



Two-stage treatment of concomitant complicated right amyand's hernia and incarcerated left inguinal hernia: Case report and review of the literature

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Abstract

Amyand's hernia is a rare condition defined by the inclusion of the *appendix vermiformis* within the hernia sac. Its diagnosis is very difficult in the pre-operative period. The clinical manifestation of incarcerated inguinal hernia generally masks the symptoms of acute appendicitis. We describe an unusual case of a concomitant complicated right Amyand's hernia and an incarcerated left inguinoscrotal hernia treated in two stages: First, a laparoscopic appendectomy was done in order to control the systemic sepsis and, in a second step, a bilateral hernioplasty was performed. To our knowledge, this is the first report of this type of management approach.

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Introduction

Amyand's hernia is an inguinal hernia containing the vermiform appendix. The herniated appendix can be inflamed or normal [1].

The incidence of the presence of a normal appendix within an inguinal hernia sac is approximately 1% of all hernias, and appendicitis, regardless of the stage of presentation, in an Amyand's hernia accounts for 1% of all cases of appendicitis, and 0.07-0.13% of all cases of Amyand's hernia. The overwhelming majority of cases involve the right groin [2].

Case Report

A 67-year-old male with a history of hypertension and traumatic supracondylar amputation presented to the emergency department with lower crampy episodic abdominal pain, swelling in both groins and bilious vomiting for two days. He had not experienced any loss in appetite or weight in the previous months.

At physical exam he was in a poor general condition, hypotensive, tachycardic, and afebrile. His abdomen was distended and tympanic, with tenderness in the lower quadrants, and



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no bowel sounds, and he had two irreducible inguinal hernias.

Supine X-ray of the abdomen revealed dilated small bowel loops. The total leukocyte count at admission was of 17.1000/mm³, with 91% neutrophils, increased acute phase reactants, impaired renal function with a creatinine of 2.6, and a high blood lactate. A CT scan showed the appendix herniating into the right inguinal canal and an ileum loop into the left inguinal hernia with retrograde dilatation of the small bowel. A diagnosis of complicated right Amyand's hernia and incarcerated left inguinal hernia was made.

The patient was taken to the operating room where laparoscopy revealed purulent peritonitis of the four quadrants secondary to acute appendicitis in the right inguinal canal (Figure 1), together with a left inguinal hernia with normal appearing small bowel. A laparoscopic appendectomy and abdominal lavage were performed, and the pathology report revealed acute appendicitis. The patient was discharged home on the 7th post-operative day after recovering from paralytic ileus. Six month later a bilateral hernioplasty was completed. This postoperative course was unremarkable, and the patient was discharged home on the following day. On follow up at one year he is doing well.



Figure 1: Laparoscopy view of the right groin with purulent peritonitis and acute appendicitis in the hernia sac

Amyand's hernia is more common at the extremes of life and has a male preponderance. The clinical spectrum is highly variable, going from asymptomatic patients in whom the diagnosis is never made or performed incidentally during a scheduled hernioplasty, to presentation as an incarcerated inguinal hernia or even with an added acute appendicitis with its different grades of inflammation. Its usual manifestation is a tender inguinal or inguinoescrotal lump, which is clinically indistinguishable from an incarcerated or strangulated inguinal hernia, rendering preoperative diagnosis as practically impossible [3,4]. However, in contradiction to the constant pain seen in strangulation, the pain in Amyand's hernia has been described as crampy, episodic and not dull, as in our case; this type of hernia can occasionally occur in conjunction with other acute conditions, rendering the diagnosis more difficult, as in our case.

Differential diagnoses include incarcerated or strangulated inguinal hernia, inguinal lymphadenitis, testicular torsion, epididymitis and focal panniculitis [5]. Ultrasound and CT-scan may be used in selected patients who, in addition to hernia findings, exhibit signs and symptoms consistent with acute appendicitis.

Treatment of Amyand's is still debatable as reviewed in the literature. The inflammatory status of the appendix and the general condition of the patient dictates the surgical approach. The two most controversial issues are the timing of prophylactic appendectomy, and whether a mesh repair is indicated [2,6,7]. In cases of appendicitis or perforated appendix, it is clear that an appendectomy should be performed; the controversy arises when a normal appendix is incidentally found in the sac; some authors advocate a prophylactic appendectomy to prevent a future appendicitis, especially in the young; they argue that if an excessive manipulation occurs to the normal appendix while it is being reduced this could increase the risk of appendicitis developing postoperatively; this statement lacks scientific evidence and, on the other hand, authors against prophylactic appendectomy argue that the violation of the aseptic surgical technique of a clean procedure increases morbidity and the likelihood of recurrence of the hernia.

Regarding mesh repair in non-inflamed cases, most authors recommend it [1,8,9], the controversy arising when the appendix is inflamed or perforated; a majority suggests that the mesh should be avoided because of the risk of wound infection, sepsis, appendicular stump fistula, and hernia recurrence. Others report a successful placement of a mesh in a perforated or inflamed appendix without any complication. Table 1 shows a classification for staging and management of Amyand's hernia based on the characteristics of this entity [10].

Table 1: Losanoff and Basson classification of Amyand's hernia [10].

Type	Definition	Management
Type 1	Normal appendix	Reduction, mesh hernioplasty
Type 2	Acute appendicitis	Appendectomy in young patients
Type 3	No abdominal sepsis	Appendectomy through the hernia and primary repair with no mesh
Type 4	Acute appendicitis	Appendectomy through laparotomy and primary repair with no mesh

We believe that laparoscopy is helpful only when the diagnosis is unclear, as in our case. Laparoscopic appendectomy should not be recommended if the gangrenous process spreads into the hernia sac and tissues of the inguinal canal; in such cases the inguinal canal must be explored through an anterior approach, debrided, and possibly a vacuum dressing must be instituted: Also, laparoscopy is ill advised in advanced cases of intestinal obstruction with significant dilatation of the small intestine. Some authors have reported a superior outcome of the laparoscopic approach with regard to postoperative pain, recovery and cosmesis. A laparoscopic extra peritoneal repair has also been described, but this approach does not visualize the contents of the hernia sac, which cannot be visually reduced. Our decision to proceed with a laparoscopic approach as a first stage, despite the diagnosis of bilateral incarcerated hernia with appendicitis, initially led to the timely detection of another complication, namely generalised peritonitis, which may otherwise have gone unnoticed and resulted in serious complications. We decided to perform only the appendectomy in the first stage because of this peritonitis with physiologic compromise due to sepsis; in these situations the hernia repair, with or without mesh, carries a higher risk of recurrence, wound infection and appendicular fistula [6].

Conclusion

In conclusion, Amyand's hernia is a rare entity, although it can combine two of the most common conditions encountered by emergency general surgeons (incarcerated inguinal hernia and appendicitis). Treatment is controversial, and the management will depend on the surgeon's experience and the clinical scenario. The rarity of the condition and the lack of large series of patients and meta-analyses explain this controversy. We believe that a two-stage approach could be a valid option in cases of peritonitis with sepsis, as in the case described.

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