

Complicated acute appendicitis within a right inguinal hernia sac (Amyand's hernia): report of a case

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Abstract

Background: The term Amyand's hernia refers to a rare clinical situation characterized by the presence of a normal or inflamed appendix within the sac of an inguinal hernia. The situation may be asymptomatic or may present as an incarcerated hernia in case of strangulation or acute appendicitis occurring inside the hernia sac.

Description of the case: We present the case of a right Amyand's hernia on a 88-years-old male that presented to our emergency department with a severely tender and swollen inguinal mass that was diagnosed as a strangulated inguinal hernia – inguinal abscess and underwent emergency operation. The intraoperative findings included a severely inflamed and perforated appendix along with healthy part of the caecum inside the sac. Appendectomy with subsequent primary hernia repair without mesh was performed with excellent outcome.

Conclusion: Because of the fact that most of such rare cases are managed by urgent surgery with no preoperative diagnosis, every surgeon should be prepared for the possibility of coping with such an unexpected situation. Hippokratia 2014; 18 (1): 74-76.

Keywords: Inguinal hernia, appendix, appendicitis, hernia mesh

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Introduction

A normal or inflamed vermiform appendix found inside an inguinal hernia sac is called Amyand's hernia, in honour of the surgeon Claudius Amyand who first reported this interesting entity in 1735¹.

Amyand's hernias usually present on the right side due the normal anatomic position of the appendix. In rare cases that can be associated with situs inversus, malrotations of the intestines and mobile caecum, an Amyand's hernia may appear on the left side².

The clinical presentation of an Amyand's hernia usually mimics a strangulated inguinal hernia and therefore the vast majority of these cases are not diagnosed preoperatively. In fact there are very few cases of preoperatively diagnosed Amyand's hernias in literature³.

The management of Amyand's hernias is still a subject of debate and should be individualized depending on the operative findings and co-morbidity factors. The most widely accepted classification that epitomizes operative findings and management is the one by Losanoff and Basson which describes 4 distinct types. In type 1, a normal appendix is found within an inguinal hernia. In this case hernia reduction with mesh repair and appendectomy (unless contraindicated) is the treatment of choice. Type

2 includes an inflamed appendix within an inguinal hernia, without signs of peritonitis and abdominal sepsis. Appendectomy through herniotomy with primary repair of hernia with Bassini or Shouldice technique (no mesh) is proposed. In type 3 where peritonitis and abdominal sepsis co-exist, a laparotomy, appendectomy and peritoneal lavage and subsequent hernia repair without mesh is indicated. Finally in type 4, some other abdominal pathology exists simultaneously. A laparotomy in terms of identification and treatment of this pathology should be performed. Appendectomy and hernia repair without mesh should follow⁴.

The aim of this report is to present a rare and very interesting case of a clinically incarcerated inguinal hernia which proved to be intraoperatively an Amyand's hernia with pus and a necrotized appendix within it.

Description of Case

An 88-year-old male patient presented to our Emergency Department with a tender, red, and severely swollen right inguinal mass of more than 12 hour duration. His medical history included type II diabetes mellitus and chronic hypertension. Pain onset was sudden and involved only the right inguinal area. No rebound tenderness was

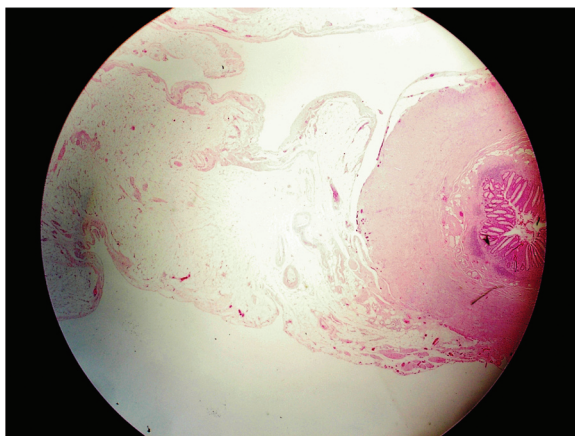


Figure 1: Microphotograph (Hematoxylin & Eosin, x 200) showing the inflamed appendix (on the right) next to vascular, connective and adipose tissue of spermatic cord and omentum (on the left).

revealed by the clinical examination of the abdomen. Body temperature was slightly increased. By digital examination, rectum was full of normal content. Laboratory findings included elevated inflammation markers: White Blood Cell count: $13 \times 10^3/\text{mm}^3$ and C-Reactive Protein: 53 mg/L. The differential diagnosis of the inguinal mass included local abscess, incarcerated hernia or combination of both disorders.

The patient was taken to the emergency operating room and at exploration, after suction of pus, a perforated appendix was inside the severely inflamed and partially ruptured hernia sac along with part of the caecum and omentum. All adhesions were released and appendectomy, resection of: a) inflamed parts of omentum, b) necrotized fatty tissue of spermatic cord, and c) most of hernia sac (Figure 1), through the herniotomy was performed. We did not consider laparotomy to be necessary because of the fact that the perforation was limited within the inguinal area and the pre-operative presentation of the patient was not indicative of peritonitis. No mesh was placed in fear of postoperative complications such as wound infection or appendiceal stump fistula. Instead a Bassini procedure was performed. No local irrigation with antibiotic as proposed by some authors⁵ was applied. A vacuum suction drain was placed in the subcutaneous tissue.

The post-operative period was uneventful. The patient had wide spectrum antibiotic (Tazobactam-Piperacillin) intravenously for 4 days. The drain was removed on day 3 post-operatively and the patient was discharged home 2 days later.

Discussion

The probability of an individual to have acute appendicitis at some point in his life is about 8%¹. The incidence of a non-inflamed appendix within adult inguinal hernias is about 1%. The case of an inflamed, perforated appendix or periappendicular abscess within an inguinal hernia in adults is much lower and accordingly to differ-

ent studies ranges between 0.13% and 1%^{6,7}. In a 2003 study by C. D'Alia et al only one case of acute appendicitis within an inguinal hernia in 1.341 repair operations was described⁸.

The underlying mechanisms that can lead to acute appendicitis within an Amyand's hernia include the reduction of the appendix's blood supply due to adhesions that may cause non-reducibility of the hernia and compression in the external ring originating from increases in intra-abdominal pressure. These factors lead to recurrent inflammation and bacterial overgrowth¹.

An Amyand's hernia is virtually always diagnosed intraoperatively. Computer tomography can be diagnostic⁹, however it is rarely used due to the fact that such a hernia usually mimics either a simple reducible or an incarcerated inguinal one and is therefore admitted for elective or emergency surgery respectively, without using any prospective imaging techniques.

Unlike other inguinal hernias containing bowel that may cause ileus, an Amyand's hernia usually appears without signs of obstruction and inflammation markers usually stay within normal range. The differential diagnosis may include strangulated hernia, Richter's hernia, orchitis, omentocele, inguinal lymphadenitis, epididymitis and hemorrhagic testicular tumor⁵.

Management should be individualized according to appendix's inflammation stage, presence of abdominal sepsis and co-morbidity factors. The Losanoff-Basson classification presented above offers a satisfactory guidance system. Most surgeons agree that the presence of acute appendicitis (Losanoff-Basson type 2-4) within a hernia should be a contraindication for the use of synthetic meshes or plugs. However a point of disagreement is whether or not to perform an appendectomy in a case of a Losanoff-Basson type 1 Amyand's hernia (normal appendix within inguinal hernia). The decision should be based on factors like the patient's age, the size and anatomy of the appendix, the side in which the hernia occurs and finally the extension of the intraoperative manipulations that can by themselves trigger an inflammatory process⁸. In our case, a type 2 Amyand's hernia with a perforated appendix and no signs of abdominal sepsis, we proceeded with an appendectomy through the herniotomy and a primary repair of the hernia without the use of any synthetic mesh or plug. The outcome was excellent and the patient was discharged without any complications occurring during the post-operative period.

In terms of statistical analysis, our surgical clinic provides services to a population area of 100,000. A mean of 100 inguinal hernia procedures are carried out annually. Searching our files for similar cases, we found that this was the first incident of an Amyand's hernia and the first case of acute appendicitis within an inguinal hernia in approximately 1200 appendectomies that have been performed during the last 10 years. In other words our approximate percentage seems to be less than 0.1%, lower than these mentioned by Ryan et al and Carey et al, but approaching the result described in the study of D'Alia et al⁶⁻⁸.

In conclusion, Amyand's hernia is a rare type of inguinal hernia that can sometimes lead to serious and life-threatening complications due to peritoneal spread of the septic process and should therefore be faced with utmost vigilance.

Conflict of Interest

None declared.

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