

## Recurrent Appendicitis: A Case Report of a Commonly Missed Diagnosis

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### Abstract

Stump appendicitis occurs in 1 out of 50,000 patients after appendectomy is performed. It is caused by the obstruction and inflammation of remnant appendix tissue. We report a case of a 63-year-old Caucasian woman with history of right lower abdominal pain and history of appendectomy 21 months previous to her current consult. The CT scan showed evidence of a previous appendectomy with a round shaped structure suspicious for the stump of the appendix. The patient was successfully treated with laparoscopic intervention.

The differential diagnosis of recurrent appendicitis can be missed by physicians, especially in cases with history of previous appendectomy and even more so in the elderly population from lack of classic clinical presentation. CT scan allows a rapid diagnosis and immediate treatment.

**Keywords:** Recurrent Appendicitis; Stump Appendicitis; Computed Tomography

### Introduction

Appendicitis is the inflammation of the vestigial vermiform appendix. Globally, acute appendicitis is the most common surgical emergency as it needs immediate surgical intervention [1]. Recurrent appendicitis is caused by the inflammation of the stump left after a surgical removal of the appendix; this is a rare presentation that has been reported in 1 out of 50,000 patients after an appendectomy was performed [2].

Elderly patients are a special population for this diagnosis. One out of 2,000 patients around the age of 65 will develop appendicitis every year in the US and the diagnosis is difficult as they develop a weaker immune response and the clinical symptoms are less remarkable. Having an appendectomy as part of the past medical history could hinder the possibility of including the diagnosis as part of the differential diagnosis. To prevent complications, it is of great importance to make an early diagnosis since the risk of perforation increases with time [3].

Abdominal or Abdominopelvic Computed Tomography (CT) is the best initial test available to confirm the diagnosis [4]. An intervention to consider in the elder populations is Laparoscopy as it allows a shorter hospitalization and visualization of any other pathology that may be present and more common in this patient population [4,5].

A case of a 63-year-old female Caucasian patient is presented. She has a previous history of an appendectomy 21 months ago. She was readmitted to the hospital with symptoms of right-sided lower abdominal pain and studied with a CT that confirmed the diagnosis of stump appendicitis. The current description and presentation of this case should help physicians to consider recurrent appendicitis as a differential diagnosis and aid on decreasing mortality by an early detection.

### Case Presentation

A 63-year-old female Caucasian patient with a past medical history of appendectomy (21 months before), presented to the Emergency Department with a same-day history of a constant right-sided abdominal pain of moderate intensity, not radiated and not associated to fever or chills. Additional history includes hypertension, hyperlipidemia, dermatitis, asthma. Her current medications at home included: Amlodipine 5 mg oral tablet daily, Aspirin 81 mg oral tablet daily, Atenolol/Chlorthalidone 100 mg/25 mg oral tablet at bedtime, Duloxetine 60 mg oral capsule daily, Gabapentin 400 mg oral TID, K-Dur 20 mEq oral tablet daily, and Tylenol with Codeine 1 oral tablet QID when needed.

During the initial evaluation in the ED, the patient was hemodynamically stable, alert and oriented with no acute distress, her vital signs included a blood pressure of 162/78 mmHg, heart rate of 61 bpm, respiration rate of 13 - 17 breaths/min, oxygen saturation 97%, and a body mass index of 24.06. Abdomen physical exam showed no distension, mild abdominal tenderness in the right lower abdomen with no guarding. There was no jaundice. Cardiovascular, pulmonary, neurological and psychiatric physical examination was normal.

Laboratory studies were performed with relevant findings showing a WBC count of 13.6 with 77.5% of neutrophils, and an iSTAT K level of 3.0. Further initial laboratory data was normal. A CT of the abdomen and pelvis with oral contrast was performed and showed an appendectomy, with a round shaped structure suspicious for the stump of the appendix. There was extensive fat stranding surrounding this structure, with no evidence of perforation.

The patient was first admitted to the observation unit for a potassium replacement via IV therapy and empiric antibiotic therapy with Zosyn. She also received pain medications and supportive care. After the CT report, she was scheduled on the same day of admission for a laparoscopic appendectomy. The surgical report included adhesions of an inflamed tissue that were swept and posteriorly exposed a residual appendix and mesoappendix. The remaining mesoappendix was taken out concluding the surgery with no complications. After this, the patient was taken to a recovery room in stable condition. On the first day post-surgery, she remained clinically stable with minimal symptoms, therefore, she was discharged with her current chronic medications and had albuterol inhaled, apple cider vinegar, omeprazole and simvastatin added to her discharge medications.

### Discussion

Appendectomies continue to be one of the most widely performed surgeries in the world, hence, their complications should be further studied [6]. Stump appendicitis occurs in 1/50000 cases and is described as the inflammation of residual tissue after the surgical removal of the appendix. The stump has to be large enough to cause a new obstruction by faecoliths and cause the concurrent inflammation. When the stump is shorter than 5 mm the risk of recurrent appendicitis is reduced [7].

The appendix can be easily found by dissecting the recurrent branch of the appendiceal artery, this guides the surgeon to any anatomical position of the appendix, including, retro-cecal, subserosal and a duplicated appendix. All these different presentations can lead to a complicated dissection and promote large remnants that increase the risk of recurrence. Unlike an open procedure, laparoscopic techniques lack three-dimensional vision which impedes the surgeon to palpate and feel the intrabdominal contents directly, posing a higher risk of leaving a larger appendiceal stump [6].

Due to the weaker immune response in older patients, the diagnosis can be difficult as the classic clinical presentation is not likely. This would also decrease the incidence of fever and leukocytosis, causing the pain from inflammation to have a late onset, leading to a greater risk of perforation [8].

Decades ago, the diagnosis of recurrent appendicitis was even more rare [6]. Over the years, the incidence of stump appendicitis has been increasing due to the utilization of CT techniques, this rules out any other etiology of a right lower quadrant abdominal pain, which leads to an early detection, accelerated and adequate treatment for the patients [9].

A repeat appendectomy is the treatment of choice for stump appendicitis [6]. In adults either open or laparoscopic intervention are the options for treatment, but in elderly population video laparoscopic is the best option as this allows a rapid recovery, smaller incisions, and a shorter time of hospitalization [3].

### Conclusion

Stump appendicitis is a rare occurrence that can be overlooked, especially in cases with a previous history of appendectomy. The diagnosis of recurrent appendicitis should be considered along with other differential diagnoses in patient with previous appendectomy and new onset right lower quadrant abdominal pain. Early recognition is a key factor that will help in reducing mortality rates.

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