

Flank and Lumbar Hernia Repair

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KEYWORDS

• Lumbar hernia • Flank hernia • Hernia repair • Robotic • Preperitoneal • Mesh

KEY POINTS

- Lumbar and flank hernias may be either congenital or acquired.
- Large and deforming defects may be best approached open with preperitoneal mesh placement and wide mesh overlap. Smaller defects in those with increased wound morbidity risk are more appropriate for robotic transabdominal preperitoneal repair.
- Surgeons should have a keen understanding of the anatomy of the lateral abdominal wall muscles, the paraspinal and pelvic musculature, and the location of retroperitoneal nerves.
- Although the optimal mesh fixation technique is debatable, wide mesh overlap and potential fixation to bone in addition to percutaneous transfascial sutures is recommended.

INTRODUCTION: NATURE OF THE PROBLEM

Lateral hernias are subclassified into four regions: subcostal (L1), flank (L2), iliac (L3), and lumbar (L4). This article discusses flank hernias that occur lateral to the rectus sheath and lumbar hernias, which are uncommon defects of the posterolateral abdominal wall.¹ Often there is significant overlap with classification, and sometimes these defined anatomic compartments are difficult to differentiate. Although classification of these hernias based on size and location is important to track outcomes, classification also provides a reliable and consistent platform for communication between surgeons and investigators. Nevertheless, the specific location may have little impact on choice of approach or clinical outcomes.

There have been a mere 300 cases of lumbar hernias reported in the literature to date.² This is likely because of the rare nature of these defects. Additionally, lumbar hernias are often misdiagnosed as lipomas, fibromas, or muscle strains. The lumbar

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region is defined by the 12th rib superiorly, the erector spinae muscle medially, the iliac crest inferiorly, with the external oblique muscle acting as the lateral border. The anatomic borders of the superior lumbar triangle where a Grynfeltt hernia occurs is defined by the 12th rib, quadratus lumborum, and external oblique. The anatomic borders of the inferior lumbar triangle where Petit hernias occur is defined by the iliac crest, latissimus dorsi, and the external oblique muscle.³

These defects may be either congenital or acquired. Congenital lumbar hernias are typically discovered during infancy or early childhood and are associated with other birth defects, such as hydrometrocolpos and anorectal malformations.⁴ Congenital lumbar hernias account for approximately 20% of all lumbar hernias, whereas the remaining 80% of lumbar hernias are acquired.⁵ Acquired lumbar and flank hernias are either primary (spontaneous) or secondary (trauma or surgery). Primary (spontaneous) flank hernias account for approximately 55% of flank hernias.⁶ Conditions that cause increased intra-abdominal pressure, chronic debilitating disease, extreme thinness, or increased aging can result in the formation of a primary flank hernia.² Secondary flank hernias make up 25% of flank hernias and usually present after a surgical incision or traumatic event.⁷ The most common incisions associated with this type of hernia include flank incisions for nephrectomy or hepatic resections, abdominal aortic aneurysm repair, resection of abdominal wall tumors, iliac bone harvest, and latissimus dorsi flaps used during plastic reconstructive surgery.⁸⁻¹² It is theorized that secondary flank hernias arise as a combination of multiple factors. Transection or damage to the nerves that originate laterally from the spine and innervate the abdominal wall is believed to play a major role in the formation of these hernias. This denervation leads to muscular atrophy, creating a weakness or bulging effect in the lumbar triangle or flank that ultimately manifests as a lumbar or flank hernia.^{12,13} Surgical incisions are not the sole cause of these secondary flank hernias. Traumatic events, such as avulsion of soft tissues and muscles from their bony attachments, crush injuries, fractures of the iliac crest and pelvis, and incidents that cause sudden increased intra-abdominal pressure, such as high-speed motor vehicle collision with rapid deceleration by seat belt restraint, are also common causes of secondary flank hernias.⁷

As with most hernia surgery, indications for operative repair are based largely on patient symptoms. If there is concern for incarceration or bowel obstruction because of the hernia defect, then repair is mandated either emergently or electively depending on the clinical situation. Patients who present with these hernias usually complain of pain and bulging. If the hernia is interfering with the patient's daily activities, then repair is also recommended. Bulging of the lateral abdominal wall improves with hernia repair. However, the repair rarely results in exact symmetry with the contralateral side. Patients should have this expectation managed preoperatively. The risk of bowel incarceration or a true hernia emergency of lumbar or flank hernias is extremely rare with only a few case reports in the literature. Therefore, repair of these defects if completely asymptomatic is not recommended.

In summary, lateral abdominal wall hernias are a challenge to the general surgeon, with lack of high-quality data to drive operative decision making. The anatomy, location of the defect, cause, and difficulty with mesh placement/fixation because of bony landmarks and neurovascular structures make repair difficult. The risk of incarceration for flank or lumbar hernias is rare (<10%) because of the wide neck of the hernia orifice and location within the abdominal wall itself.^{2,14} However, these hernias may become more symptomatic as they grow larger over time and therefore, surgical correction is recommended when a patient presents with a symptomatic hernia.

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