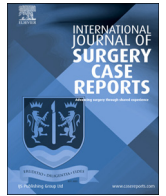




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Acute appendicitis presenting as an abdominal wall abscess: A case report



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ABSTRACT

INTRODUCTION: Amyand hernia (AH) is a rare type of hernia characterized by the presence of appendix vermiformis in the inguinal hernial sac. It is rarely reported in women.

PRESENTATION OF CASE: We presented a case of a 60-year old woman who was admitted initially with an abdominal wall abscess and found to have perforated appendix in the right inguinal hernia. The patient underwent standard open appendectomy and the post-operative course was uneventful.

DISCUSSION: The initial presentation of our case as an abdominal wall abscess is rare in the contemporary literature.

CONCLUSIONS: A high index of suspicion, early diagnosis and timely surgical intervention are the keys to have favorable outcome in amyand hernia. The management should follow general guidelines of appendectomy, hernia repair and dealing with the associated pathology if present.

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1. Introduction

The name Amyand's hernia (AH) is an eponymous disease named after an English surgeon Claudius Amyand. The hernia is characterized by the presence of appendix vermiformis in the inguinal hernial sac [1,2]. The incidence of AH is estimated as 1% of all inguinal hernias [3]. Although the incidence is rare, the appendix may become incarcerated in AH which may lead to further complications such as strangulation and perforation [4]. Appendicitis in AH accounts for 0.1% of all appendicitis cases [5]. The clinical picture of AH depends on whether the appendix is inflamed only or there is a perforation along with an inflammation. AH occurs mostly in males [6], adults, older children and infants [7]. We report a rare case of perforated appendix in the right inguinal hernia in a 60-year old woman presented with abdominal wall abscess. Standard open appendectomy was performed and the post-operative course was uneventful. A thorough literature review was conducted as well. This work has been reported in line with the consensus-based surgical case report (SCARE) guidelines [8].

2. Case presentation

A 60-year old woman known to have diabetes, hypertension, dyslipidemia, morbid obesity and chronic obstructive pulmonary disease presented to the emergency department (ED) with a 3-week history of vague abdominal pain on the right side of the abdomen. The severity of abdominal pain had increased over 3 days prior to the index admission, and was associated with fever. There was no past history of surgical intervention.

The initial physical examination revealed high body temperature of 38.5 °C, diffuse abdominal tenderness on the right side of the abdomen extending from right inguinal region up to the right flank along with erythema and fluctuation. The findings were in favor of abdominal wall abscess. Laboratory findings showed elevated blood sugar of 17.5 mmol/L, white cell count ($13.8 \times 10^9/L$), low hemoglobin (10.7 g/L), and normal platelet count ($235 \times 10^9/L$), urea (6.05 mmol/L) and bilirubin (16.1 μmol/L). Fig. 1(A&B) shows ultrasound findings.

The patient was taken to the operating room. Under general anesthesia the abscess cavity on the right side of abdominal wall was opened with an oblique incision in the subcutaneous tissue to expose the abscess cavity. There was a considerable amount of pus but the cavity was seen communicating with the inguinal canal forming an inguinal abscess. The incision was extended towards the inguinal canal for proper exposure and drainage. On opening the inguinal canal, there was small bowel along with cecum, and

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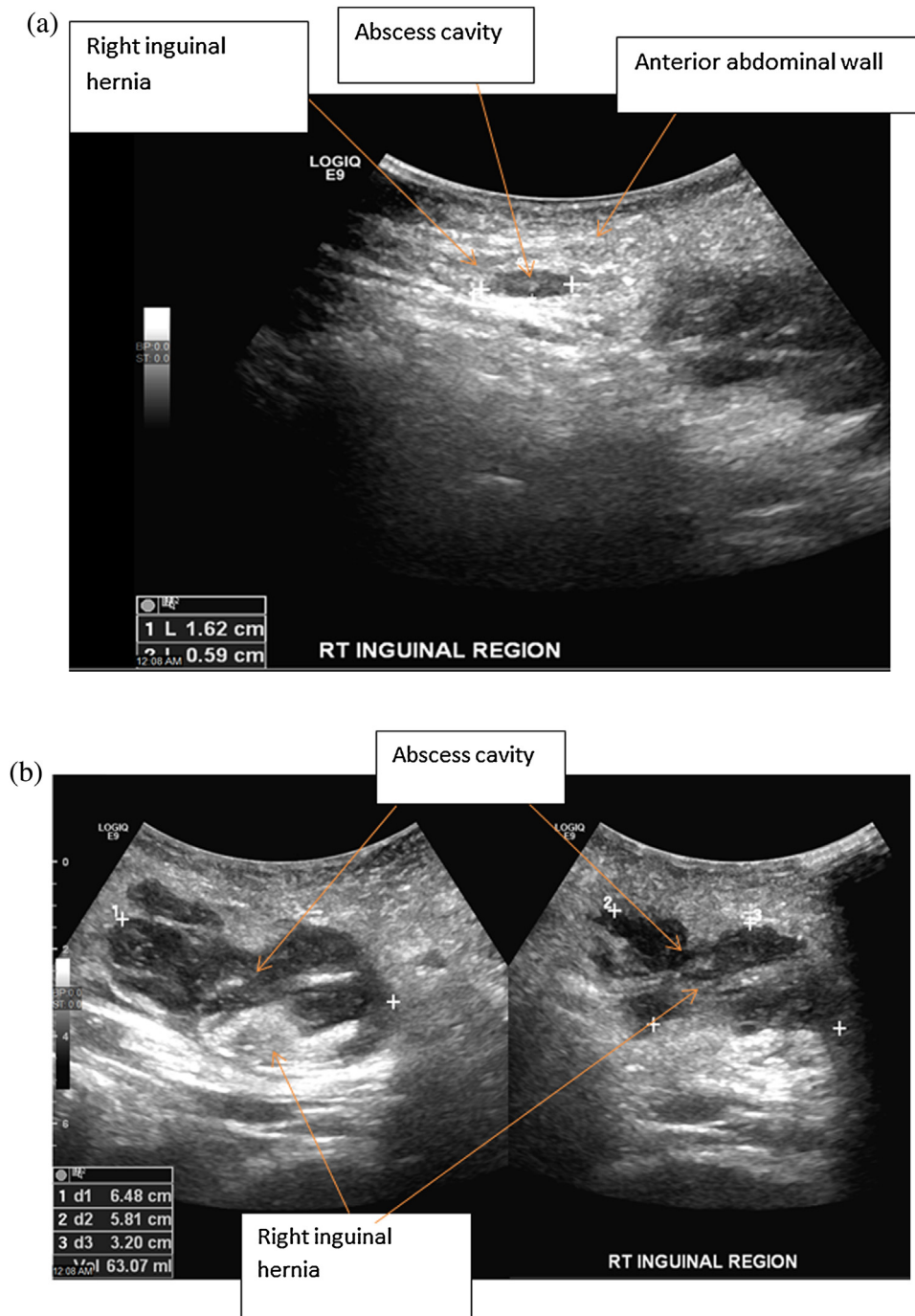


Fig. 1. (A&B): Abdominal ultrasound showing the abdominal abscess and inguinal hernia.

severely inflamed appendix with obvious perforation. The inguinal canal was completely opened and the abdominal cavity in the right iliac fossa was explored through it. There were no signs of abscess or collection deep in the abdominal cavity. Fig. 2(A&B) shows the intraoperative findings.

A standard open appendectomy was done. The peritoneum and inguinal canal were closed, we used proline suture without mesh.

The abdominal wall wound was thoroughly washed and packing was done for closure on secondary intention later. Due to the multiple co-morbid conditions, the patient was shifted to surgical intensive care unit for monitoring and kept on regular intravenous antibiotics. She was kept on daily wash of the abscess cavity. Over a period of 3 weeks there was good granulation tissue. Later on,

the patient was discharged in a stable condition and followed up in outpatient clinic.

3. Discussion

Amyand's hernia (AH) is rare in females and only few case reports are available in the literature. The initial presentation of our case as an abdominal wall abscess is very rare in the contemporary literature. AH is usually an intraoperative finding and its management depends on the status of appendix in the hernia. Some authors favor performing appendectomy for a normal appendix found in AH as it increases the risk of contamination of a clean surgery, i.e. inguinal hernia repair [9,10]. But in the case of inflamed

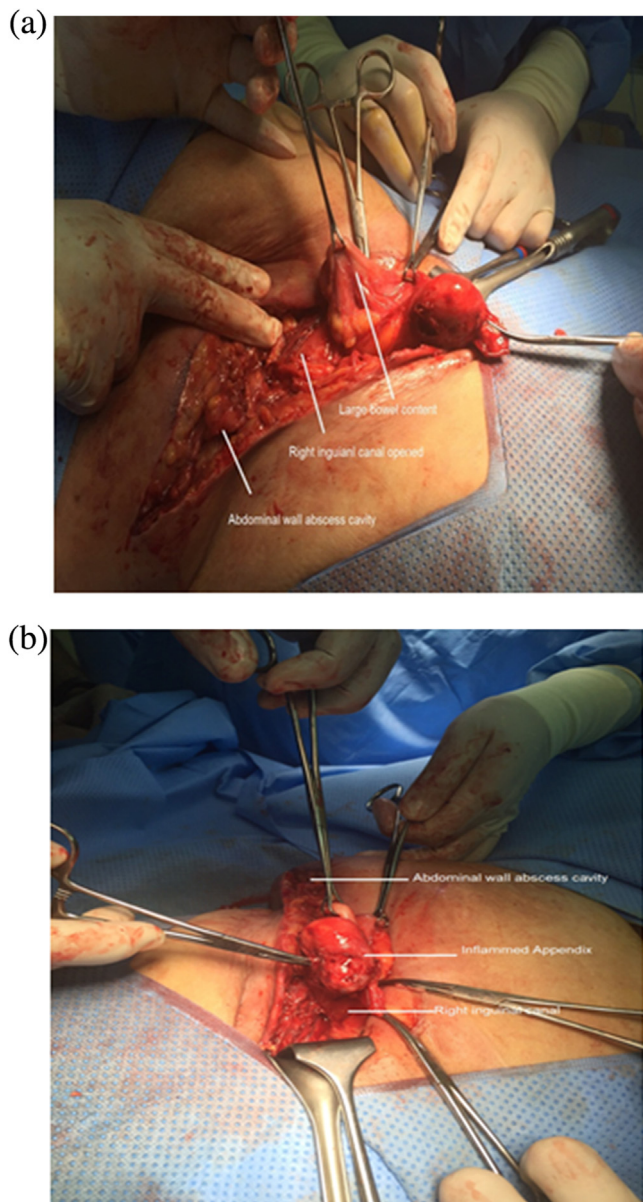


Fig. 2. (A&B): Open appendectomy performed in a 60year old woman diagnosed with Amyand hernia.

appendix, the treatment is appendectomy followed by repair of the hernia [9–11]. Preoperative evaluation may be difficult in cases in which there is other concomitant pathology [12,13]. Ultrasound and computed tomography (CT) can help in the diagnosis of AH and subsequent management [5].

Ultrasound is non-invasive method for assessment of abdominal wall and intrabdominal abscess and can be easily repeated by different medical staff and inexpensive compared with CT scan. The yield of ultrasonography for diagnosis of abdominal wall abscess is very high and also it can help for percutaneous drainage in case this approach is selected. In our case, the physical examination was going with signs of abdominal wall abscess with tenderness, erythema and fluctuation. So the patient was shifted to theatre after stabilization without the need for further diagnostic imaging.

Losanoff and Bassoon classified AH into 4 types based on the condition of the appendix in the inguinal canal [14]. The management usually consist of appendectomy, reducing the hernia content and performing hernia repair [5,9,14–16]. Perforated appendix with

or without peri-appendicular abscess and peritonitis is associated with high mortality which ranges from 14 to 30% [17].

Losanoff and Bassoon devised a classification of AH into 4 types based on the condition of the appendix in the inguinal canal and also proposed the surgical management of each type [14]. Type 1 is a normal appendix in an inguinal hernia which may be managed with mesh repair in young patients. Type 2 refers to acute appendicitis in an inguinal hernia with no abdominal sepsis and may be managed by appendectomy and primary repair of the hernia without mesh. Type 3 refers to acute appendicitis with peritonitis may be dealt with laparotomy, appendectomy and hernia repair without mesh. Acute appendicitis in inguinal hernia related or unrelated to other abdominal pathology is described as type 4 which require treatment determined by abdominal pathology [14]. In our case the presentation (type 2) was with abdominal wall abscess without any surgical history. Upon exploration it was found to be severely inflamed perforated appendix in the inguinal canal along with cecum and terminal ileum (type 2). The perforated appendix led to inguinal abscess that then extended to the abdominal wall and manifested as a right side abdominal wall abscess. As there was no contamination of the peritoneal cavity, a standard appendectomy through the same incision was done and peritoneum closed followed by right inguinal canal approximation. Antibiotic therapy was commenced and the abscess cavity on the abdominal wall was kept open for 7 days.

Antibiotic administration could also be considered in the peri-operative period in conjunction with surgery for 2 reasons. First; if the appendix is inflamed, prophylactic antibiotic is still needed even without mesh to minimize the risk of surgical site infection. Second, if appendix is not inflamed, antibiotic prophylaxis is needed in case the repair needs mesh placement.

Although serious complications have been described, the prognosis of AH is generally good [5]. Appropriate treatment that ensures hernia repair without complications and with avoidance of recurrence remains crucial. The surgical choice in our case led to uneventful outcome. We have reviewed 81 articles, of which, 72 studies were relevant and included a total of 159 cases. However, the initial presentation as an abdominal wall abscess is rarely reported among these cases. The majority of cases underwent hernia repair with or without appendectomy; appendectomy was performed in 81 (57.8%) cases.

4. Conclusions

A high index of suspicion is required for the diagnosing of AH since the history may not be typical either for an acute appendicitis or for an incarcerated hernia and the physical examination may show a complete different picture. The management of AH should follows general guidelines of appendectomy, hernia repair and dealing with the associated pathology if present. An early diagnosis and proper surgical intervention result in excellent outcome.

Conflict of interest

None.

Funding

None.

Ethical approval

As all the information was given retrospectively from the chart review and the patient was de-identified, this case report was exempted and waiver of consent was obtained and approved

by medical research centre, Hamad Medical Corporation (IRB #16140/16).

Consent

As all the information was given retrospectively from the chart review and the patient was de-identified, this case report was exempted and waiver of consent was obtained and approved by medical research centre, Hamad Medical Corporation (IRB #16140/16).

Author contribution

KA: study concept, data collection, interpretation, writing the paper, SH, study concept, data collection, writing the paper, AS, data collection, writing the paper, AA, study concept, interpretation, writing the paper, AE, data interpretation, writing the paper, SM, data collection, interpretation, writing the paper, AZ: data interpretation, writing the paper, HA, data interpretation, writing the paper.

Registration of research studies

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None.

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