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Case Report

Littre's Hernia: Management of an Incidental Meckel's Diverticulum Found During an Open Inguinal Hernia Repair-A Case Report

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Abstract

Introduction: Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract and is often asymptomatic in adults [1]. The presence of a Meckel's diverticulum within a hernia sac, termed a Littre's hernia, is a rare finding that is usually diagnosed intraoperatively, particularly in emergent settings [2].

Case presentation: We report a 43-year-old male who underwent elective open repair of a symptomatic, reducible right inguinal hernia. Intraoperatively, an 8-cm Meckel's diverticulum arising from the antimesenteric border of the distal ileum was identified within the hernia sac. Given the patient's risk factors for future complications, a stapled diverticulectomy was performed followed by tension-free mesh repair. Pathology confirmed Meckel's diverticulum without inflammation or malignancy. The patient had an uncomplicated postoperative course.

Clinical discussion: The management of incidentally discovered Meckel's diverticulum remains controversial. Factors including patient age, sex, diverticular morphology, and operative findings should guide individualized decisions regarding resection. This case explores the various surgical management approaches and indications.

Conclusion: This case highlights a rare incidental finding of Littre's Hernia, underscoring the importance of individualized intraoperative decision making, including when and how to resect, as well as efficacy of mesh-based hernia repair following bowel resection.

Keywords: Diverticulectomy; Inguinal Hernia; Littre's Hernia; Meckel's Diverticulum; Mesh Repair

Introduction

Meckel's diverticulum is a true congenital diverticulum resulting from incomplete obliteration of the omphalomesenteric duct and represents the most common congenital anomaly of the gastrointestinal tract. It is estimated to be present in 2% of the population, with the majority of cases remaining asymptomatic. When symptoms do occur, they may include bleeding, inflammation, obstruction, or perforation. [1] Any hernia containing a Meckel's diverticulum is termed a Littre's hernia and represents a rare clinical finding. They have been reported more frequently in femoral and umbilical hernias, with inguinal involvement being less common. [2] Preoperative imaging is not routinely required for elective inguinal hernias. However, when imaging is obtained, a Meckel's

diverticulum is difficult to diagnose due to nonspecific findings and is most often found incidentally during surgery. [3] The incidental identification of Meckel's diverticulum during elective inguinal hernia repair in adults is particularly rare and presents important intraoperative management considerations. Optimal management of Littre's hernias remains debated. Repair is best guided by a multifactorial assessment, incorporating patient characteristics and diverticular morphology, as well as the feasibility of safe resection and hernia repair. [4] Rather than relying on a single indication, operative decision-making reflects the cumulative risk of future complications balanced against the morbidity of resection. We present a case of incidental Littre's hernia encountered during elective inguinal hernia repair and discuss current risk-based management considerations and individualized decision-making approach to contribute to the limited literature.

Presentation of Case

A 43-year-old man presented to Surgery Clinic in May 2025 and was found to have an asymptomatic, reducible right inguinal hernia that had been present for 4 months and enlarging. The patient had a past medical history of hypertension with no prior surgical procedures.An elective open right inguinal hernia repair with mesh was performed in December 2025. His right groin and abdomen were prepped and draped in the usual sterile fashion. A 6 cm curvilinear incision was made in the right inguinal area. Electrocautery and blunt dissection were used to expose the external oblique aponeurosis, which was opened with Metzenbaum scissors. The cord was isolated and protected, and a large hernia sac was identified anteromedially.The hernia sac was isolated from the cord and upon opening it, we immediately visualized a blind end of small bowel protruding through the internal ring. The decision was made to fully eviscerate this section of small bowel revealing an 8 cm healthy appearing Meckel's diverticulum on the antimesenteric side of a loop of distal ileum (Figure 1A,1B). It was decided to resect the diverticulum using a GIA blue load stapler across the base, taking care not to narrow the bowel lumen. The specimen was passed to pathology, and the bowel was returned to the abdomen along with the omentum. There was no gross contamination. High ligation was done with a 0 PDS stick tie. The stump of the sac was checked for hemostasis and allowed to retract into the abdomen. Weakness of the floor was noted, therefore, a running Bassini repair was performed with 0 PDS suture between the conjoint tendon and the ilioinguinal ligament. Mesh was placed beginning at the pubic tubercle and sutured to the ilioinguinal ligament inferiorly and the conjoint tendon superiorly using a double arm running 3-0 prolene suture. Laterally, the tails of the mesh were crossed and the internal ring recreated. The external oblique aponeurosis was closed with 2-0 Vicryl suture in a running fashion. Scarpa's fascia followed by skin were each closed with running 3-0 Monocryl suture. Zynrelef was applied inside the incision and Dermabond to the skin. Pathology later confirmed the resected bowel was Meckel's diverticulum without inflammation or malignancy identified.

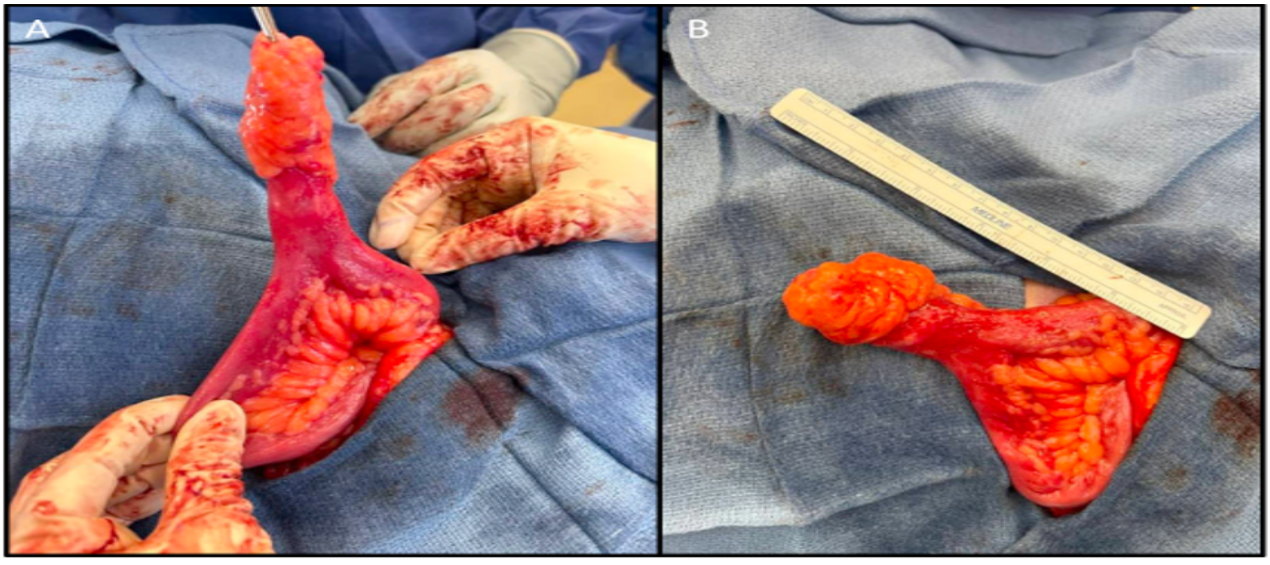


Figure 1: Meckel's Diverticulum.

The postoperative course was uncomplicated, and the patient was discharged home later that same day

Discussion

Littre's hernia is a rare intraoperative finding defined as the presence of a Meckel's diverticulum within a hernia sac [5-7] Adult cases reported in the literature most frequently involve umbilical or femoral hernias and are often discovered in emergent settings due to incarceration or strangulation [8-10] Incidental discovery during elective inguinal hernia repair, as in the present case, is considerably less common and presents unique intraoperative management considerations.Littre's hernia belongs to a broader group of uncommon viscera-containing hernias in which the herniated organ changes both clinical presentation and operative management. Richter's hernia, defined as herniation of only part of the bowel circumference, typically the antimesenteric wall, is particularly deceptive because ischemia or perforation may occur without complete intestinal obstruction (Figure 2A). [11] Similarly, Amyand's hernia describes the presence of the vermiform appendix within an inguinal hernia sac (Figure 2B), whereas De Garengeot's hernia refers to the appendix contained within a femoral hernia (Figures 2C-D). [12-14,15] Like Littre's hernia, they are frequently diagnosed intraoperatively and require tailored management.The management of incidentally discovered Meckel's diverticulum in adults remains controversial. Some authors advocate against routine resection of asymptomatic diverticula due to the relatively low lifetime risk of complications and the potential morbidity of bowel resection. [15] However, multiple case reports and reviews support resection when Meckel's diverticulum is encountered within a hernia sac, even in the absence of gross inflammation. [3,10,17,18] Herniation of the diverticulum may subject it to repetitive mechanical stress, increasing the risk of ischemia, future incarceration, or obstruction if left unresected. [8,9] Additionally, malignancies arising within Meckel's diverticulum have been documented in adults and are often clinically silent, with diagnosis made only on histopathologic examination after resection. [19-21] Reported malignancy rates range from approximately 0.5% to 3.2% of Meckel's diverticula, with neuroendocrine tumors (carcinoids) comprising the majority of these neoplasms, followed by gastrointestinal stromal tumors and adenocarcinomas. [22] Although population-level malignancy risk is low, a tertiary-center surgical series reported malignancy in approximately 5% of resected Meckel's diverticula, highlighting an additional consideration when resection can be performed safely [23].

Current literature recommends management to be individualized using risk factors associated with future symptomatic disease, including age <50 years, male sex, diverticular length >2 cm, and the presence (or suspicion) of ectopic/abnormal tissue. [4] Our patient was a 43-year-old male with an 8-cm Meckel's diverticulum and no abnormal tissue on pathology, meeting several established risk factors that support resection. Additionally, diverticular morphology and base involvement helps guide the choice between wedge resection and stapled diverticulectomy. [4] Stapled diverticulectomy is generally favored for long, narrow-based diverticula without inflammation, as it permits controlled resection while preserving bowel lumen and continuity and minimizing the risk of luminal compromise [24,25] Long, narrow-based Meckel's diverticula are often characterized by a height-to-diameter or length-to-base ratio greater than 2. Conversely, wedge resection or segmental ileal resection is preferred for short, broad-based diverticula (ratio <2) or when there is concern for involvement of the diverticular base, ectopic tissue, or compromised bowel, to ensure complete excision and avoid residual pathology. [4] In our patient, the healthy appearing Meckel's diverticulum with a narrow, antimesenteric base supported the use of stapled diverticulectomy, allowing definitive resection while preserving bowel lumen and continuity. Meticulous dissection is a critical component of operative management in Littre's hernia. The diverticulum may be adherent to the hernia sac or surrounding structures, increasing the risk of inadvertent enterotomy, hemorrhage, or devascularization during reduction. [26] Gentle handling and careful identification of the diverticular base and orientation are essential prior to resection. In the present case, the Meckel's diverticulum arose from the antimesenteric border of the ileum, consistent with classic embryologic anatomy and the majority of adult Littre's hernia reports. [5,10]

Antimesenteric diverticula allow for safer diverticulectomy with minimal risk to mesenteric blood supply, particularly when the base is narrow and uninvolved. [4,15] In contrast, rare mesenteric-sided Meckel's diverticula may share vascular supply with the ileum, increasing the risk of ischemia and often necessitating wedge or segmental bowel resection rather than simple diverticulectomy, highlighting the importance of precise intraoperative assessment prior to resection. [4,25] The use of mesh following bowel resection remains debated. The literature suggests that mesh-based hernia repair can be safely performed when resection is limited and there is no contamination, perforation, or active infection [27,28] Several adult cases report successful immediate mesh repair following diverticulectomy without increased rates of surgical site infection or recurrence. [27,29] Conversely, non-mesh or delayed repair is generally recommended in the setting of strangulation, perforation, or gross contamination due to the elevated risk of infection. [8,9,30,31] In this case, the absence of inflammation or contamination supported immediate mesh placement, balancing infectious risk against the benefits of durable hernia repair.This case highlights the importance of surgeon adaptability during a routine hernia repair. Incidental discovery of Meckel's diverticulum warrants individualized decision-making and thoughtful consideration of resection and repair strategies. This intraoperative recognition of a rare anatomic variant allows

for definitive management and potentially prevents future complications.

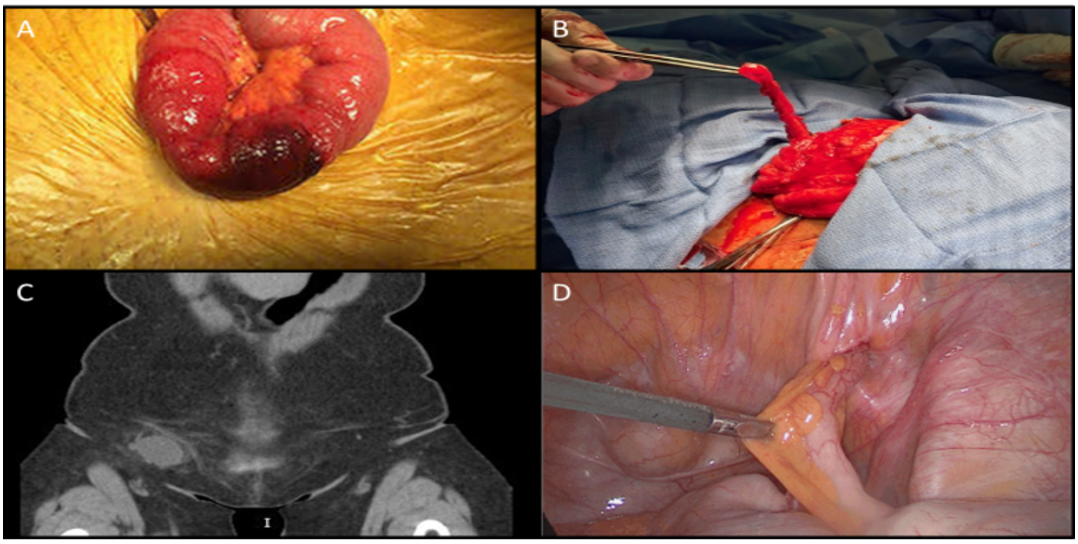


Figure 2: Other uncommon viscera-containting hernias. (A) Richter's hernia; (B) Amyand's Hernia ; (C-D) De Garengeot's hernia.

Conclusion

Littre's hernia is a rare and often unexpected intraoperative finding during inguinal hernia repair that necessitates individualized, risk-based operative decision-making. When an incidental Meckel's diverticulum is encountered, meticulous dissection and careful assessment of diverticular orientation and morphology along with patient risk factors are essential to guide safe management. [4] In our patient, these factors favored diverticulectomy with immediate mesh-based repair, supporting resection when it can be performed safely and may reduce the risk of future complications.

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Ethical Approval: Not applicable. This manuscript describes a single patient case report and does not constitute human subjects research requiring institutional review board approval (confirm based on your institution's policy).

Consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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