

Amyand's Hernia a form of Inguinal Hernia: A Case Report and Literature Review

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Abstract

Case Report

Introduction: Amyand hernia (HA) is a form of inguinal hernia considered to be very rare, and this type of hernia has occurred up to 1% of all inguinal hernia cases. In this type of inguinal hernia, the contents of the hernia is the appendix. Most patients with HA often remain asymptomatic and diagnosed intraoperatively. The diagnosis is difficult, surgery is the pillar of management. We report a case of Amyand hernia that was operationally managed in our institution. **Case Report:** A 50-year-old patient with a normal body mass index (BMI) with a history of right-side reducible inguino-scrotal hernia that has evolved for 4 years, he was admitted for management of elective right inguinal hernia. Two weeks before admission, he noticed worsening pain. Normal abdominal ultrasound. There was no history of abdominal pain and vomiting. The biological assessment was normal. So, with a diagnosis of partially reducible right inguinal hernia, incomplete and indirect, the patient was operated on surgical exploration, we found dense adhesions in the sac, and adhesiolysis was released which revealed a hernia of the appendix in the inguinal canal. The appendix was slightly congested with no signs of inflammation. Therefore, given the uninflated appendix, a hernia cure according to Lichtenstein with an appendectomy was performed. Simple post-operative follow-up. **Clinical Conclusion:** Amyand's hernia, is a condition where the appendix is found in the hernia sac, is quite rare, accounting for only 0.4–1% of all instances of inguinal hernia. A review of the literature further emphasizes the rarity of Amyand's hernia. Moreover, a mere 0.1% of these cases progress to acute appendicitis, often as a result of delayed presentation and overlooked diagnosis. **Conclusion:** Amyand's hernia (AH) constitutes a minor percentage of all inguinal hernia cases, and its identification often occurs unexpectedly during surgery. This condition can stay symptom-free and mimic a typical inguinal hernia. The treatment strategy for this type of hernia should be tailored to the inflammation stage of the appendix, the existence of abdominal sepsis, and co-existing conditions. This method allows surgeons to handle a wider range of Amyand's hernia variations. Laparoscopy is often both a diagnostic and therapeutic tool for managing Amyand's hernia.

Keywords: Amyand's hernia, (AH), Appendectomy, Inguinal hernia, Hernioplasty.

Abbreviations: AH, Amyand's hernia.

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1-CONTEXT

An inguinal hernia refers to the condition where contents of the abdominal cavity bulge through the inguinal canal. The sac of an inguinal hernia can encompass any organ from the abdomen, including the small or large intestine. A particularly rare variant of inguinal hernia, known as Amyand's hernia, is characterized by the presence of the vermiform appendix in the hernia sac. The occurrence of an abnormal appendix within the hernia sac is relatively infrequent, ranging between 0.5% and 1% of cases [1-4].

Amyand's hernia, a medical condition, has a prevalence of 1% and is further complicated by acute appendicitis in 0.8 to 0.13% of cases. However, only

0.1% of these cases develop into acute appendicitis [1-3, 8, 12].

Hernias containing incarcerated bowel are the primary cause of mechanical bowel obstruction, necessitating immediate surgical intervention due to the heightened risk of strangulation [2, 4].

This condition affects both adults and children, and the contents of the hernia sac can vary, including the cecum, liver, uterus, fallopian tube, omentum, Meckel's diverticulum, or appendix. The condition was named after Claudius Amyand, the first person to document the presence of a perforated appendix in 1735 [1-4, 6].

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Surgeons may encounter unusual symptoms, such as a partially or fully located vermiform appendix in the hernia sac, which may be inflamed, non-inflamed, or adherent to the sac walls. Inguinal hernia is not specific to any age, sex, or group. As per literature, cases of Amyand’s hernia have been reported from the neonatal period to 92 years of age, with instances of left sided Amyand’s hernia also reported [1-3].

The Losanoff and Bass-on classification system provides a clear explanation of the recommended surgical treatment options for various types of Amyand’s hernia. This approach enables surgeons to identify and manage a broader range of Amyand’s hernia variations. The management of different types of Amyand’s hernias is also discussed [11] (Table 1).

Table 1: Losanoff and Basson’s Classification [11]

Classification	Description	Surgical management
Type 1	Normal appendix within an inguinal hernia	Hernia reduction, mesh repairs, appendectomy in young patients
Type 2	Acute appendicitis within hernia, no abdominal sepsis	Appendectomy through hernia primary repair of Hernia, no mesh
Type 3	Acute appendicitis within an inguinal hernia, abdominal wall, or peritoneal sepsis	Laparotomy, appendectomy, primary repair of hernia, no mesh
Type 4	Acute appendicitis within an inguinal hernia, related or unrelated abdominal pathology	Manage as type 1 to 3 hernia investigate or treat second condition as appropriate

2. CASE PRESENTATION

2.1 Patient Information

A 50-year-old patient with a normal body mass index (BMI) with a history of right-side reducible inguino-scrotal hernia that has evolved for 4 years, he was admitted for management of elective right inguinal hernia. Two weeks before admission, he noticed worsening pain. There was no history of abdominal pain and vomiting.

Upon examination, it was observed that there was an incomplete and reducible type of indirect right inguinal hernia, which exhibited a positive cough impulse.

The patient was clinically diagnosed with an indirect inguinal hernia. The results of the hematological tests were within the normal range.

2.2 Intervention

The patient was preoperatively diagnosed with a right inguinal hernia and a hernia mesh repair was planned. During the surgery, which was performed under spinal anesthesia, the hernia sac was discovered to contain an appendix. The appendix was slightly congested but not inflamed, however, there were dense adhesions within the sac. Therefore, adhesiolysis and appendectomy were performed, along with the excision of the sac and Lichtenstein mesh hernioplasty. The postoperative period proceeded without complications. Postoperatively, the patient received fluid therapy and was allowed oral fluids after 6 hours, along with a soft diet. The patient was discharged on the second postoperative day.

2.3 Follow-up and Outcome

The patient was discharged on the second post-operative day with a prescription for oral antibiotics to manage complications. A follow-up was scheduled one

week after the surgery (refer to **Figure. 1** for more details).

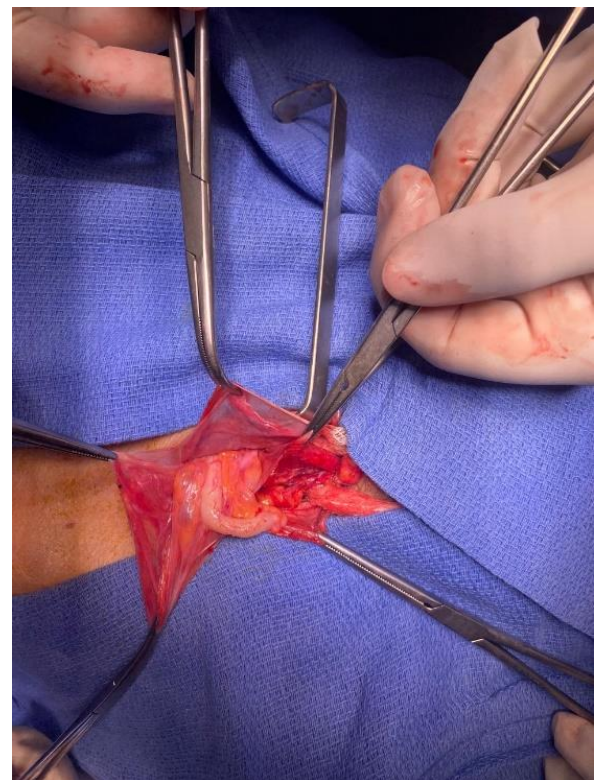


Figure. 1: Intraoperative finding appendix within the right inguinal hernia sac

3. DISCUSSION

Amyand’s hernia (AH) was first defined and treated in 1735 by Claudius. According to Losanoff and Basson, Amyand’s hernia can be managed with either reduction or appendectomy, depending on co-morbidities. It accounts for 0.1% of all appendicitis cases. Prophylactic appendectomy with concurrent hernioplasty was performed to prevent potential future

complications that could lead to appendicitis [1, 3, 4-6, 11].

The decision to retain or remove the appendix depends on the patient's age, health, and risk of developing acute appendicitis. Younger individuals have a higher risk of suffering from acute appendicitis compared to middle-aged or older individuals. Amyand's hernia is a rare and difficult-to-diagnose condition, often discovered intraoperatively [2-4].

For the detection of inguinal hernia, the initial use of ultrasound, possibly followed by CT, provides a sensitive and cost-effective method for evaluating a patient with a clinical history suggestive of a hernia. This allows for the differentiation of associated intra-abdominal organs. An appendectomy was necessary to facilitate the structural reduction of the hernia, despite the absence of visible signs of acute appendicitis [4, 6].

Considering ultrasound imaging in a large-sized, even if reducible, inguinal hernia may help reduce complications. Early use of diagnostic imaging may complicate immediate pre-operative identification of AH. Right-sided Amyand's hernias are more common than left-sided ones due to the anatomical location of the appendix on the right. Left-sided Amyand's hernias are very rare. Laparoscopic repair has also been described in the pediatric age group [3, 7].

While open surgery is the primary management approach, the laparoscopy method has been gaining traction in recent years, offering benefits such as shorter hospital stays, quicker recovery, and less postoperative pain. Although a CT scan may assist in making a preoperative diagnosis in cases presenting with an acute abdomen, the diagnosis of Amyand's hernia is usually made intraoperatively [12, 11].

The underlying mechanisms that cause acute appendicitis within an Amyand's hernia include decreased blood supply to the appendix due to adhesions that may cause non-reducibility of the hernia and compression in the external ring resulting from increases in intra-abdominal pressure [10]. These factors lead to recurrent inflammation and bacterial overgrowth. Intraoperative manipulations can also trigger an inflammatory process.

The Losanoff and Basson's classification provides a satisfactory guidance system for the management of Amyand's hernia. A normal-looking appendix in the hernial sac does not always require appendectomy, as it adds the risk of infection to an otherwise clean procedure. The decision to remove or leave a normal appendix is a clinical dilemma due to the lack of evidence-based information. The decision should be based on common sense, considering the patient's age, life expectancy, lifelong risk of developing acute

appendicitis, and the size and overall anatomy of the appendix.

A definitive preoperative diagnosis is challenging due to vague clinical signs and symptoms. We report a case that was managed by open surgery in our medium-complexity public institution, with a review of the literature. This case report aligns with the SCARE 2021 guidelines.

4. CONCLUSION

Amyand's hernia is an uncommon variant of inguinal hernias. When dealing with a complex incarcerated or strangulated inguinal hernia, the first step should be to consider imaging studies. Ultrasound or CT scans can help shape the surgical strategy and offer the chance to identify any affected intra-abdominal organs. According to a review of the literature, it is recommended to reduce the hernia content and carry out a tension-free hernia repair. In situations where an inflamed, suppurative, or ruptured appendicitis is found, no prosthetic material should be used due to the heightened risk of infection at the surgical site. Diagnostic laparoscopy is a useful method for all types of incarcerated hernias when there is a clinical suspicion of Amyand hernia, as it allows for the assessment of contents and avoids unnecessary laparotomy. We remain cautious about using mesh in a hernia sac with acute appendicitis. Further extensive research is needed to ascertain whether mesh repair heightens the risk of infection.

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