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Case Report

Incarcerated Grynfelt-Lesshaft's giant lumbar hernia: a case report

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ABSTRACT

A uncommon posterior abdominal wall defect called the Grynfeltt-Lesshaft hernia permits the herniation of retro and intraperitoneal tissues via the upper lumbar triangle. We describe a case of a post-menopausal woman who visited the surgical OPD because of a bulge that was steadily growing in the right lumbar area. She had a history of spinal tuberculosis and underwent computed tomography (CT) guided aspiration of a paravertebral abscess and surgical fixation of vertebrae. During the initial clinical examination, the swelling resembled a large lipoma, but other potential diagnoses considered were an incisional hernia, large lipoma, abscess, or hematoma. Ultrasonography was inconclusive in differentiating due to the large size and limited visibility. Consequently, contrast-enhanced computed tomography (CECT) scans of the abdomen revealed a substantial defect in the right lumbar area with herniation of the small bowel, large bowel, and omental fat. The diagnosis of a right Grynfelt hernia was established, and the patient was referred for surgical repair. Preoperatively, the hernia was classified as a type "A" lumbar hernia, according to Moreno-Egea et al classification. For the diagnosis of lumbar hernia and surgical planning, computed tomography (CT) is the most commonly used imaging modality. It allows for accurate visualization and assessment of the hernia, aiding in both the diagnosis and the planning of the surgical procedure.

Keywords: Grynfelt-Lesshaft's hernia, Grynfelt's hernia, Lumbar swelling, CT abdomen, Abdominal hernia

INTRODUCTION

A lumbar hernia is a condition characterized by a defect in the posterior abdominal wall. accounting for approximately 1.5-2% of all abdominal hernias.[1] It can occur either primarily through defects in the lumbar muscles or fascia within the superior (Grynfeltt-Lesshaft) or inferior (Petit's) lumbar triangles (Figure 1).[2,3] Lumbar hernias can manifest spontaneously, as a result of previous surgeries, or secondary to trauma, particularly after a pelvic fracture. The lumbar region is anatomically defined by the 12th rib superiorly and the iliac crest inferiorly, with the erector spinae muscles surrounding it medially and the external oblique muscle laterally. Within this area, two distinct weak regions are recognized: the superior lumbar triangle or Grynfelt-Lesshaft's triangle, and the inferior lumbar triangle or Petit's triangle.[4-7]

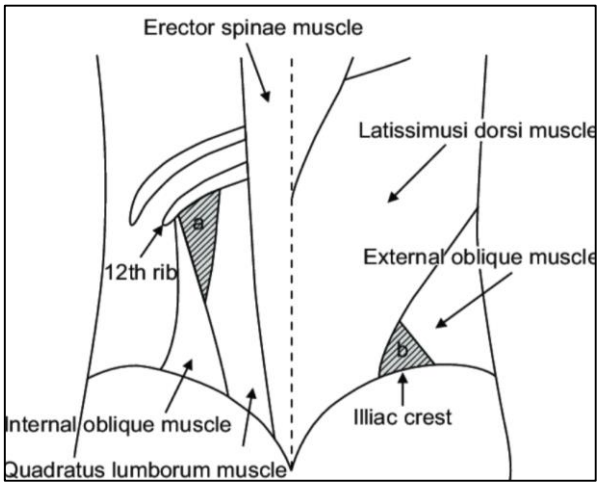

Figure 1: Anatomic boundaries of the lumbar hernias. Grynfeltt-Lesshaft triangle and the Petit triangle.

The superior triangle was first described by Grynfeltt-Lesshaft in 1866 and is shaped like an inverted triangle. It is bordered superiorly by the 12th thoracic rib, medially by the erector spinae muscle group, and laterally by the internal oblique muscle. The roof of the superior triangle is formed by the latissimus dorsi muscle, while the floor consists of the aponeurosis of the transversalis muscle.[4,7,8] Within Grynfelt-Lesshaft's triangle, there are three well-known areas of weakness: below the rib, where the fascia penetrates the 12th dorsal intercostal neurovascular pedicle, and between the inferior edge of the rib and the ligament of Henle.[4,5,8] In 1783, Petit described the inferior lumbar triangle, also known as Petit's triangle, which is more commonly observed following trauma.[7]

CASE REPORT

A 46-year-old postmenopausal female patient with a history of hypertension, type-2 diabetes mellitus, dyslipidemia, and obesity (BMI-31) presented to the surgical outpatient department. She complained of a progressively enlarging right lumbar mass that had been non-reducible for the past 2 years, accompanied by mild vague pain. The patient had a previous history of spinal tuberculosis 5 years ago and had undergone CT-guided aspiration of a paravertebral abscess, as well as surgical fixation of the D11 and L2 vertebrae using bilateral transpedicular screws and plates. The course of anti-tubercular drugs had been completed 3 years ago. On clinical examination, a soft and non-tender right lumbar mass was identified, which was non-reducible with manual compression. A CT scan revealed a large, well-defined outpouching measuring approximately 13.4×8.0×10.8 cm (craniocaudal, transverse, and anteroposterior dimensions, respectively) originating from a defect of approximately 56 mm in the right lumbar region. The hernia contained omental fat, small and large bowel loops, and their mesentery as its contents (Figure 2).

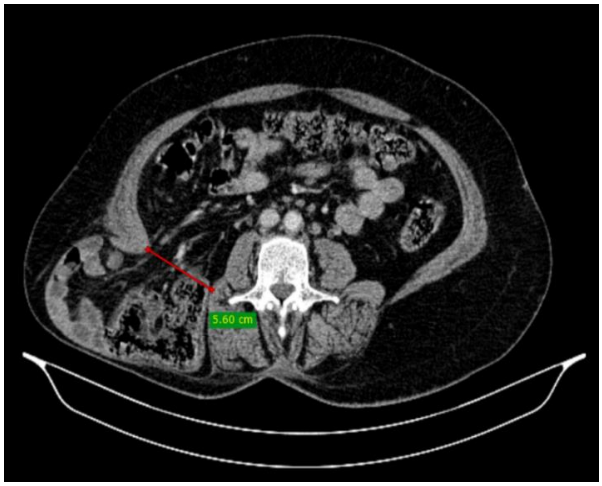

Figure 2: CECT axial section showing Grynfelt-Lesshaft's hernia with 56 mm defect in right superior lumbar triangle.

Figure 3: CECT, coronal reconstruction: hernia through right superior lumbar triangle, herniating sac contents omental fat, small bowel, large bowel and their mesentery (white arrow).

Figure 4: CECT, sagittal reconstruction: hernia through superior lumbar triangle (white arrow).

The hernia was surrounded medially by the erector spinal muscle, laterally by the internal oblique muscle, and superiorly by the 12th rib. The diagnosis was established as a right Grynfeltt hernia or superior lumbar hernia (Figures 3 and 4). The patient was scheduled for elective surgery to repair the Grynfelt-Lesshaft's hernia, which was pre-operatively classified as a type "A" lumbar hernia according to the Moreno-Egea et al classification.

DISCUSSION

Lumbar hernias are rare defects in the abdominal wall, typically affecting male patients in their 5th-6th decades of life, with a higher prevalence on the left side.[9] They can be classified as congenital or acquired.[4,10] Congenital hernias, accounting for 20% of cases, are present in infants and children and result from defects in the inferior lumbar triangle (Petit's triangle).[4] Acquired hernias make up 80% of cases and can be further categorized as spontaneous or primary hernias, representing approximately 55%. Risk factors for primary hernias include elderly obesity, chronic debilitating diseases,

muscular atrophy, chronic bronchitis, and increased abdominal pressure.[11] The remaining 45% are secondary hernias caused by factors such as wound infections, previous surgeries, postoperative sepsis, pelvic bone or rib infections, hepatic abscesses, infected retroperitoneal hematomas, and trauma.[12]

Early diagnosis is crucial for secondary hernias as there is an 8-10% risk of strangulation and a 5% risk of incarceration. The most common clinical presentation is a non-tender bulge or swelling in the lumbar area that protrudes with coughing, the Valsalva maneuver, or physical activity. Approximately 9% of cases may present with symptoms of a strangulated or painful incarcerated hernia. The contents of a lumbar hernia can include omental fat, mesentery, small bowel, or large bowel. Studies have shown that small bowel is present in 32% of cases, large bowel in 41%, and omental fat in 42%.[12]

Diagnosis of lumbar hernia is primarily based on a high index of suspicion and physical examination. Imaging methods are employed for diagnosis and surgical planning. Moreno-Egea A et al. proposed a preoperative classification for Grynfelt's hernia with surgical implications.[5] According to their classification, our patient presented with a type "A" hernia. Surgical treatment is recommended for all lumbar hernias, even asymptomatic ones, and can be performed through either a laparoscopic or open approach.

CONCLUSION

Grynfelt-Lesshaft's hernia is an uncommon abdominal hernia that necessitates early detection and timely surgical intervention. When encountering lumbar swelling, it is important to consider this hernia as a potential differential diagnosis alongside more common conditions like lipoma or abscess. Diagnosis of a lumbar hernia relies on maintaining a high level of suspicion and conducting a thorough physical examination. Computed tomography (CT) is the most frequently utilized imaging technique, not only for confirming the diagnosis but also for surgical planning purposes.

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