



## Case report

## Incisional hernia appendicitis: A unique case report

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## ABSTRACT

**Introduction and importance:** Incisional hernia appendicitis is very rare. Very few papers have been published reporting about Pfannenstiel incision hernia with appendicitis. Here we report one such case of Pfannenstiel hernia with appendicitis.

**Case presentation:** A 20 years old lady presented with a tender mass in the right iliac fossa after Pfannenstiel incision. Ultra-sonography showed an incisional hernia with a 12.1 mm defect at the site of the incision. A provisional diagnosis of strangulated hernia was made. Acute appendicitis was diagnosed intra-operatively. Appendectomy followed by primary repair of the hernia was done. The patient had an uneventful recovery postoperatively and was discharged on the third day without any complications. Histopathology confirmed appendicitis.

**Clinical discussion:** Amyand originally documented the presence of appendix within external hernias. The presence of appendicitis within an incisional hernia is even rarer. Hypermobility of the cecum, inflammatory adhesions from surgery and defects created during surgery have been considered as the pathological basis of such incisional hernias. A classic presentation of appendicitis may be absent in cases of incisional hernia appendicitis. Deviation from usual clinical symptoms often deviates from treating surgeons to assume it as strangulated/incarcerated hernia. Incisional hernia appendicitis management consists of appendectomy followed by subsequent primary hernia repair. The use of mesh for repair is not preferred.

**Conclusion:** Incisional hernia appendicitis diagnosis is almost always intraoperative. As the incidence of incisional hernia appendicitis is low, awareness about the possibility of its occurrence is essential to formulate a well-planned intra-operative strategy.

## 1. Introduction and importance

Acute appendicitis is considered a common surgical emergency. With incidence range from 0.08–1%, the presence of an inflamed appendix within a hernial sac is rare [1]. Incisional hernia appendicitis is even rarer with very limited publications. Management involves appendectomy followed by subsequent repair of the defect [2]. In this case report, we describe one such rare case of an incisional hernia appendicitis that occurred through a previous Pfannenstiel incision. A hernial sac containing an appendix was found protruding from a defect along the right side of the Pfannenstiel incision. Diagnosis of the appendicitis was made intraoperatively. Appendectomy followed by primary repair of the anterior abdominal wall defect was done subsequently. (See Figs. 1–5.)

## 2. Methods

We report this case in line with the updated consensus-based surgical case report (SCARE) guidelines [3].

## 3. Case presentation

A 20-year-old lady, Asian by ethnicity and housewife by occupation presented to the surgical outpatient department (OPD) of our hospital in October 2021. She presented with complaints of a painful swelling at the incision site in the right iliac fossa (RIF) for one week. The pain was acute, severe, non-radiating, aggravating with straining and self-manipulation, persistent and associated with nausea for 4 days. She first noticed the swelling in RIF two weeks before the pain. The swelling became painful from one week and without any change in shape from the time of appearance. She had no history of fever and abdominal

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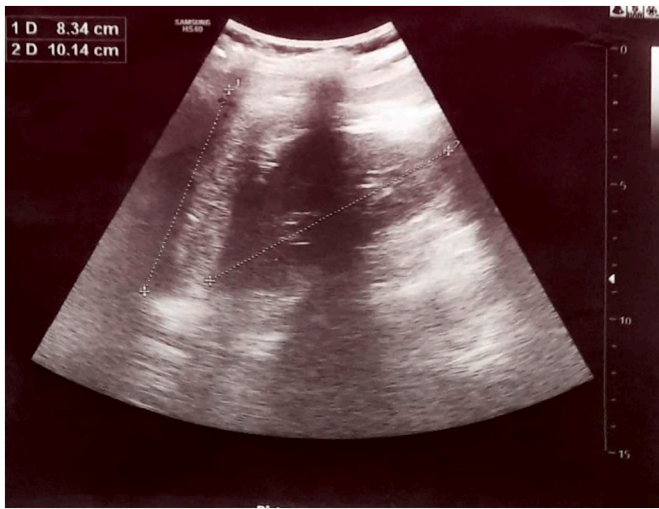


Fig. 1. USG of the defect.



Fig. 2. Appendicitis in previous Pfannenstiel incision.



Fig. 3. Primary repair of the defect.



Fig. 4. Histopathology showing appendicitis.

trauma. No genitourinary symptoms and connective tissue disorders were present. She had a past surgical history of emergency laparotomy with right-sided salpingectomy for ruptured right ampullary pregnancy in March 2021 by the Department of Obstetrics and Gynecology of our institution. She was not under any medications at the time of presentation. Her family and social history were not significant. No genetic illness among family members. On detailed physical examination, her vitals were normal. Abdomen was soft, with tenderness on RIF. On local examination of the swelling, there was a single, 2 cm × 3 cm sized, pear-shaped tender swelling situated in RIF at the edge of the Pfannenstiel incision. The swelling was non-compressible, non-fluctuant, non-peristaltic and non-reducible. Ultrasonography (USG) of the swelling

was done which showed a 12.1 mm defect at the site of incision with the herniation of gut loops seen through the defect. USG image of the hernia is shown in figure number 1.

A provisional diagnosis of incisional hernia was made. Based on the history and physical examination, the strangulated incisional hernia was suspected and emergency herniorrhaphy was planned. As the case was considered a surgical emergency, the patient was transferred from OPD to the Emergency Room (ER). In ER, pre-operative preparation consisted of taking an informed written consent, keeping her nil by mouth and giving IV fluids, IV antiemetics and analgesics. The operation was led by the consultant and his team. Operation was done under spinal anesthesia. During the operation, a linear incision was given along the

previous Pfannenstiel incision. Hernial sac was separated from surrounding soft tissues using blunt dissection. The hernial sac was opened which contained an inflamed appendix.

The sac was obliterated, appendectomy was performed and primary repair of the hernia was done using 2-0 prolene suture. The patient made an uneventful recovery following the operation. She was discharged from the hospital three days after the operation. Histopathology report confirmed appendicitis.

**4. Discussion**

Vermiform appendix occupies various positions within the bony pelvis. Amyand originally documented the presence of appendix within external hernias [4]. With the incidence rate of 0.51% of such Amyand hernias, presence of appendicitis within an incisional hernia is even more rare [5]. Sugrue et al. reported two cases of incisional hernia following open cholecystectomy and a diagnostic laparoscopy [2]. Galinanes and Ramaswamy first reported appendiceal hernia arising from within a Pfannenstiel incision [6]. Another case report was published by Issa describing appendicitis passing in through a Pfannenstiel incision [1]. Pfannenstiel incision has remained the incision of choice for gynecological operations. Hypermobility of cecum, inflammatory adhesions from surgery and defect created during surgery have been considered as the pathological basis of such incisional hernias [6]. Passage of appendix from narrowed hernial neck causes ischemia leading to inflammatory change [2]. In our case, the appendix presumably herniated through the surgical defect created during the emergency laparotomy.

Classic presentation of appendicitis may be absent in cases of incisional hernia appendicitis [4]. Usually, anorexia, nausea and RIF pain are associated with appendicitis [6]. Deviation from usual clinical symptoms often deviate treating surgeons to assume it as strangulated/incarcerated hernia. This can lead to delayed diagnosis of underlying appendicitis and complications like appendiceal perforation, abscess and gangrene may occur [4]. In our case, pain started one week prior to presentation. Other classic signs were absent. Early operative intervention along the lines of strangulated incisional hernia enabled us to diagnose and treat the patient without developing any appendicitis related complications.

Incisional hernias with defect size more than 2 cm are managed using mesh repair. With defects size less than 2 cm, mesh repair is used only in patients with specific risk factors (obesity, recurrent hernia, concurrent diastasis or aneurysmal disease). Mesh repair provides a scaffold for formation of granulation tissue, fibroblast deposition and reorganization. It promotes healing and provides tensile strength to the wound. However, hernias with wounds of Class II, III and IV are often managed using primary repair. Use of mesh in these classes of wounds have been found to be associated with increased incidence of Surgical Site Infection (SSI) [7]. The use of synthetic mesh has been debatable. As seen in other case reports, incisional hernia appendicitis management consists of

appendectomy followed by subsequent primary hernia repair [1,2,4,5]. Open appendectomy wound is considered a contaminated wound surgically [8]. Ongoing inflammatory process increases the risk of wound mesh infection. Therefore, the use of mesh for repair is not preferred. In our case, appendectomy and primary hernia repair using Prolene 2-0 suture was done. Human acellular meshes have been used in contaminated wounds. Due to unavailability of such mesh in our center, primary repair was the only choice in our case.

**5. Conclusion**

With lifetime risk of 8.6% for males and 6.7% for females, appendicitis is a common surgical emergency [9,10]. Clinical criteria like Alvarado score and Murphy's triad are commonly used to diagnose acute appendicitis. However, in incisional hernia appendicitis diagnosis is almost always intraoperative. Imaging techniques like USG and Computerized scan (CT scan) remain the investigation of choice for incisional hernia appendicitis [11]. As the incidence of incisional hernia appendicitis is low, awareness about the possibility of its occurrence is essential to formulate a well-planned intra-operative strategy.

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**Ethical approval**

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**Consent**

Written consent was obtained from the patient for publication and use of the image.

**Author contribution**

Sachidanand Sah (SS) = Conceptualization, Supervision.  
 (Nabin Paudyal) NP = Writing original draft.  
 SS, NP = Writing- review and editing.  
 All authors read and approved the final manuscript.

**Research registration**

Not applicable.

**Guarantor**

Nabin Paudyal.

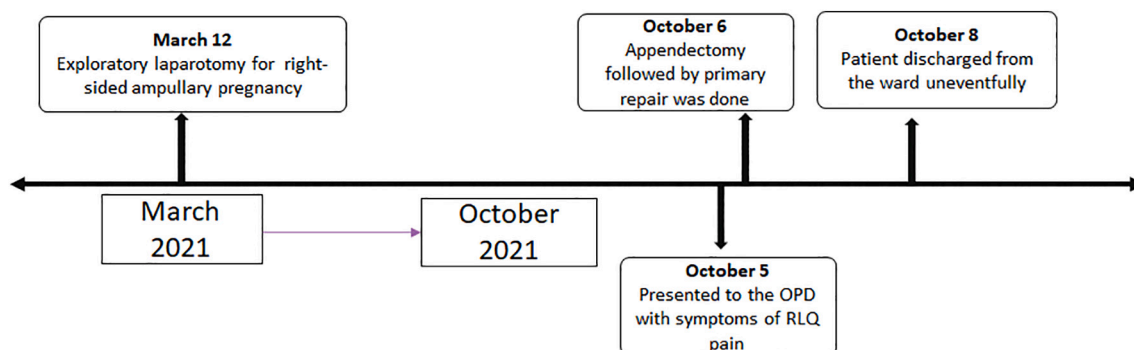


Fig. 5. Timeline of events.

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**Declaration of competing interest**

All authors declare they have no conflict of interest.

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