

Recurrent Amyand Hernia After Prior Open Repair Managed With Laparoscopic TAPP and Appendectomy: A Case Report

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Abstract

Amyand hernia is a rare subtype of inguinal hernia in which the vermiform appendix is present within the hernia sac. Surgical management depends on intraoperative findings, particularly the condition of the appendix and the presence of contamination. This case involves a 63-year-old male with a recurrent right inguinal hernia who underwent laparoscopic transabdominal preperitoneal herniorrhaphy (TAPP) with concomitant appendectomy due to manipulation of the appendix during the procedure. There were no intraoperative or postoperative complications. This case demonstrates laparoscopic TAPP and appendectomy can be safely performed at the index operation.

Key Words: Amyand hernia, appendectomy, inguinal hernia, laparoscopic TAPP, recurrent inguinal hernia, incarcerated hernia, mesh repair, indirect inguinal hernia, appendix in hernia, transabdominal preperitoneal

Background

Inguinal hernia repair is one of the most performed operations in general surgery.¹ While most inguinal hernias contain omentum or small bowel, rare cases involve intra-abdominal structures within the hernia sac. One such condition is an Amyand hernia, defined as the presence of the vermiform appendix within an inguinal hernia.^{1,2} Although inguinal hernias are common, Amyand hernias are rare, accounting for approximately 1% of inguinal hernias.^{3,4} Acute appendicitis occurring within the hernia sac is even less common, reported in 0.1-0.13% of

cases.⁵ Diagnosis prior to surgery is challenging because clinical presentation often resembles incarcerated inguinal hernia. Imaging modalities such as ultrasound or computed tomography may occasionally demonstrate the appendix within the hernia sac; however, findings may not clearly identify the appendix, and consequently the diagnosis is frequently made during surgical exploration.^{1,6,7}

Management strategies for Amyand hernia are largely guided by the Losanoff-Basson classification, which categorizes cases according to the condition of the appendix and associated intra-abdominal pathology.⁸ Treatment deci-

Table 1. Losanoff-Basson Classification of Amyand Hernia

	Description	Management
Type 1	Normal appendix within the hernia sac	Reduction and standard mesh hernia repair, with appendectomy only considered selectively
Type 2	Inflamed appendix within the hernia sac without systemic or peritoneal contamination	Appendectomy and primary hernia repair without mesh
Type 3	Appendicitis with peritonitis or significant contamination	Abdominal exploration, appendectomy, and hernia repair without mesh or delayed repair
Type 4	Amyand hernia with concurrent intra-abdominal pathology	Managed according to appendix status (Types 1–3) with additional treatment directed at the associated condition

sions, including whether to perform appendectomy and whether to use prosthetic mesh, are influenced by these intraoperative findings.³ The Losanoff-Basson classification is summarized in Table 1.

Although numerous case reports describing Amyand hernia exist, the condition occurring in the setting of recurrent inguinal hernia after previous repair remains uncommon, with only two prior cases reported in literature.⁹ This report describes a case of incarcerated recurrent right indirect Amyand hernia identified during laparoscopic repair and successfully treated using a laparoscopic transabdominal preperitoneal (TAPP) approach with appendectomy.

Case Presentation

A 63-year-old male was evaluated in the general surgery clinic for a recurrent right inguinal hernia. The patient reported that the hernia had been present for more than three months and was associated with a bulge and pain. These symptoms worsened with activity and improved with rest and manual reduction of the hernia. The patient had previously undergone open right inguinal hernia repair in 2024 and open left inguinal hernia repair in 2022. No other prior abdominal surgeries were reported. Medical history included gastroesophageal reflux disease without esophagitis, osteoarthritis, and history of peptic ulcer disease. The patient reported a

50-pack-year history of tobacco use. Given the symptomatic recurrence and prior anterior open repair, laparoscopic hernia repair with mesh was recommended.

Treatment & Outcome

Diagnostic laparoscopy revealed a recurrent right Amyand hernia (Figure 1). The appendix required manipulation while the indirect hernia sac was reduced. TAPP herniorrhaphy with mesh was completed without complications (Figure 2). After peritoneal flap closure, an appendectomy was performed because manipulation during the operation could lead to intraluminal narrowing and appendicitis in the future (Figures 3, 4). The patient had an uneventful recovery and no postoperative complications or clinical signs of mesh infection.

Discussion

The clinical presentation of Amyand hernia often mimics that of incarcerated inguinal hernia, preoperative diagnosis can be challenging and many cases are identified only during operative exploration.^{1,6} The present case supports prior literature demonstrating that Amyand hernias are frequently identified during operative exploration, while also highlighting the unique occurrence of this entity in the setting of recurrent

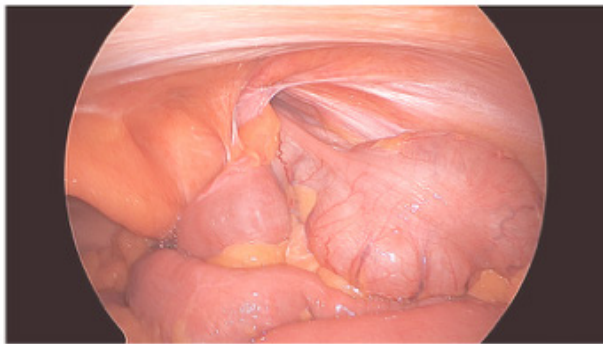


Figure 1. Appendix in the right indirect hernia sac

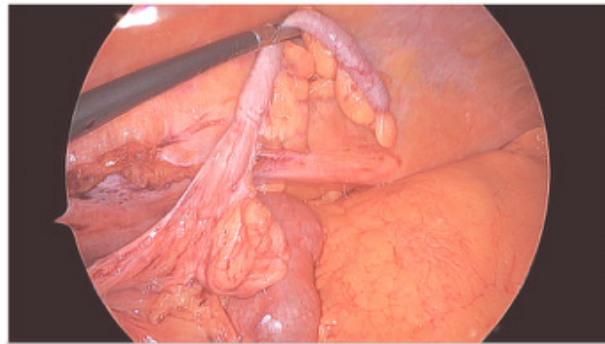


Figure 3. Appendix after reduction from the hernia sac. There is proximal luminal narrowing that resulted from manipulation during reduction.

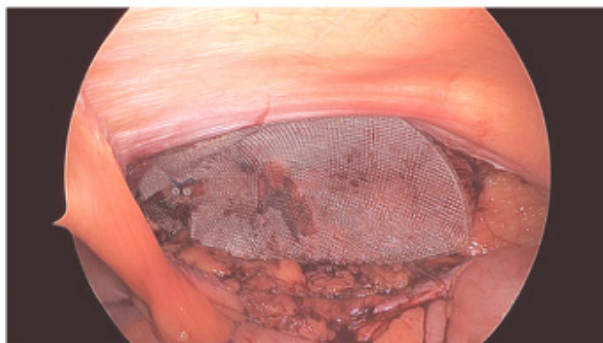


Figure 2. Polypropylene mesh covering the myopectineal orifice during laparoscopic transabdominal preperitoneal repair.

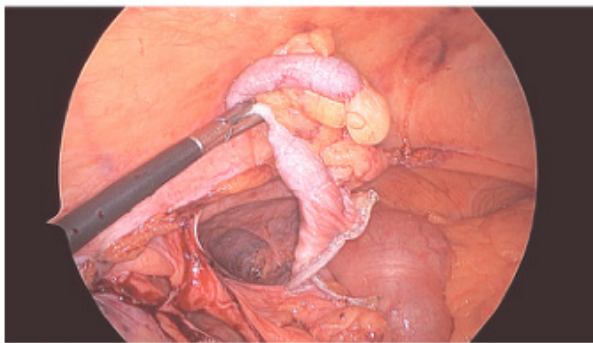


Figure 4. Resected appendix demonstrating the area of luminal narrowing.

right inguinal hernia following prior repair. Amyand hernias may be associated with several complications related to the presence of the appendix within the hernia sac. Reported complications include acute appendicitis, perforation, periappendiceal abscess formation, and in severe cases, generalized peritonitis if contamination occurs.^{3,10} Incarceration of the appendix within the hernia defect may also contribute to obstruction or inflammatory changes within the hernia sac. Recognition of these potential complications is important because they may influence operative management, particularly decisions regarding appendectomy and the use of prosthetic mesh during hernia repair. The Losanoff-Basson classification remains the most widely used system to guide management of Amyand hernia. This classification categorizes cases according to the condition of the appendix and the presence of intra-abdominal infection. In cases where the appendix is normal and no contamination is present, standard mesh repair

may be performed safely.^{3,8} In contrast, when appendicitis or perforation is present, appendectomy and non-mesh repair are often recommended to reduce the risk of infection.¹⁰ The use of mesh in Amyand hernia with appendectomy is safe when the appendix is normal or minimally inflamed and there is no fecal contamination. A systematic review of 442 cases found that 88% of adult patients undergoing elective Amyand hernia repair received mesh without complications, and no mesh infections occurred when appendectomy was performed in a clean surgical field.¹¹ Another area of discussion in the literature concerns whether prophylactic appendectomy should be performed when a normal appendix is encountered within the hernia sac. Some authors recommend removal when the appendix has been manipulated or when future appendiceal pathology could complicate a previously repaired hernia.¹⁰ Manipulation of the appendix during reduction may theoretically increase the

risk of postoperative inflammation or future appendicitis within a repaired hernia field, which could complicate subsequent management.³ Additionally, manipulation of the appendix during reduction may cause luminal narrowing, as observed in this case (Figure 3), which could predispose to future appendiceal obstruction and inflammation. In the present case, appendectomy was performed because the appendix had been manipulated throughout the reduction process, and removal was considered a reasonable measure to prevent potential future appendiceal pathology following mesh repair. Laparoscopic repair is increasingly used for recurrent inguinal hernias because it allows dissection in planes not previously disturbed by anterior repair and provides excellent visualization of the inguinal anatomy.¹² In this case, the laparoscopic approach facilitated identification and reduction of incarcerated structures and enabled definitive repair using prosthetic mesh. This case is unique because the Amyand hernia occurred in the setting of a recurrent right inguinal hernia after prior open anterior repair and was identified during laparoscopic TAPP repair. The laparoscopic approach provided excellent visualization of the myopectineal orifice, allowing safe reduction of the incarcerated appendix, cecum, and terminal ileum prior to definitive mesh repair.

Conclusion

Amyand hernia remains a rare intraoperative finding during inguinal hernia repair. This case demonstrates the occurrence of an incarcerated Amyand hernia during laparoscopic repair of a recurrent inguinal hernia following prior open repair. Successful management was achieved using laparoscopic TAPP repair with mesh placement and appendectomy. Awareness of this uncommon entity is important for surgeons performing inguinal hernia repair, particularly when unexpected intraoperative findings require modification of the operative plan.

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