



Case report

Stump appendiceal abscess after appendicectomy: A case report

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ABSTRACT

Introduction: Stump appendicitis, an inflammation of the residual appendix after appendicectomy, presents with all the clinical features of acute appendicitis. This variant poses diagnostic challenges, particularly in patients with right iliac fossa pain.

Case presentation: We present a case of a 58-year-old man who developed an appendiceal stump abscess eight months after laparoscopic appendicectomy. In addition to stable vital signs, abdominal examination revealed pain in the right lower quadrant. The CT scan showed a collection with a tubular structure corresponding to a remaining appendiceal stump. He underwent emergency laparoscopic surgery. Intraoperatively, a perforated stump and cecal involvement were noted, necessitating stump resection and abscess drainage.

Discussion: Literature review underscores stump appendicitis as rare but serious. Surgeons face challenges in accurately identifying the appendix base, crucial for preventing stump appendicitis. Imaging, especially computed tomography, aids diagnosis. Stump appendicitis complications, including necrosis and perforation, emphasize the need for prompt intervention. Differential diagnoses include cecal diverticulitis and duplicated appendix. Imaging techniques, particularly CT, play pivotal roles in diagnosis. Preventive measures include stump length control and heightened suspicion in patients with prior appendicectomy. Surgical excision remains the preferred treatment, though optimal approach remains unclear.

Conclusion: Stump appendicitis may manifest months to years post-appendectomy, necessitating vigilant follow-up. Awareness of this complication and prompt management are crucial for favorable outcomes.

1. Introduction

Appendectomy is one of the most common surgical procedures performed worldwide [1]. Stump appendicitis is a rare complication followed appendectomy. It occurs when the residual appendix tissue becomes inflamed after an incomplete resection of the appendiceal base. It mimics the clinical signs of acute appendicitis which can lead to delayed diagnosis and increased morbidity. We present a case of a patient who developed an abscess at the appendiceal stump following a laparoscopic appendectomy.

This work has been reported in line with the SCARE criteria [2].

2. Case report

A 58-year-old man was seen at the emergency department with a 24-h history of right iliac fossa pain, nausea, and diarrhea. His surgical history included laparoscopic appendicectomy 8 months ago and he had no other history. On initial examination, the patient was febrile with

stable hemodynamic and respiratory status. Abdominal examination revealed pain on palpation in the right lower quadrant. Laboratory results revealed a white blood cell count of 25,000 cell/mm³ with 85 % neutrophils and CRP: 180 mg/dL. The remainder of the laboratory values were within normal limits. Abdominal computed tomography revealed the presence of a swollen and thickened tubular structure measuring 36x27mm, corresponding to a remaining appendiceal stump with a 25 mm collection adjacent to the clips (Fig. 1).

The patient was taken to the operation room, and he underwent emergency laparoscopic surgery. During operation, no adhesions were found. A 2 cm abscess surrounded by the cecum and small intestine was found. Also, a 3 cm diameter appendiceal stump was noted in the anatomical region of the appendix. A drainage of the abscess was involved with resection of the stump appendicitis (Fig. 2).

After peritoneal lavage, placement of a rubber drain was not considered necessary. The postoperative course was uneventful and the patient was discharged on the third postoperative day. The histopathologic report of the operative specimen showed an acute inflammation

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involving the appendiceal epithelium.

3. Discussion

Among the cases managed by general surgeons, appendicitis stands out as a prevalent condition, affecting around 7 % of the population at some point in their lives [3].

Typical complications following appendectomy includes superficial wound infections and postoperative adhesions. Stump appendicitis on the other hand, is an exceptionally rare occurrence.

It was reported for the first time by Baumgartner in 1949 [4].

Some studies indicate that laparoscopic appendectomy may be linked to a higher occurrence of stump appendicitis in contrast to open appendectomy.

Yet, in the latest extensive analysis of the literature, encompassing thirty-six (36) cases of stump appendicitis by Liang et al., findings showed that only 34 % of cases underwent initial laparoscopic procedures, while 66 % underwent initial open surgeries. This highlights the idea that stump appendicitis may manifest after either laparoscopic or open appendectomy [5].

While the exact mechanism remains somewhat unclear, it is advised that the length of the appendiceal stump should be kept below 0.5 cm to reduce the risk of stump appendicitis [6]. Consequently, it is imperative for surgeons to accurately identify the base of the appendix. However, this can pose challenges, particularly in cases of severe local inflammation or when the appendix is situated in retrocecal or sub serosal positions.

The closure of the appendicular stump is a critical step of the appendectomy. The three most used techniques consist of the endo-loop, the clip and the endo-stapler. The clip and the endo loop offer the same cost-effectiveness, yet the stapler is the technique of choice if the base of the appendix is inflamed [7].

Some authors propose routinely inverting the stump in all cases following appendix removal to reduce the occurrence of stump appendicitis, while others argue against it, contending that leaving an appendiceal stump of not more than 3 mm in depth suffices [8].

The reviewed literature highlights the importance of maintaining a heightened level of suspicion regarding stump appendicitis in patients displaying signs and symptoms of appendicitis, especially in those with a history of appendectomy.

The outcome of delayed diagnosis seems to result in a notably elevated occurrence of stump necrosis, gangrene, and perforation, surpassing 40 % [9] and a resection more than a completion

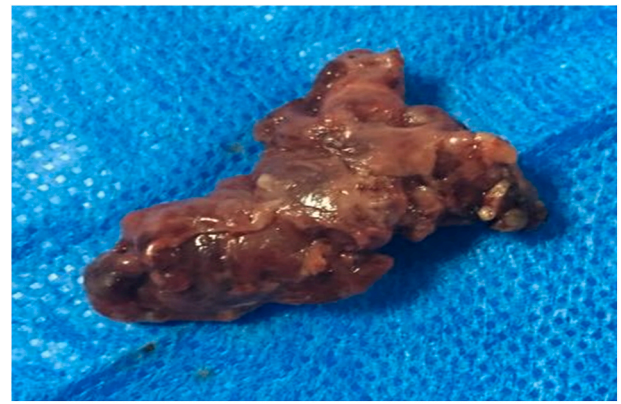


Fig. 2. Surgical specimen aspect.

appendectomy is often required in some cases.

In our case, we found a perforated stump, inflammatory involvement of the cecum and an abscess. The appendiceal stump was ligated and the abscess was drained followed by peritoneal toilet.

Stump appendicitis may arise as soon as two months following the initial operation, though instances of the disease occurring as late as fifty years post-operation have been documented [10]. Our patient developed stump appendicitis 8 months later.

One of the most common differential diagnoses for stump appendicitis is cecal diverticulitis. It should be considered due to its location. This condition tends to affect individuals aged 30 to 50 more frequently, with symptoms typically localized to the right lower quadrant [10].

In addition to the possibility of stump appendicitis, another conceivable cause of appendicitis following a prior appendectomy is the presence of a duplicated appendix. This anomaly is exceptionally rare, occurring in roughly 0.004 % of patients who undergo an appendectomy, described by Cave and Wallbridge [11].

Imaging techniques play a crucial role in diagnosing stump appendicitis among patients with a history of appendectomy. Ultrasonography was introduced in 1986, and many authors recommended it because of the high index of suspicion and a familiarity with the sonographic findings [12]. However, in several cases abdominal ultrasound failed to demonstrate stump appendicitis and secondary radiological investigations were required as well as the abdominal CT.

CT features of stump appendicitis are similar to those of acute



Fig. 1. CT-scan cross-sections show an inflammatory mass with abscess at the right iliac fossa.

appendicitis. They include pericaecal inflammatory changes, abscess formation, fluid in the right paracolic gutter, caecal wall thickening, and an ileocecal mass. In our case, the abdominal computerized tomographic scan revealed an inflammatory mass with abscess at the right iliac fossa.

Non-surgical treatments are both safe and effective, with complication rates ranging from 5 % to 15 % according to Ake Lasson et al. [13] These rates are notably lower when antibiotics are used in conjunction with percutaneous drainage.

If treated early, laparoscopic or open completion appendectomy can be performed. As in our case, the patient was operated urgently without delay.

4. Conclusion

Certainly, appendicitis on the appendiceal stump is a late complication of appendectomy, yet it remains potentially serious, and diagnosis can be challenging at times. This complication can be prevented by adhering to specific technical recommendations during appendicectomy. However, when it does occur, urgent management is imperative.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Ethical approval

Our institution (Medecine Faculty of Tunis, Department of surgery la Rabta hospital) require no ethics approval for case reports reporting on a single case.

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Atri Souhaib
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CRedit authorship contribution statement

Atri Souhaib: conceptualization, data curation, redaction.

Zaiem Aida: conceptualization, data curation, redaction.

Sebai Amine: conceptualization, data curation, redaction, project manager.

Ben Brahim Mariem: resources, visualization.

Haddad Anis: Supervision, validation, visualization.

Kacem Montassar: Supervision, validation, visualization.

Declaration of competing interest

All authors declare that they have no conflicts of interest.

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