

Laparoscopic Repair of Left Lumbar Hernia After Laparoscopic Left Nephrectomy

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ABSTRACT

Lumbar hernias, rarely seen in clinical practice, can be acquired after open or laparoscopic flank surgery. We describe a successful laparoscopic preperitoneal mesh repair of multiple trocar-site hernias after extraperitoneal nephrectomy. All the key steps including creating a peritoneal flap, reducing the hernia contents, and fixation of the mesh are described. A review of the literature on this infrequent operation is presented. Laparoscopic repair of lumbar hernias has all the advantages of laparoscopic ventral hernia repair.

Key Words: Lumbar hernia, Laparoscopic hernia repair, Preperitoneal hernia repair, Polypropylene mesh, Laparoscopic trocar site hernia.

INTRODUCTION

Lumbar hernias are rare defects in the posterior-lateral abdominal wall; approximately 300 cases have been described in the literature since their first description.¹⁻¹⁹ Lumbar hernias are either congenital or acquired. Acquired hernias comprise approximately 80% of all lumbar hernias, the majority of which are believed to be spontaneous (approximately 55%) with the rest being secondary to trauma, surgery, or inflammation.²⁰ Lumbar hernias have been reported after open and laparoscopic nephrectomy; however, to date nothing has been published regarding lumbar hernias through trocar sites after laparoscopic nephrectomy.^{21,22} It is well accepted that each laparoscopic trocar site >5mm should be closed to prevent incisional hernias; however, no incisional hernias have been described after laparoscopic nephrectomy. Herein, we describe the case of a laparoscopic left lumbar hernia repair after a retroperitoneal laparoscopic left nephrectomy.

CASE REPORT

The patient is a 62-year-old male, with a past medical history significant for arthritis, CAD, and depression. He underwent laparoscopic left nephrectomy for a nonfunctioning kidney secondary to chronic pyelonephritis in 1993. The patient came to our clinic for a lump in his lower left posterior back that worsened with standing and upon performing the Valsalva maneuver over the area where he had undergone laparoscopic nephrectomy. Physical examination revealed a reducible lumbar hernia in the left lumbar area over old trocar sites.

A CT scan revealed a left flank hernia between the longitissimus and latissimus muscles containing the splenic flexure of the colon and retroperitoneal fat (**Figure 1**). Intraoperatively, the patient was positioned in a right lateral decubitus position, supported on a beanbag, with an axillary roll, and in a slight reverse Trendelenburg position. Through a 10-mm trocar in the umbilicus, a 30-degree angle scope was inserted and 3 defects were visualized. Two additional 5-mm trocars were inserted: one in the left subcostal region and the other near the left iliac crest in the inferior abdomen (**Figure 2**).

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DOI: 10.4293/108680810X12924466007322

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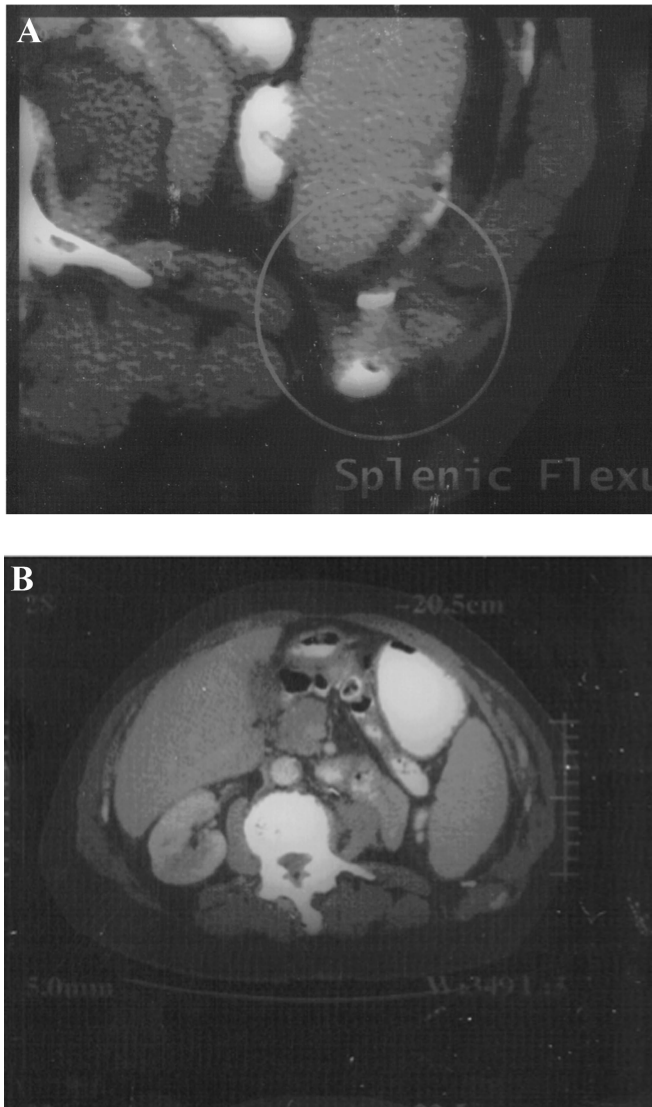


Figure 1. CT scans showing herniation of the splenic flexure of the colon (circle) through the left lumbar hernia.

A superior hernia was seen between ribs 11-12 that measured 1.5cm in diameter, a mid portion defect was seen in the lumbar area that measured 2.5cm, and the last one inferiorly and measured about 1cm in its greatest dimension. We started by incising the peritoneum superior to the splenic flexure of the colon, about 4cm above the hernias, and we continued the incision longitudinally. The preperitoneal fat was reduced from each of the hernia defects, as was the splenic flexure. Three defects were detected, the biggest of which was 2.5cm in diameter. When all the fat was removed and the fascia was well exposed, we used an umbilical tape

to measure the total defect that measured approximately 6cm x10cm (**Figure 3 and 4**).

A rectangular polypropylene mesh 10cm x15cm was utilized to cover the defect.

The mesh was introduced into the abdominal cavity through a 10-mm trocar by using a 5-mm camera in the working port. The mesh was re-expanded inside the abdominal cavity and positioned in the preperitoneal space, and using a spiral 5-mm tacker. Care was taken to secure the mesh all around, especially superiorly and laterally. The preperitoneal fat was replaced, and the peritoneum was closed over the defect by using the spiral tacker. In this way, the mesh was completely excluded from the abdominal contents (**Figure 5**). At the end of the procedure, all trocars were removed under direct visualization, the abdomen was deflated, and the umbilical port sites were closed with nonabsorbable suture.

The patient did well postoperatively, tolerated a regular diet, and was discharged home on postoperative day 1. At the first postoperative follow-up 3 weeks later, the defect was clinically absent and the patient was pain free.

DISCUSSION

The most common type of lumbar hernia is acquired (or secondary) and is usually spontaneous. Spontaneous hernias are believed to arise from increases in intraabdominal pressure, obesity, old age, chronic illness, and diseases that cause muscular atrophy, such as polio.²⁰ An interesting acquired lumbar hernia is believed to be from a case of herpes zoster exacerbation that resolved after resolution of the herpetic.²³ Although acquired hernias can also stem from inflammation and trauma, surgery is becoming an increasing cause of these hernias as increasing surgery in the retroperitoneal area is performed.^{1,6,18,20}

Lumbar hernias when congenital (or primary) are classified as Petit or inferior and Grynfeltt or superior hernias.¹⁶ Heniford et al⁶ first describe this approach in 1997 for a primary lumbar hernia. The 12th rib, iliac crest, external oblique and *erector spinae* muscles compromise the borders of the lumbar space.¹⁶ When a hernia is present, it is usually composed of preperitoneal fat, colon, or small bowel, although herniation of other organs such as the kidney has also been described.²⁴ As a result, lumbar hernia has presented as large bowel obstruction and renal obstruction.^{20,24} Diagnosis is usually possible with physical examination and history, but ultrasound, CT, or both ultrasound and CT, are also recommended to confirm the diagnosis preoperatively.^{15,18,21}

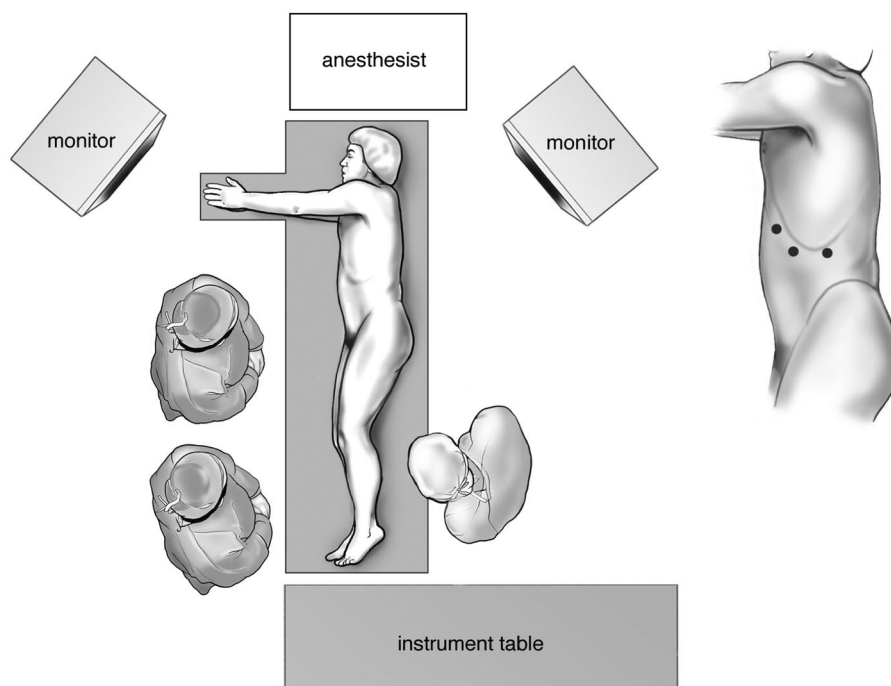


Figure 2. Operation room setup and trocar positions.



Figure 3. Visualization of lumbar hernia defects via a transperitoneal approach.



Figure 4. Take down of the white line of Toldt of the splenic flexure to allow placement of an adequately sized mesh.

Burick et al⁴ first described laparoscopic repair of an acute lumbar hernia secondary to trauma. Acquired hernias are usually spontaneous, but an ever-increasing number of lumbar hernias have been seen with the increasing use of flank incisions for either access into the retroperitoneum in open and minimally invasive procedures. Lumbar hernias have been described after open flank incisions such as after open nephrectomy,

but it has even been described after common laparoscopic procedures like laparoscopic cholecystectomy.⁸

Many other studies have been published but most have focused on laparoscopic repair of lumbar hernias following open surgery (**Table 1**).^{1,19,21} In these studies, a total of 14 patients underwent laparoscopic repair of lumbar hernias. Defect sizes ranged from 78cm² to 150cm², operative time ranged from 138 minutes to 144 minutes, and



Figure 5. Closure of peritoneum over the mesh.

hospital stay ranged from 1 day to 3.5 days. No serious complications were reported.¹⁵ In a prospective nonrandomized study comparing open vs. laparoscopic repairs of acquired lumbar hernias, no significant differences were found in hospital costs between the 2 groups. In the 9 patients treated laparoscopically, mean operative time, postoperative morbidity, hospital stay, resumption of normal activities, and use of analgesics were all significantly less when compared with that in the 7 patients treated via open techniques.¹⁴ Notably, the patients treated laparoscopically had smaller lumbar hernia defects compared with the open group. Complications only occurred in the laparoscopic group and consisted of self-limiting hemorrhage that did not require transfusion or further surgery.¹⁴ Other reported complications include seroma formation, chronic back pain, wound infection, and peri-mesh abscess necessitating mesh removal.^{1,18}

The main goal of this operation is to cover the defects with a big enough mesh to avoid hernia recurrence. In our case, the patient presented with 3 defects in the place where the trocars from the previous operation were placed. To cover all the defects, a 10-cm x 15-cm mesh was placed. Particular care should be taken when fixing the mesh to the posterior abdominal wall. The spiral tacker is a good option, but could create postoperative pain if tackers are inadvertently placed in the ribs. It is also important to create a tension-free repair, as in other hernia repairs.²¹

CONCLUSION

Even if the laparoscopic approach to lumbar hernia repair is now very common, there have been no published reports regarding laparoscopic transabdominal

preperitoneal repair of a lumbar hernia after laparoscopic retroperitoneal surgery.^{1,3,4,6,7,10,11,13-15,18,19} Laparoscopic lumbar hernia repair is a safe procedure with minimum postoperative pain and fast recovery. All trocars in the lumbar area should be closed to prevent future lumbar hernia formation.

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Table 1.
Main Studies of Laparoscopic Repair of Lumbar Hernias After Open Surgery

Authors	N	Defect Size cm ²	Mesh Size cm ²	Mesh/Size Ratio	OR Time (minutes)	Postop Stay (days)
Sakarya 2003 ¹⁵	2	150	438	2.9	nr	3.5
Arca 1998 ¹	7	77.8	310	4.0	144	1.7
Woodward 1999 ¹⁹	3	nr	119		138	1.6
Madan 2006 ¹⁰	2	nr	225		nr	1.0
Gagner 2010	1	60	150	2.5	120	1.0
Total/Mean	15	90	267	3.0	140	1.8

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