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Research Article

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Amyand's Hernia- A Case Report

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Abstract Background: An Amyand's hernia refers to the presence of an appendix within an inguinal hernia sac. It is a rare entity which presents mostly at the exploration of the inguinal canal. This uncommon finding occurs in less than 1% of all right side inguinal hernias. The appendix may be apparently normal or have all the features of acute appendicitis with its possible complications. Losanoff and Basson suggested a distinct classification to improve the management of Amyand's hernias. Diagnosis is usually made at the time of surgery, which is usually indicated in all incarcerated hernias.
Case report: We report here the case of a patient operated in the Emergency Department of "Mother Teresa" University hospital center, for this rare kind of hernia.
Conclusion: The purpose of this report is to create general awareness among surgeons who might be dealing with this hernia surgery, as they may encounter unexpected intraoperative findings such as Amyand's hernia. It is important to be aware of all clinical possibilities and appropriate management techniques. Consequently, our recommendation is that the decision to perform an appendectomy and/or to use mesh to repair hernias should always be individualised.

Keywords Amyand's hernia, acute appendicitis, hernia repair.

Introduction

The presence of the vermiform appendix in the inguinal hernial sac, with or without appendicitis 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 1735, on an 11-year-old boy who presented with an inflamed, perforated appendix in his inguinal hernia sac. The case was published in the Philosophical Transactions of the Royal Society of London [1]. This was also one of the first documented descriptions of an appendectomy being performed [2]. Four years prior to this, French surgeon René Jacques Croissent de Garengeot described the presence of an appendix within the femoral hernia sac, the so-called de Garengeot hernia [2].
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 [3]. The surgeon may encounter unusual findings, such as a vermiform appendix partly or fully contained in the hernia sac, inflamed or non-inflamed, and adhered or not adhered to the sac walls. Whether or not an appendectomy should be performed at the same times as the hernia repair is debatable. The aim of this study is to present our experience with Amyand's hernia along with a review of the literature on this subject.

Case presentation

We report the case of a 53-year-old male, who presented with a 7-month history of an intermittent right-sided groin swelling with intermittent mild pain and discomfort. Nine months ago he was operated for a left inguinal hernia. On examination, he had a positive right groin cough impulse that reduced spontaneously and disappeared with occlusion of the internal ring. He was diagnosed with an indirect right sided inguinal hernia. At open inguinal herniotomy, a congested appendix, due to the external compression at the neck of the hernia was found. It was adherent, curved to the indirect inguinal hernia sac, of approximately 8 cm (Figures 1 and 2). The appendix was freed from the sac and

appendectomy was done. The sac was ligated and excised, and a mesh repair was undertaken. The patient had an uneventful postoperative recovery and was discharged on day 2.

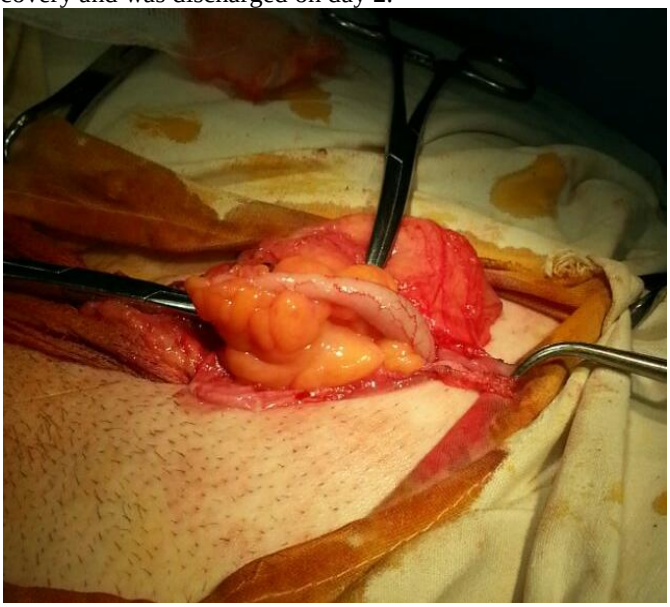

Figure 1: Right sided indirect hernia with appendix and caecum in the sac.

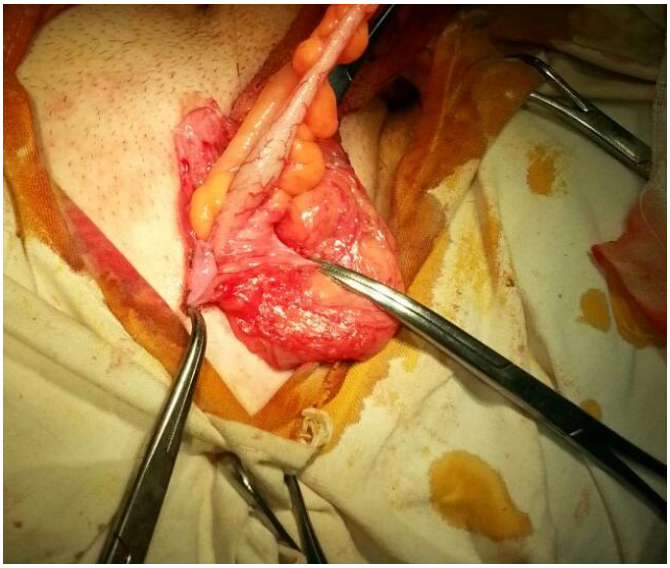

Figure 2: The appendix being freed from the sac walls

Discussion

The contents of inguinal hernia sacs differ from case to case. Various structures contained therein have been described, but the presence of the appendix in an inguinal hernia sac is rare. This anomaly was first described by Claudius Amyand in an 11-year-old boy who underwent a successful appendectomy in 1735. The incidence of having a normal appendix within an inguinal hernia sac is about 1%, whereas appendicitis within an inguinal hernia is estimated at 0.07–0.13 % [4, 5, 8].The eponym Amyand's hernia was first coined by Creese in 1953, then by Hiatt and Hiatt in 1988, followed by Hutchinson in 1993[3-6]. Right-sided Amyand's hernias occur more often than left due to the anatomical location of the appendix on the right. Left-sided Amyand's hernias are very rare; a literature review revealed only 16 reported cases of left-sided Amyand's hernias to date [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. 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 favored by many authors [9]. 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 manipulation to achieve visualization of the entire appendix and its base, by enlarging the hernial defect or distending the neck of the hernial sac, increases the possibility of recurrence by weakening the anatomic structures around the defect [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 [9,10].

All surgeons agree that if appendicitis exists, the repair of the hernia should be performed with Bassini or Shouldice techniques, without making use of synthetic meshes or plugs within the defect [4.5] due to the high risk of suppuration of such materials. Losanoff and Basson have distinguished four basic types of Amyand's hernias, which should be treated differently (Table 1, for classification)

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 advocates elective hernioplasty. Using a prosthetic material in such cases carries the expectation of improved longevity of the repair. Whether to remove or leave behind a normal appendix in this clinical scenario cannot be determined because no evidence-based information exists. The decision is rather based on common sense, relating to the patient's age, life expectancy, life-long risk of developing acute appendicitis and the size and overall anatomy of the appendix. Pediatric or adolescent patients have a significantly higher risk of developing acute appendicitis and should therefore have their appendices removed, compared to middle-aged or elderly individuals in whom the appendix can probably be left intact [4,5]. Long, curved appendices have a higher risk of inflammation. 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 take into account the size of the hernia, since prosthetic material is contraindicated but large hernias are more likely to recur if repaired by making use of endogenous tissue only.

In Type 2 hernias, where appendicitis is found, they should 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 the hernioplasty may be contraindicated if the patient's condition is poor or life expectancy is limited.

However, in our case, given the age of our patient and the characteristics of the appendix (congested, long, curved and adherent to the sac), we decided to proceed with appendectomy, followed by a mesh repair technique. Consequently, our recommendation is that the decision to perform an appendectomy or/and use the mesh-plug technique should always be individualized to the patient.

Conclusion

In conclusion, a hernia surgeon may encounter unexpected intraoperative findings, such as an Amyand's hernia. The decision as to whether one should perform a simultaneous appendectomy and hernia repair is multifactorial. It is important to be aware of all clinical settings and an appropriate approach should be applied.

The purpose of this report is to create general awareness among surgeons who might be dealing with this hernia surgery, as they may encounter unexpected intraoperative findings such as Amyand’s hernia. It is important to be aware of all clinical possibilities and appropriate management techniques.

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