Case Report

Giant Inguinoscrotal Hernia—Report of a Rare Case With Literature Review

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Massive inguinoscrotal hernias extending below the midpoint of the inner thigh, in the standing position constitute giant inguinoscrotal hernias. We report a patient who presented with giant right inguinal hernia with bilateral hydrocele for 25 years. He had no cardiorespiratory illnesses. He was taken up for surgery under general anesthesia after preoperative respiratory exercises. Sliding hernia with entire greater omentum, small bowel, and appendix as contents was identified. Meshplasty after omentectomy with bilateral subtotal excision of sac, right orchidectomy, and scrotoplasty were done. Giant inguinoscrotal hernias pose significant problems while replacing bowel contents because of the increase in intraabdominal and intrathoracic pressures. Recurrence is another complication seen after successful surgical management. Various techniques such as preoperative pneumoperitoneum, debulking abdominal contents with extensive bowel resections, or omentectomy and phrenectomy have been tried. Postoperative elective ventilation is also needed in many cases. We describe simple reduction with omentectomy as a viable technique in this patient. He did not need elective ventilation due to preoperative respiratory exercises and preparation and review of the literature.

Key words: Debulking – Giant inguinoscrotal hernia – Massive inguinoscrotal hernia – Phrenectomy – Ventilation

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Fig. 1 (A, B) Preoperative picture showing giant right inguinoscrotal hernia with bilateral hydrocele, extending to the knees. Penis is buried and dilated veins are seen on the surface.

Giant inguinoscrotal hernias are defined as those extending below the midpoint of the inner thigh, in the standing position.¹ These hernias are rare and usually the result of neglect or fear of surgical procedures and are prevalent in the rural population.² These massive hernias pose significant problems resulting from cardiorespiratory compromise following sudden increase in intra-abdominal pressure during replacement of herniated viscera.³ In order to circumvent these complications, techniques such as debulking, phrenectomy, and progressive pneumoperitoneum have been described.³ Here, we present a patient with giant inguinoscrotal hernia where simple reduction with omentectomy was successful, and we review the literature.

Case Report

A 50-year-old gentleman presented with a history of progressively increasing irreducible right inguinal with bilateral scrotal swelling for 25 years. He had no history of difficulty in voiding or constipation. He had no respiratory or cardiac illnesses or comorbidities. He had no history of smoking. On

examination, he had right inguinal with bilateral scrotal swellings extending beyond the knees with buried penis and dilated veins over the scrotum (Fig. 1). Expansile cough impulse was noted. Ultrasonogram revealed bowel loops as contents with bilateral small hydroceles. Pulmonary function testing revealed no abnormalities. Electrocardiogram and echocardiogram were normal. Patient was admitted for preoperative respiratory exercises and preparation for surgery. Consent for orchidectomy was taken preoperatively anticipating extensive adhesions and to facilitate hernia repair. General anesthesia was administered. Intraoperatively, right sliding hernia was observed with entire greater omentum, small intestine, and appendix as contents. Indirect sac was noted, and posterior wall tone was weak. Omentectomy was done, and the bowel contents were reduced. Meshplasty was done after reinforcing the posterior wall. Bilateral hydroceles with minimal fluid were observed. The right hydrocele sac was thick and calcified with atrophic testis. Bilateral subtotal excision of sac with right orchidectomy was done. Right orchidectomy was done as the right testis was atrophic. Redundant

Fig. 2 Postoperative picture after right hernioplasty, bilateral subtotal excision of sac, right orchidectomy, and scrotoplasty.

scrotal skin was excised at the level of root of scrotum and scrotoplasty was completed. Catheterization was done (Fig. 2). Patient was extubated postoperatively and recovered uneventfully. He developed no cardiorespiratory compromise in the postoperative period. The patient has been seen on regular follow-up for the past 3 years, and there has been no recurrence.

Discussion

Giant inguinoscrotal hernias are defined as those extending below the midpoint of the inner thigh in the standing position.¹ These massive hernias are usually the result of neglect and fear of any surgical procedure and are more common in the rural population, affecting the quality of life adversely.² These patients generally have voiding difficulty and urinary retention,⁴ and can develop pressure sores along the medial aspect of the scrotum^{4,5} as well as infection and reduced mobility⁴ apart from the usual complications of hernias. In addition, the penis can get buried inside the scrotum causing urine to dribble over the already vulnerable scrotal skin, which is congested due to lymphatic and venous edema, causing excoriation, ulceration, and secondary infection. These problems have considerable psychologic impact, leading to social isolation.⁶ Also, the scrotal wall is thickened, and the spermatic cord stretches along with atrophy of the testis because of the massive nature of the contents.^{2,3} The size of the hernia causes difficulty in walking, sitting, and lying down. Other complications include incarceration, leading to intestinal obstruction and strangulation of bowel contents.³ The contents

of giant inguinoscrotal hernias are usually bowel and very rarely stomach⁷; ovaries, urinary bladder, and kidney along with the ureter have been reported.^{8–10}

As these giant inguinoscrotal hernias are usually chronic, sudden replacement of the large bowel contents into the abdominal cavity causes an abrupt increase in intra-abdominal pressure. Forcing the abdominal contents back and repairing the hernia could be disastrous owing to the sudden increase in intraperitoneal pressure due to impaired diaphragmatic motion and reduced venous return.¹¹ Because of reduced diaphragmatic movements, reduction in tidal volume, vital capacity, defects in gas exchange, and basal lung collapse leading to infection occur. Pain, paralytic ileus, and effect of anesthetic drugs further aggravate these problems in the postoperative period.¹² Another ill effect of increased intra-abdominal pressure is the tension posed on the postoperative wound, which significantly impairs healing.¹²

Specific problems associated with management of giant inguinoscrotal hernias include loss of domain, cardiorespiratory complications, need for elective postoperative ventilation, high risk for wound breakdown and recurrence, problems due to residual scrotal skin, and scrotal haematoma.^{3,13,14} Hence, the management of these hernias is challenging and needs good support from anesthetists as well. Loss of domain can be managed by debulking of abdominal contents or enlarging the abdominal cavity by creating progressive pneumoperitoneum artificially. Extensive bowel resections have also been attempted.^{15,16}

Loss of domain seen in these patients occurs because the abdominal cavity has become adapted to being empty over a long period of time. In such situations, reduction of herniated viscera leads to a sudden increase of intra-abdominal and intrathoracic pressures, leading to respiratory compromise and is associated with high mortality.³ Techniques described to overcome this hardship include debulking of abdominal contents or enlarging the abdominal cavity (phrenectomy). Extensive bowel resections in the form of total or hemicolectomy, omentectomy,³ splenectomy,⁴ and even small bowel resections have been described.³ Phrenectomy is done by creating a ventral hernia and using high density polyethylene mesh, scrotal skin flap, or component separation technique.¹⁷ Several musculocutaneous flaps have been used, and component separation techniques have also been described.¹⁶ Another technique described is progressive, artifi-

cially induced pneumoperitoneum. It is not very effective because it usually causes enlargement of the hernial sac, rather than the abdominal cavity.^{3,17} The already demanding surgical repair of these herniae is further complicated by comorbid conditions such as advanced age, obesity, and cardiac or respiratory diseases, which influence perioperative course^{3,5} and have an impact on the initial surgical decision making and postoperative morbidity and mortality.⁵ The duration of elective postoperative mechanical ventilation is crucial in the recovery of these patients. Ventilation for a minimum period of 10 days in the intensive care unit after replacement of contents and repair has been suggested.^{11,17}

Recurrence is much higher in giant inguinoscrotal hernias than other inguinoscrotal hernias. Tension-free mesh repair can reduce recurrences. Scrotal skin may be left intact because it can be used for decompression if the patient develops respiratory compromise at a later stage. Drains can be placed to avoid the risk of hematomas and wound breakdown.³ When the scrotal skin is not used for abdominal wall reconstruction after meshplasty, the scrotal skin should be left redundant because it retracts due to dartos muscle. If the patient develops respiratory compromise in the postoperative period, bowel can temporarily be returned to the scrotum. A firm compression bandage with adequate drainage must be used to prevent the development of a large scrotal hematoma.³

Results of progressive pneumoperitoneum have been controversial.⁵ The recommended method for progressive pneumoperitoneum is by injection of 100 to 500 mL air daily for approximately 15 days through an intraperitoneal catheter,^{7,11} and it is contraindicated in patients with strangulated hernia, cardiac diseases, and infections.¹⁸ Visceral resection is associated with potential morbidity and mortality. The success of these techniques has been reported only in case reports or in small case series, and there is a void in the literature concerning the standard surgical procedure for the management of giant inguinoscrotal hernias. Vasiliadis *et al*⁵ described a similar case of giant inguinoscrotal hernia where the massive scrotal skin and hypertrophic dartos muscle were excised *in toto* to prevent the postoperative development of scrotal hematoma and lymphedema. Excision of the redundant scrotal skin and hypertrophic dartos muscle and construction of a neoscrotum at the time of the hernia repair have been described in other similar reports.^{1,16} However, some authors claim the redundant scrotal skin should be pre-

served so that bowel can be temporarily returned to the scrotum in case of respiratory compromise.⁵ Although this approach seems to be reasonable, 2 separate surgical procedures are needed and potential complication in the form of serious scrotal hematoma or massive lymphedema is possible.⁵ The higher rate of complications and longer hospitalization may be owing to the one-stage procedure. In emergency, bowel and omental resection should be done, and it is advisable to delay the final scrotal refashioning to a later date.¹⁹ Redundant scrotal skin can also be used for abdominal wall reconstruction.³ Our patient underwent tension-free mesh repair after reduction of bowel with omentectomy. The chances of wound infection, wound breakdown, and recurrence were thus avoided in this patient.

Conclusion

Giant inguinoscrotal hernias are rare and preoperative evaluation anticipating cardiorespiratory compromise, performing respiratory exercises before surgery, careful intraoperative manipulation of hernia contents, and good postoperative care can reduce the incidence of respiratory problems, wound complications, and recurrence rates.

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