

Case Report

Traumatic primary enterocutaneous fistula: a case report

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ABSTRACT

Enterocutaneous fistula (ECF) is an abnormal communication between the gastrointestinal tract and the skin. Approximately 80% of ECFs occur as a complication of surgical procedures, while the remaining 20% are associated with trauma, inflammatory bowel disease (such as Crohn's disease), radiation exposure, or malignancy. In trauma patients without prior abdominal surgery, primary traumatic enterocutaneous fistulas (ECFs) are rare, accounting for less than 1.5% to 5% of all ECF cases. We present a case of a 14-year-old male who developed an enterocutaneous fistula following abdominal trauma caused by a bicycle handle injury. The patient presented with feculent discharge seven days after the incident. Notably, the site of trauma was located on the anterior abdominal wall, whereas the fistula opening was identified posteriorly, corresponding to the exact counterpoint of the injury. The patient had no prior history of any surgical intervention.

Keywords: Colonic fistula, Enterocutaneous fistula, Intraperitoneal pus collection, Resection and anastomosis

INTRODUCTION

A fistula is an abnormal communication between two epithelialized surfaces. Enterocutaneous fistula is an abnormal communication between the gastrointestinal tract and the skin. It is estimated that 80% of enterocutaneous fistulas are of iatrogenic origin secondary to surgery.¹ The 20% of fistulas not associated with surgery are caused by systemic diseases such as Crohn's disease, radiation enteritis, malignancies, trauma, or ischemia.^{2,3} In this report we are presenting a case of traumatic primary enterocutaneous fistula without any prior surgical history in young boy of 14 years of age.

CASE REPORT

14-year, male child, brought by mother in emergency department with alleged history of stool coming out of the skin over the lower back on the left side for one day. The patient had history of fall from bicycle one week prior and history of trauma to abdomen due to bicycle handle. The

patient was then taken to another hospital at hometown where ultrasonography (USG) abdomen and pelvis was done, which was within normal limit, after that wound was sutured and patient was sent home. On examination, patient was vitally stable. On per abdominal examination, it was found that suture wound was present over left lumbar fossa (Figure 1a) and fecal matter was coming out of the left lower back, on exact counterpart to the sutured wound through naive skin (Figure 1b). Fistula output was approximately 300 ml per day. Blood investigations were within normal limit. Emergency computed tomography (CT) of abdomen and pelvis with oral and IV contrast was done. CT was suggestive of 5 mm defect is noted in the posterior wall of the descending colon through which orally administered contrast seen extravasating out into the small pocket of collection adjacent to it. This collection is seen involving the left iliacus muscle. It is seen communicating with collection of size 3.3×3.2 cm in subcutaneous and intramuscular plane of posterior abdominal wall in left iliac fossa at paraspinal region through a sinus tract of size 1.1 cm in length and 1.2 cm in

width. This subcutaneous collection is further seen reaching upto the skin defect via a sinus tract measuring 1.2 cm in length and 0.3 cm in width. Associated edematous wall thickening with mild adjacent fat stranding is noted involving descending colon with maximum wall thickness measuring upto 5.8 mm. Features are suggestive of enterocutaneous fistula. Another small pocket of collection with a few air foci within is noted in the pelvis anterior to the rectum tracking superiorly along the lateral wall of the sigmoid colon. The patient was managed conservatively for 7 days, due to persistent high output of fistula patient operated electively for exploratory laparotomy with resection of fistulous opening part of colon and anastomosis of descending colon.

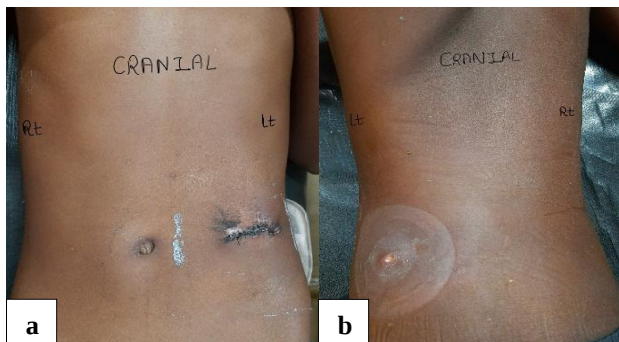


Figure 1 (a and b): Clinical examination findings of the patient.

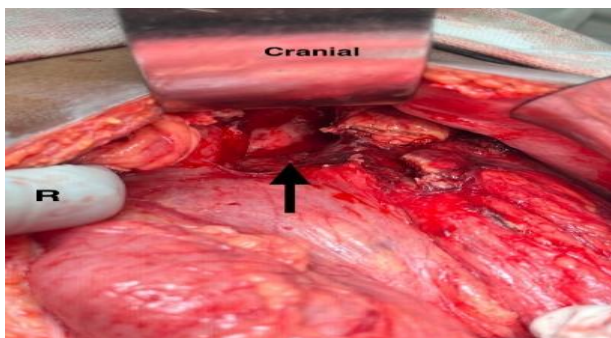


Figure 2: Intraoperative findings suggestive of pus collection behind the stomach



Figure 3: Intraoperative images suggestive of colonic perforation (black arrow).

Intraoperative findings

Interbowel adhesions were present in between descending colon and jejunum. Pus was present in left parabolic gutter and behind the stomach (Figure 2). 1×1 cm rent present in descending colon (Figure 3) and had communication posteriorly with skin (Figure 4).

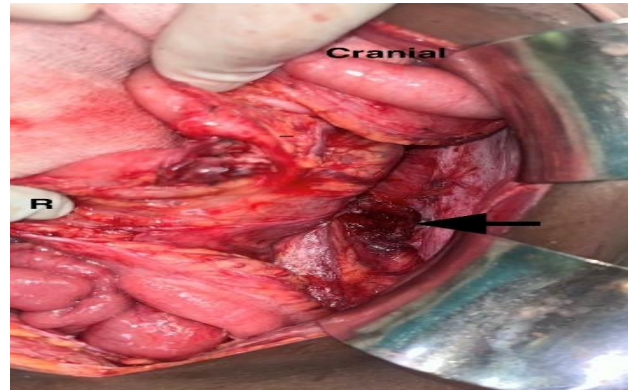


Figure 4: Intraoperative image suggestive fistula tract (black arrow).

DISCUSSION

An extracellular fluid (ECF) can occur as a complication of a GI tract surgery of any type. More than 75% of all ECFs arise as a postoperative complication, whereas about 15-25% result from abdominal trauma or occur spontaneously about cancer, irradiation, inflammatory bowel disease (IBD), or ischemic or infective conditions. The etiology of ECFs can thus be characterized as postoperative, traumatic, or spontaneous.⁴ Edmunds et al acknowledged the classic triad of complications of enterocutaneous fistula as sepsis, malnutrition, and electrolyte and fluid abnormalities. The presence of bowel contents outside the lumen may lead to a localized abscess, infection over soft tissues, generalized peritonitis, or sepsis, reliant on whether the bowel leak communicates with the peritoneal cavity or soft tissues. Initial control of fistula output, drainage of confined collections, and suitable antibiotic therapy are keys in the early management of these patients. Recent studies advocate that sepsis, associated with malnutrition, is the foremost cause of death in patients with enterocutaneous fistulas.^{5,6} Septic foci should be effectively treated, and a decent clinical and nutritional condition are met before planning any definitive surgery. Patient should be mobile, feeling well, taking an interest in his/her surroundings, and be ready mentally to proceed with the restorative surgery. There should be an increase in albumin and haemoglobin levels and reduction in leukocyte and thrombocyte counts, C-reactive protein and erythrocyte sedimentation rate levels. The minimal period between the development of the fistula and the restorative surgical approach is around 6 weeks.^{7,8} Operating within 2 weeks or after 3 months has been shown to be related to lower fistula recurrence rate compared to if surgery is performed between 2 and 12

weeks. Early identification of a fistula is the most important significant commencement in management of those patients. Finally, where possible, enteral feeding should be provided and efforts should be made to start out early.^{8,9} Determining the optimal time for surgical intervention has not been well defined in the literature. After stabilization is accomplished within 24-48 hours, the investigation usually takes place over the subsequent 7-10 days. Investigation implies an intensive evaluation of the digestive tube, definition of the anatomy of the fistula, and identification of any complicating features like abscess, stricture, or distal obstruction. Investigative studies should be designed to work out the presence and location of the fistula and to supply information regarding its cause.¹⁰ In this case, the patient had a history of trauma, so a CT scan was done within 24 hours of admission. CT is useful in demonstrating any intra-abdominal abscess cavities. Anatomy of the fistula prior to planned surgery. It helps in getting information about the anatomy of fistula, the proximal bowel length, and the quality of the remaining bowel.⁷ Surgery may be postponed till the intra-abdominal and systemic circumstances of the patient are favourable to surgery. The timing of conclusive surgery must be customized according to patient features.¹¹ In this case even after managing conservatively fistulous output was high, so the decision of operative procedure was made. There is a higher chance of breakdown and recurrence of fistula when direct closure of fistula by suturing is completed. Primary end to end anastomosis after resection of the fistulous segment is the preferred surgical procedure of choice in most cases. In this case, CT imaging demonstrated an intra-abdominal collection with fistula and some leak into the collection. After optimization with antibiotics and total parenteral nutrition, exploratory laparotomy was performed, including resection and anastomosis of the descending colon, abscess drainage, and fistulous tract excision.

CONCLUSION

Most cases of ECF occur in the postoperative setting. However, this case highlights a rare occurrence of ECF in a young patient following trauma, in the absence of any prior surgical intervention. It underscores the importance of maintaining a high index of suspicion even in atypical scenarios. Early diagnosis, appropriate sepsis control, nutritional optimization, and timely surgical intervention are crucial for successful outcomes. Management of ECF invariably requires a multidisciplinary approach involving surgeons, radiologists, and nutritionists to reduce morbidity and improve prognosis.

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