

Amyand's Hernia Complicated With Acute Appendicitis in a Severe Morbidity Obesity Patient

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Case Report

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Abstract

INTRODUCTION: An Amyand's hernia is a heterogeneous clinical condition defined by the presence of the vermiform appendix within an inguinal hernia sac, which may or may not contain other abdominal contents or pathologic inflammatory changes. Herein we present an exceptionally rare case of an Amyand's hernia containing a suppurative appendix and omentum on a morbidity obesity patient, in order to improve our understanding of this disease, avoid misdiagnosis and share experience in the treatment.

PRESENTATION OF CASE: A 46-year-old morbidity obesity male presented to our Emergency Department complained an acute onset abdominal pain near the right groin and the McBurney point with nausea and fever. The patient was initially diagnosed as acute appendicitis according to the laboratory tests and the clinical presentation. However, after a right groin hernia contained an inflamed appendix showed by the computed tomography scan, the final diagnosis of Amyand's hernia was supported. Surgical treatment was then performed, and a right groin hernia was found to contain a suppurative appendix and omentum, intraoperatively. An appendectomy was performed, but the hernia was not repaired simultaneously considering the morbidity risks and surgically technical difficulty brought with the severe morbidity obesity.

CONCLUSION: With an estimated incidence of only 1%, Amyand's hernias are rare emergency case, lacking a clear evidence-based management scheme. Moreover, they can contain a diverse range of pathologic features and presentations that can complicate diagnosis and treatment. There is a paucity of reports describing the management of an Amyand's hernia with appendicitis on morbidity obesity patients. In our case, we shared our surgical experience and the management of Amyand's hernia on morbidity obesity patient should be tailored to individual's condition.

Introduction

Inguinal hernias are one of the most common clinical problems which need surgical repairs intervention, with more than 20 million inguinal herniorrhaphies performed every year worldwide [1, 2]. When the hernia sac of inguinal hernias contains an appendix with or without appendicitis, it is named Amyand's hernia. Amyand's hernia is a rare type of inguinal hernias, which named after the surgeon Claudius Amyand [3]. The incidence of Amyand's hernia is less than 1% of the total inguinal hernia cases. When the Amyand's hernia presents with complications such as inflammation, abscess formation or perforation, the incidence of this emergency case becomes as rare as about 0.1%[4].

Although there are studies reported cases with Amyand's hernia, the appropriate surgical treatment should be made based on the condition of appendix, the characteristics of the hernia, the comorbidities and other circumstances of the patient. In the present study, we report a case of an Amyand's hernia presented with acute suppurative appendicitis on a severe morbidity obesity patient. The pathophysiology, diagnosis, and management of Amyand's hernia are also discussed.

Presentation Of Case

A 35-year-old male obesity patient (Body mass index, BMI 41.22kg/m²) presented to the Emergency Department with 36 h of lower abdominal pain near the right groin and the McBurney point as well as nausea and fever. The pain was stuffy and constant, and got worse while getting up or movement within the right groin region. He reported a surgical history of a prior left inguinal hernia and a comorbidity of diabetes. The diabetes was treated with medication, but it was not well controlled. The patient did not know about his right inguinal hernia, because there was no pain or symptoms before.

During physical examination in the Emergency Department, the patient was hemodynamically stable. The BMI of the patient is 41.22kg/m², with the ultrasonic abdomen and encircled neck. The abdominal exam showed mild tenderness to palpation over the right lower abdomen near the mcburney's point, but there was no rebound or guarding. Due to the thickness of subcutaneous fat, there was no mass or tenderness in the right inguinal region. No remarkable signs found in the rest of his physical exam.

The laboratory test showed a leukocytosis of 12.26 k/uL, neutrophil granulocyte of 10.55 k/uL, neutrophil granulocyte percentage of 86.1. The arterial blood gas analysis showed a lactate of 1.6mmol/L. The metabolic and biochemistry showed a Bun of 9.51 mmol/L, and the value of Cr was 119 umol/L. The value of glucose was 13.83mmol/L. The patient was initially diagnosed as acute appendicitis according to the laboratory tests and the clinical presentation. Then, A Computed tomography (CT) scan was performed in the Emergency Department and confirmed an inguinal hernia that contained part of the inflamed appendix and the omentum. The final diagnosis of Amyand's hernia was supported.

An attempt hernia reduction was made with a dose of 12 mg morphine, but it was not succeed. Because of the co-existence of acute appendicitis and inguinal hernia, the patient was scheduled for an emergent operation. Laparoscopic approach was applied to perform the appendectomy. The appendicitis was confirmed with exudative and suppurative fluid around, and the hernia was found containing part of the inflamed appendix and omentum. The adhesion and edema of the omentum and the mesoappendix were tied and severe (Fig. 1). Due to the morbidity obesity and the severe inflammation around, it took a relatively long time to dissect the inflamed appendix and its mesenterium. Then, the malodorous and exudative fluid was irrigated and extracted. After that, the hernia was reduced and the peritoneal cavity was lavaged. Considering the morbidity risks and surgically technical difficulty brought with the severe morbidity obesity, the hernia defect was not repaired simultaneously. Besides, due to the coexisting myocardial ischemia indicated by the electrocardiogram, the operating time should be short. The resected appendix displayed suppurative inflammation with fibrinous adhesions, but was not perforated.

After the operation, electrocardiograph monitoring, oxygen Inhalation, and antibiotics et al were administrated. The pain was controlled by oral medication. There was no postoperative complication. When the patient tolerated the recovered diet well, he was discharged on postoperative day seven. The patient returned to clinic two weeks after the surgery and was found to be recovering well.

Discussion

The pathophysiology of Amyand's hernia complicated with appendicitis is still debated. It is supported that this type of Amyand's hernia is initiated by a fecalith or lymphoid hyperplasia which caused the appendix obstructed in the hernia sac. Then, the appendix within the hernia sac becomes entrapped and inflamed because of the original obstruction[5]. However, these only accounts for parts of the cases complicated with appendicitis. Another explanation for the development of appendicitis in the hernia sac is that the sudden increased intraabdominal pressure and external muscular compression lead to the ischemia and inflammation of appendix. The incidence of Amyand's hernia complicated with appendicitis is rare [4]. As a result of the rareness and atypical presentation indistinguishable from the incarcerated hernia, reports on the experiences in diagnosis and management of Amyand's hernias are still lacking.

Usually, there is a lack of symptoms specific to the Amyand's hernia, which increases the difficulty in identifying this disease according to the clinical symptom. The present case showed stuffy lower abdominal pain and nausea, with mild tenderness to palpation near the mcburney's point. Both the symptoms and physical examination indicate a diagnosis of appendicitis. The lower abdominal pain got worse while getting up or movement within the right groin region. However, due to the thickness of subcutaneous fat, there was no positive physical sign of hernia. Thus, CT scan and/or ultrasound examination is of great value in identifying the Amyand's hernia with acute appendicitis. Moreover, the diagnosis of Amyand's hernia with appendicitis should be distinguished from Richter's hernia, inguinal lymphnoditis, strangulated omentocele, and acute epididymitis.

The management of Amyand's hernia is guided by the classification created by Losanoff and Basson based on intraoperative findings [6, 7]. When the appendix is not inflamed, only hernia reduction with mesh repair is suggested and the resection of appendix is not proposed by most authors. However, other authors suggest a prophylactic removal of the appendix, because of it being prone to re-herniate and causing future appendicitis [4]. When the appendix is inflamed and/or perforated, it is suggested that the removal of appendix and the repair of hernia without mesh should be performed. This classification scheme is useful as a general guidance, but the treatment should be tailored to individual patient because of the variability in Amyand's hernia and specific condition of patient.

Apart from the BMI, the patient presented with co-morbidities including hypertension, diabetes, and renal insufficiency in the present study. The severe obesity and co-morbidities were reported to increase the risk of operative complications[8, 9]. Moreover, the severe obesity is associated with increased technical difficulty in operation and prolonged operative duration. Considering the above risks as well as the technical difficulty, the surgical operation was ended after the appendectomy and peritoneal irrigation. During the operation, the precise distinguishing of appendix and omentum is vital for the following dissection of appendix. Because the mesenterium and omentum were severely inflamed, every step of resection should be conducted carefully. During the follow-ups, the patient was normal with blood sugar

levels controlled with oral medication. The patient was advised to receiving a proper mesh repair at later day.

Conclusion

The treatment of Amyand's hernia should be tailored to individual conditions and the intraoperative findings. When this disease encounters the severe obesity, the surgical management could be challenged with technical difficulty and increased risks of perioperative complications. As a rare case with varieties, the present case may contributes some information and experience in the management of Amyand's hernia on morbidity obesity patients.

Abbreviations

CT: Computed tomography; BMI: Body mass index

Declarations

Ethics approval and consent to participate

The present study is a case report, and ethical approval is not required. The present study does not involve data that can identify the patient. Written informed consent was obtained from the patient.

Consent for publication

Written informed consent was obtained from the patient for publication.

Availability of data and materials statement

All the data supporting the conclusions of this article are included in the present article. Additional data upon requirement are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that have no competing interests.

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Authors' contributions

YLG, WQL and DBL participated in the treatment of this patient. YLG and HJ designed and drafted the manuscript, with advice and assistance from WQL. DBL and FL revised the final manuscript. All authors had read and approved the final manuscript.

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Figures

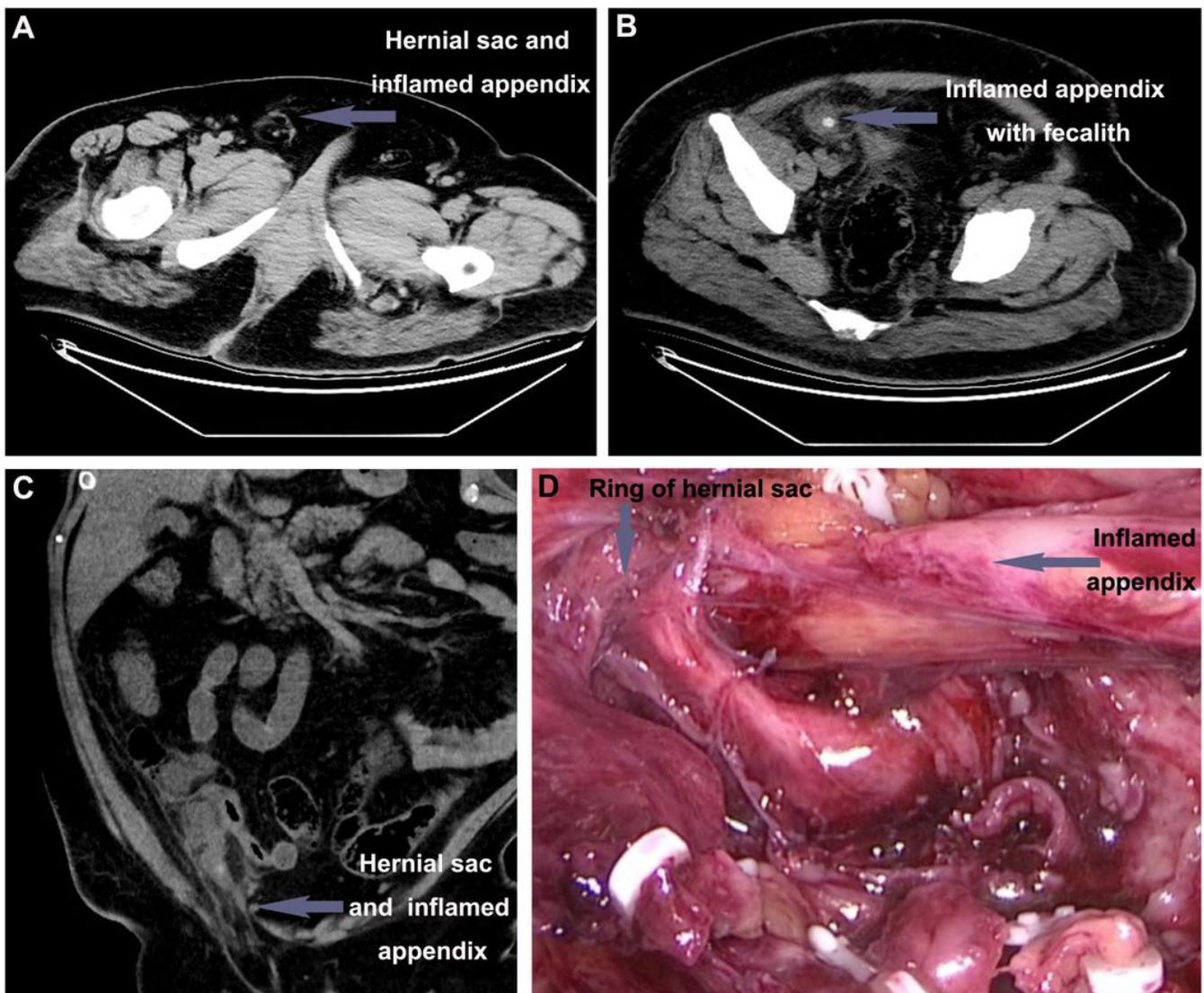


Figure 1

Computed tomography scan and the laparoscopic image of the Amyand's hernia A. Transverse plan showed the hernia sac with inflamed appendix and omentum inside B. Transverse plan showed inflamed appendix with fecalith C. Coronal plan showed the Amyand's hernia with inflamed appendix and omentum D. Part of the inflamed appendix and omentum contained in the hernia observed by laparoscopy