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A Rare Case of Lateral Abdominal Wall Hernia: Case Report and Literature Review

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ABSTRACT: Lateral abdominal wall hernias are rare and complex defects that present unique surgical challenges due to their anatomical location and the underlying musculofascial structures involved. These hernias can result from congenital defects, such as those in the Grynfelt or Petit triangles, or from trauma. Surgical management typically requires a tailored approach to address the complexity of the defect and its potential for significant functional and aesthetic impact. We present the case of a 51-year-old male patient with a right lateral abdominal wall hernia classified as L4 according to the European Hernia Society (EHS) system. The hernia, which was reducible and asymptomatic, was successfully treated using an open surgical approach with sublay mesh reinforcement. A detailed review of the patient's preoperative evaluation, surgical technique, and postoperative recovery is provided. The case is discussed in the context of the current literature on lateral hernias, highlighting key considerations for effective surgical intervention, including appropriate mesh placement, the importance of dissection technique, and the challenges posed by the anatomy of lateral defects. This case underscores the significance of individualized surgical strategies for managing lateral abdominal wall hernias and improving patient outcomes.

KEYWORDS: Lateral abdominal wall hernia, hernia repair, sublay technique, abdominal wall defect, flank hernia.

1. INTRODUCTION

Lateral abdominal wall hernias are a rare and complex subset of abdominal wall defects, distinct from midline ventral hernias in terms of anatomy, pathophysiology, and surgical management. These hernias occur within a semi-rigid anatomical space, bounded by the costal margin superiorly, the iliac crest inferiorly, the lateral edge of the rectus muscle medially, and the lumbar region or paraspinal muscles laterally. Lateral abdominal hernias can be classified according to the European Hernia Society (EHS) into L1 (Subcostal), L2 (Flank), L3 (Iliac), and L4 (Lumbar) types. Their rarity and complex anatomy present unique challenges for surgical repair [1, 2].These defects can arise congenitally, through the Grynfelt and Petit triangles, or as a result of traumatic injuries [3]. Unlike midline hernias, lateral hernias involve areas with a relatively low fascia-to-muscle ratio, complicating defect closure and effective mesh fixation [5, 6]. While strangulation is less common due to the wide neck of these hernias, their progression may lead to cosmetic deformities, spinal strain, and functional impairment due to disturbed biomechanics [4, 6].

Surgical repair of lateral hernias is more complex and less standardized compared to midline defects. Repair principles such as adequate exposure, fascial closure, and mesh reinforcement remain important, but lateral hernias demand more technically advanced approaches [2]. Laparotomy, often employed for these hernias, typically involves exposure via subcostal or flank incisions, while laparoscopic techniques are used for smaller defects with lower risk for recurrence [2, 3]. Imaging, particularly computed tomography (CT), plays a crucial role in the planning of surgery, offering detailed visualizations of the hernia anatomy [3].

2. AIM OF THE ARTICLE

The aim of this article is to present a rare case of lateral abdominal wall hernia, describe its clinical features, diagnostic evaluation, and the surgical repair approach utilized, and to review relevant literature on the management and outcomes of lateral abdominal hernias. The case report emphasizes the anatomical and technical challenges involved in repairing such defects and aims to contribute to the understanding and treatment of these uncommon but important hernias in clinical practice.

3. PRESENTATION OF CASE

We present the case of a 51-year-old male with a history of type 1 diabetes managed on oral hypoglycemic agents. The patient had no prior history of abdominal surgery and presented to the hospital with a complaint of a painless, reducible, right lateral abdominal swelling. The swelling became prominent during coughing and caused positional and aesthetic discomfort.

On clinical examination, the patient appeared in good general condition with a body mass index (BMI) of 33 kg/m². A lateral abdominal wall hernia was identified on the right flank, posterior to the anterior axillary line. The hernia had a neck measuring 5 cm and was classified as L4 based on the European Hernia Society (EHS) classification system.

A contrast-enhanced computed tomography (CT) scan was performed to better define the anatomy of the defect. It revealed a right lateral abdominal wall defect at the level of the semilunar line, containing epiploic fat. The defect's neck measured 60 mm on coronal slices. (Figure 1) Based on these findings, surgical repair via laparotomy was planned.

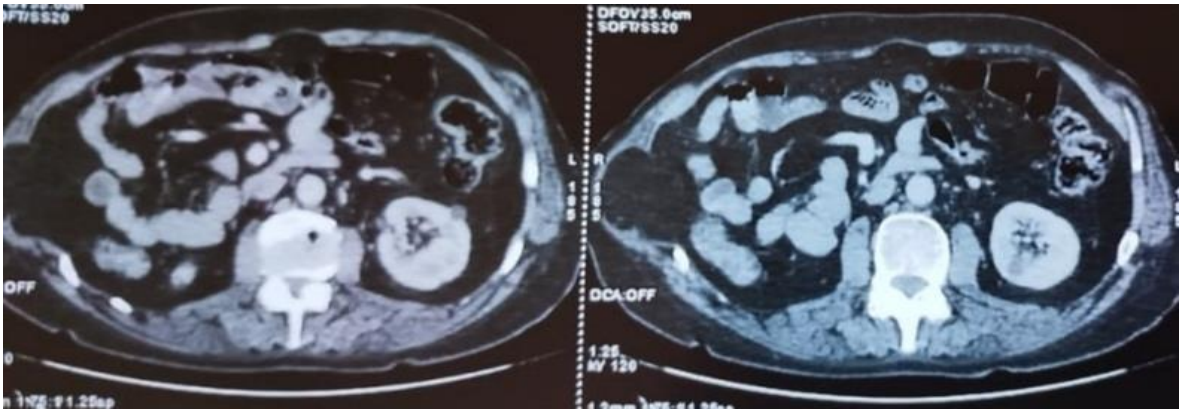

Figure 1: a CT scan slide showing the right lateral abdominal wall defect.

In the operating room, the patient was placed in a left lateral decubitus position under general anesthesia. A bolster was positioned under the left flank, and the right arm was suspended on an arm support. (Figure2) A subcostal incision over the hernia site was made to expose the defect. (Figure 3)

Figure 2: An intraoperative picture showing the patient positioning after general anesthesia.

Figure 3: An intraoperative image showing the hernia site and the incision relative to the ipsilateral bony edges.

The superficial fascia was incised, and the fibers of the external oblique muscle were dissected. The hernia sac, measuring 6 cm, was isolated, resected, and the neck was closed with absorbable sutures. (Figure 4)

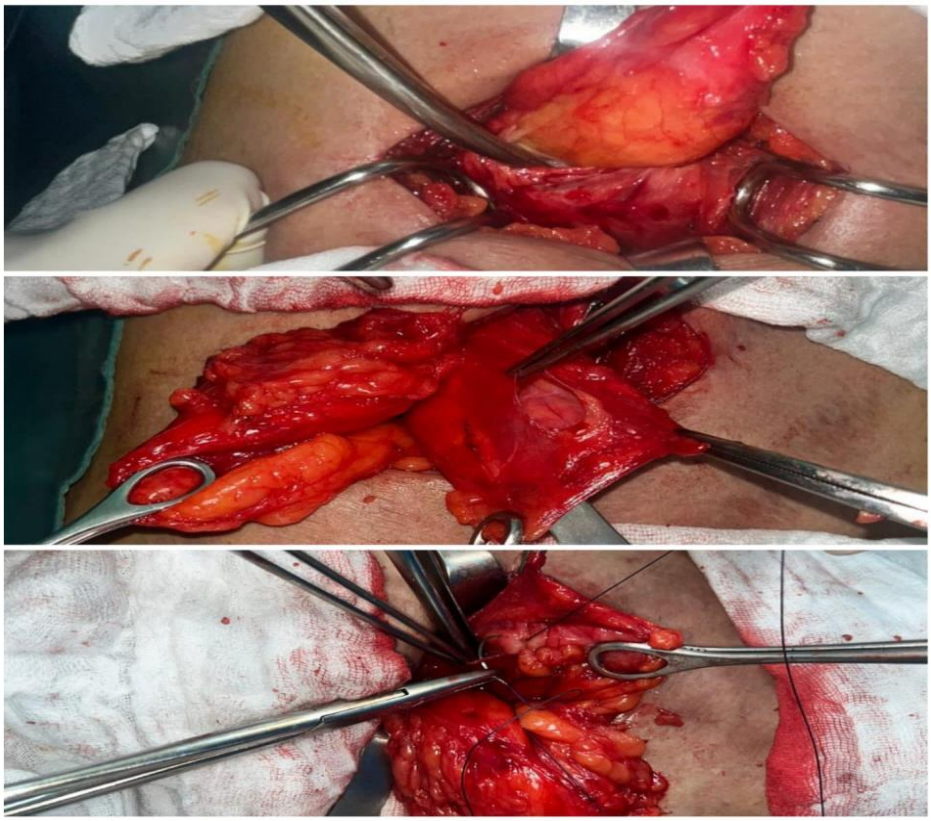

Figure 4: An intraoperative image of the hernial sac and the hernial neck closure.

The space between the peritoneum and the abdominal wall muscles was meticulously dissected while preserving the iliohypogastric nerve. Adequate dissection allowed for an 8 cm overlap of tissue edges.

A 15 cm × 15 cm polypropylene mesh was placed and fixed to the transverse and internal oblique muscles with five transfixed sutures using 2-0 silk. A slight dissection of the external oblique muscle was performed to facilitate defect closure using separate sutures with non-absorbable 0 monofilament.

An aspirative drain was placed in the dissected area before closing the external oblique muscle with a running suture using absorbable material. Skin closure was completed in layers.

Postoperatively, the patient's recovery was uneventful. Oral feeding was initiated on postoperative day 1, the drain was removed on day 2, and the patient was discharged on postoperative day 3. Follow-up over 18 months showed no recurrence of the hernia.

4. DISCUSSION

Lateral abdominal hernias are rare, accounting for only 1–4% of hernias compared to 14–19% for midline incisional hernias [7]. Despite their rarity, these hernias pose significant challenges for patients and surgeons. Patients often report distress due to the asymmetrical deformity, back pain caused by strain on spinal muscles, and progressive growth of the hernia, necessitating prompt medical consultation [8].

Anatomic considerations are essential when planning the repair of lateral abdominal hernias, given the unique fascial, muscular, and neurovascular complexities involved. The anatomical landmarks, including the external oblique, internal oblique, transversus abdominis, and rectus abdominis muscles, must be meticulously dissected and preserved to ensure repair integrity and prevent chronic pain syndromes [9]. Techniques such as retromuscular, preperitoneal, or sublay repairs remain the gold standard due to their ability to accommodate large mesh overlaps and prevent recurrences [10].

Several studies emphasize the retromuscular sublay approach as the most reliable technique. For example, Phillips and Rosen advocate a retromuscular repair to provide a large mesh overlap without creating skin flaps, noting concerns about retroperitoneal vascular or nerve injuries [11]. Similarly, Stumpf et al. described the importance of developing a wide interparietal plane for effective lateral hernia repair [12]. In cases of lateral lumbar hernias, the mesh must extend across critical areas such as the quadratus lumborum, the psoas muscles, and the iliac crest for optimal coverage and fixation [13].

Techniques that avoid extensive retroperitoneal dissection have proven safer, as wide dissections can increase the risk of complications such as hematomas or nerve injuries [14]. Veyrie and Stumpf, for example, emphasized the importance of not disrupting the transversus abdominis–internal oblique space to avoid thoracoabdominal neurovascular injury [15]. Fixation to bony structures, such as the costal margin and iliac crest, ensures mesh stability, as highlighted in Baumann's recommendations [16].

While open repair remains the preferred approach for larger or complex lateral hernias, laparoscopic repairs have been explored for smaller defects. However, studies such as those by Heniford and Moreno-Egea highlight significant complications like mesh eventration, reduced durability, and higher recurrence rates with laparoscopic approaches [17, 18].

Despite advancements, challenges persist. Recurrences are most often attributed to insufficient mesh overlap, inadequate fixation, or underlying infection [19]. In our study, most failures were associated with sublay repairs due to inadequate dissection or fixation. Proper closure of all musculofascial layers, meticulous dissection, and tailored mesh placement with circumferential overlap remain critical to reducing recurrence rates [13, 19].

5. CONCLUSION

In conclusion, lateral abdominal hernia repairs demand a careful balance between anatomy knowledge, surgical technique, and individualized patient considerations. While our study shows promising outcomes with sublay repairs, further large-scale prospective studies are required to standardize repair techniques and improve long-term outcomes.

PROVENANCE AND PEER REVIEW

Not commissioned, externally peer reviewed.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

CONFLICTS INTERESTS

Authors have declared that no competing interests exist.

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REFERENCES

1) Muysoms FE, Miserez M, Berrevoet F, et al. Classification of primary and incisional abdominal wall hernias. Hernia 2009;13:407–14.
2) Stumpf M, Conze J, Prescher A, et al. The lateral incisional hernia: anatomic considerations for a standardized retromuscular sublay repair. Hernia 2009;13:293–7.

3) Phillips M, Rosen M. Open flank hernia repair. In: Rosen M, ed. Atlas of Abdominal Wall Reconstruction. Philadelphia, PA: Elsevier, 2012, pp 97–109.
4) Moreno-Egea A, Baena EG, Calle MC, et al. Controversies in the current management of lumbar hernias. Arch Surg 2007;142(1):82–88. https://doi.org/10.1001/archsurg.142.1.82.
5) Baumann DP, Butler CE. Lateral abdominal wall reconstruction. Semin Plast Surg 2012;26(1):40–48. https://doi.org/10.1055/s-0032-1302465.
6) Stamatiou D, Skandalakis JE, Skandalakis LJ, Mirilas P. Lumbar hernia: surgical anatomy, embryology, and technique of repair. Am Surg 2009;75(3):202–207.
7) Halm JA, Lip H, Schmitz PI, Jeekel J. Incisional hernia after upper abdominal surgery: a randomized controlled trial of midline versus transverse incision. Hernia. 2009;13(3):275–280. https://doi.org/10.1007/s10029-008-0469-7
8) Kendall SP, Trandafirescu L, Cook CC, et al. Midline and lateral abdominal hernias: epidemiology and outcomes. J Surg Res. 1991;50(3):165–172.
9) Reinpold W, Buhr HJ, Bull M, et al. Fundamentals in abdominal wall anatomy. In: Hernia Surgery: The European Experience. Springer, 2015.
10) Moreno-Egea A, Vílchez J, Ruiz-Moral R, et al. Surgical techniques for abdominal wall reconstruction. Arch Surg. 2008;143(11):1095–1102.
11) Phillips M, Rosen M. Open flank hernia repair. In: Rosen M, ed. Atlas of Abdominal Wall Reconstruction. Philadelphia, PA: Elsevier, 2012, pp 97–109.
12) Stumpf M, Conze J, Prescher A, et al. The lateral incisional hernia: anatomic considerations for a standardized retromuscular sublay repair. Hernia 2009;13:293–7.
13) Petro CC, Orenstein SB, Criss CN, et al. Transversus abdominis muscle release for repair of complex incisional hernias in kidney transplant recipients. Am J Surg 2015;210:334–339.
14) Heniford BT, Lincourt AE, Shreves A, et al. Complications of laparoscopic incisional hernia repair. Am J Surg 1997;174:629–634.
15) Veyrie N, Poghosyan T, Corigliano N, et al. Lateral incisional hernia repair by the retromuscular approach with polyester standard mesh: topographic considerations and long-term follow-up of 61 consecutive patients. World J Surg 2013;37:538–544.
16) Baumann DP, Butler CE. Lateral abdominal wall reconstruction. Semin Plast Surg 2012;26(1):40–48.
17) Heniford BT, Lincourt AE, Shreves A, et al. Complications of laparoscopic incisional hernia repair. Am J Surg 1997;174:629–634.
18) Moreno-Egea A, Vílchez J, Ruiz-Moral R, et al. Surgical techniques for abdominal wall reconstruction. Arch Surg. 2008;143(11):1095–1102.
19) Petersen S, Schuster F, Steinbach F, et al. Sublay prosthetic repair for incisional hernia of the flank. J Urol 2002;168:2461–2463.