

A Rare Cause of Right Iliac Fossa Pain, Stump Appendicitis. Do Not Forget

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Abstract

This case report will focus on 24-year-old male who presented two months post laparoscopic appendectomy with history of right lower abdominal pain. The patient was admitted and a CT scan of the abdomen showed an appendicular stump with findings suggestive of stump appendicitis. Stump appendicitis is an important diagnosis to rule out, as most patients present with perforation or abscess that require prompt management. Prevention of appendicular stumps relies on good procedural technique in appendectomies, and the confirmation of remaining appendicular tissue being 5 millimetres or less. Special care should be taken by physicians in ruling out appendicular pathologies in patients presenting with right iliac pain post-appendectomy

Keywords: Acute Appendicitis; Stump Appendicitis; Right Iliac Fossa Pain

Introduction

Stump appendicitis is a rare complication post appendectomy associated with the inflammation of residual appendicular tissue [1]. Incidence of stump appendicitis is still a matter of debate with some sources stating that the incidence is 1 in 50,000 cases of appendectomies [2], but there is no support of this number in literature. The reported number of cases may be lower than that seen in practice due to the negative connotation associated with reporting such cases.

Case Stump Appendicitis

A 24-year-old male with no past medical or surgical history presented to the emergency department (ED) for the first time with a two-day history of abdominal pain. The pain was generalized, but then localized to the right iliac fossa. The pain was moderate, colicky in nature, and aggravated by movement. This was associated with constipation, subjective fever, and one episode of vomiting. The patient denied any urinary symptoms and history of eating from outside. On examination, the patient was vitally stable, and afebrile. On abdominal examination rebound tenderness was present on palpation of the right iliac fossa, and a positive Rovsing's sign was noted.

Laboratory investigations revealed a White Blood Count (WBC) of $8.97 \times 10^9/L$ with Neutrophil Percentage of 85.6% was seen on Complete Blood Count (CBC). Abdomen X-ray was normal. CT Abdomen and Pelvis with IV Contrast (Figure A) showed an appendix in the retrocecal position and findings suggestive of appendicitis.



Figure 1: Computed tomography images of the abdomen shown in axial (a, b), coronal (c), and sagittal (d) views following intravenous oral contrast and rectal contrast, which show a retrocecal appendix (arrows) with increased diameter, periappendiceal fat stranding, and small mesenteric lymph nodes. There is no rectal contrast filling in the appendix, which is extending to the inferior to the right iliac fossa. Findings are suggestive of acute appendicitis.

The patient was taken for a laparoscopic appendectomy and a non-ruptured, inflamed appendix was seen. The mesoappendix was identified and dissected away from the appendix with a Maryland Dissector until the base of the appendix. The base of the appendix was tippled with three end loops, and the appendix was excised as whole then sent for histopathology. The patient was discharged in a stable condition one day post operatively.

Two months post laparoscopic appendectomy, the patient presented to the ED with a one day history of right lower abdominal pain associated with nausea. An ultrasound (US) abdomen was done and the right lumbar and right iliac fossa area was obscured by gases. The patient was discharged after his pain improved but presented back to the ED again after two hours with persistent severe pain. On examination, there was tenderness with voluntary guarding over the right flank area. There was no right iliac fossa tenderness, no rebound tenderness, and no renal angle tenderness. WBC was $6.5 \times 10^9/L$ with a Neutrophile Percentage of 77.9%. The patient was admitted for further investigation. CT Abdomen with IV and Rectal contrast (Figure B) revealed a small residual retrocecal appendicular stump with findings suggestive of stump appendicitis.



Figure B: Post-operative second month. Repeated intravenous and rectal contrast computed tomography of the patient's abdomen show a retrocecal stump appendix (arrows) measuring approximately 3 cm with increased luminal diameter, fat stranding, and peritoneal thickenings on axial (a, b), coronal (c), and sagittal (d) images. Mild free fluid can also be seen at the right lower quadrant.

The patient was taken for a diagnostic laparoscopy. Intraoperatively there were purulent collections and flakes in the peri-cecal and ascending colon region with mild pelvic collection. The base of the appendix was identified by previous suture material. The appendix stump was seen 2 cm from the caecum. The appendix stump was noted to be sub-serosal and buried (Figure C). The base was healthy and was stapled at the base using Endo GIA 30 mm stapler. The appendicular stump was removed and sent for histopathology. The patient was discharged Day 3 post laparoscopic appendectomy in stable condition with oral antibiotics and analgesia.

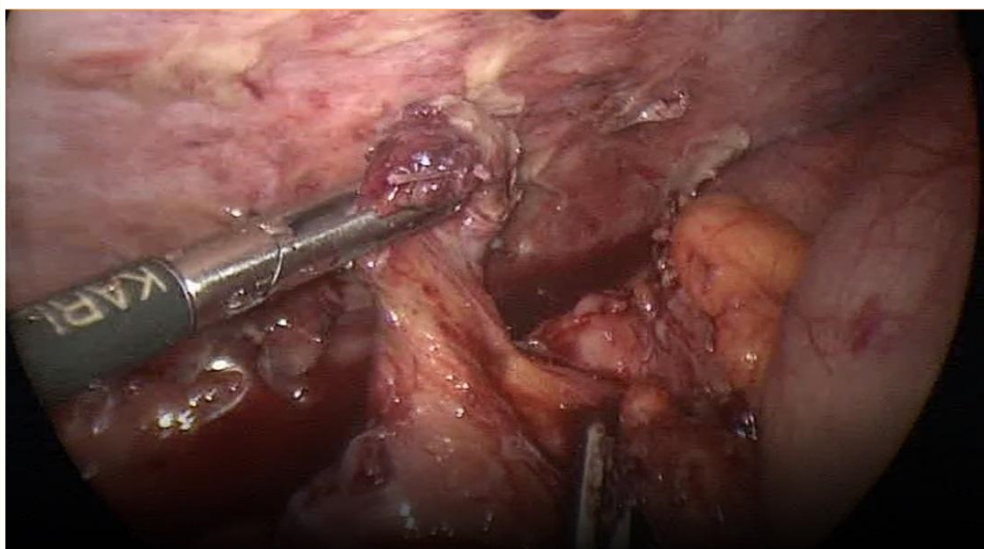


Figure C: Intraoperative finding of stump appendicitis.

The patient was seen one week after the procedure in the outpatient clinic and was doing well with complete recovery. Further follow up was uneventful.

Discussion

The first ever published report of stump appendicitis was by Rose, *et al.* in the *Medical Journal of Australia* in 1945 [3]. Since then, there have been many reported cases of inflamed appendicular stumps. With the advancement and mainstay of laparoscopic surgeries in current surgical practice, many researches have suggested that the limited visualization, lack of 3-Dimensional perspective, and inability to feel the appendix and caecum may be reasons for the increased cases of appendicular stumps [4]. A literature review by Burbano in 2020, however, showed that in 117 reported cases of stump appendicitis, 53% of patient underwent open surgery and 47% underwent laparoscopic surgery. Burbano, *et al.* concluded that there are no clear risk factors for stump appendicitis, and that data shows that primary laparoscopic appendectomy is not related [2]. However, due to the relatively recent introduction of laparoscopic procedures, more case reports and literature reviews are required to further analyse this point. Nonetheless, this shows that the presence of residual appendicular tissue may not be related to the mode of operation (open/laparoscopic) but rather the technique and proper identification of the appendix during surgery [4].

There is no current consensus on the acceptable length of appendiceal stump remaining after appendectomies. Some studies have suggested that appendiceal stumps should not be longer than 3 millimetres, while others suggest 5 millimetres [4,5]. However, no guidelines have been put in place to reinforce this. It is important to note that cases of appendicitis occurring in stumps 5 millimetres in length are extremely rare but reported [5]. To prevent longer appendiceal stumps, proper identification of the base of appendix or cecal appendiceal junction is important. Some studies have proposed a "critical view" similar to that in laparoscopic cholecystectomy [6]. The "critical view"

is achieved by visualizing the appendix, taenia libera, and the terminal ileum, before dissection of the mesoappendix and appendectomy. Regardless of the specific techniques, following the convergence of the taenia coli to the appendix and visualizing the taenia can prevent misidentification of the base and possibly prevent the occurrence of stump appendicitis [4].

Conclusion

Stump appendicitis is misdiagnosed due to the assumption that removal of the appendix completely rules out any appendicular pathology. Patients, such as the one mentioned in this case report, may present with symptoms indicative of appendicitis but are misdiagnosed due to history of appendectomy, and they are discharged home. Prompt identification of patients with stump appendicitis is paramount, as 51% of reported cases present with a complication, such as an abscess or perforation [2]. It is important for physicians to rule out appendicular pathologies in patients with right iliac fossa pain, even if they had undergone previous appendectomies. Surgeons operating on patients with acute appendicitis, open or laparoscopic, should take care in identifying the base of the appendix via visualization of the taenia, and to leave stumps 5 millimetres or less to prevent stump appendicitis. It is important to stress that the low number of cases of reported stump appendicitis is a good indication that current appendectomy practices are improving, however further reporting of cases would be helpful in identifying methods to improve and prevent morbidity or mortality to patients.

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