

# Amyand's Hernia: A Case Report and Review of the Literature

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## Abstract

Acute appendicitis in an incarcerated inguinal hernia, termed an Amyand's hernia, is an uncommon and rare condition estimated to be found in approximately 1% of adult inguinal hernia repairs and when it occurs it is often misdiagnosed as a strangulated inguinal hernia. The clinical presentation varies, depending on the extent of inflammation in the hernia sac and the presence or absence of peritoneal contamination. We report a case of Amyand's hernia in a 68-year-old man. The base of the appendix was free of inflammation and an appendectomy was performed. The peritoneum was irrigated and closed. The indirect defect of the hernia was closed primarily without mesh placement. The postoperative course was uneventful. Emphasis is given to the rarity of the disease and to the review of the literature.

## INTRODUCTION

Claudius Amyand (1680-1740) was sergeant surgeon to George II and principal surgeon to the St. George's and the Westminster hospitals of London. His role in surgical history is secured because he performed the first recorded successful appendectomy on an 11-year old boy with a perforated appendix within an inguinal hernia sac in 1735. Amyand reported the case to the Royal Society and it was published in their Philosophical Transactions [2]. An uninfamed appendix within an inguinal hernia is estimated to be found in approximately 1% of adult inguinal hernia repairs [4,8]. The finding of appendicitis in the inguinal hernia is further rare. D'Alia observed once (0,08%) in 1.341 inguinal hernia operations [4] while Ryan [9] in 1937 reported only 11 cases of appendicitis out of 8.692 (0,13%) external hernia sacs.

## CASE REPORT

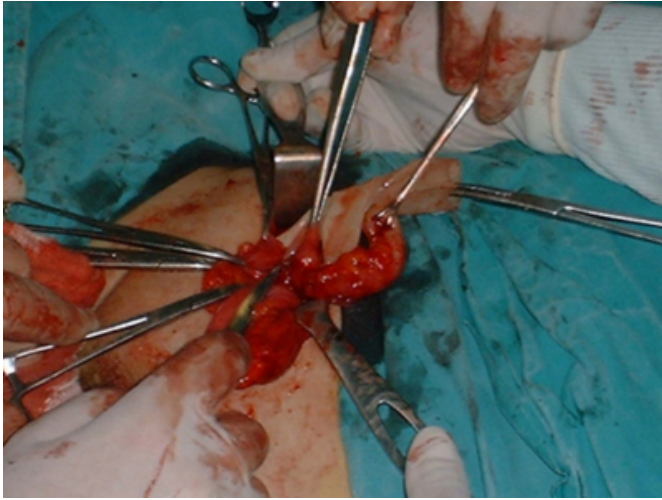
A 68-year-old man was referred to the general surgery department suffering from a pain in the right inguinal area. The patient had a 2-day history of epigastric pain first and suprapubic pain later and a protrusion of part of the contents of the abdomen through the right inguinal region of the abdominal wall. The second day the hernia had increased in size whereas the pain had intensified and had localized to the right inguinal area. Physical examination on admission revealed a tender nonerythematous and nonreducible mass. Routine laboratory investigation, included blood test analysis and abdominal radiograph, was normal. The

diagnosis incarcerated right inguinal hernia was established and the patient was scheduled for surgery.

At surgery, an incarcerated inflammatory and edematous mass was found inside the inguinal canal. This mass was identified as the tip and body of the appendix adhered to the indirect hernia sac. A small amount of clear fluid was noted in the peritoneum. The base of the appendix was free of inflammation, so appendectomy was performed, and the peritoneum was irrigated and closed (fig. 1). The posterior wall of the inguinal canal was repaired, after the excision part of the sac, by approximation of the transversus abdominis aponeurotic arch to the inguinal ligament using interrupted sutures (Halsted technique). A vacuum drainage was left in place and it was removed the next day. The patient was given intravenously cefoxitine 3gr daily for two days. The postoperative course was uneventful, and the patient was discharged in good condition within 4 days.

### Figure 1

Figure 1: Acute appendicitis within an Amyand's hernia



### DISCUSSION

The pathophysiology of Amyand's hernia is unknown. The relationship between incarceration and inflammation of appendix is not yet clarified. Weber et al [13] raised the question of why the appendix in Amyand's hernia becomes inflamed. The inflammatory swelling may lead to incarceration and subsequent impaired blood supply and bacterial overgrowth. Abu-Dalu and Urcu support the scenario in which as soon as the appendix enters the sac it becomes vulnerable to trauma and is ultimately retained there by adhesions. Its blood supply may subsequently be cut off or significantly reduced resulting in inflammation and bacterial overgrowth. Contraction of the abdominal muscles and other sudden increases in intra-abdominal pressure may cause compression of the appendix resulting in further inflammation [1].

In our case the pathologic findings of the specimen revealed a chronic inflamed hernia sac and peri-appendicitis with vascular congestion. These findings suggest that the appendix was first incarcerated and then became inflamed.

The difficulty in diagnosing hernial appendicitis preoperatively reflected by the fact that only one case has been reported to be correct diagnosed preoperatively in 60 cases of Amyand's hernias from 1959 to 1999 [13]. The medical history and the physical examination usually point to incarcerated hernia with localized peritonitis. In many cases the prodrome signs could be typical of appendicitis with epigastric or periumbilical pain localizing to the right lower quadrant or to hernia sac. Several authors suggest that the pain of strangulated appendicitis tends to be episodic and crampy instead of a constant dull ache usually seen in

strangulated bowel [1,6]. The correct preoperative diagnosis is difficult and requires an awareness of this entity with findings of a tender hernia without the radiological or clinical signs of obstruction. Leukocytosis and fever are not consistent findings, as we noticed also in our case where the leukocytes were normal and there was no fever. Preoperative computed tomography (CT) examinations revealed the previously unsuspected diagnosis of Amyand's hernia in some reports [7]. However, CT is not routinely used in such cases.

The treatment for hernial appendicitis includes appendectomy with primary hernia repair using the same incision [3,4,6]. The appropriate approach is pre-peritoneal for access to both abdomen and inguinal regions. Synthetic mesh should not be used in the repair of contaminated abdominal wall defects because the prosthetic material can increase the inflammatory response and result in wound infection and a possible appendiceal stump fistula [3]. However, laparotomy in cases of symptoms harbours peritonitis or problems of releasing the appendix incarcerated in the deep inguinal ring, have been performed [11]. Laparoscopic treatment has also been proposed as well [12]. Considering the unsafe status of the funiculus and testicle due to acute inflammatory process, and their incidence of being source of post operative sepsis, orchiectomy may become necessary, especially in older patients [4,5].

The mortality rate after Amyand's hernia varies from 14 to 30% and it is associated with septic complications [3,5]. Recent reports have recorded fewer complications included pneumonia, epididymitis and urine retention [6,10,11,13].

### CONCLUSION

Appendicitis within an Amyand's hernia is rare, and when it occurs it is usually misdiagnosed as strangulated inguinal hernia which also represents a surgical emergency. The proper treatment should involve appendectomy through the herniotomy with primary hernia repair without the use of any synthetic mesh.

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