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Post-Nephrectomy Lumbar Hernia: A Rare Case and Surgical Repair Using Posterior Component Separation Technique

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ABSTRACT

Lumbar hernia, a rare abdominal wall defect, usually present following surgery. We describe a case of a 50-year-old obese woman who presented with a gradually progressive, reducible swelling in the left lumbar region. One year back, she had undergone open nephrectomy for staghorn calculus. Progressively, the swelling became irreducible over the past month, necessitating further evaluation. Clinical examination along with contrast-enhanced CT suggested a left-sided posterolateral abdominal wall defect (11×9 cm) with small and large bowel loop herniation and absence bowel strangulation. Based on the findings and large defect size, posterior component separation surgery was done with lightweight polypropylene mesh placed retromuscularly and secondary mesh repair for external oblique aponeurosis. The patient had an uneventful postoperative course and was asymptomatic with no recurrence at 5-month follow-up. This case emphasizes the criticality of early diagnosis and customized surgical repair in the management of lumbar hernias following a nephrectomy

Keywords: *Incisional hernia, Post-nephrectomy hernia, Mesh reinforcement, Abdominal wall*

1. INTRODUCTION

Lumbar hernias, making up less than 2% of all abdominal wall hernias, are seldom reported and generally develop after surgery or trauma.[1] With only a few recorded cases, incisional lumbar hernias after nephrectomy are extremely rare.[2] These hernias frequently manifest with palpable swelling, and can result in complications such as strangulation or incarceration.[3] The diagnosis is based on imaging and clinical examination, with computed tomography (CT) being the gold standard for determining the size of the defect and visceral involvement.[4] Mesh reinforcement, the gold standard for hernia repair, is highly efficient in decreasing the occurrence of abdominal hernias, including incisional hernias.[5] However, large and complicated hernias are frequently managed with the component separation technique (CST) because it enables medial myofascial advancement and tension-free repair with mesh reinforcement.[6] This case demonstrates the effectiveness of CST in restoring the integrity of the abdominal wall while reducing the risk of recurrence in the treatment of a large post-nephrectomy lumbar hernia

Case Report

A 50-year-old obese woman presented with swelling in the left lumbar region over 1-year (Figure 1). The swelling was insidious in onset, gradually progressive, and increased in size on coughing and straining. Initially, the swelling was completely reducible; however, over the past 1-month, reduction was achieved through external compression. One year back, she underwent left open nephrectomy for staghorn calculus. She had no co-morbidities, chronic cough, or constipation

Physical examination revealed normal vitals and systemic examination findings. Local examination of the hernia site revealed an irreducible swelling (10×8 cm) over the left lumbar region and absence of cough impulse. The swelling extended from the left posterior superior iliac spine to a point 8 cm away from the spinal prominence. The bowel sounds were present and per-rectal examination was normal..

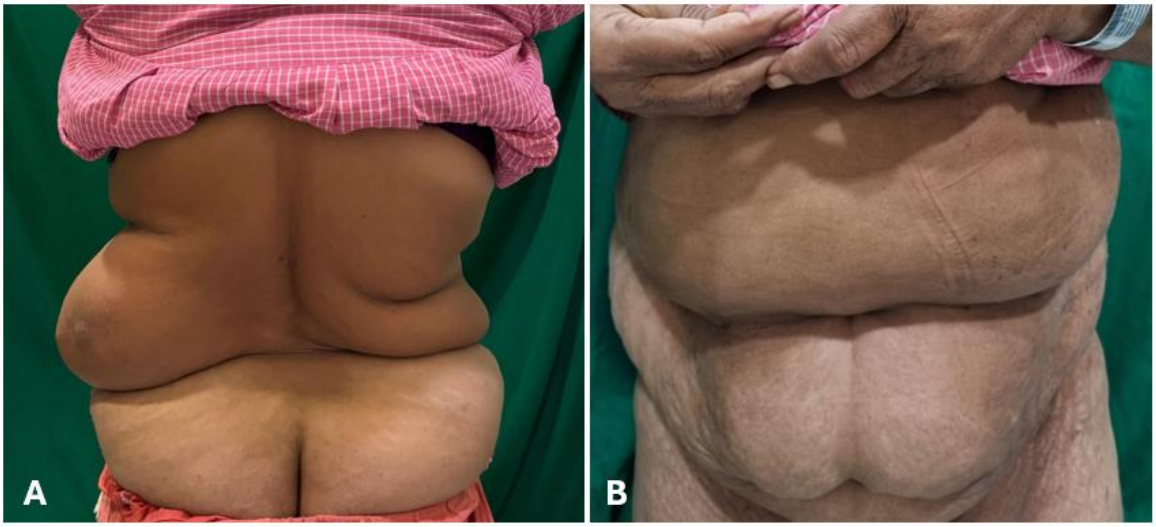

Figure 1. Preoperative evaluation of the patient with visible swelling in left lumbar region.

A contrast enhanced computed tomography (CT) scan of the abdomen and pelvis showed a defect (11×9 cm) in the posterolateral abdominal wall with herniation of small and large bowel loops (Figure 2). Superior mesenteric vessels were seen dragged towards the left along the jejunal loops within the hernial sac. Strangulation of the bowel loops was ruled out by the contrast enhancement of the bowel wall.

Figure 2. Contrast enhanced computed tomography scan of the abdomen and pelvis illustrating a defect in the posterolateral abdominal wall with herniation of small and large bowel loops.

Based on these findings, the patient was planned for component separation surgery. The incision on the previous scar was taken, extended medially, and dissected in layers (Figure 3A). The hernia sac was identified with attachments of the contents

to the sigmoid colon, which was well perfused with normal peristalsis. The closure of the fasciae intended to seal the peritoneal cavity by suturing the lateral edge of the posterior rectus sheath, the posterior transversus abdominis fascia, and the pretransversalis fascia. The conserved sac remnant was subsequently utilized to safeguard the inferior epigastric vasculature and the iliohypogastric nerve from the mesh. A 15×15 cm lightweight microporous polypropylene mesh was employed in the retromuscular plane, with fixation performed (Figure 3B). A 5×6 cm defect in the external oblique aponeurosis was repaired with a second mesh and approximated.

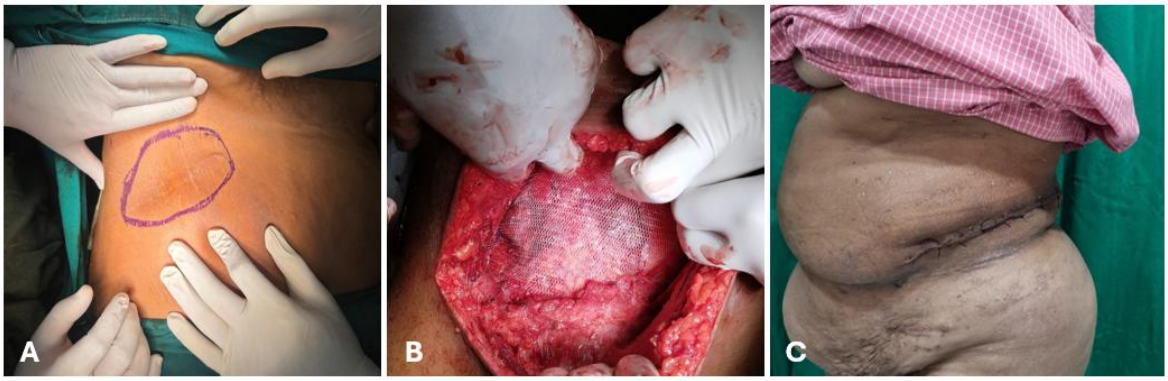

Figure 3. Incision on previous scar taken and extended medially (A). Mesh placement (B). Postoperative suture with healthy wound (C).

Postoperatively, the hospital stay was uneventful, with no complaints of fever, pain, or seroma formation (Figure 3C). She was discharged on postoperative day 9. At 5-month follow-up, the patient was well and asymptomatic with no evidence of recurrence.

2. DISCUSSION

With an estimated incidence rate of 11–23%, incisional hernias are a common complication of abdominal surgeries, especially in patients who have large surgical wounds or are obese. The incidence rate increases to 35% in high-risk patients. Advancing age, hernia greater than 15 cm in size, and obesity are some of the risk factors of IH.[7] The characteristics of our patient, including middle-aged, female sex, and obesity, reflect patterns in the literature that report a higher incidence of post-surgical lumbar hernias in women, potentially as a result of tissue fragility and higher BMI.[8]

When lumbar hernias progress to irreducibility, as in our patient, it raises concerns about incarceration. Clinically, these swellings are usually reducible and are exacerbated by Valsalva maneuvers.[9] Interestingly, the lack of persistent cough or constipation in this instance stands in contrast to common risk factors, highlighting the importance of previous surgery as the main cause.[10]

In our patient, the diagnosis was confirmed by CT imaging, which also showed mesenteric vessel displacement and herniated bowel loops, which are consistent with chronic herniation, while strangulation was ruled out.[11] As our patients had a large defect, transversus abdominis release (TAR) in conjunction with retromuscular mesh placement was the best option. Cornette et al. showed that by reducing tension and improving mesh integration, TAR produces lower recurrence rates (5.3%) than open anterior approaches (11.9%).[12] The dual-mesh approach is in line with guidelines for complex hernias, with one mesh supporting the external oblique aponeurosis and the other placed in the retromuscular plane.[13]

The uneventful recovery of our patient and absence of recurrence over 5 months are consistent with available literature. Bointas et al. demonstrated comparable outcome with TAR for IH following nephrectomy hernias, despite the fact that seroma formation (conservatively treated) was frequent.[2] Suh et al. highlighted widespread misdiagnosis of lumbar hernias, highlighting the significance of CT for preoperative planning.[4] It is noteworthy that the recurrence rate in our patient (0% at 5 months) compares well with that reported by Cornette et al., where the recurrence rate for TAR was 5.3%, while that of open anterior repairs was 11.9%.[12]

During the procedure, chronic pain or muscle denervation can be avoided by preserving the inferior epigastric vessels and iliohypogastric nerves during surgery, as performed in our patient.[14] Moreover, long-term data reported by Novitsky et al. supports the use of lightweight polypropylene mesh, which preserving durability and prevents foreign body reactions.[13]

3. CONCLUSION

Lumbar hernias following nephrectomy are seldom reported and generally present late. Prompt diagnosis and anatomical repair with component separation and mesh reinforcement lead to superior outcomes. In patients undergoing complex

abdominal wall reconstructions, this case emphasizes the criticality of customized surgical planning to preserve neurovascular structures and avoid recurrence.

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