Amyand's Hernia. Experience Of A Surgical Center In Greece.

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Citation

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Abstract

Introduction: The finding of vermiform appendix in inguinal hernia, inflamed or not, is called Amyand's hernia. The aim of this study is to present the experience with Amyand's hernia in a Greek surgical department.Patients and Methods: We studied retrospectively 963 patients with inguinal hernia who were admitted to our surgical department over a 12-year period. Four patients presented with Amyand's hernia (0.4%). One of them had an inflamed vermiform appendix in his sac (acute appendicitis), presented as incarcerated right groin hernia and underwent simultaneous appendicectomy and Bassini's suture hernia repair. Two patients with normal appendix had a plug-mesh hernia repair without appendicectomy. The fourth patient, a young adult with a big non-inflamed appendix in his sac had a plug-mesh hernia repair with appendicectomy.Discussion: A hernia surgeon may encounter unexpected intraoperative findings, such as Amyand's hernia. It is important to be prepared and apply the appropriate treatment in any case.

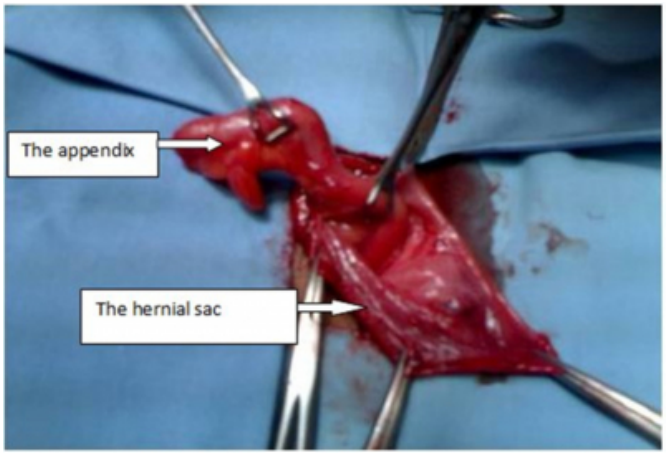
INTRODUCTION

Finding the vermiform appendix in an inguinal hernia sac, along with appendicitis or not, is called Amyand's hernia. Claudius Amyand (1660–1740) a French surgeon working at St. George's and Westminster hospitals in London, performed the first successful appendectomy in an 11-year-old boy presented with an inflamed, perforated appendix in an inguinal hernia sac in 1735. According to the surgeon's descriptions, the patient had also "a fistula between the scrotum and thigh." and the operation proved to be "very complicated and perplexing," as the pathology consisted of a chronically inflamed appendix, contained within the inguinal hernia sac, perforated by a previously swallowed pin. At surgery the appendix was removed. The patient eventually recovered and was "discharged with a truss, which he was ordered to wear for some time." The case was published in Philosophical Transactions of the Royal Society of London [1].

Inguinal hernia repair is one of the most common operations in surgical practice. Despite that, hernias often pose technical dilemmas, even for the experienced surgeon [2]. The surgeon may encounter unusual findings, such as a vermiform appendix partly or fully contained in the hernia sac, inflamed or not, stretched or curved, adhered or not on the sac walls (Figure 1). Should an appendectomy be performed at the same stage with the hernia repair? –This has been a question of debate and discussion. The aim of this study is to present the experience of our university surgical department with Amyand's hernias along with a review of the literature on this subject.

Figure 1

Figure 1: Amyand's hernia. The hernial sac is open; the appendix is visible within the sac.



METHODS AND RESULTS

A retrospective review of the case histories of 963 inguinal hernia patients who were admitted and treated in our surgical department over a 12-year period (between 1998 and 2009) was undertaken. Both elective and emergency cases were included in the study. Information was obtained from their medical records and their detailed operative protocols.

Four patients presented with Amyand's hernia (0.4%). One of them had acute appendicitis, clinically appearing as an incarcerated right groin hernia, and underwent simultaneous appendectomy and conventional modified Bassini's hernia repair. Two patients with a normal appendix had a mesh-plug hernia repair without appendectomy. The fourth patient, a 25-year-old man with a 20cm long but non-inflamed appendix, which was fully contained and adhered on the wall of the sac, pulling the cecum up to the internal inguinal orifice, had a mesh-plug hernia repair along with appendectomy. All patients had an uneventful postoperative course, without any recorded postoperative wound infection or hernia recurrence.

DISCUSSION

Although rare, a right inguinal hernia sac may contain the vermiform appendix, usually non-inflamed, but exceptionally complicated with acute appendicitis. De Garengeot first reported this finding in a right femoral hernia sac, in 1731 [3]. Subsequently, voluminous literature evolved in which anatomists and surgeons were recording the presence of the appendix within hernia sacs. Historically, the first appendectomy along with a hernia repair operation was performed by Dr. Claudius Amyand in 1735 [1-5]. The patient was an 11-year-old boy with a chronically inflamed and perforated appendix, contained in a right inguinal hernia sac along with a peri-appendiceal abscess drained through a fistula between the scrotum and the right thigh. The operation proved to be problematic because of recurrent sepsis following appendectomy; however, the patient eventually recovered and was discharged with instructions to wear a truss for some time.

Acute appendicitis within an inguinal hernia accounts for 0.1% of all cases [2,6,7]. Inflammation of the appendix is attributed to external compression of the appendix at the neck of the hernia. The inflammatory status of the vermiform appendix determines the surgical approach and the type of hernia repair. All surgeons agree that if appendicitis exists, the repair of the hernia should be performed with Bassini's or Shouldice's techniques, without making use of synthetic meshes or plugs within the defect [2,5,8], due to the high risk of suppuration of such materials.

In the case of a normal appendix, incidentally found within the hernia sac, the performance of a prophylactic appendectomy along with the hernia repair is not favoured by many authors [9,10]. Appendectomy adds the risk of infection to an otherwise clean procedure. Superficial wound infection increases morbidity; and deep infection may contribute to hernia recurrence. In addition, surgical manipulations to achieve visualization of the entire appendix and its base by enlarging the hernial defect or distending the neck of the hernial sac all increase the possibility of recurrence, by weakening of the anatomic structures around the defect [2,5,7,10]. There are authors who recommend reduction of the appendix and mesh hernioplasty if there is no acute appendicitis, and appendectomy followed by endogenous hernia repair if an inflamed appendix is found [7,10]. Although these general rules are certainly acceptable, there are more clinical scenarios to keep in mind. Losanoff and Basson have distinguished Amyand's hernias of four basic types, which should be treated differently [4,5] (Table 1).

Figure 2

Table 1. Classification of Amyand's hernias after Losanoff and Basson [4,5]

Classification	Description	Surgical Management
Type 1	Normal appendix within an inguinal hernia	Hernia reduction, mesh repair, appendectomy in young patients
Type 2	Acute appendicitis within an inguinal hernia, no abdominal sepsis	Appendectomy through hernia, primary endogenous 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 types 1 to 3 hernia, investigate or treat second pathology as appropriate

The absence of inflammation in type 1 approximates elective hernioplasty. Using prosthetic material in such cases carries the expectation of an improved longevity of the repair because it avoids tension on the suture lines and circumvents the metabolic problems related to collagen deficiency, which is known to exist in hernia patients. Whether to remove or leave behind a normal appendix in this clinical scenario cannot be decided because no evidence-based information exists. The decision is rather based on common sense related to the patient's age and life expectancy, its lifelong risk of developing acute appendicitis, the size and the overall anatomy of the appendix. Paediatric or adolescent patients have a significantly higher risk of developing acute

appendicitis and should therefore have their appendix removed, compared to middle-aged or elderly individuals in whom the appendix should probably be left behind [4,5]. A long, curved appendix may have a higher risk of inflammation, and additionally, a long appendix which stretches the cecum may cause chronic pain if left behind. Manipulations to detach and reduce the appendix in the abdomen may stimulate the inflammatory process. Furthermore, consideration of appendectomy in young patients must be weighed against the size of the hernia, since prosthetic material is contraindicated, whereas large hernias are more likely to recur if repaired by making use of endogenous tissue only.

The decision is easier in Type 2 hernias, where appendicitis is found, and should therefore be treated with appendectomy; however, the hernia repair should be performed without making use of prosthetic materials. On the other hand, in septic patients with Amyand's hernia Type 3 (acute appendicitis with peritonitis), or Type 4 (acute appendicitis with other pathology), even hernioplasty may be contraindicated if the patient's condition is poor or his life expectancy is limited.

In conclusion, a hernia surgeon may encounter unexpected intraoperative findings, such as an Amyand's hernia. The question if he should perform an appendectomy at the same time with the hernia repair depends on many conditions, which should be counterbalanced. It is important to be aware of all clinical settings and an appropriate and individualized approach should be applied.

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