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Original Article

Post-traumatic unilateral lumbar hernia in a 35-year-old male with delayed presentation: A retrospective case study.

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Abstract

Background

A bowel or abdominal organ protruding due to a disruption of muscle and fascia after a severe physical trauma is known as a traumatic abdominal wall hernia (TAWH). Motor vehicle collisions (MVCs) are the most frequent cause of this uncommon occurrence, followed by handlebar injuries, motorcycle accidents, and falls.

Objectives

In this case, a post-traumatic lumbar hernia that was discovered three years after the accident was effectively treated with open mesh surgery.

Materials and Methods

A male construction worker, age 35, complained of a gradual, painless enlargement in his left side. Three years ago, he remembered falling from a height and suffering soft tissue contusions, but at the time, no imaging was done. Initially observed six months earlier, the bulge gradually grew and was reduced upon evaluation. A muscle deficiency with fat herniation was detected by the first ultrasonography.

Results

In the CT scan, an enhanced contrast was performed, and the abdomen and pelvis were examined. It revealed a 6 x 5 cm defect in the left inferior lumbar triangle, i.e., Grynfeltt Lesshaft triangle. Retroperitoneal fat and a small portion of the descending colon were seen herniating through this defect. There was no evidence of bowel obstruction or strangulation.

Conclusion

The significance of long-term monitoring for patients with abdominal trauma is shown by this instance. Clinicians should be aware of the potential for delayed herniation even if there are no early symptoms. Excellent long-term results can result from early diagnosis with CT and surgical intervention with mesh reinforcement.

Recommendation

This case report recommends early imaging and surgical intervention for suspected lumbar hernias to prevent complications.

Keywords: *Lumbar hernia, post-traumatic hernia, Mesh repair, Delayed presentation, Superior lumbar triangle*
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Introduction

An unusual condition, lumbar hernias are caused by intraperitoneal or extraperitoneal contents protruding via defects in the posterolateral abdominal wall. It is defined anatomically by the erector spinae muscle group medially, the iliac crest inferiorly, the posterior border of the external oblique muscle laterally, and mainly on the twelfth rib [1].

A bowel or abdominal organ protruding due to muscle disruption and fascia after a severe physical trauma is known as a traumatic abdominal wall hernia (TAWH). Motor

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vehicle collisions (MVCs) are the most frequent cause of this uncommon occurrence, followed by handlebar injuries, motorcycle accidents, and falls [2].

While the remaining TAWH are diagnosed after the fact, 73% are present at admission [1, 2]. Though they rarely manifest as lumbar hernias, TAWH usually manifests ventrally. There have been 66 recorded cases of traumatic lumbar hernias in English literature since 1906, according to Burt et al [1].

Grynfeltt identified the inverted triangle in 1866. Its borders include the superior border of the serratus posterior inferior muscle and the 12th rib, the posterior boundary of the internal oblique muscle laterally, and the anterior border of the sacrospinalis muscle medially. The aponeurosis of the transversus abdominis muscle forms the triangle's floor, and the latissimus dorsi muscle forms its roof [3, 4].

Depending on the aetiology, lumbar hernias can be acquired or congenital, with the latter being further classified as spontaneous, traumatic, incisional, and infectious [5]. One uncommon kind of secondary lumbar hernia that is mostly linked to trauma is traumatic lumbar hernia (TLH). In general, there is a dearth of solid evidence about diagnosis and available treatments [6].

It is not common, as only three hundred cases of hernia of lumbar hernia have been reported [7]. It generally arises from the triangle, which is inferior lumbar triangle superiorly, two anatomically weak spots in the posterior abdominal wall. Although there are congenital and spontaneous occurrences, the majority are acquired and linked to surgery, infection, or trauma [8].

When a traumatic incident causes the musculofascial layer to gradually deteriorate, the consequence is a delayed post-traumatic lumbar hernia that develops months or years later. Lumbar hernias are often underdiagnosed because of their infrequent occurrence and vague symptoms [9]. In this case, a post-traumatic lumbar hernia that was discovered three years after the accident was effectively treated with open mesh surgery.

Methodology

Case Presentation

A male construction worker, age 35, complained of a gradual, painless enlargement in his left side. Three years ago, he remembered falling from a height and suffering soft tissue contusions, but at the time, no imaging was done. Initially observed six months earlier, the bulge gradually grew and was reduced upon evaluation. Upon clinical examination, Valsalva identified an 8 cm soft, non-tender mass in the left lumbar region. Systemic symptoms and discoloration were absent. Other than that, the abdominal examination was uneventful.

Differential Diagnosis Considered

At the initial clinical evaluation, the patient presented with a soft, reducible, non-tender swelling in the left lumbar region, which prompted consideration of several differential diagnoses. These included a lumbar hernia, lipoma, hematoma, abscess, and muscle tear. Each condition was evaluated based on the clinical features, patient history, and physical examination findings. Ultimately, the reducibility of the mass and its response to the Valsalva maneuver strongly supported the diagnosis of a lumbar hernia. Subsequent imaging, including ultrasonography and contrast-enhanced CT, provided definitive evidence of a defect in the superior lumbar triangle, helping to rule out other conditions such as lipoma, abscess, or hematoma.

Previous Treatments

Six months prior to the current evaluation, the patient initially sought medical attention at a local clinic after noticing a mild bulge in the left lumbar area. At that time, no diagnostic imaging was performed, and a conservative approach was taken. The patient was advised to undergo symptomatic observation without any pharmacological treatment or surgical referral. Over time, the swelling gradually increased, leading to further evaluation and definitive diagnosis at the present institution.

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Data Collection

A muscle deficiency with fat herniation was detected by the first ultrasonography. The contrast-enhanced CT scan revealed a 6 x 5 cm defect in the left superior lumbar triangle with retroperitoneal fat and descending colon herniation, which is indicative of a superior lumbar hernia. Tests in the lab came back within normal ranges.

Study Procedure

Under general anesthesia, the patient had an open mesh repair. To increase the operating field, he was flexed at the table and placed in the right lateral decubitus posture. Over the lumbar edema, a 15 cm oblique incision was performed, revealing the fascial defect and subcutaneous tissue. Following the removal of the hernia sac, the contents, which included retroperitoneal fat and a portion of the descending colon, were meticulously dissected into the peritoneal cavity.

To cover the defect with sufficient overlap, a 15 × 15 cm polypropylene mesh was cut and placed on a preperitoneal plane. The mesh was attached to the muscle and fascial edges with non-absorbable sutures. Layers were used to close the incision, and a closed suction drain was positioned in the subcutaneous plane. The patient had no intraoperative problems and tolerated the procedure well.

Recovery from surgery went smoothly. The drain was removed generally on second day, and on the third day, the patient was released. No recurrence was found during the 2-week, 3-month, 6-month, 1-year, and 2-year follow-ups. Without any issues, the patient resumed his normal activities.

Results

In ultrasound, an initial bedside ultrasound in the clinic showed a defect in the left lumbar musculature with herniation of retroperitoneal fat. However, the exact dimensions of the defect were difficult to ascertain.

In the CT scan, an enhanced contrast was performed, and the abdomen and pelvis were examined. It revealed a 6 x 5 cm defect in the left inferior lumbar triangle, i.e., Grynfeltt Lesshaft triangle. Retroperitoneal fat and a small portion of the descending colon were seen herniating through this defect. There was no evidence of bowel obstruction or strangulation. Among laboratory tests, complete blood count, basic metabolic panel, and coagulation studies were found to be within normal limits. Table 1 represents imaging findings in various relevant conditions in the patient.

Table 1. Imaging findings in various relevant conditions

Condition	Key Clinical Features	Imaging Findings
Lumbar Hernia	Reducible swelling, enlarges on Valsalva	Defect in the lumbar triangle with herniated abdominal contents
Lipoma	Soft, mobile, non-reducible, slow-growing	Homogeneous hypodense fatty mass, no defect in musculature
Hematoma	History of trauma, localized pain, bruising	Heterogeneous collection with varying densities
Abscess	Local warmth, tenderness, systemic signs	Hypodense collection with rim enhancement
Muscle Tear	Acute onset of pain post-exertion, localized swelling	Muscle discontinuity, hematoma in the muscle belly

Discussion

Although rare, traumatic lumbar hernias are frequently disregarded. Usually, high-energy blunt trauma disrupts muscle layers as part of the mechanism [10]. As demonstrated here, cumulative muscle weakness and undetected increasing herniation may cause delayed presentation.

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The twelfth rib, internal oblique muscle, and quadratus lumborum surround the superior lumbar triangle. Compared to the Petit and triangle, it is more frequently engaged in hernias because of its relative structural weakness [11].

Often misdiagnosed as soft tissue swellings or lipomas, clinical indications can be inconspicuous. The gold standard for imaging defects and herniated contents is CT imaging, which offers superior detail [12]. Because of the possibility of growth, imprisonment, and strangulation, surgical treatment is recommended. Open mesh repair is still a dependable method, especially for big flaws or intestinal hernias [13].

For smaller or primary hernias, laparoscopic repairs are becoming more and more common because they have benefits, including less pain after surgery and shorter hospital stays [14]. When compared to primary closure, mesh reinforcement dramatically lowers recurrence, particularly in big or complex hernias [15]. Grading of abdominal wall defects, bleeding, inflammatory stranding, or minor flaws at admission may be possible predictors of future hernias in delayed TAWH [16].

In this study, the patient experienced no recurrence after a two-year follow-up, and polypropylene mesh offered strong reinforcement. Even though the first injuries may appear small, this example also emphasizes the need for long-term follow-up in patients with abdominal trauma. Understanding late-onset issues, such as lumbar hernias, can help with better results and early detection. Furthermore, recording these uncommon occurrences advances surgical expertise and aids in the creation of more evidence-based treatment plans.

Conclusion

The significance of long-term monitoring for patients with abdominal trauma is shown by this instance. Clinicians should be aware of the potential for delayed herniation even if there are no early symptoms. Excellent long-term results can result from early diagnosis with CT and surgical intervention with mesh reinforcement.

Limitations

The study might not be able to test hypotheses or produce epidemiological data. Not all pertinent information may be in the medical record.

Recommendations

Understanding the significance of long-term surveillance in patients with abdominal trauma may be aided by case reports of further similar cases or patients.

List of Abbreviations

TAWH- Traumatic abdominal wall hernia

MVCs- Motor vehicle collisions

TLH- Traumatic lumbar hernia

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Conflict of Interest

The authors declare no conflict of interest related to this study.

Availability of Data

Data supporting the findings of this case report are available from the corresponding author upon reasonable request.

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Authors' Contribution

All authors contributed to the conception, clinical management, data interpretation, and manuscript preparation, and approved the final version of the article.

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