

Incarcerated Littre's Inguinal Hernia Containing a Giant Meckel's Diverticulum Managed with Lichtenstein Mesh Hernioplasty

Dev Meckel Divertikülü İçeren Boğulmuş Littre Kasık Fıtığının Lichtenstein Yama Herniyoplasti ile Yönetimi

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Abstract: Littre's hernia, defined as the presence of a Meckel's diverticulum (MD) within a hernia sac, is an exceedingly rare surgical finding. The management of "giant" MD within an incarcerated hernia remains controversial, particularly regarding the safety of prosthetic mesh in clean-contaminated fields. An 87-year-old male presented with an incarcerated right inguinal hernia. Intraoperative exploration revealed an 11-cm giant MD within the hernia sac. A diverticulectomy was performed using a linear stapler, followed by a Lichtenstein tension-free hernioplasty with polypropylene mesh. Despite the clean-contaminated nature of the field, the postoperative course was uneventful. Giant Littre's hernias can be safely managed with stapler diverticulectomy and immediate mesh repair in the absence of gross contamination. This approach provides a durable repair for elderly patients without increasing infective morbidity.

Keywords: Littre's hernia; Giant Meckel's diverticulum; Lichtenstein hernioplasty; CDC Class II.

Özet: Littre fıtığı, bir fıtık kesesi içinde Meckel divertikülünün (MD) bulunması olarak tanımlanan ve nadir görülen cerrahi bir durumdur. Boğulmuş bir fıtık içindeki "dev" MD'nin yönetimi, özellikle temiz-kontamine alanlarda sentetik yama kullanımının güvenliği açısından tartışmalıdır. 87 yaşında bir erkek hasta, boğulmuş sağ kasık fıtığı ile başvurdu. İntraoperatif incelemede fıtık kesesi içinde 11 cm'lik dev bir MD saptandı. Lineer stapler kullanılarak divertikülektomi yapıldı ve ardından polipropilen yama ile Lichtenstein gerilimsiz herniyoplasti uygulandı. Sahanın temiz-kontamine yapısına rağmen postoperatif süreç sorunsuz geçti. Dev Littre fıtıkları, belirgin kontaminasyonun olmadığı durumlarda stapler divertikülektomi ve eş zamanlı yama onarımı ile güvenle yönetilebilir. Bu yaklaşım, yaşlı hastalarda enfektif morbiditeyi artırmadan kalıcı bir onarım sağlar.

Anahtar Kelimeler: Littre fıtığı; Dev Meckel divertikülü; Lichtenstein herniyoplasti; CDC Sınıf II.

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1. Introduction

Meckel's diverticulum (MD) is the most prevalent congenital anomaly of the gastrointestinal tract, affecting approximately 2% of the general population (1). Traditionally characterized by the "rule of twos," MD is typically asymptomatic; however, complications such as hemorrhage, obstruction, or inflammation may necessitate surgical intervention (1, 2).

Littre's hernia is defined as the protrusion of an MD through a potential abdominal wall defect (3). Since its initial description in 1700, Littre's hernia has remained a rare clinical entity, encountered in fewer than 1% of all abdominal wall hernias, with the inguinal canal being the most frequent site (3, 4). Notably, an MD exceeding 6 cm in length is classified as "giant" and is associated with an increased risk of complications such as axial torsion, gangrene, and incarceration (1, 3). The preoperative diagnosis of Littre's hernia is notoriously difficult, as its clinical presentation is often indistinguishable from standard incarcerated hernias (5). While the primary treatment is surgical, significant debate persists regarding the safety of utilizing prosthetic mesh in clean-contaminated fields. According to the Centers for Disease Control and Prevention (CDC) wound classification system, CDC Class II (clean-contaminated) denotes operative procedures involving the gastrointestinal tract under controlled conditions without unusual contamination (3, 6). Here, we report a rare case of an incarcerated 11-cm giant MD managed with diverticulectomy and immediate Lichtenstein mesh hernioplasty.

2. Case Report

An 87-year-old male was admitted to the emergency department with a two-day history of painful, irreducible swelling in the right inguinal region. His medical history included chronic hypertension and benign prostatic hyperplasia. On examination, a tender, non-reducible mass was palpated in the right inguinal canal extending to the scrotum. Laboratory tests showed a white blood cell count of $11,200/\text{mm}^3$. Based on the clinical diagnosis of an incarcerated inguinal hernia, emergent surgery was planned.

Under general anesthesia, a right inguinal incision was made. Opening the hernia sac revealed a congested but viable 11-cm long "giant" MD, located 60 cm proximal to the ileocecal valve (Figure 1). A diverticulectomy was performed using a linear stapler (GIA 60 mm), ensuring the patency of the ileal lumen. Given the absence of enteric spillage, the surgical field was classified as CDC Class II (clean-contaminated).

A Lichtenstein tension-free hernioplasty was performed using a polypropylene mesh. Cefazolin (2 g), a first-generation cephalosporin recommended for surgical prophylaxis in clean-contaminated procedures, was administered intravenously at induction and continued for 24 hours postoperatively. The patient's recovery was uneventful, and he was discharged on the third postoperative day. Histopathological analysis confirmed MD without heterotopic gastric or pancreatic mucosa (Figure 2). At the one-month follow-up, the wound was well-healed with no evidence of surgical site infection (SSI) or recurrence.



Figure 1. Detailed view of the 11-cm diverticulum after delivery from the hernia sac

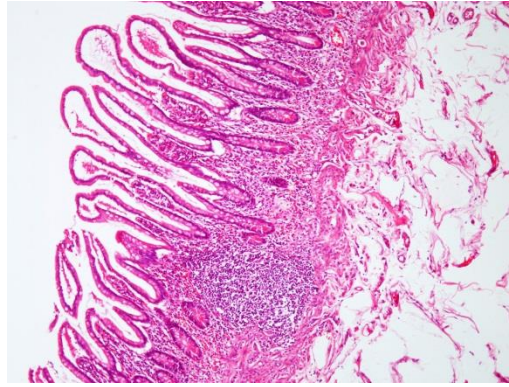


Figure 2. Histopathological image (H&E ×100) demonstrating normal ileal mucosa and muscularis propria of the diverticulum

3. Discussion

Littre's hernia is an exceptionally rare clinical finding, encountered in fewer than 1% of all abdominal wall hernias (3, 4, 7). The clinical significance of the present case lies in the rarity of this entity and the “giant” dimensions of the MD. Furthermore, this case demonstrates the successful utilization of Lichtenstein mesh hernioplasty in a clean-contaminated surgical field following diverticulectomy.

The embryological origin of MD stems from the incomplete involution of the omphalomesenteric duct. Although traditionally characterized by the “rule of twos” (2% of the population, 2 feet from the ileocecal valve, 2 inches long), the 11-cm diverticulum in the present case represents an exceptional departure from this norm (1, 2). “Giant” MD, defined as those exceeding 6 cm in length, carry a significantly higher risk of complications, including axial torsion, gangrene, and incarceration (3). Such dimensions increase technical complexity during resection and pose a risk of ileal lumen stenosis. In geriatric patients, the use of a linear stapler provides a critical advantage. It ensures the patency of the ileal lumen while simultaneously reducing operative time.

The preoperative diagnosis of Littre's hernia remains one of the most formidable challenges in emergency surgery. Due to its clinical presentation being indistinguishable from common incarcerated hernias, the diagnosis is predominantly established intraoperatively (3, 5). While computed tomography (CT) may assist in identifying the diverticulum within the hernia sac, its routine application in emergent scenarios is often limited by the urgency of surgical intervention (6). This underscores the necessity for surgical flexibility and high clinical suspicion during the exploration of incarcerated inguinal hernias.

The most debated aspect of managing Littre's hernia involves the use of prosthetic mesh following bowel resection. Traditionally, mesh was avoided in potentially contaminated fields due to the perceived risk of SSI. However, recent guidelines from the World Society of Emergency Surgery (WSES) and contemporary case reports (3, 4, 7) suggest that mesh repair is safe in CDC Class II fields, provided there is no active infection or gross enteric contamination. In the present case, the risk of recurrence associated with primary suture repair—reported as 15–20% for tissue-based techniques compared to less than 2% for tension-free mesh repair (8)—was further compounded by the attenuated tissues of an elderly patient. This risk clearly outweighed the theoretical risk of mesh infection. Additionally, stapler diverticulectomy minimized the risk of enteric spillage, thereby facilitating a safe environment for mesh placement.

The primary limitation of this report is the relatively short one-month follow-up period, which precludes a comprehensive assessment of long-term outcomes including chronic pain, mesh migration, or late recurrence. Longer follow-up is warranted to validate the durability of this approach in clean-contaminated fields. Nevertheless, this case demonstrates that stapler diverticulectomy followed by immediate Lichtenstein mesh hernioplasty is a viable and safe strategy for giant Littre's hernias, even in the elderly population. The absence of heterotopic mucosa in the histopathological examination suggests that the clinical symptoms were entirely attributable to the mechanical incarceration of the MD.

In conclusion, this case demonstrates that stapler diverticulectomy combined with primary mesh repair is a feasible and safe option for giant Littre's

hernias, even in the elderly, provided there is no gross contamination.

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