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Laparoscopic management of Amyand's appendicitis in a recurrent inguinal hernia: A case report

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Abstract

Amyand's hernia, characterized by the presence of an appendix within an inguinal hernia sac, is a rare clinical entity. When complicated by acute appendicitis, it presents both diagnostic and therapeutic challenges, particularly in recurrent hernias where scar tissue and altered anatomy complicate surgical management. An 85-year-old male presented with recurrent right inguinal hernia, localized pain, nausea, and leukocytosis. Imaging revealed an inflamed appendix within the hernia sac. Laparoscopic exploration confirmed Amyand's appendicitis, and concurrent transabdominal preperitoneal hernia repair with appendectomy was performed. The minimally invasive approach allowed for definitive management of both pathologies without conversion to open surgery. This case highlights the feasibility and utility of laparoscopy in managing Amyand's appendicitis in recurrent hernias. It underscores the importance of considering dual pathology in patients with atypical presentations of inguinal hernia.

Keywords:

Amyand hernia, appendectomy, laparoscopy, recurrent hernias, TAPP

Introduction

Amyand's hernia, first described by Claudius Amyand in 1735, remains a rare surgical diagnosis, with appendicitis occurring in only 0.1% of the cases.^[1] Its presentation in recurrent right inguinal hernias is exceptionally uncommon, often masquerading as an incarcerated hernia or soft-tissue infection, leading to delayed diagnosis and increased risk of complications.^[2] Traditional management of Amyand's hernia has favored open surgery because of concerns about inflammation and adhesions. However, advancements in minimally invasive techniques now allow laparoscopic approaches to address both appendectomy and hernia repair safely.

Recurrent hernias present unique challenges, including distorted anatomy,

fibrotic tissue, and higher rates of postoperative complications.^[3] When combined with Amyand's appendicitis, these factors amplify surgical complexity. This case report highlights the feasibility of laparoscopic management of Amyand's appendicitis within a recurrent inguinal hernia in an elderly patient with prior mesh repair, underscoring the importance of preoperative imaging and minimally invasive methods.

Case Presentation

An 85-year-old male with a history of right inguinal hernia mesh repair 12 years prior presented to the emergency department with a 3-day history of worsening right groin pain, nausea, and fever (38°C). The patient reported no prior episodes of incarceration or other similar symptoms. On examination,

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the patient was normotensive (120/60 mm Hg) and tachycardic (105 bpm). A tender, irreducible 3 cm × 2 cm right inguinal mass was noted without overlying skin changes or peritonism. The patient exhibited scarring from prior surgical intervention in the right inguinal region, with a length of 7 cm, extending obliquely. Blood tests revealed leukocytosis (white cell count: $10.6 \times 10^9/L$) and elevated C-reactive protein (42 mg/L). The rest of the clinical and laboratory tests were normal. Body mass index was 26.0 kg/m² (77 kg, 172 cm).

Contrast-enhanced computed tomography revealed an inflamed appendix within the recurrent inguinal hernia sac, with fat stranding, and an appendiceal diameter of 12 mm [Figure 1]. Consequently, the patient was admitted to the surgical ward for an emergency appendectomy. Surgical repair of the recurrent right inguinal hernia was planned based on intraoperative findings. Given the patient's prior open mesh repair and fibrotic incision site, a laparoscopic approach was selected to minimize dissection through scarred tissue and reduce the risk of mesh disruption. A 10 mm camera port was inserted at the infraumbilical region, and additional 5 and 10 mm working ports were placed under direct vision in the lower midline and left iliac fossa, respectively. The intraoperative findings revealed that

the appendix was protruding through the right *indirect* inguinal hernia [Figure 2], with no purulent fluid or gross contamination. The appendix could not be reduced into the abdominal cavity due to incarceration. To release the contents of the strangulated hernia, a superolateral incision was made in the transversus abdominis and internal oblique muscles using a laparoscopic hook. This allowed the appendix to be returned to the abdomen. Laparoscopic appendectomy was performed using endoclips, followed by transabdominal preperitoneal (TAPP) repair with lightweight polypropylene mesh. The total operative time was 96 min. The patient was discharged on postoperative day 2 with oral antibiotics. Histopathological examination of the vermiform appendix confirmed acute appendicitis, characterized by neutrophilic infiltration of the appendiceal wall and hemorrhage [Figure 3]. At the 6-month follow-up, there was no evidence of recurrence or surgical site infection.

Discussion

Amyand's appendicitis in a recurrent inguinal hernia represents an exceptionally rare surgical dilemma. Our case adds to the limited literature supporting laparoscopy in this scenario. Amyand's appendicitis often mimics incarcerated hernia or soft-tissue infection, leading to delayed diagnosis.^[4] Preoperative imaging is pivotal for identifying appendiceal involvement, as seen in this case [Figure 1]. Historically, open surgery was preferred due to concerns about inflammation complicating mesh placement.^[5] The utilization of surgical mesh in cases of appendicitis remains a subject of debate among surgeons. While some advocate for the avoidance of



Figure 1: Axial and coronal computed tomography images showing inflamed appendix within the hernia sac (annotate with arrows)

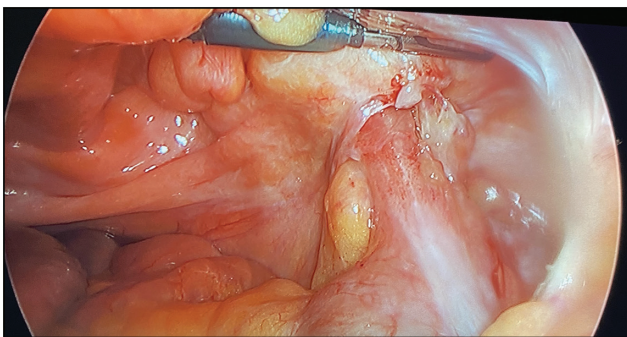


Figure 2: Intraoperative laparoscopic view of the inflamed appendix in the hernia sac

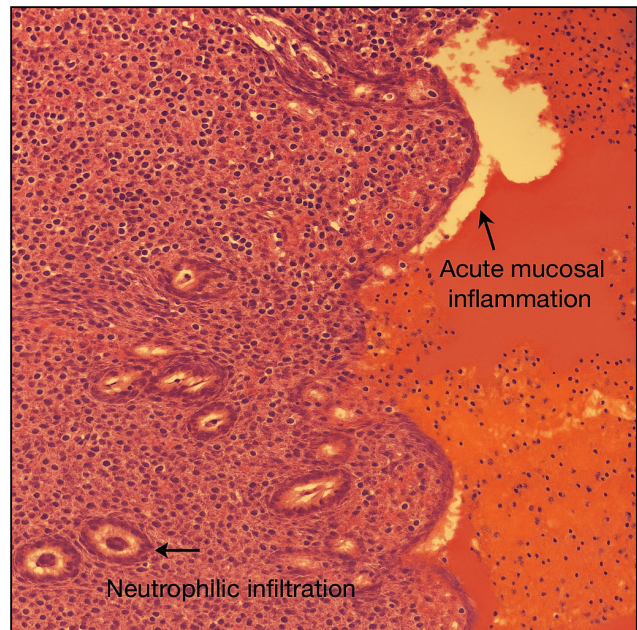


Figure 3: 20 × 10 image showing acute appendicitis with massive inflammatory infiltrate and hemorrhage

mesh placement in inflamed settings due to concerns about elevated risks of septic complications, others argue that mesh implantation in such scenarios does not increase the likelihood of these adverse outcomes and endorse its application.^[6,7] Amyand hernia can occur in the setting of recurrent inguinal hernia, where mesh repair may be necessary. Ranganathan *et al.*^[8] reported performing mesh repair in a case of acute appendicitis without perforation within a recurrent inguinal hernia. Concurrently, minimally invasive approaches have gained significant traction globally, with a steady rise in their adoption for hernia repair in recent years. Our case aligns with recent studies advocating laparoscopy for Amyand's hernias, even with appendicitis.^[9] Recurrent inguinal hernia increases fibrosis and alters anatomy, raising the risk of visceral injury. The TAPP approach allowed safe dissection of adhesions and avoidance of prior scar tissue. While this case demonstrates the feasibility of a combined laparoscopic approach in elderly patients. The patient's good preoperative performance status justified this strategy to avoid a second surgery. This case highlights that age alone should not preclude minimally invasive strategies, provided that patients are carefully selected and prioritized for single-stage interventions to minimize cumulative surgical risk.

Based on the available literature, only a few cases of acute appendicitis occurring within a recurrent inguinal hernia have been previously reported.^[6-8] Additional studies are needed to establish more robust, evidence-based recommendations.

This case illustrates the diagnostic and therapeutic value of laparoscopy in managing Amyand's hernia complicated by acute appendicitis, particularly in the setting of a recurrent inguinal hernia. The ability to assess intra-abdominal pathology and perform targeted intervention highlights the versatility of minimally invasive techniques. In this patient, laparoscopic appendectomy combined with hernia repair provided a safe and effective solution. Given the rarity and often unexpected nature of Amyand's hernia, its management requires sound surgical judgment. This case reinforces that, when appropriately selected, laparoscopic approaches can offer both diagnostic clarity and therapeutic advantage in complex hernia presentations.

Author contributions

MG: Concept, data collection, writing, editing, and final approval of the manuscript.

Ethical policy and Institutional Review Board statement

This case report did not require Institutional Review Board approval. All procedures were in accordance with the ethical standards of the institution and with the Helsinki Declaration.

Declaration of patient consent

The author confirms that appropriate informed consent was obtained from the patient for publication of this case report and any accompanying images.

Data availability statement

All data related to this case are included in the article. Further details can be provided upon reasonable request.

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None.

Conflicts of interest

The author declares no conflicts of interest.

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