Robotic Repair of Petit's Hernia with Preperitoneal Mesh

Western Reserve Health Education
A Steward Teaching Affiliate

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Introduction

Lumbar hernias are rare abdominal wall hernias that occur in the posterolateral abdominal wall. Intra-peritoneal or extra-peritoneal contents typically protrude through defects in one of two anatomical triangles. The superior lumbar triangle (Grynfeltt-Lesshaft triangle) is an inverted triangle bordered by the 12th rib superiorly, the internal oblique muscle laterally, and the erector spinae muscle medially. The inferior lumbar triangle (Petit's triangle) is an upright triangle bordered by the iliac crest inferiorly, the external oblique muscle laterally, and the latissimus dorsi muscle medially. About 80% of lumbar hernias are acquired hernias. These develop either primarily (spontaneous) or secondarily from a trauma or previous operations including nephrectomy, adrenalectomy, abdominal aortic aneurysm repair, iliac bone harvest, etc. Trauma may lead to the development of lumbar hernias by damaging nerves to the abdominal wall and/or by avulsing musculotendinous structures from their bony attachments, such as the iliac crest. Surgical repair has been described via open or laparoscopic approach.

Case Report

A 69-year-old male patient presented with right flank pain and swelling. The patient was involved in a motorcycle accident 10 months prior, which likely resulted in the development of a traumatic lumbar hernia which is demonstrated on CT scan (Figure 1) which contains the cecum and ileocecal valve. The defect was noted just superior to the iliac crest, by definition, making this an inferior lumbar hernia or a petit's hernia.
In the operating room, the patient was placed in the supine position with the right hip bumped. Once a pneumoperitoneum was achieved, ports were inserted, and the patient was place in trendenlenberg position with right side up to visualize the lumber hernia containing cecum and right colon.

Case Report Cont.

The contents were easily reduced, and a picture was taken of the fascial defect (Figure 2). Next, a peritoneal flap was created. The sac was reduced along with its contents. Adequate space was created to allow to placement of the mesh with overlap (Figure 3). The defect measured 6 cm. The fascia was approximated to the iliac bone using absorbable 0 barber suture. An 11.4 cm round ventralight ST mesh was inserted and secured with interrupted absorbable 2-0 vicryl suture. The peritoneal flap was then repaired with running absorbable 2-0 barbed suture (Figure 4). The patient tolerated the procedure well.

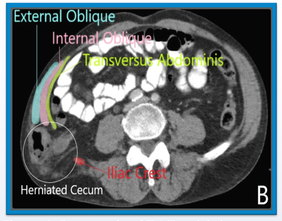


Figure 1. Preoperative CT A/P, axial view, demonstrating right lumbar defect now containing cecum.

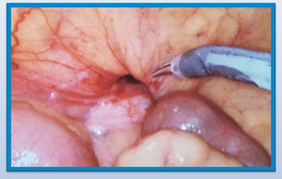


Figure 2. Right inferior lumbar hernia, contents reduced, peritoneum intact.

This procedure was completed as an outpatient. At one week follow up, the patient was back to normal activity. Patient had no recurrence of hernia or symptoms associated with the hernia.



Figure 3. Peritoneum taken down, now exposing fascial defect.

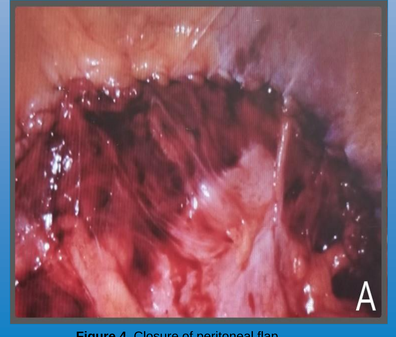


Figure 4. Closure of peritoneal flap.

Discussion

The goal of surgical repair is to close the defect and reconstruct and/or reinforce the abdominal wall. Factors that make this procedure challenging are defining the fascial edges and the proximity of the bony attachments which can limit your primary repair. Primary closure of the defect can be sufficient in small hernias, but most should be augmented with mesh given the increase tension area and limited strength of the tissues. For mesh, coated mesh for intra-abdominal use or lightweight mesh is recommended. The open and laparoscopic surgical approach have both been described. A prospective study has demonstrated the advantages of the laparoscopic approach over open. These advantages include better pain control postoperatively, shorter hospital stay, and earlier return to activity. In our case, a laparoscopic approach was taken with robotic assistance. The addition of robotic assistance made for an easier dissection and better visualization of structures. There was adequate adjacent fascia to the iliac crest to allow for a primary repair of the defect with slowly absorbable suture. If the fascia is not sufficient to allow for suture fixation, one can use bone anchor fixation.

Conclusion

Utilizing robotic assistance in this case, aided in creating a peritoneal flap to place the mesh in the pre-peritoneal space to reduce intra-abdominal adhesions to the mesh. Overall, the technique we describe gave the patient a durable repair reinforced with mesh and was completed as an outpatient with no acute complications.