

CASE REPORT

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# Acute appendicitis within incisional hernia sac: a unique case report



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## Abstract

**Background:** Incisional hernia appendicitis is a rare form in which the vermiform appendix is located within the hernial sac. It is seen in less than 1% of inguinal hernia. Most often, the cases are misdiagnosed as incarcerated or strangulated hernia.

**Case presentation:** A 59-year-old female with history of hysterectomy 10 days ago for fibroid, came to the emergency department with diffuse abdominal pain and severe vomiting and absolute constipation for 3 days. Abdominal U/S was done and revealed inflamed fat within the hernia sac along with minimal collection. A defect was seen at the anterior abdominal wall measuring about 2.4 cm passing bowel loops and collection. CT scan with IV contrast revealed an inflamed appendix passing through the incisional hernia.

**Conclusions:** Appendicitis within a hernia sac is unusual with the incidence being 0.13% of all acute appendicitis. Acute hernia appendicitis is almost never been diagnosed prior to surgery. Most often, the diagnosis is incarcerated or strangulated hernia. The differential diagnosis should include hernia sac appendicitis for patients with signs of inflammatory process ongoing at the hernia sac.

**Keywords:** Incisional hernia, Appendicitis, Abdominal pain

## Background

Appendicitis is a condition in which the appendix becomes inflamed, swollen, or infected. The annual incidence of appendicitis is 1 per 1000 person. Incisional hernia appendicitis is a rare form in which the vermiform appendix is located within the hernial sac. It is seen in less than 1% of inguinal hernia.

Acute appendicitis is a common surgical emergency. The presence of an inflamed appendix in an incisional hernia is rare. Incisional hernias complicate both open and laparoscopic surgery [1]. The overall incidence of appendicitis occurring within an inguinal, femoral, or incisional hernia estimated between 0.08–1% [2].

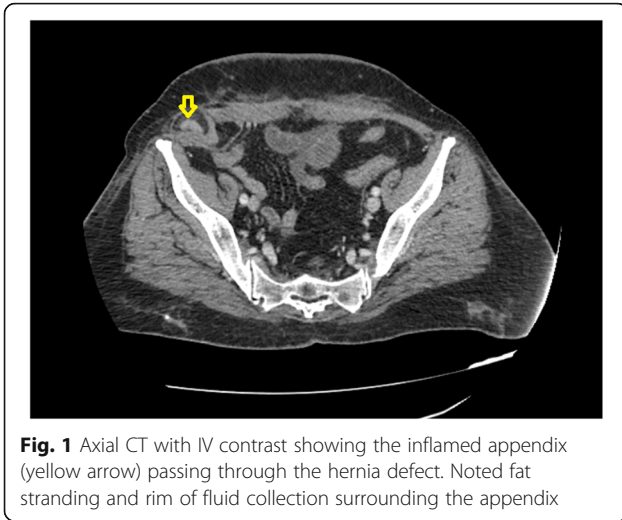
Presented is a case of appendicitis passing in through a Pfannenstiel incision. U/S and CT with IV contrast imaging have been done for the diagnosis.

The appendix was seen inflamed being extended through a defect at the right side of the Pfannenstiel incision. Appendectomy and anterior abdominal repair were done. The main differential diagnosis for incisional hernia appendicitis is incarcerated or strangulated hernia. It should be in the differential diagnosis list for cases with lower abdominal pain and previous operation history.

## Case presentation

A 59-year-old female with history of hysterectomy 10 days ago for fibroid, came to the emergency department with diffuse abdominal pain and severe vomiting and absolute constipation for 3 days. No evidence of genitourinary symptoms. A diagnosis of bowel loop obstruction was suspected. Pelvi-abdominal U/S was done and revealed inflamed fat within the hernia sac along with minimal collection and a localized pocket seen at right iliac fossa. A defect was seen at the anterior abdominal wall measuring about 2.4 cm passing

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**Fig. 1** Axial CT with IV contrast showing the inflamed appendix (yellow arrow) passing through the hernia defect. Noted fat stranding and rim of fluid collection surrounding the appendix

bowel loops and collection. Visualized parts of bowel loops were not dilated. Caecum could not be assessed by U/S. The first differential diagnosis was incarcerated hernia. CT scan with IV contrast was done, and revealed that the appendix was passing through the incisional hernia along with bowel loops surrounded by fat stranding and signs of inflammatory process (Figs. 1 and 2). The bowel loops were not dilated. Surgical intervention was done and the appendix was seen inflamed and gangrenous mainly at its tip. It has been resected, and repair of the anterior abdominal wall was done.



**Fig. 2** Coronal CT with IV contrast the inflamed appendix (yellow arrow) passing through the hernia defect. Noted fat stranding and rim of fluid collection surrounding the appendix

**Conclusion**

It is estimated that 250,000 cases of acute appendicitis are diagnosed annually in the USA [3]. Appendicitis diagnosis depends on the clinical assessment as well as radiological imaging. The most common used criteria for appendicitis diagnosis is the Alvarado score. Presence of high score is a satisfactory aid in the early diagnosis of appendicitis in men and children; however, high false positive rates were seen in women [4].

Appendicitis within a hernia sac is unusual with the incidence being 0.13% of all acute appendicitis. Acute hernia appendicitis is almost never been diagnosed prior to surgery. Most often, the diagnosis is incarcerated or strangulated hernia [5].

Grey scale ultrasound has great aid in the diagnosis of acute appendicitis with sensitivity of 87%, specificity of 92%, and accuracy of 93% [6]. As appendicitis may present within hernias, there should be a low threshold for computed tomography assessment of hernias when there is clinical doubt about the symptoms associated with the hernia [7].

**Abbreviations**

CT: Computed tomography; U/S: Ultrasound; IV: Intravenous

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**Author’s contributions**

Mohamed Issa is the main author who gathered the data, wrote the manuscript, and submitted it to the journal. The authors read and approved the final manuscript.

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**Availability of data and materials**

- (1) DOI: 10.6084/m9.figshare.8224280
- (2) <https://figshare.com/s/135c03df584daaf92f10>

The data used and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Ethics approval and consent to participate**

This case report was approved by the Research Ethics Committee of the Faculty of Medicine at Suez Canal University in Egypt on Jan./11/2020; reference number of approval: PA-10-2020. The patient included in this study gave written informed consent to participate in this research.

**Consent for publication**

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

**Competing interests**

The author declares that he has no competing interests.

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