

Amyand's Hernia: Case Report Resolved by Minimally Invasive Approach

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ABSTRACT

Amyand's hernia is a rare anatomical variant characterized by the presence of the vermiform appendix within the inguinal hernial sac. Its diagnosis is usually an incidental intraoperative finding because its clinical presentation mimics a conventional incarcerated inguinal hernia.

The case is about a 56-year-old male with a right inguinoscrotal hernia of two years' duration presented with incarceration and acute pain. A transabdominal preperitoneal laparoscopic approach (TAPP) was performed, identifying a hernial defect containing healthy appendix, cecum, and ascending colon (sliding hernia). Following the Losanoff and Basson classification, it was categorized as Type 1. The contents were reduced without appendectomy, the defect was closed, and repaired with a polypropylene mesh fixed with medical cyanoacrylate. The patient recovered well, was discharged early, and had no complications during follow-up.

Amyand's hernia requires a high index of clinical suspicion and individualized surgical management. In cases with a healthy appendix, preserving the organ allows for the safe use of prosthetic material, minimizing the risk of infection. The laparoscopic approach stands out as an effective tool for accurate diagnosis and minimally invasive treatment, optimizing postoperative recovery.

KEYWORDS: Amyand's hernia, Laparoscopy, Appendix, Inguinal hernia, Losanoff classification.

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INTRODUCTION

Etiology and Historical Context

Amyand's hernia (AH) is defined as a rare anatomical variant characterized by herniation of the vermiform appendix through the inguinal ring, lodging within the hernial sac. This condition represents approximately 1% of all inguinal hernioplasties (1). Its name honors Claudius Amyand, who in 1735 documented the first case of successful appendectomy in a pediatric patient with this pathology (1,2).

Pathophysiological and Epidemiological Considerations

The pathogenesis of AH is primarily associated with the persistence of a patent processus vaginalis. It is postulated that the presence of fibrous bands connecting the appendix to the testicle (remnants of the gubernaculum) facilitates appendiceal migration into the inguinal canal during testicular descent. This hypothesis correlates with epidemiological evidence, which shows a prevalence three

times higher in the pediatric population compared to adults (3,5).

Clinical Spectrum and Diagnostic Challenge

The morphological state of the appendix within the hernial sac is heterogeneous, ranging from preserved tissue architecture to acute appendicitis, gangrene, or perforation. The incidence of intracoelomic appendiceal inflammation is marginal, estimated at between 0.07% and 0.13% of cases (2). From a semiological perspective, acute appendicitis usually presents as a complicated inguinal hernia (irreducible and painful), predominantly on the right side. Given the clinical similarity to an incarcerated or strangulated hernia, preoperative diagnosis is infrequent, usually being made incidentally during surgical exploration (3, 4).

When an acute inflammatory process is present, signs may include: systemic symptoms such as fever, vomiting, and abdominal distension; Progression of pain, periumbilical pain that subsequently localizes to the inguinal region or right iliac

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fossa. Peritoneal irritation; signs of peritonitis are usually limited or muted, since the inguinal ring acts as a mechanical barrier that prevents the spread of inflammatory exudate into the general peritoneal cavity (4).

Surgical Classification and Controversies in Management

For therapeutic decision-making, the Losanoff and Basson classification is used, which categorizes acute appendicitis into four types according to the state of the appendix and the presence of accompanying sepsis. Type 1 is a normal appendix within the hernial sac; type 2 includes acute appendicitis; type 3 includes acute appendicitis with signs of perforation, peritonitis, or sepsis; and type 4 also includes an abdominal pathology, such as a tumor or diverticulitis (6).

While there is an established consensus for the management of stages 2, 3, and 4 (which involve sepsis or associated abdominal pathology), with appendectomy, the management of an incidentally healthy appendix (Type 1) remains a subject of debate in the medical literature. Some authors advocate for preserving the organ if it shows no signs of inflammation, while others recommend prophylactic appendectomy based on variables such as the patient's age, life expectancy, and the potential risk of future acute appendicitis in an atypical location (7).

CASE DESCRIPTION

A 56-year-old male with a history of systemic hypertension controlled with an angiotensin II receptor blocker (ARB), and no other significant medical history, reported a two-year history of increased volume in the right inguinoscrotal region associated with colicky pain that had increased in intensity over the past week, constipation, nausea, and vomiting on one occasion. Physical examination revealed an incarcerated right inguinoscrotal hernia and pain rated 7 out of 10 on the visual analog scale. A laparoscopic approach was performed with the following findings: an indirect right inguinal defect approximately 3.5 cm x 4 cm containing an 8 x 10 cm sac with the appendix (without inflammation), cecum, and ascending colon without macroscopic abnormalities.

A diagnostic laparoscopy was performed, and the incarcerated contents were subsequently reduced from the inguinal defect into the abdominal cavity (Figures 1, 2, 3, and 4).



FIGURE 1. Right inguinal hernia, incarcerated loops of large intestine.



FIGURE 2. Reduction of hernia contents, showing part of the ascending colon, cecum, and appendix.



FIGURE 3. Appendix without signs of inflammation.

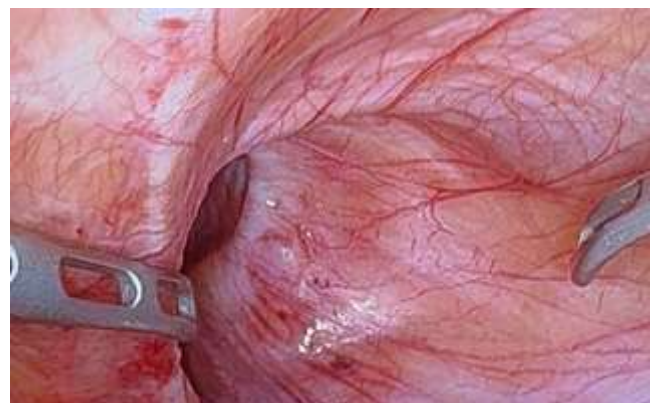


FIGURE 4. Hernia opening, after reduction of its contents into the abdominal cavity, showing a large sac.

A peritoneal flap was created, and the hernial sac and components of the spermatic cord were dissected. The defect was then closed with 0-0 non-absorbable polypropylene monofilament suture. A 15 x 10 cm polypropylene mesh was placed and fixed with cyanoacrylate to the Cooper's ligament and the anterior abdominal wall (Figures 5 and 6).



FIGURE 5. Preparation of a laparoscopic tissue adhesive applicator for subsequent mesh fixation.



FIGURE 6. Fixation of the polypropylene mesh with cyanoacrylate.

The peritoneal flap was then closed with 2-0 non-absorbable prolene monofilament suture. The pneumoperitoneum and trocars were removed, the endoscopic ports were closed with 1-0 polyglycolic acid suture, and the skin was closed with cyanoacrylate (Figures 7 and 8).



FIGURE 7. Skin closure with cyanoacrylate and postoperative appearance of the minimally invasive approach.



FIGURE 8. A) Right inguinoscrotal region with increased size and skin discoloration. B) Right scrotum after reduction of hernia contents and repair via laparoscopic approach.

DISCUSSION

Amyand's hernia (AH) presents a preoperative diagnostic challenge due to its low incidence and a clinical presentation that almost identically mimics a conventional incarcerated inguinal hernia. In this 56-year-old patient, the chronic two-year course with worsening symptoms is consistent with the literature, where the diagnosis is usually an incidental intraoperative finding (1,3).

Unlike the traditional open anterior approach, in this case, a transabdominal preperitoneal laparoscopic (TAPP) technique was chosen. According to Morales-Conde et al. (2025), the TAPP approach has become the gold standard for managing incidental findings in the inguinal canal, as it offers superior visualization of the appendiceal base and allows for atraumatic reduction of the contents into the abdominal cavity, overcoming the space limitations of open surgery (8). Furthermore, the laparoscopic exploration revealed that the sac contained not only the appendix but also the cecum and ascending colon. This finding indicates a sliding hernia, a variant that, according to Ramírez-García and Torres-Montoya (2024), requires meticulous dissection to preserve the colon's vascular supply and avoid inadvertent injury during the reduction of the large sac (11).

When comparing the findings with the Losanoff and Basson classification, the patient was classified as Type 1 (macroscopically healthy appendix). The decision not to perform a prophylactic appendectomy is a point of historical debate; however, the multicenter study by Kose et al. (2025) reinforces that in Type 1, organ preservation is the safest approach. Performing an unnecessary appendectomy would transform a clean surgery into a clean-contaminated one, unjustifiably increasing the risk of surgical site infection (10). This position is supported by the International Hernia Collaboration guidelines (2026), which state that the risk of future appendicitis in an adult is statistically lower than the risk of mesh rejection or infection if the surgical field is contaminated with intestinal contents (12).

For defect repair, a polypropylene mesh fixed with medical cyanoacrylate was used. This technical choice aligns with the evidence presented by González-Urquijo et al. (2024), who

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demonstrate that atraumatic fixation with synthetic adhesives drastically reduces the incidence of inguinodynia (chronic pain) and neuropathies due to inguinal nerve entrapment, compared to the use of tacks or sutures (9).

The patient's satisfactory progress, with tolerance of food within 6 hours and an uncomplicated recovery, validates that combining a minimally invasive approach with decision-making based on the Losanoff classification allows for optimal management of this exceptional pathology.

CONCLUSION

Amyand's hernia is an exceptional clinical entity (1% of all hernias) that should be considered in the differential diagnosis of incarcerated right inguinal hernias, even in adult patients without classic appendicular symptoms. The Losanoff and Basson classification remains the cornerstone for guiding surgical management. In this case (Type 1), the priority was anatomical restoration and mesh repair, prioritizing the safety of the prosthetic material over prophylactic appendectomy. The laparoscopic approach is established as an invaluable diagnostic and therapeutic tool, allowing for safe reduction of the contents, assessment of tissue viability, and accelerated postoperative recovery. The successful management of this patient demonstrates that, when an Amyand's hernia is found incidentally, the decision not to perform an appendectomy in the absence of inflammation is a safe strategy that prevents unnecessary infectious complications.

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