

Case report article

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## Superior lumbar triangle hernia: a rare case at Binh Dan Hospital

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### Abstract

Grynfelt's lumbar hernia, from the author who first described it in 1866, is the rarest among all hernias of the abdominal wall and it represents, in the treatment technique depends on the size of herniation, the dimension of hernia orifice, and the clinical condition when a patient is diagnosed. According to the most recent literature, only 2% of all hernias. Of these, about 20% are congenital, secondary mainly to defects of embryonic development, while 80% are acquired defects. Surgeries, penetrating wounds, and infections are risk factors for the development of secondary and therefore iatrogenic lumbar hernias. In the literature, there is a predominance of the left Grynfeltt hernia while a bilateral presentation is exceptional. We report a case of a superior lumbar triangle hernia in an 85-year-old male patient who was successfully operated on at Binh Dan Hospital. We performed an open surgery technique, brought the herniated organs into the abdominal cavity (with the herniated organs being the descending colon and the greater omentum without necrosis), identified and sutured the neck of the hernia sac, placed the mesh and fixed it to the anterior superior iliac spine and the lower border of the 12th rib. The patient recovered well after surgery and was discharged after 3 days. The patient was followed up after 1 year without recurrence or complications.

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### 1. INTRODUCTION

Lumbar triangle hernias is a rare form of hernia due to a defect in the posterior abdominal wall, the herniated organs pass through the gap between the layers of muscle and bone in the lumbar region. Causes of hernia can be congenital, primary, and secondary. Congenital hernias are hernias discovered in infancy and account for 20% of all lumbar hernias. These hernias are associated with rib and vertebral anomalies [3]. Primary lumbar hernias are rare and only 300 cases have been reported since the first case was published in 1731 [1,2]. Risk factors related to primary lumbar hernia are recognized as older age, rapid weight loss, chronic diseases that increase abdominal pressure, muscle atrophy, and heavy labor [3].

Secondary lumbar hernia accounts for 25% and is related to a history of surgery, lumbar trauma, or pelvic infection [4]. Organs in lumbar hernia can be fat, urinary system structures (kidneys, ureters), or gastrointestinal system (small intestine, colon). It may be a rare cause of bowel obstruction due to strangulation of the bowel loops within the hernia sac [5].

The anatomical area delimited superiorly by the 12th rib, inferiorly by the iliac crest, medially by the erector spinae muscles, and laterally by the external oblique muscle is called the lumbar region. The upper lumbar is defined internally by the erector spinal muscle group, externally by the internal oblique muscle, and above by the 12<sup>th</sup> rib [6,7] Lumbar hernias are divided into two types depending on

the defect of the decompression site. surgery: upper lumbar hernia and lower lumbar hernia [1]. Upper lumbar hernia (Grynfeltt - Lesshaft hernia) is rare and occurs when there is a defect in the posterolateral abdominal wall that results in abdominal contents exiting through the superior lumbar triangle [2].

In 2016, Vo Thi My Ngoc and Nguyen Huu Thinh [8] reported a case of a hernia through the upper lumbar triangle obstructing the descending colon. The patient underwent a midline laparotomy above and below the umbilicus. In 2021, Pham Trung Vi and Phan Hai Thanh reported a similar case of upper lumbar hernia, where the herniated organ was the ascending colon.

Diagnosing and treating lumbar hernia is challenging due to its unique anatomical location. However, based on a successful surgical treatment at Binh Dan Hospital, we are reporting a case of upper lumbar hernia in an 85-year-old male patient.

### Case Presentation

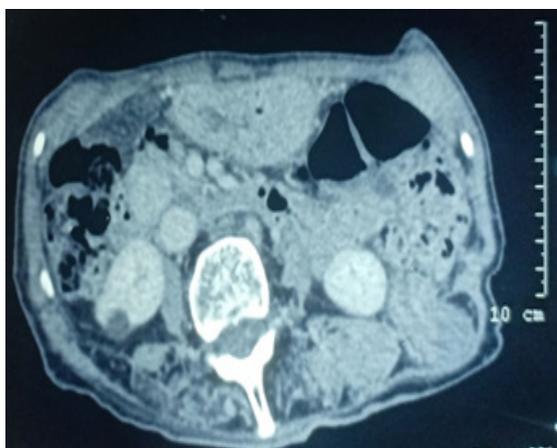
We are presenting a case of an 85-year-old retired man who was admitted to the hospital due to pain in his left hip for 12 hours. The patient is a farmer by occupation. It was found that he experiences dull abdominal pain and cramping pain, which lasts for 5-10 minutes, and there is no position to reduce the pain. A mass appears in the left hip area, which does not deflate. During the pain, the patient has symptoms of

bowel obstruction, clear yellow urine, and no vomiting. The patient was initially examined at a lower-level hospital and then transferred to Binh Dan Hospital with a diagnosis of intestinal obstruction.

The patient's past medical history includes prostate enlargement, 3 years of endoscopic ablation, and heart failure stage II. No chronic diseases are causing increased abdominal pressure, and no history of trauma or lumbar surgery has been recorded on the left. Clinical examination revealed that the patient is awake, and his vital signs are stable. He has malnutrition level II with a BMI of 16.77. Moderate abdominal distension and left abdominal pain were also observed during the examination.

Examination revealed a bulge in the left hip area, which is 2 x 3 cm in size, round, with unclear boundaries, not deflated, and painful. The ASA grade II assessment was used to assess the patient's current condition.

Medical tests were normal. Imaging results indicate the following: (1) An abdominal X-ray without preparation shows no abnormal fluid levels, but air stasis of the transverse colon and hepatic flexure. (2) Ultrasound shows an abdominal wall hernia with thickening of intestinal loops, a laparoscopic prostatectomy mark, and a large prostate. (3) CT scan shows herniated omentum and descending colon in the left hip area, a sac neck measuring 20mm, and a large prostate.



**Figure 1:** Image of lumbar hernia on abdominal CT scan

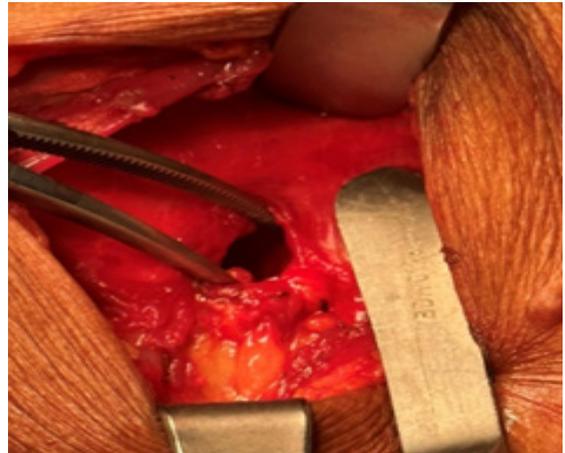


**Figure 2:** Image of hernia before surgery

The patient was positioned on the right side and given endotracheal anesthesia. A vertical incision measuring 5 cm was made on the left lumbar area. The herniated viscera, which were the descending colon and greater omentum, were identified without any signs of necrosis. The herniated organ was then inserted back into the abdominal cavity. The neck of the hernia sac was found to be round, with a diameter of 2 cm, and was then sewn closed. A 7.5 x 15cm artificial mesh was placed in the created cavity. The mesh was fixed by attaching its lower edge to the left anterior superior iliac spine and its upper end to the lower edge of the left 12th rib. Finally, the posterior inferior serratus fascia was closed to the internal abdominal oblique muscle using separate sutures. The surgery took 45 minutes.



**Figure 3:** The herniated organ is the descending colon and the omentum



**Figure 4:** Image of the hernial orifice



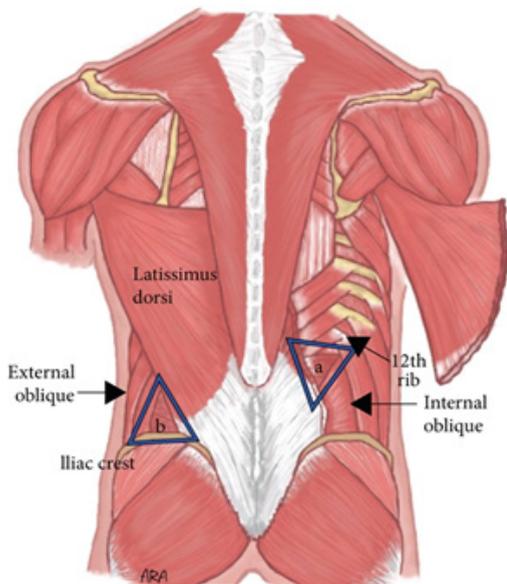
**Figure 5:** Mesh placement in the herniated area



**Figure 6:** Incision in the left lumbar area

The patient underwent surgery and was discharged three days later with no complications. Follow-up after one year showed no recurrence.

**Discussion**



**Figure 7:** Upper and lower lumbar triangle anatomy [9]

Lumbar hernia is a rare disease that can be congenital or acquired. Congenital hernias, accounting for 20% of all cases, occur in infants and young children and are thought to be due to defects in the lumbar wall [10]. Acquired hernias account for 80% of the total, divided into two groups: primary hernias accounting for about 50-60% [10], and secondary hernias. The pathogenesis of primary hernia is often due to causes that alter the integrity of the dorsal fascia [10,11] and risk factors include older patients, obesity or severe malnutrition, chronic diseases (chronic bronchitis, COPD), muscle

atrophy, or long-term heavy labor [11]. Our patient had documented risk factors: old age (85 years old), long-term heavy labor, and grade II malnutrition (BMI = 16.77).

Lumbar hernias typically present as a palpable mass that protrudes during physical activity. 9% of patients will have symptoms of impacted or strangulated herniated organs. [11,12]

Surgical treatment is the only option and should be performed early to avoid complications. Surgery is often recommended to correct the defect and prevent complications [15]. Open or laparoscopic surgery can be performed with the same level of success [16]. The choice of surgical method will depend on many factors [6]: preoperative disease classification, patient condition and accompanying diseases, condition of the herniated viscera, hospital facilities, and experience. of the surgeon. Loukas M et al [13] performed research on cadavers and presented a classification table based on the size of the Grynfelt triangle: type 0 (18%) when no triangle is formed, type I (50%) < 5 cm, type II (22%) 5 - 15 cm and, type III (10%) > 15 cm. Moreno - Egea A and colleagues in a comprehensive study proposed treatment based on this classification [11]. Our patient presented with a type “A” hernia and the surgical approach could be open or laparoscopic. Some authors believe that laparoscopic mesh surgery will give good results, better than traditional open surgery in terms of postoperative pain reduction, complications, and near recurrence rate.

**Table 1**

Classification of the Lumbar hernias [3] IP intraperitoneal. The presence of at least two criteria is necessary for defining a type.

Characteristics	A	B	C	D (Pseudohernias)
Size cm	<5	5-15	>15	
Location	Superior	Inferior	Diffuse	
Contents	Extraperitoneal fat	Visceral	Visceral	
Etiology	Spontaneous	Incisional	Traumatic	
Muscular atrophy	No (minor)	Mild	Severe	Severe
Recurrence	No	Yes (open)	Yes (laparoscopic)	
Surgical approach	Open or laparoscopic approach	IP laparoscopy	Open approach	Open approach (double mesh)

According to Shu Y and Gandhi J [14], the small size of the hernia hole (< 5cm) leads to a low rate of postoperative complications because of the simple surgical technique, short surgical time, and no need for much abdominal wall dissection. On the contrary, a large hernia hole size (> 10cm) is often accompanied by other injuries to the abdominal wall such as complex hernia sacs, extensive damage to the abdominal wall structure, and tight abdominal wall, and surgery will be much more complicated [14].

We opted for open surgery for this particular patient due to several reasons. Firstly, the patient is older and has accompanying cardiovascular disease which is heart failure. Secondly, the patient cannot undergo long surgery times. Finally, the patient has symptoms of herniated viscera such as retention in defecation, tenderness, abdominal distension, and unclear anemia from herniated viscera on abdominal CT scan. According to Nguyen Huu Think [8], in the case of emergency surgery due to a strangulated hernia, it is difficult to perform laparoscopic surgery when the patient's condition is severe and screening tests have not been fully evaluated.

During the surgery, the patient underwent an open surgery to ensure that the herniated organs were not damaged. The surgery involved resolving the hernia sac and restoring the lumbar area with a graft. To firmly fix the graft, the upper border of the graft should be sutured to the lower border of the 12<sup>th</sup> rib, and the lower border of the graft should be sutured to the upper border of the anterior superior iliac spine. This technique increases the certainty of the lumbar triangle and limits the recurrence rate.

This case indicates that Grynfeldt's hernia is rare and typically affects the elderly. Early diagnosis and treatment are crucial to minimize complications. Patients can opt for open surgery or endoscopic surgery, and graft placement is the most optimal method.

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