

## Case Report: Appendicular Stump Blowout Following an Emergency Appendectomy: An Unusual Complication

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### Abstract

Fecal fistula (FF) following an appendectomy occurs mostly after emergency surgery. Caecal injury or severe peri-appendicitis often causes postoperative FF. It usually subsides with conservative therapy in the absence of any underlying pathology and distal obstruction. However, this is not true for an appendiceal stump blowout where surgical intervention is often required to reduce morbidity, especially in children. Appendiceal stump blowout is rare and is infrequently reported in the literature. We report a case of post-appendectomy FF in a 9-year old female child where we had to re-explore and ligate the appendicular base to manage the intractable fistula.

**Keywords:** Fecal fistula; Appendicitis; Children; Stump; Blowout

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### Introduction

Post-Appendectomy FF (PAFF) though rare causes significant morbidity and mental stress to the patients, parents as well as a surgeon. Emergency appendectomy for appendicular perforation/abscess/gangrenous appendix is the predisposing factor of PAFF. Other hidden causes are inflammatory bowel disease/neoplasm/distal obstruction or unnoticed-iatrogenic caecal injury [1]. An appendicular stump blowout has also been reported in the literature. Theoretically, surgery is considered only in the event of a failed conservative therapy. Here we present a case of PAFF due to appendiceal-stump blow out which was managed with surgical repair of appendiceal-stump.

### Case Presentation

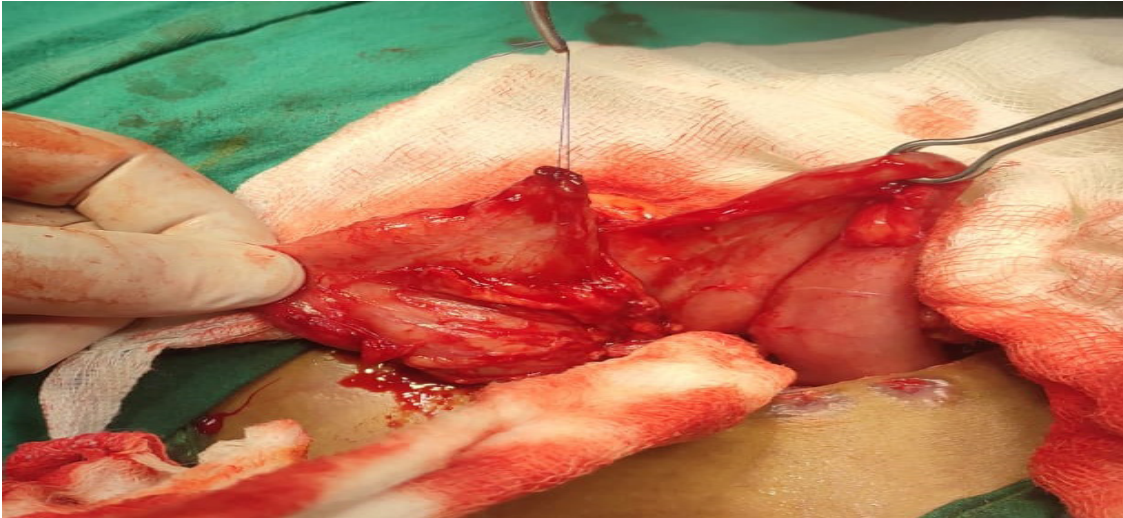
A 9-year old girl presented to the emergency with an outpouring of fecal matter from the wound site following an appendectomy. She had a history of acute appendicitis six days back for which she underwent an open appendectomy in a private hospital. There was McBurney's point tenderness and evidence of frank liquid-stool leaking from the previously operated (McBurney's incision) wound site. She was hemodynamically stable with no signs of peritonitis. Complete blood count and C-reactive protein were normal. Straight X-ray abdomen was essentially normal with no evidence of bowel obstruction. We decided to keep her under observation with conservative management (nothing per mouth, IV fluids, and antibiotics). A contrast enhanced computed

tomography (CECT) of the abdomen was done that delineated a fistula tract from the caecum to the parietal wall. We started cleaning the wound area with normal saline and quantifying the fecal contents regularly. There was no evidence of reduction of the amount of fecal content till the 4<sup>th</sup> day. We brought the patient to OT and found a continuous outpouring of liquid-stool from the wound area, and thus, went for re-exploration. The appendicular stump blowout was detected that was directly communicating to the wound (**Figure 1**). There was no evidence of fecal contamination in the abdominal cavity. We gently dissected out the caecum along with the appendiceal stump. The stump-margin was freshened, the base was transfixed with Vicryl 4-0 as well as silk suture and was buried thereafter (**Figure 2**). The wound was closed in a single layer with an abdominal drain *in situ*. She recovered uneventfully, started taking oral liquid after 36 hrs. The drain was removed after 48 hours and she was discharged the very next day. On follow-up at 1 week and 6 weeks, there was no further issue and the patient is now doing well (**Figure 3**).

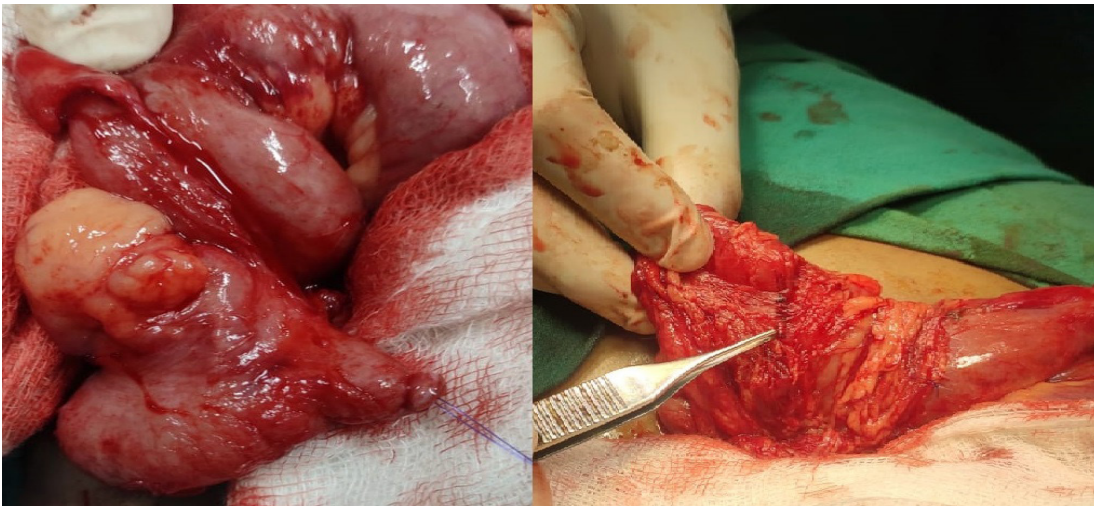
### Discussion

The incidence of PAFF is about 0.5%. Genier, et al. stated that 95.5% of cases occur following the emergency operation in

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**Figure 1** Intraoperative picture shows appendiceal stump blowout, dissected out from the previously operated wound site in a 9-year old girl.



**Figure 2** Peroperative pictures show trans-fixation and burying of the appendicular stump in a postoperative case of fecal fistula in a 9-year old girl.



**Figure 3** Clinical photograph after 6-weeks of re-exploration and repair of fecal fistula due to appendicular stump blowout in a 9-year old girl.

severely infected appendix/appendicular abscess, neoplasm, or technically difficult appendectomy [1]. In our case, no documentation of severe appendicitis was found. Neoplasia of the appendix and caecum, distal obstruction, actinomycosis, intestinal tuberculosis, inflammatory bowel disease, and appendicular stump blowout are also important etiological factors for the PAFF. During laparoscopic surgery, unnoticed diathermy damage may result in delayed necrosis of the appendiceal stump and late fistula [2]. A purse-string suture is also claimed as a contributory factor of PAFF as (i) this necessitates mobilization of the caecum more, (ii) needle penetrating the bowel may cause peritonitis, (iii) local hematoma formation from pricking a vessel (iv) possibility of necrosis of the encircled wall of the caecum, (v) more chances of postoperative adhesions, so also the PO ileus. However, recent studies did not declare a significant statistical difference between the purse-string suture and no purse-string suture of the appendix stump. Some surgeons also prefer a protective tube caecostomy in severe periappendicitis or after unintentional iatrogenic laceration to prevent the PAFF [3].

A FF starts most frequently on the 3<sup>rd</sup> to 4<sup>th</sup> Postoperative Day (POD), though, delayed fistula on the 21<sup>st</sup> POD has also been reported. At an early stage, a FF may be confused with a wound infection. It usually presents with persistent feculent discharge from the wound which continues in spite of attempts of drainage and repeated dressing. The patient generally looks unwell during the early postoperative period and may have a slow recovery [4,5]. Associated symptoms include fever, vomiting, abdominal pain, features of paralytic ileus, and sepsis. Although a PAFF is very distressing for both surgeons and the patient, the occurrence of the fistula has the advantage of preventing fecal peritonitis.

Diagnosis is clinical and sometimes established by a CT scan which may show extravasation of the contrast medium at the caecum. Fistulography is sometimes also helpful in the late stages with the

matured fistula-tract [6]. In our case, the CECT (W/A) delineated a fistula tract from the caecum to the parietes.

Management options include (i) conservative management, (ii) vacuum-assisted closure, (iii) fistuloscopy with fibrin glue injection, (iv) the use of monoclonal antibodies in patients with Crohn's disease, (v) surgery [7]. Conservative management is usually considered for 4 to 6 weeks with adequate nutritional support provided there is institutional facility/patient's affordability and evidence of gradual reduction of feculent discharge. Most FF responds to conservative treatment in absence of underlying pathology and distal obstruction. The communicating/involved bowel segment (caecum/ileum/appendicular base/appendicular stump blow-out) and other etiological factors determine the outcome of non-surgical therapies. Theoretically, re-exploration is considered either after 4-6 weeks or when conservative therapy fails. Fistula tract excision and segmental resection of involved bowel, with end-to-end anastomosis, is recommended [8]. In our case, there was an appendicular stump blowout that communicated/opened directly at the wound and there was no clinical evidence of any reduction of fistula contents. Thus, despite no peritoneal contamination, we opted for operative intervention.

## Conclusion

A fistula with peritonitis increases morbidity and mortality, but a controlled fistula (without fecal peritonitis) places the surgeon in a state of management dilemma. Most cases respond to conservative treatment in absence of underlying pathology and distal obstruction. From our case, we can vouch that an appendicular stump blowout should also be considered in children presenting with controlled FF and early re-exploration is indicated. We also conclude that the management strategy should be individualized based on the patient's profile, possible cause, site of the fistula, and lastly institutional protocol.

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