Case Report

A RARE CASE OF AMYAND'S HERNIA WITH PERFORATED APPENDIX

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ABSTRACT

Appendicitis and hernia are common problems. Whereby, the Amyand's hernia is a rare clinical entity by the presence of appendix within the sac of inguinal hernia. It's rarely diagnosed pre-operatively and often misdiagnosed as a strangulated hernia. Surgeons should be aware of this unusual case as it may poses difficulties even for an experienced surgeon. There is still a lack of consensus regarding the investigation and treatment of Amyand's Hernia. In this case report, we present such a rare entity, managed on time without encountering any post-operative complications. A 51-year-old gentleman presented with sudden onset of severe right iliac fossa pain suggestive of incarcerated inguinal hernia. Thus, he underwent an emergency open repair. However, intraoperatively, noted a large omentum with perforated appendix in the hernia sac. Subsequently, it has been surgically approached with a simultaneous appendicectomy and mesh hernioplasty. The outcome was excellent with no postoperative complications. Every surgeon should be prepared for this unexpected intraoperative finding, as the suboptimal management may lead to significant morbidity and mortality. Early recognition intraoperatively, and prompt surgical intervention will result in a better outcome.

INTRODUCTION

Amyand's hernia (AH) is a rare clinical condition characterized by the presence of the vermiform appendix within an inguinal hernia sac. It was coined after a French surgeon, named Claudius Amyand in the 17th century who performed the first successful recorded appendicectomy via the inguinal canal, for a chronically inflamed appendix. Amyand's hernia accounts for approximately 1% of inguinal hernias presentations, whereas the risk of acute appendicitis within the hernia sac is much lower, ranging from 0.07 to 0.13% [1,2].

The clinical presentation could be asymptomatic or mimic a strangulated inguinal hernia or acute appendicitis. Hence, the misdiagnosis of this entity is common. Intraoperatively, surgeons may encounter different presentations such as the inflamed, non-inflamed or perforated appendix. The vermiform appendix might be partly or fully contained in the hernia sac, adhered or not adhered to the sac walls. Therefore, the management of Amyand's hernia is should be individualized depending on the operative findings and co-morbidity factors [2,3].

The goal of this case report is to present this rare clinical entity presented to our centre as an incarcerated inguinal hernia. Our individualized surgical approach to this Amyand's hernia with perforated appendix was successful with excellent postoperative outcomes.

CASE REPORT

A 51-year-old male patient with underlying hyper-tension presented with pain over the right iliac fossa for a one-day duration. The pain was sudden onset, severe colicky, and radiated towards the scrotal region. He denied any previous occurrence of similar symptoms. His systemic review was negative for fever, chills, changes in bowel habits, or urinary tract infection (UTI) symptoms. Further history revealed a painless large scrotal swelling for the past 17 years and gradually increased in size.

On examination, the patient was afebrile with stable vital signs. His abdomen was tender with a firm, irreducible, 8 centimeters palpable mass at the right inguinal region. Otherwise, no signs suggestive of

acute appendicitis. Preoperative laboratory analysis revealed elevated inflammatory markers. Urine analysis was not suggestive of UTI. Abdominal X-ray showed prominent large bowels, whereby bedside ultrasound (USG) confirmed right-sided inguinal hernia with the presence of bowel involvement.

He was diagnosed with an incarcerated inguinal hernia with bowel involvement. Thus, he was prepared for an emergency open repair. However, intraoperatively, in the opened hernia sac revealed a large omentum, small bowel, and transverse colon with perforated appendix as its content (Figure 1). The appendix was perforated at the body with a necrotic area and minimal slough contamination (Figure 2). Whereas, the appendix base, bowel and caecum were healthy, so the content of the sac was reduced. All adhesions were released and further proceeded with omentectomy and appendicectomy.

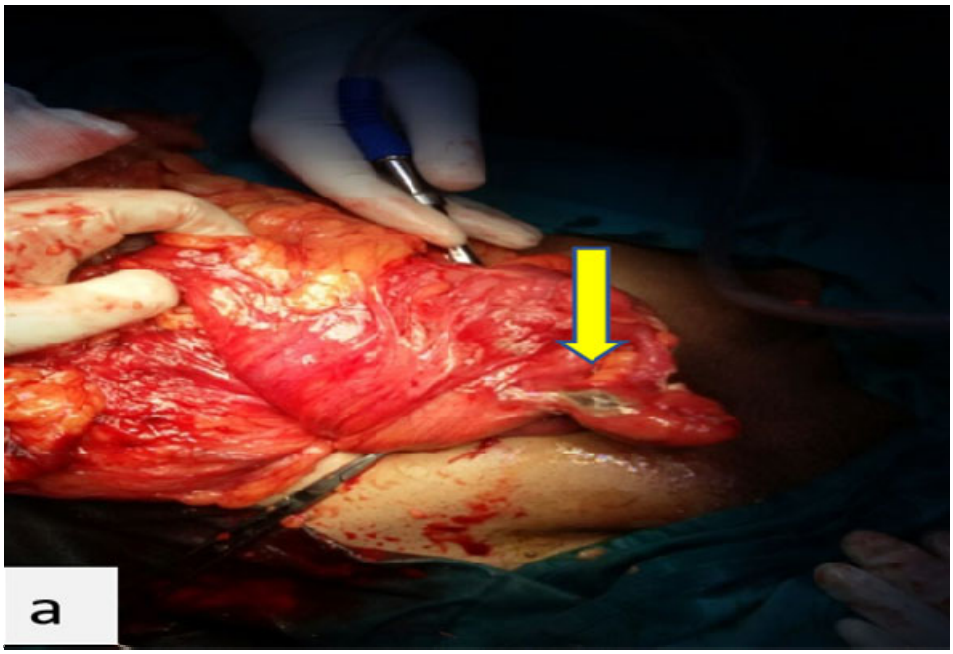
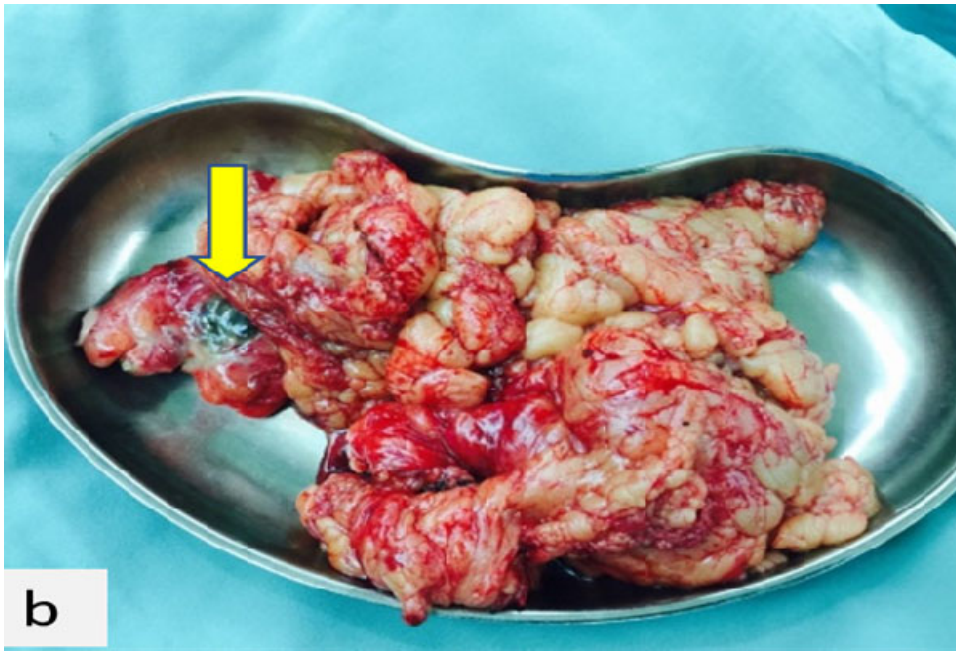


Figure 1a showed intraoperative clinical photographs of the opened right indirect hernial sac, in which omentum, small bowel, and transverse colon with perforated appendix (yellow arrow), as its content.



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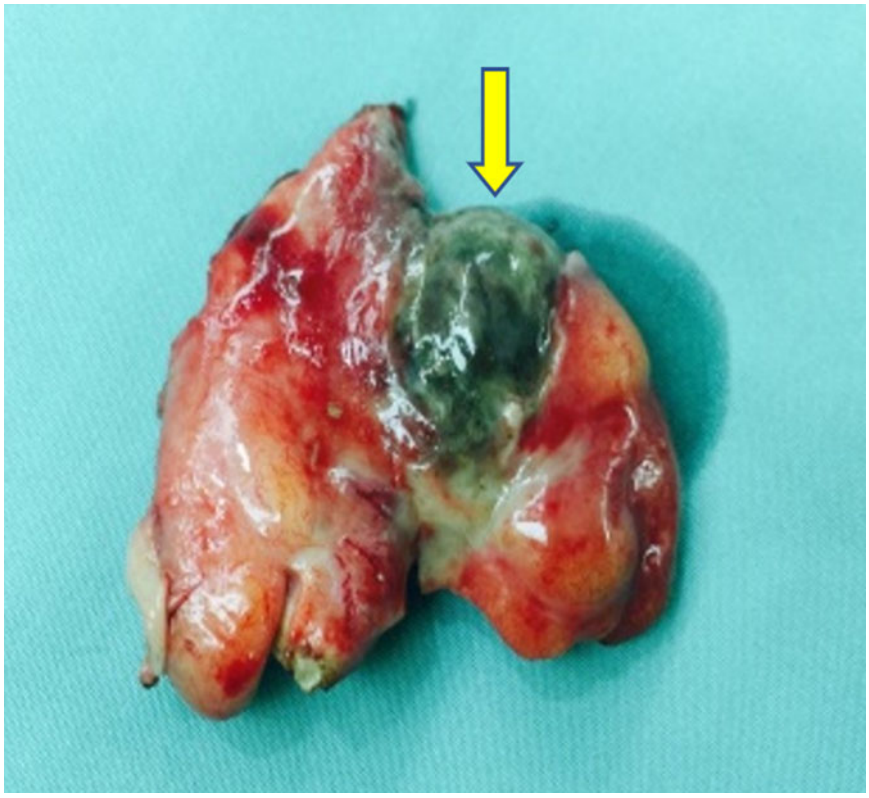

Figure 2 showed gross appearance of the resected appendix. The appendix perforated at the body with a necrotic area (yellow arrow) and minimal slough contamination. The base looks healthy.

The hernia sac was excised and followed by thorough irrigation with antibiotics. Then, the peritoneum was sutured. Hernioplasty was performed with tension-free polypropylene mesh. Laparotomy was not considered in this case as perforation was localized and no peri-operative findings suggestive of intraabdominal sepsis or peritonitis. He was discharged well 6 days later after completed the course of antibiotics. His postoperative period was uneventful, with no wound infection or hernia recurrence.

DISCUSSIONS

Amyand's hernia is a rare entity to encounter and its clinical presentation varies widely. It can occur at any age and more common in men. It can be accompanied by caecum, omentum, Merkel's diverticulum, fallopian tube, and ovaries. Converse to the common hernia surgery, Amyand's hernia often poses technical difficulties even for the experienced hands. There is still lack of consensus on the optimal operative management. Thus, surgeons should be aware of this unusual case, as acute appendicitis within a hernia sac could lead to a potentially life-threatening complication. The mortality rate in Amyand's hernia has been reported as 14-30% and it was often due to peritoneal sepsis and post-operative wound infections [1,2,3,4,5].

The underlying mechanism of Amyand's hernia is not clear. In the literature, several theories had been proposed. Acute appendicitis in Amyand's hernia is caused by the extraluminal obstruction due to the pressure on the hernia neck rather than intraluminal obstruction. Thus, making the appendix more vulnerable to trauma. After a certain duration, the wall deformity gets obstructed causing a reduction in blood supply. This compromises the vascular flow and eventually causing ischemia, inflammation and infection [1,2,3].

Numerous complications of Amyand's hernia have been reported such as abdominal abscess, perforation, epididymitis and orchitis. Severe complications also had occurred include necrotizing fasciitis of the inguinal region, and formation of in situ arterial thrombosis resulted from intraabdominal abscess [4,6]. Besides that, short- and long-term complications include testicular complication, bladder injury, deep incisional or mesh infection, recurrent hernia, mesh migration and post herniorrhaphy neuralgia [7].

Very few Amyand's hernia cases were reported diagnosed preoperatively. USG and Contrast-enhanced computed tomography (CECT) are useful modalities. However, imaging techniques are rarely done as Amyand's hernia is usually mimicking either a simple reducible or an acute incarcerated inguinal hernia which is a clinical

diagnosis [3,8]. In our case report, bedside USG could not localize the presence of a perforated appendix, maybe due to the extensive inflammatory changes obscuring the appendix within the inguinal canal. CECT will be beneficial to aid a definitive diagnosis in these circumstances [2].

Surgical intervention is both diagnostic and therapeutic, nonetheless, the optimum surgical approach in Amyand's hernia is still a subject of debate. Mainly, the controversies are over prophylactic appendicectomy and mesh usage in hernia repair. It was recommended that the reduction of the appendix and mesh hernioplasty in the presentation of the normal appendix. Appendicectomy is avoided to reduce the risk of infection, otherwise in a clean procedure. However, some studies showed healthy appendix becomes inflamed after manipulation during surgery and causes secondary appendicitis. Hence, it has been a common practice for the surgeon to perform a prophylactic appendicectomy. This is also to prevent re-exploration and further weakening of the posterior wall which may result in a recurrent hernia in the future [4,5].

Appendicectomy followed by endogenous hernia repair was suggested in the presence of appendicitis. The use of prosthetic mesh is contraindicated as the mesh material increased inflammation; hence, it has been avoided in the contaminated cases [4,7,8]. Besides Amyand's hernia, mesh hernioplasty has been controversial in incarcerated inguinal hernia repair and also during an emergency procedure. However, the study had shown the effectiveness of polypropylene mesh in reducing the infection rate due to its large diameter of pores (>70 microns), which allows the contact between the inflammatory cells and bacteria. Polypropylene mesh is also beneficial in earlier scar tissue formation [7].

Besides that, large hernias are feasible to recur if it repaired with endogenous tissue only. The tension-free prosthetic mesh helps to strengthen the attenuated fascia in hernia repair. It was reported, after mesh-based emergency hernioplasty, the recurrence rate in tension and tension-free techniques were 40% and 1% to 22% respectively. Therefore, prosthetic mesh is not an absolute contra-indication in emergency inguinal repair [7]. Thus, the approach varies depending on a case-by-case basis. In Amyand's hernia, several cases also have been reported successful surgery with mesh hernioplasty even in the inflamed or perforated appendix [4,8].

Similar in our case, we dealt with a perforated appendix in Amyand's Hernia. The mesh hernioplasty is contraindicated to avoid septic complications. However, intraoperatively, we decided to insert a polypropylene mesh in consideration of large hernia sac with large content of omentum and there was no evidence of intraabdominal sepsis or peritonitis noted. Besides that, the inguinal area also was irrigated thoroughly with antibiotics. The patient was also given a course of antibiotic as a preventive measure to reduce the risk of infection. The outcome in our case was excellent with an uneventful postoperative course with no wound infection or hernia recurrence.

In managing Amyand's hernia, the role of the surgeon in early detection and appropriate surgical technique is very crucial. However, its indistinct clinical presentations, unforeseen circumstances during intraoperative and limited literature on this rare clinical condition remain a great challenge to most of the surgeons. Generally, the surgical technique should be decided in consideration of the patient as a whole, which includes the operative findings, patient's age, life span, life-long risk of developing acute appendicitis, and the state of the appendix. [4,7,8].

CONCLUSION

Amyand's hernia is an unexpected intraoperative finding in common hernia surgery. Furthermore, a perforated appendix in Amyand's hernia is very rare to encounter. A definitive diagnosis can be obtained pre-operatively guided by USG or CECT. The decision for the type of surgical technique is multi-factorial. Therefore, it is important to perceive all the clinical settings and an appropriate individualized approach should be applied.

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