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Case Report

Amyand's hernia: a case report

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ABSTRACT

Amyand's hernia is a rare pathology of an appendix with or without inflammation within the hernia sac is named after the French born English surgeon Dr. Claudius Amyand. We hereby present a case report of this rare entity known as a type 2 Amyand's hernia. A 64 years old male, who had had a left-sided inguinal hernia for the previous 5 years, presented with a 2-day-history of fever, pain, vomiting, and irreducibility of the hernia. Upon exploration an irreducible inguinal hernia with appendix as its content was identified. Appendectomy was performed followed by a tension free mesh repair of the underlying hernia. Consequently, our recommendation is that the decision to perform an appendectomy and/or to use mesh to repair hernias should always be individualized.

Keywords: Amyand's hernia, Appendectomy, Mesh repair

INTRODUCTION

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.

Amyand's hernia is a rare pathology of an appendix with or without inflammation within the hernia sac is named after the French born English surgeon Dr. Claudius Amyand.[1]

Inguinal hernias are one of the most common surgeries that a general surgeon performs with more than 20 million inguinal hernia repairs performed yearly worldwide. The incidence of finding an appendix within the hernia sac is rare, occurring in less than 1% of inguinal hernia patients and when complications arise such as inflammation, perforation, or abscess formation it becomes exceptionally rare with an incidence of about 0.1%.[2]

Critical to successful outcomes is the correct surgical treatment plan that is predominately made intraoperatively. Therefore, surgeons should be well versed on the different types of Amyand's hernia and the indications for subsequent surgical treatment.

We present a case report of this rare entity known as an Amyand's hernia that presented as an irreducible hernia that was diagnosed intraoperatively with an inflamed non-perforated appendix, known as type 2 Amyand's hernia that was subsequently treated with an appendectomy and tension free repair with mesh and we review current literature regarding the management.

CASE REPORT

A 64 years old male, who had had a left-sided inguinal hernia for the previous 5 years, presented with a 2 days history of fever, pain, vomiting, and irreducibility of the hernia. He noticed a recent increase in the swelling size.

On examination, he was found to be dehydrated with tachycardia and was found to be febrile. His abdomen was distended with exaggerated bowel sounds. There was a 12x9 cm pear-shaped left inguino-scrotal swelling extending up to the base of the scrotum. The lump was tense, tender, and irreducible. Both testes were palpable in the scrotum. After adequate resuscitation he was taken to surgery under general anaesthesia.

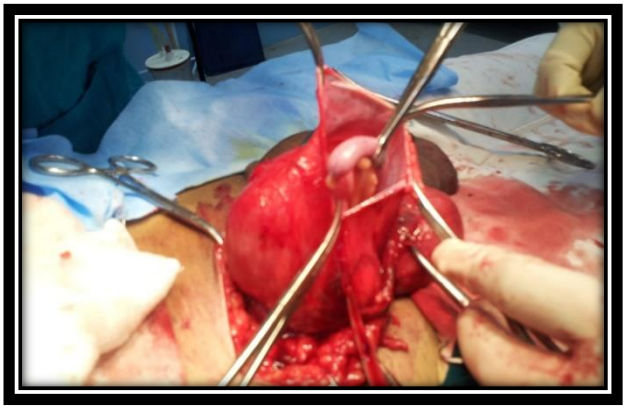

Figure 1: Intra-operative findings showing inflamed appendix as content of hernial sac.

The left inguinal canal was explored, and an irreducible indirect inguinal hernia was found, with constriction at the external ring. Upon opening the hernial sac, inflamed appendix measuring 8cms with no gangrene or perforation was identified with multiple adhesions to the hernial sac. Contents of the sac were pushed inside and an appendicectomy was performed.

There was no situs inversus or malrotation of the gut. The rest of the viscera were normal. The hernia was then repaired by performing a tension free mesh plasty using a polypropylene mesh. The patient was treated with broad spectrum antibiotics and had an uneventful recovery. The histopathology was consistent with an inflamed appendix.

DISCUSSION

A hernia is the protrusion of the viscus or a part of the viscus through the wall of its containing cavity. By far the most commonly encountered hernia is in the inguinal region which also normally contains bowels, or omentum.

Among the unusual contents are the bladder, Meckle's diverticulum (known as Littre's hernia), or a portion of the circumference of the intestine (called Richter's hernia), but Amyand's hernia is relatively unknown despite being first reported in 1735 by Claudius Amyand.[1,3]

The term Amyand's hernia is used to refer to a hernial sac containing an inflamed or non-inflamed appendix in an irreducible inguinal hernia. The incidence of a normal appendix being found inside an inguinal hernia sac is about 1%; however, only 0.1% of these cases have appendicitis.[3]

In most of the patients who present with a right-sided Amyand's hernia, its location can be explained by the normal anatomical position of the appendix; also, right-sided inguinal hernias are more common. In this study, three patients had right-sided hernias.

Table 1: Lossanoff and Basson's classification of Amyand's hernia.[4]

Type of hernia	Description	Surgical management
Type 1	Normal appendix in an inguinal hernia	Reduction or appendectomy and mesh plasty
Type 2	Acute appendicitis in an inguinal hernia with no abdominal sepsis	Appendectomy and primary repair with no mesh
Type 3	Abdominal sepsis	Laparotomy and appendectomy with primary repair
Type 4	Acute appendicitis in an inguinal hernia with concomitant abdominal pathology	Laparotomy and appendectomy, primary hernia repair and management of abdominal pathology

However, left-sided Amyand's hernias have also been described in the literature and may be associated with situs inversus, malrotation of the gut, or mobile caecum, as was found in one of our cases. Losanoff and Basson created a classification system for Amyand's hernia based on different conditions they identified (Table 1).

This system identifies four unique hernia types.[4]

Normal appendix in an inguinal hernia, acute appendicitis in an inguinal hernia, without abdominal sepsis, acute appendicitis in an inguinal hernia, with abdominal wall or peritoneal sepsis, and acute appendicitis in an inguinal hernia, with other abdominal pathology.

The pathophysiology of Amyand's hernia is unknown. Weber et al proposed that due to herniation the appendix can become more vulnerable to micro-trauma, causing adherence to the hernia sac due to fibrosis.[5] This hypothesis that inflammatory swelling may lead to incarceration, subsequent impaired blood supply, and bacterial overgrowth was supported by Dalu, Barut, and house. Muscle contractions and changes in abdominal pressure can cause compression of the appendix, resulting in reduced blood supply and secondary inflammation.

Diagnosing Amyand's hernia pre-operatively is not straight forward. In the majority of cases, it is diagnosed

when the hernia sac is opened, as most patients undergo emergency surgery. Although a preoperative computed tomography (CT) scan of the abdomen can be helpful in diagnosing the condition, it is not routinely employed in such cases. If the diagnosis is established by CT, it is possible to treat Amyand's hernia laparoscopically.

There is considerable agreement regarding the surgical treatments for types 3-4, which entails an appendectomy with a primary hernia repair and avoidance of mesh.[5] However, as Kose et al points out there is current controversy regarding the surgical treatment for types 1-2 and the Losanoff and Basson's classification system with newly recognized types of Amyand's hernia not previously mentioned in their system.[6] Similar to our case, Kose et al recognized a type of Amyand's hernia with the vermiform appendix connected to the hernia sac via fibrous bands that was unable to be freed without resecting the appendix.

In our case we performed an appendectomy, and elected to proceed with a tension free hernia repair with polypropylene mesh for several reasons including the appendix condition of mild inflammation without perforation or gangrene, the patient was a generally healthy and active individual, and due to the large size of the chronic hernia the risk of recurrence with a primary repair was greater.[7,8] There are documented reports of successful outcomes for recur-rent hernias identified as type 2 Amyand's hernia utilizing an appendectomy and tension free hernia repair with mesh. Velimezis et al identified a 78 years old man with a recurrent hernia and an inflamed non-perforated vermiform appendix that was subsequently resected and due to the recurrence necessitated a tension free hernia repair with a successful outcome and no signs of infection or recurrence up to 36 months follow up.[9] Ali et al describes three cases of type 2 Amyand's hernia, similar to our case, that was successfully treated with an appendectomy and tension free hernia repair with no surgical site infections or signs of recurrence in follow up of one month to three years Amyand's hernia, which necessitated.[10]

Although this is one report with a positive outcome in addition to the handful of similar cases mentioned, this is a testament to the fact that this rare surgical issue needs to be researched further. Without more research, surgeons will continue to make sub-optimal decisions not evidence based which potentially increases patient morbidity. More research will ultimately allow surgeons to be better equipped when dealing with this rare entity that is mostly diagnosed intraoperatively. Based on our results along with the previously mentioned successful outcomes using mesh, it may be beneficial for patients with type 2 Amyand's hernia to have an appendectomy with a tension free hernia repair with mesh.

In cases where the appendix is inflamed with no perforations or frank gangrene then, depending on other factors such overall health and hernia size, the surgeon could consider proceeding with a tension free hernia repair with mesh as the overall risk of infection may be lower than the risk of lifelong recurrence with a primary hernia repair. However, there are clear controversies regarding the recognized classification system and treatment algorithm and further evidence-based studies are essential for future successful patient outcomes.

CONCLUSION

Amyand's hernia is a rare clinical entity that is difficult to diagnose pre-operatively. The presence of an inflamed or gangrenous appendix increases the rate of complication, particularly increasing the rate of wound infection. Diagnosis is usually made at the time of surgery, which is usually indicated in all incarcerated hernias. Consequently, our recommendation is that the decision to perform an appendectomy and/or to use mesh to repair hernias should always be individualized.

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