

A Rare Window in the Lumbar Triangle: Superior Lumbar Hernia

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ABSTRACT

Superior lumbar hernia is an uncommon form of posterior abdominal wall hernia that protrudes through the superior lumbar (Grynfeltt–Lesshaft) triangle. Its rarity and non-specific presentation frequently result in delayed diagnosis or confusion with other flank pathologies. Contrast-enhanced computed tomography (CECT) is the preferred diagnostic modality and facilitates surgical planning. We present a 65-year-old female with a painless right flank swelling of six months duration. Clinical evaluation and CECT confirmed a right superior lumbar hernia containing preperitoneal fat without bowel involvement. The patient underwent elective laparoscopic repair with reduction of hernial contents, primary defect closure, and polypropylene mesh reinforcement. Recovery was uncomplicated, and no recurrence was noted at three-month follow-up. This report underscores the critical role of radiological assessment and demonstrates the efficacy of laparoscopic mesh repair in managing this uncommon surgical condition.

Keywords: Superior lumbar hernia, Grynfeltt-Lesshaft triangle, Lumbar hernia, Laparoscopic mesh repair, Flank swelling

INTRODUCTION

Posterior abdominal wall hernias arising through the lumbar region are exceedingly rare, accounting for fewer than 2% of all abdominal wall hernias.^[1] They are observed at two anatomical sites: the superior lumbar triangle (Grynfeltt-Lesshaft triangle) and the inferior lumbar triangle (Petit's triangle). Of these, herniation through the superior lumbar triangle is substantially more prevalent, owing to the comparatively larger dimensions and inherent structural vulnerability of this space.^[2,3]

The Grynfeltt-Lesshaft triangle is bounded superiorly by the 12th rib and serratus posterior inferior muscle, medially by the quadratus lumborum muscle, and laterally by the posterior edge of the internal oblique muscle. Its floor is formed by the thoracolumbar fascia, which constitutes the principal barrier against herniation.^[4] Several predisposing conditions have been identified, including advancing age, obesity, progressive muscle atrophy, prior abdominal or retroperitoneal surgery, blunt trauma to the flank, and congenital musculofascial defects.^[1,7]

Lumbar hernias present a diagnostic challenge due to their subtle and non-specific clinical presentation. The Grynfeltt-Lesshaft hernia, in particular, is frequently mistaken for a lipoma or other benign flank mass owing to its compressible nature, postural

variability, and absence of bowel involvement, often leading to misdiagnosis or delayed surgical referral.^[8] Given this overlap in presentation, cross-sectional imaging is indispensable. Computed tomography (CT) accurately delineates the fascial defect, characterizes the hernial contents, and identifies complications such as incarceration or strangulation.^[9]

Surgical repair remains the definitive treatment to prevent progressive enlargement and potential complications. While open mesh repair was historically the standard approach, laparoscopic techniques have gained increasing acceptance. Claus et al. described a systematic transabdominal laparoscopic technique for Grynfeltt hernia repair with peritoneal flap creation, retroperitoneal mesh fixation, and adequate overlap, providing a reproducible and anatomically sound minimally invasive approach.^[3,5] We present a case of a right-sided superior lumbar hernia in a 65-year-old female that was managed successfully by laparoscopic mesh repair, along with a review of the relevant literature.

CASE REPORT

A 65-year-old female presented to the General Surgery outpatient department with a six-month history of progressive, painless swelling over the right flank region. The swelling had an insidious onset and had gradually increased in size over the preceding months. There were no associated symptoms of abdominal pain, nausea, vomiting, bowel disturbances, or constitutional features such as fever or weight loss. The patient denied any prior history of abdominal trauma, previous abdominal or retroperitoneal surgery, and there was no family history of similar complaints.

General physical examination revealed no significant systemic abnormalities. Local examination of the right lumbar region demonstrated a soft, non-tender, reducible swelling consistent with a hernia. The swelling became more prominent in the erect posture and with Valsalva maneuver (coughing or straining), and diminished in the supine position. There was no evidence of overlying skin changes, local warmth, or signs of strangulation.



Figure 1: Clinical photograph showing the right flank swelling in the lumbar region



Figure 2: Contrast-enhanced CT scan of the abdomen showing the fascial defect in the right superior lumbar triangle with herniation of preperitoneal fat

CT Scan Findings

Contrast-enhanced CT of the abdomen and pelvis revealed a well-defined fascial defect of 2cms in the posterior abdominal wall at the level of the right superior lumbar (Grynfeltt-Lesshaft) triangle. Herniation of preperitoneal fat through this defect was demonstrated, with no evidence of bowel involvement, incarceration, or strangulation. The imaging findings were diagnostic of a right superior lumbar hernia and provided critical anatomical information for preoperative planning.

Surgical Procedure

The patient underwent elective laparoscopic repair under general anesthesia. Following establishment of pneumoperitoneum and insertion of three working ports under direct vision, diagnostic laparoscopy confirmed the presence of a right superior lumbar hernia defect. Systematic dissection was performed around the defect margins, and the herniated preperitoneal fat was identified and carefully mobilized.

The hernial contents were completely reduced into the peritoneal cavity under direct visualization. Adequate circumferential dissection was carried out to achieve sufficient overlap beyond all defect margins for secure mesh placement.



Figure 3: Creation of preperitoneal plane

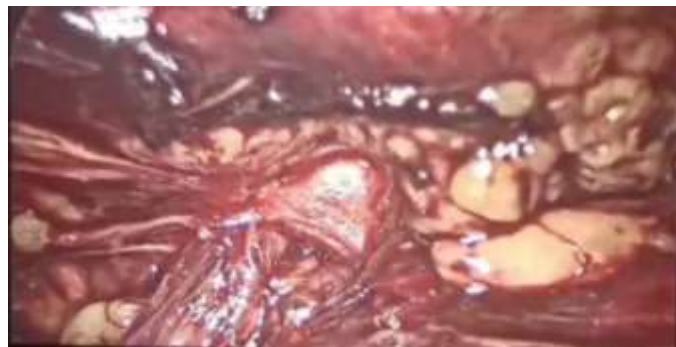


Figure 4: Identification of Hernia with contents as Preperitoneal fat

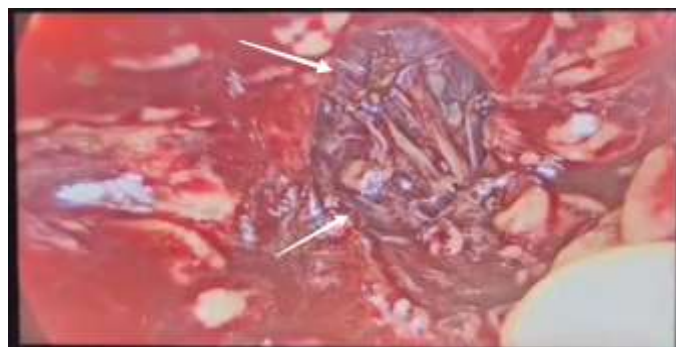


Figure 5: Laparoscopic view demonstrating the hernia defect after reduction of the preperitoneal fat into the peritoneal cavity.

The defect was primarily closed using continuous non-absorbable intracorporeal sutures. A 10 × 10 cm polypropylene mesh was then introduced into the abdominal cavity and positioned to cover the closed defect with adequate overlap on all sides. The

mesh was secured laparoscopically to provide a robust tension-free repair. Hemostasis was confirmed, pneumoperitoneum was deflated, and port sites were closed in layers. Total operative duration was 120 minutes.



Figure 6: Laparoscopic view following mesh placement, showing the polypropylene mesh secured in position with adequate overlap over the closed defect

RESULTS

The postoperative course was uneventful. Oral feeding was commenced on the first postoperative day, and the patient was mobilized early. She was discharged on postoperative day three in a stable and

comfortable condition. At three-month clinical follow-up, the patient remained entirely asymptomatic with no palpable recurrence, no complaints of chronic pain, and no mesh-related complications.



Figure 7: Post operative picture with no cough impulse and swelling in lumbar region.

DISCUSSION

Lumbar hernias constitute some of the least frequently encountered hernias in surgical practice. Since their initial documentation by Barbette in 1672, fewer than 300 cases have been reported in the world literature,

reflecting their exceptional rarity.^[1] They are broadly classified as primary (spontaneous or congenital) and secondary (post-traumatic or postoperative). Primary hernias predominate, while secondary cases typically follow renal

surgery, iliac crest bone graft harvesting, or blunt flank trauma.^[7]

The superior lumbar triangle is the more commonly affected site, as it is anatomically larger and relatively more deficient in musculofascial support than the inferior lumbar triangle of Petit.^[4] The floor of the superior triangle is reinforced only by the thoracolumbar fascia, which may weaken progressively with age, obesity, or chronic elevation of intra-abdominal pressure.^[1,7] In the present case, the patient's advanced age and likely musculofascial atrophy are the most plausible predisposing factors.

Clinically, lumbar hernias typically present as a soft, compressible flank mass with postural and exertion-dependent variation in size. Zadeh et al. highlighted that the Grynfeltt-Lesshaft hernia frequently mimics a subcutaneous lipoma, being initially misdiagnosed as such even by experienced clinicians, and that cross-sectional imaging is indispensable in establishing the correct diagnosis by demonstrating the underlying fascial defect and hernial contents.^[8] As a result, misdiagnosis is common and the diagnosis is often confirmed only upon imaging or intraoperative exploration. In our patient, the characteristic positional change in swelling size was an important clinical clue.

Computed tomography remains the imaging modality of choice for lumbar hernias.^[9] It enables precise characterization of the defect size and location, identification of hernial contents, and assessment for incarceration or strangulation. In the index case, CECT demonstrated preperitoneal fat herniation through the Grynfeltt-Lesshaft triangle without bowel involvement, excluding the need for urgent intervention and permitting elective planning.

With regard to surgical management, open repair with prosthetic mesh reinforcement was historically regarded as the standard approach.^[6] However, laparoscopic techniques have emerged as a preferred alternative, offering the advantages of magnified visualization of the defect, reduced postoperative pain, lower wound-

related morbidity, shorter hospital stay, and faster convalescence.^[2,3,5] Various laparoscopic approaches have been described, including transabdominal preperitoneal (TAPP), totally extraperitoneal (TEP), and retroperitoneoscopic techniques, with the choice dictated by defect characteristics and surgeon expertise.^[10]

In the present patient, a transabdominal laparoscopic approach facilitated excellent anatomical visualization, complete reduction of hernial contents, primary defect closure, and polypropylene mesh reinforcement with adequate overlap. The operative steps closely followed the technique described by Claus et al., with peritoneal flap development, hernia content reduction, and mesh fixation with adequate circumferential overlap, and resulted in an uneventful postoperative course with no evidence of recurrence at three months.^[2,5]

CONCLUSION

Superior lumbar hernia is an uncommon but clinically significant posterior abdominal wall defect that must be included in the differential diagnosis of any unexplained flank mass. Cross-sectional imaging, particularly contrast-enhanced CT, is essential for definitive diagnosis, assessment of hernial contents, and operative planning. Laparoscopic mesh repair offers an effective, minimally invasive treatment modality with excellent functional outcomes, low recurrence rates, and rapid recovery. Increased surgical awareness of this entity is crucial to ensure timely diagnosis and optimal patient management.

Declaration by Authors

Informed Consent: Written informed consent was obtained from the patient for publication of clinical details and images.

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