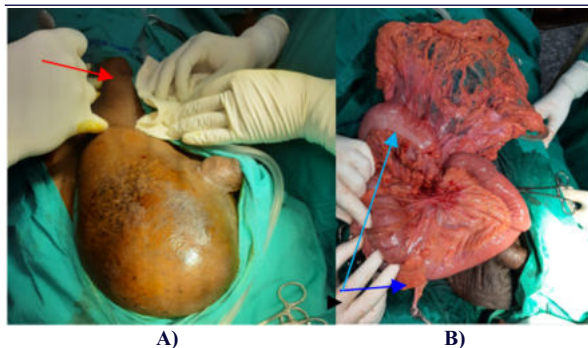


Figure 2. A) Scrotal abdomen on OT table before groin incision, above and parallel to right inguinal ligament (red arrow). Distal 50cm ileum, caecum, appendix, ascending colon, hepatic flexure of colon, transverse colon with omentum (blue arrow).

Under GA, right groin incision above and parallel to inguinal ligament was taken. The sac was identified lateral to the inferior epigastric artery and sac was opened transversely. Sac contained distal 50cm ileum, caecum, appendix, ascending colon, hepatic flexure of colon, transverse colon with omentum and also a defect found in medially directly through posterior wall of the inguinal canal suggestive of direct hernia. Some adhesive bands were present which were separated. The hernia contents was reduced and redundant sac excised and closed with 2-0 vicryl. The direct defect were repaired with 2-0 prolene suture taking bite over fascia transversals. The posterior wall of inguinal

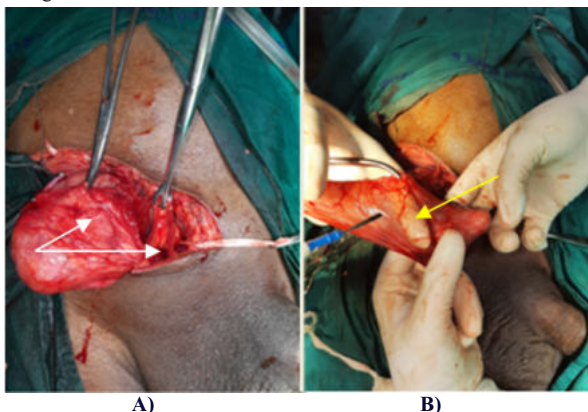


Figure 3. A) Direct and indirect component (pantaloon) hernia (white arrow). B) Dissection of hernia sac & redundant sac excised (yellow arrow).

Canal being strengthened by (7.5X15.0) cm prolene mesh without tension and fixed with 2-0 prolene suture. Immediate postoperatively he was kept in SICU for observation and better monitoring for development of ACS and increased IAP. Bowel sounds appeared on 48 hours of postoperative day and he tolerated oral diet from 5th post-operative day. He had no surgical site complications. He was discharged from the hospital on 8th postoperative day with haemodynamically stable condition. After 14days follow-up his wound was healthy.

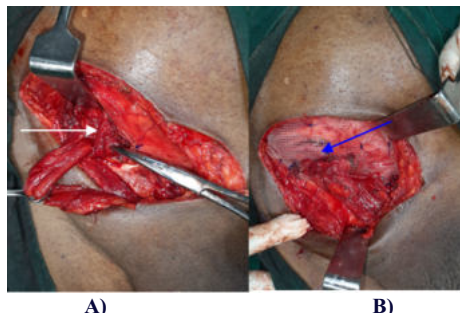


Figure 4. A) After reduction of hernia contents of indirect hernia (white arrow) B) Final repair of hernia defect with prolene mesh (blue arrow)



Figure 5, A) Wound immediately after repair and scrotal rugosity and penis is normal (red arrow). B) Day 8th before discharge (blue arrow) wound is healthy.

3. DISCUSSION:

Giant inguino-scrotal hernias dramatically impair the patient's day to day activity. The affected patients mobility is restricted, and they often suffer from lower urinary tract symptoms as the penis is buried in scrotum. The bigger size of the hernia leads to social, psychological, and economical impact on the patient apart from severely disturbing the quality of life. Since hernia attains a bigger size mainly because of the negligence, other neglected co-morbid conditions like COPD, BPH, chronic bronchitis, or chronic cough etc, might also be present.

Complications of giant inguinal hernias can even be fatal^[7]. As we see in our patient having COPD from long standing which he has neglected. Due to rarity of the condition, repair of giant inguinal hernia is always challenging, demanding to the surgeon and stressful to the patient. Surgical management has to be tailored according to the individual situation of the patient using all therapeutic options (Zippel et al. 2001).

In patients with giant inguinoscrotal hernias the abdominal viscera is outside the abdominal cavity and often the abdominal cavity has become adapted to being empty. Reduction of the herniated viscera leads to a sudden increase of intra-abdominal and intrathoracic pressures that can lead to respiratory compromise. This is associated with a high mortality^[8]. Large amount of bowel handling leads to postoperative ileus and adhesions which further increase IAP leading to abdominal compartment syndrome (ACS).

ACS is a complex of adverse physiologic consequences that occur as a result of acute increase in intra-abdominal pressure. ACS is diagnosed when there is a sustained IAP > 20 mmHg with the presence of attributable organ failure^[9].

Recurrence rate is high if such giant hernias are treated by conventional repairs. Repair of defects without the use of mesh graft has been described by Desarda but most authors in the recent past have preferred the use of mesh.

Desarda technique is physiologically sound because: i) absent aponeurotic extensions in the posterior wall are replaced with an aponeurotic structure. ii) Additional muscle strength of the external oblique muscle helps the weakened muscle arch to keep the newly formed posterior wall physiologically dynamic. iii) Contractions of the muscle arch are improved^[10,11].

There are three specific problems with management of these giant inguinal hernias.

1. Loss of domain.
2. High risk for recurrence.
3. Residual scrotal skin and scrotal haematoma.

Firstly, the loss of domain within the abdominal cavity leads to difficulty in reduction of the contents. Diaphragmatic splinting decreases tidal volume and vital capacity and can cause respiratory compromise. Postoperative increased abdominal tension heightens the risk of wound dehiscence and can cause respiratory distress. Secondly, as the hernial defect is large, the risk of recurrence is high. Lastly, the large residual scrotal skin excised for cosmetic reasons. To decrease the bulk of the contents, two methods are proposed. Moss has suggested the use of elemental diets to reduce fecal residue and gastrointestinal secretions^[12].

Several techniques have been described to address this loss of domain including debulking of abdominal contents or enlarging the abdominal cavity. Extensive bowel resections, for example total or hemicolectomy as well as omentectomy and even small bowel

resections have been described^[13]. Progressive, artificially induced pneumoperitoneum has been attempted, but usually causes enlargement of the hernia sac, rather than the abdominal cavity and is therefore not very effective^[14]. Enlargement of the abdominal wall has been described using marlex mesh and scrotal skin flap, after creating an anterior abdominal wall defect. Several musculocutaneous flaps have been used and component separation techniques have also been described^[15].

In our case, none of these techniques were necessary. We used the tension-free onlay mesh repair as described by Lichtenstein^[16].

Some surgeons will sacrifice the spermatic cord and testis and close the defect without the need to reconstruct an inguinal canal. When the scrotal skin is not used for abdominal wall reconstruction after mesh hernioplasty, most authors agree that the scrotal skin should be left redundant, as it retracts due to the dartos muscle^[17]. We therefore did not offer this patient scrotal reconstructive surgery. It also serves as a safety net, because if the patient develops respiratory compromise post-operatively, the bowel can temporarily be returned to the scrotum^[18]. A firm compression bandage with adequate drainage must be used to prevent the development of a large scrotal haematoma. Other complications may be incarceration leading to bowel obstruction as well as strangulation of bowel contents.

4. FOLLOW-UP:

The patient is followed up after 8 days and the wound was healthy without any complication and he will be followed up monthly to look for any recurrence till 1 year.

5. CONCLUSION:

Giant inguinal hernias are uncommon in modern surgical practice. It presents a challenging problem to general surgeon with potentially fatal complications with mesh repair to prevent recurrence and postoperative monitoring to prevent raised intrabdominal pressure and its complications. Adequate preoperative planning as well as intra-operative and postoperative monitoring is essential.

7. DECLARATION OF COMPETING INTEREST:

The authors declare that no conflicts of interest pertinent to this case report.

8. FUNDING:

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9. ETHICAL APPROVAL: No institutional review board is required for the publication of a case report at our institution.

10. PATIENT CONSENT: The written consent was obtained from the patient directly.

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FOOTNOTES:

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