



## Case report

## Primary Grynfeltt's hernia combined with intermuscular lipoma: A case report

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## ABSTRACT

**Introduction:** Grynfeltt's hernia (superior lumbar hernia) is a rare posterolateral abdominal wall defect and is often misdiagnosed as an abdominal wall lipoma. I recently experienced a case of primary Grynfeltt's hernia combined with intermuscular lipoma that was managed surgically.

**Presentation of case:** A 79-year-old man presented with a left flank mass. In the seated position, when the abdominal pressure was raised by deep breathing after left flank extension, the mass became clearer. Abdominal computed tomography (CT) findings showed herniated perirenal fat via the superior lumbar triangle and a surrounding intermuscular lipoma. After intermuscular lipoma removal, the hernia defect was closed with primary simple interrupted sutures. Currently, at 5 months postoperatively, no recurrence has been observed.

**Discussion:** On physical examination of Grynfeltt's hernia, it may be difficult to identify the distinct mass because of the relatively large overlaying of the latissimus dorsi muscle. Thus, Grynfeltt's hernia can be misdiagnosed as soft tissue tumors, such as lipomas. Abdominal CT findings may provide an accurate diagnosis and reveal the anatomical structures and additional lesions. Proper surgical treatment should be planned based on the etiology, size of the hernia defect, condition of the surrounding structures, and presence of additional lesions.

**Conclusion:** Grynfeltt's hernia should be considered when a mass is palpable on the posterolateral abdominal wall and in cases where the size of the mass changes when changing position. CT examination of the abdomen may help make an accurate diagnosis, observe additional lesions, and develop a surgical-treatment plan.

## 1. Introduction

Grynfeltt's hernia (superior lumbar hernia) is a rare posterolateral abdominal wall defect and is often misdiagnosed as an abdominal wall lipoma because of its rarity and nonspecific symptoms [1]. Depending on the contents and the extent of the hernia, patients may develop an asymptomatic lumbar mass, a lumbar mass with back pain, or ambiguous abdominal symptoms. Here, I present a rare case of primary Grynfeltt's hernia combined with a surrounding intermuscular lipoma.

## 2. Presentation of case

This case report was written in accordance with the SCARE criteria [2]. The institutional review board of our hospital approved this study. Written informed consent was obtained from the patient. A 79-year-old man presented to my department with a 3-year history of a left flank mass. He had no abdominal trauma and abdominal surgery history. He

had a palpable mass and mild discomfort in the left flank. No apparent distinct lumps were observed. The mass was approximately 8 cm in size on palpation, but it was not clear in the supine position. In a seated position, when the abdominal pressure was raised by deep breathing after left flank extension, the mass became clearer.

Abdominal computed tomography (CT) findings showed herniated perirenal fat in the superior lumbar triangle and in the surrounding lipoma (Fig. 1A and B). Following a diagnosis of a left superior lumbar hernia combined with an intermuscular lipoma, surgery was performed after obtaining the patient's consent.

With the patient in a left-side elevated prone position, the surgery was performed under general anesthesia using an infusion of desflurane (5–6%) and remifentanyl (0.1 µg/Kg/min). An oblique skin incision was made at the center of the mass. The latissimus dorsi muscle was dissected and elevated dorsally. The lipoma was situated between the latissimus dorsi muscle and the internal oblique muscle, and was 8 × 5.2 × 1.2 cm in size (Fig. 2).

**Abbreviations:** CT, computed tomography.

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After removal of the intermuscular lipoma, a 1 cm-sized hernia defect was observed in the upper surgical field (Fig. 3). There was no distinct hernial sac. The perirenal fat tissue could be released via the hernia defect, and was distinct from the lipoma in terms of color and hardness. The retroperitoneal perirenal fat was yellow in color, softer, and more susceptible to damage than the lipoma (Fig. 4A).

The hernia defect was approximately 1 cm in diameter and, therefore, it was closed with three simple interrupted sutures with black silk (3.0) instead of a mesh (Fig. 4B). The latissimus dorsi muscle was covered, and several additional plication sutures were performed. The wound was closed layer-by-layer without drain insertion.

The postoperative course was uneventful. The patient was discharged on postoperative day 3. A CT scan acquired 1 month after surgery revealed successful repair with total disappearance of the hernia and lipoma (Fig. 5). Currently, at 5 months postoperatively, no recurrence has been observed.

### 3. Discussion

Lumbar hernia can develop in the two weak areas of the posterolateral abdominal wall: the superior lumbar triangle of Grynfeltt, which is the location where a lumbar hernia is more commonly observed, or the inferior lumbar triangle of Petit [3]. The anatomical boundaries of the flanks are the 12th rib superiorly, the crest of the iliac bone inferiorly, the posterior edge of the external oblique muscle anteriorly, and the erector spinae muscle posteriorly. This area contains two known lumbar triangles: Grynfeltt's or the superior lumbar triangle, and Petit's or the inferior lumbar triangle. Grynfeltt's triangle is larger than Petit's triangle. The latissimus dorsi muscle forms the roof. The transversalis fascia, together with the aponeurosis of the transversus abdominis muscle, forms the floor, which is a weak area where a hernia may develop. Grynfeltt's hernia is a defect that occurs in the superior lumbar triangle, and is defined as the protrusion of the extraperitoneal or intraperitoneal contents. The superior lumbar triangle is bounded anteriorly by the posterior border of the internal oblique muscle, posteriorly by the anterior border of the quadratus lumborum muscle, and superiorly by the 12th rib [3].

While hernias may be asymptomatic, the typical symptoms are flank or lower back pain in the lumbar area. Moreover, in cases of strangulation, nausea, vomiting, and colicky pain could be developed. Small-sized hernias may be asymptomatic, aside from a palpable mass.



Fig. 2. Lipoma specimen. The lipoma was 8 × 5.2 × 1.2 cm in size.

Intestinal obstruction develops in <10% of cases [4]. Hernias are more evident when the patient is standing and the intra-abdominal pressure increased. On physical examination of Grynfeltt's hernia cases, it may be difficult to identify the mass because of the relatively large overlaying of the latissimus dorsi muscle, which acts as a roof. The protruding lump can be palpated by herniation, but the muscle above it can interfere with the identification of certain features of the hernia, such as the size, shape, hardness, and reducibility. Thus, Grynfeltt's hernia is likely to be confused with soft tissue tumors, such as lipomas [1]. In the current case, the mass was palpable but not clear in the supine position. In a seated position, when the abdominal pressure was raised by deep breathing after left flank extension, the mass was clearer.

In most reported cases, including this case, a definite diagnosis was made by CT. CT examination of the abdomen may be an appropriate option to identify or rule out suspected causes of lumbar masses and may help avoid delays in the identification of a lumbar hernia. The abdominal CT findings in this case showed herniated perirenal fat via the superior lumbar triangle and a surrounding lipoma (Fig. 1). This case represents a primary Grynfeltt's hernia with a surrounding intermuscular lipoma. The lipoma was located between the internal oblique muscle and the latissimus dorsi muscle. A lumbar hernia should be considered in cases of lumbar or flank masses. CT examination of the

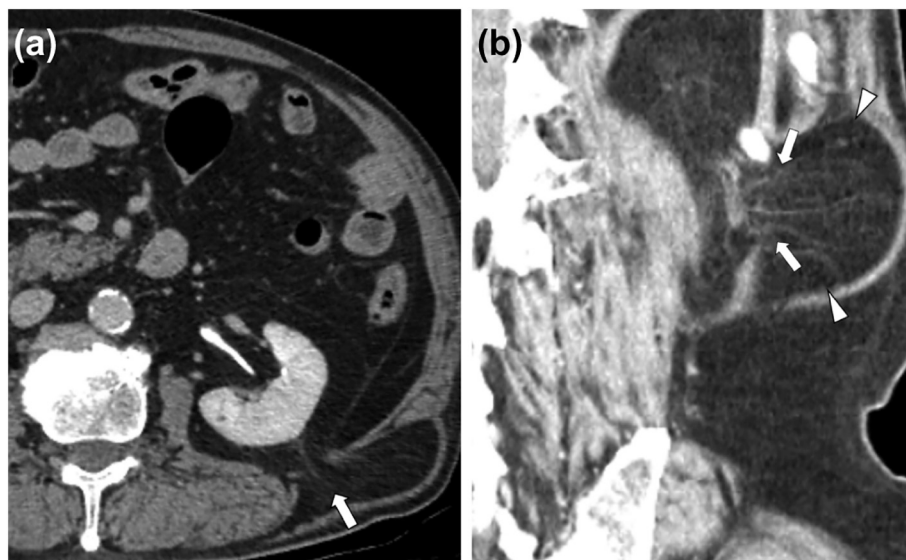
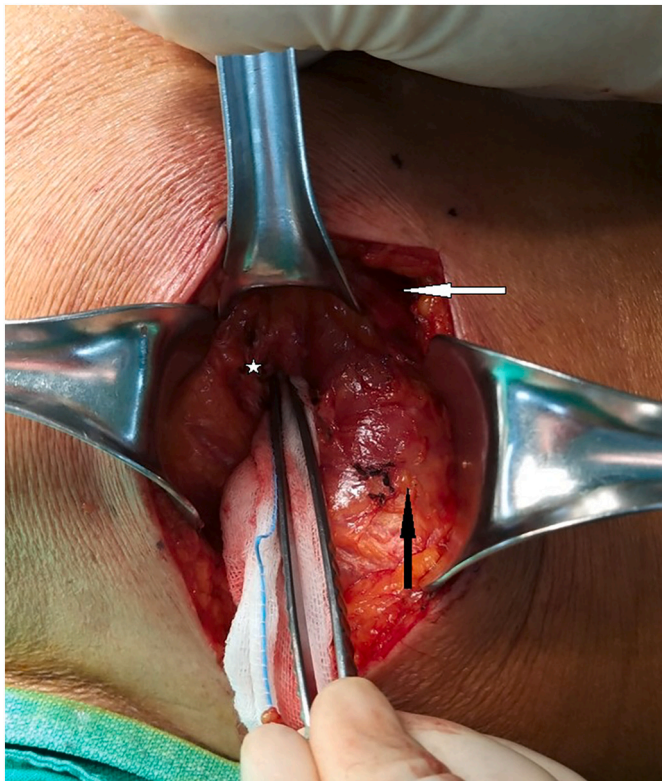


Fig. 1. Computed tomography images. Contrast enhanced axial (A) and coronal (B) abdominal computed tomography images show herniated perirenal fat (arrow) via the superior lumbar triangle inferior to the 12th rib and the surrounding lipoma (arrowhead).





**Fig. 3.** Intraoperative photograph shows the defect after removal of the intermuscular lipoma. White star: hernia defect; white arrow: retracted latissimus dorsi muscle; black arrow: internal oblique muscle.

abdomen may provide an accurate diagnosis and reveal the anatomical structures and additional lesions. Proper surgical treatment should be planned based on the etiology, size of the hernia defect, condition of the surrounding structures, and presence of additional lesions.

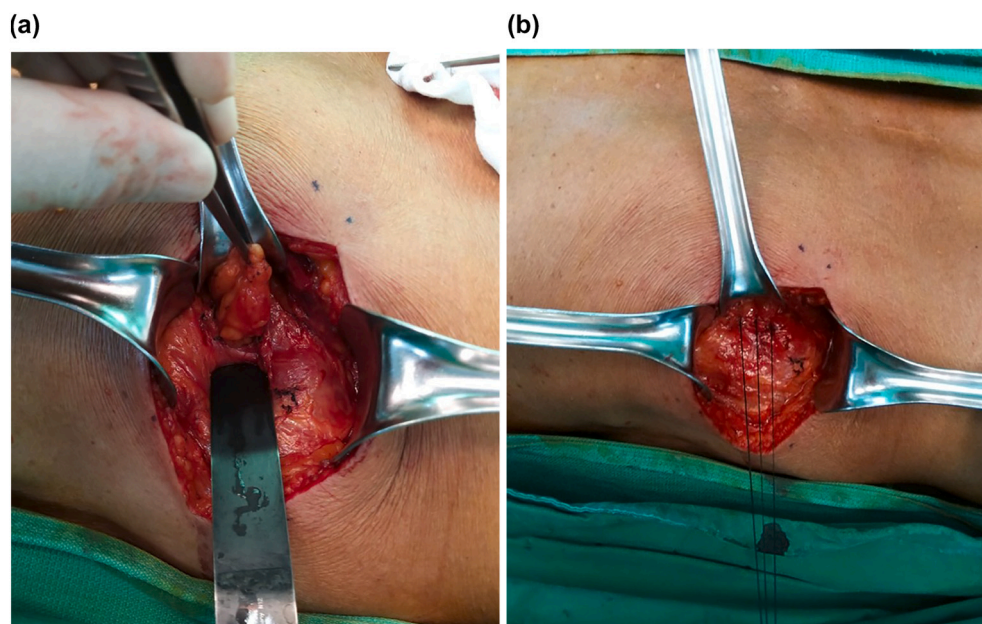
Surgical reconstruction of the wall of the defect is the definitive

treatment for lumbar hernia cases, and can be performed via an open or laparoscopic approach. Reconstruction of the defect is crucial and depends on the size of the wall defect, quality of the surrounding tissue, and surgeon's level of skill. Small-sized hernias of the superior lumbar triangle can be safely repaired by simple closure sutures of the defect of aponeurosis or approximating the transversalis fascia along with the fascia of the transversus abdominis muscle. Interrupted non-absorbable sutures are preferred. Occasionally, reinforcement of the repair is required using a synthetic mesh or additional plication sutures. Several surgical approaches have been proposed. One of the early techniques developed by Orcutt in 1971 included open repair performed by directly approximating the edges of the defect and providing reinforcement with flaps of adjacent fascia structures [5]. It is generally accepted that the repair of most abdominal hernias, including the lumbar hernias, should be performed in a tension-free manner. Therefore, recent open approaches involve the replacement of synthetic mesh prostheses [6]. Lumbar hernia repair with laparoscopic instruments has several advantages regarding the hospitalization duration and the rate of post-operative complications, but it is more likely to involve intraoperative complications [7].

In this case, most of the palpable mass was the intermuscular lipoma. After removal of the lipoma, a hernia defect appeared in the upper surgical field. The defect was small (approximately 1 cm in diameter). There was no tension, even with simple interrupted sutures in the closure. Thus, simple interrupted sutures were sufficient for repair in this surgery.

#### 4. Conclusion

Grynfeltt's hernia should be considered when a mass is palpable on the posterolateral abdominal wall and in cases where the size of the mass changes when changing position. CT examination of the abdomen may help make an accurate diagnosis, observe additional lesions (such as the surrounding intermuscular lipoma in this case), and develop a surgical-treatment plan.



**Fig. 4.** Intraoperative photograph. The retroperitoneal fat (A). The retroperitoneal perirenal fat was yellow, softer, and more susceptible to damage than the lipoma. The hernia defect repair process (B). Hernia defect repair was achieved using three simple interrupted sutures with black silk 3.0. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)



**Fig. 5.** A computed tomography image acquired 1 month postoperatively. The image shows successful repair with total disappearance of the hernia and lipoma.

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#### Ethics

The institutional review board of Inje University Ilsanpaik Hospital

approved this study (ISPAIK 2021-05-020).

#### Consent

Written informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Research registration

Not applicable.

#### Guarantor

TGH accepts the full responsibility for the article.

#### CRediT authorship contribution statement

TGH is the only author of this article.

#### Declaration of competing interest

None.

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