

Stump Appendicitis after Open Appendectomy: Judicious Surgical Approach

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Abstract:

Background: Incomplete appendectomy may predispose to the development of stump appendicitis. Stump appendicitis, the interval re-inflammation of the residual appendiceal tissue, is a rare complication of appendectomy. Stump appendicitis should be considered in the differential diagnosis of any patient with a previous history of appendectomy who presents with signs and symptoms of appendicitis.

Case History: A 15 yr old girl, class 10 student presented with on & off right lower quadrant pain, vomiting and anorexia since 5months i.e. one week post appendectomy surgery. Ultrasound examination revealed an inflamed residual stump with periappendicular edema. Completion open appendectomy performed safely & patient got relieved of her symptoms fully.

Conclusion: Stump appendicitis is a rare but real complication after appendectomy surgery. Diagnosis of stump appendicitis certainly requires a high clinical suspicion and one should be aware of this uncommon phenomenon. Ultrasonogram & CT scan are proven useful tools in establishing the diagnosis. Completion appendectomy either by open/laparoscopic surgery is the standard treatment to avoid lot of morbidity.

Regardless of the surgical technique used, identification of the appendiceal base by tracing the taenia coli down to the appendix is crucial in preventing such a complication.

Keywords: Stump Appendicitis, Residual stump, Completion appendectomy

I. Introduction

Appendectomy is one of the most common emergency surgical procedures performed worldwide. Obstruction of the appendiceal orifice by fecolith, lymphoid hyperplasia, or neoplasm remains the most likely causative factor [1]. Progressive appendiceal luminal distention compromises lymphatic and vascular flow, resulting in appendiceal wall ischemia followed by consequent bacterial invasion, inflammation, and frank perforation if surgical treatment is delayed. Perforation at presentation ranges from 16% to 30%, and it is significantly increased by a delay in diagnosis usually seen at extremes of age or atypical presentation [2]. Treatment is appendectomy, and postoperative complications include wound infection, bleeding, intraabdominal abscess, smallbowel obstruction, and, rarely, stump appendicitis.

Residual appendiceal tissue left at the time of appendectomy may predispose to the rare development of stump appendicitis. Stump appendicitis is defined as the interval repeated inflammation of residual appendiceal tissue after an appendectomy [3]. Partially removing an appendix leaves a stump behind, which allows for recurrent appendicitis. Today, most clinicians are not aware of the possibility of recurrent appendicitis or, more precisely, stump appendicitis as a differential diagnosis for patients with right lower quadrant (RLQ) pain after previous appendectomy [4, 5]. Therefore, this phenomenon can cause a real diagnostic dilemma, which can lead to delays in treatment and subsequently to an increase in morbidity. Currently, only 40 reported cases of stump appendicitis are found in the English medical literature

We report this case in order to draw the attention to the fact that stump appendicitis with all its attendant complications such as perforation, abscess formation is real and should be considered as a differential diagnosis in post appendectomy patients with recurrent/severe right lower quadrant pain and anorexia.

II. Case Report

A 15 yr old girl, class 10 student presented to the emergency ward with severe pain tenderness in right lower abdomen of one week duration. She had similar on & off complaints of right lower quadrant pain, vomiting and anorexia since 5months i.e. one week post appendectomy surgery. Symptoms were significant, requiring multiple hospital admissions and affecting her studies & daily routine. Ultrasound examination report revealed an inflamed thickened residual stump about 9.2 mm with peri-appendicular edema. On examination

P/R: 132/min, BP: 100/70mmHg, RR: 20/min, afebrile. Positive McBurney's sign and Rebound tenderness in right iliac fossa was elicited.

Work up in emergency department revealed WBC count of 9500/cu.mm. Plain x-ray abdomen and Urine microscopy were found to be normal. Repeat USG abdomen in our center confirmed thickened walls of stump with peri-appendicular edema, no free fluid collection.

Completion open appendectomy was done safely using the same incision [Grid Iron incision] excising the previous scar. A Retrocolic turgid, inflamed, cord like appendicular stump about 10mm length noted (Fig.1&2). Base ligated using transfixation cat gut suture and stump divided just 4mm above ligature. Histopathological report confirmed the stump appendicitis (Fig.3) and our patient had no post operative complications (Fig.4) and was discharged on post operative day 7. Our patient got relieved of her symptoms fully and happily attending her school.

III. Discussion

The cause of stump appendicitis is incomplete removal of the appendix during the initial surgery. The re-inflammation of the residual appendiceal tissue is reported to occur as early as two months and as late as 50 years after the initial surgery [7]. In 1945, Rose was the first to describe stump appendicitis in patients who had previously undergone an appendectomy for appendicitis [8]. Diagnosis of stump appendicitis certainly requires a high clinical suspicion and one should be aware of this uncommon phenomenon. One should consider this entity in the differential diagnosis for patients with right lower quadrant pain with history of prior appendectomy. The presenting symptoms of stump appendicitis are basically indistinguishable from those of primary appendicitis. They include pain that starts periumbilically and wanders to the right lower quadrant and is associated with anorexia, nausea, and vomiting.

The reports of stump appendicitis are rare and no relationship to a particular surgical technique can be made. It has been reported in patients following open appendectomy with stump ligation [9], open appendectomy with stump inversion [10] and laparoscopic appendectomy [7, 11]. At least theoretically, there is the potential for an increased incidence of stump appendicitis in laparoscopic surgery due to the lack of a 3dimensional perspective, and the absence of tactile feedback. Subsequently, a longer stump might be left behind. However, in sharp contrast to this theoretical assumption stands the fact that 66% of the reported cases occurred after open appendectomies [7].

Several factors influence the occurrence of stump appendicitis. One very common problem is incorrect identification of the base of the appendix, i.e. the cecal appendiceal junction. Additionally, a complete or partial retrocecal lying appendix, i.e. the base is retrocecal or a part of the appendiceal shaft lies retrocecal and the tip turns back and is easily visualized intra peritoneally and therefore the part of the appendix that disappears in the retrocecal area is misidentified as the base and falsely transected leaving a stump behind.

Besides the possibility of stump appendicitis, there is another possible explanation for appendicitis after previous appendectomy: a duplicated appendix. This is a very rare developmental abnormality, which can be seen in about 0.004% in appendectomy patients, which has been described by Cave and Wallbridge [12, 13].

Regardless of the surgical technique used, identification of the appendiceal base by tracing the taenia coli down to the appendix is crucial in preventing such a complication. It is also important to resect the appendix completely or, if leaving a stump, it should be <5mm in length. Nevertheless, completion appendectomy is the treatment of stump appendicitis [14]. The completion appendectomy has been done as an open procedure for the majority of the cases reported in the literature and it has the advantage of good tactile feedback.

IV. Figures



Fig-1 Inflamed appendiceal stump



Fig-2 Residual stump after surgery



Fig - 3 histopathology showing acute inflammation (lymphocytic infiltration).



Fig- 4 post operative scar

V. Conclusion

Stump appendicitis is a rare and real complication after appendectomy surgery. It does occur after both laparoscopic and open appendectomies. It is yet to be definitely determined whether the incidence of this is indeed increasing with laparoscopic appendectomies as claimed by some. Diagnosis of stump appendicitis certainly requires a high clinical suspicion and one should be aware of this uncommon phenomenon. Ultrasonogram & CT scan are proven useful tools in establishing the diagnosis. Completion appendectomy either by open/laparoscopic surgery is the standard treatment.

During initial surgery a thorough exploration, meticulous dissection, critical view of the appendiceal junction, proper ligation of base and leaving a small residual stump of less than 5mm are the key in avoiding this entity. Surgeons therefore must have good training and good knowledge of anatomy, especially in difficult cases where severe inflammation is present.

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