Recto-Vesical Fistula Following Foreign Body Rectal Trauma in A Child: A Case Report

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Abstract

Trauma-induced recto-vesical fistulas are uncommon and may result from gunshot wounds, insertion of foreign objects into the rectum, traffic accidents, and, rarely, blunt trauma. Managing RVF is challenging, and treatment options should be considered on an individual basis. We report the case of a 10-year-old boy who arrived at the emergency department with rectal bleeding two hours after accidental perineal trauma at home, involving the introduction of a metallic foreign object.

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Abstract

A rectal exam showed no active bleeding, and lab tests were normal. Due to the unavailability of CT imaging, exploration under general anesthesia revealed an anterior rectal injury with urine leakage. Laparoscopic exploration confirmed the absence of intra-peritoneal injury. Colostomy and urinary diversion were performed. The bladder catheter was removed after four weeks, with normal cystography findings. At the two-month follow-up, colostomy closure was completed. No recurrence was observed during the six-month follow-up period. No standardized technique has been established in the literature for the surgical treatment of traumatic RVF. For small traumatic fistulas, particularly in children, urinary and fecal diversion can be effective with low recurrence rates.

Keywords

- Recto-vesical fistula
- Recto-urinary fistula
- Fecal diversion
- Perineal trauma
- Blunt trauma
- Foreign body

Introduction

Traumatic recto-vesical fistulas (RVF) are rare in the paediatric population, with only a few cases reported to date. RVF can result from gunshot injuries, insertion of foreign bodies into the rectum, traffic accidents, and occasionally blunt trauma.[1] A review of the literature highlights the challenges in managing and treating RVF, with approaches varying by etiology. In most cases, urinary and fecal diversion has proven effective.[2-3]

Case presentation

Two hours after sustaining trauma, a 10-year-old boy presented to the emergency department with rectal bleeding. He recounted a history of accidental perineal trauma at home, which had resulted in the introduction of a metallic foreign object into the rectum. A digital rectal examination revealed no active bleeding, and all laboratory investigations, including urinalysis, were within normal limits. Since abdominal CT imaging was unavailable, the decision was made to proceed with exploratory surgery under general anaesthesia.

Intra-operative findings included an anterior rectal wall injury accompanied by urine leakage, confirmed by the administration of methylene blue through a bladder catheter **(Figure 1)**. Laparoscopic exploration ruled out any intra-peritoneal injury, narrowing the diagnosis to a large post-traumatic extra-peritoneal recto-vesical fistula caused by perforation from the foreign object.

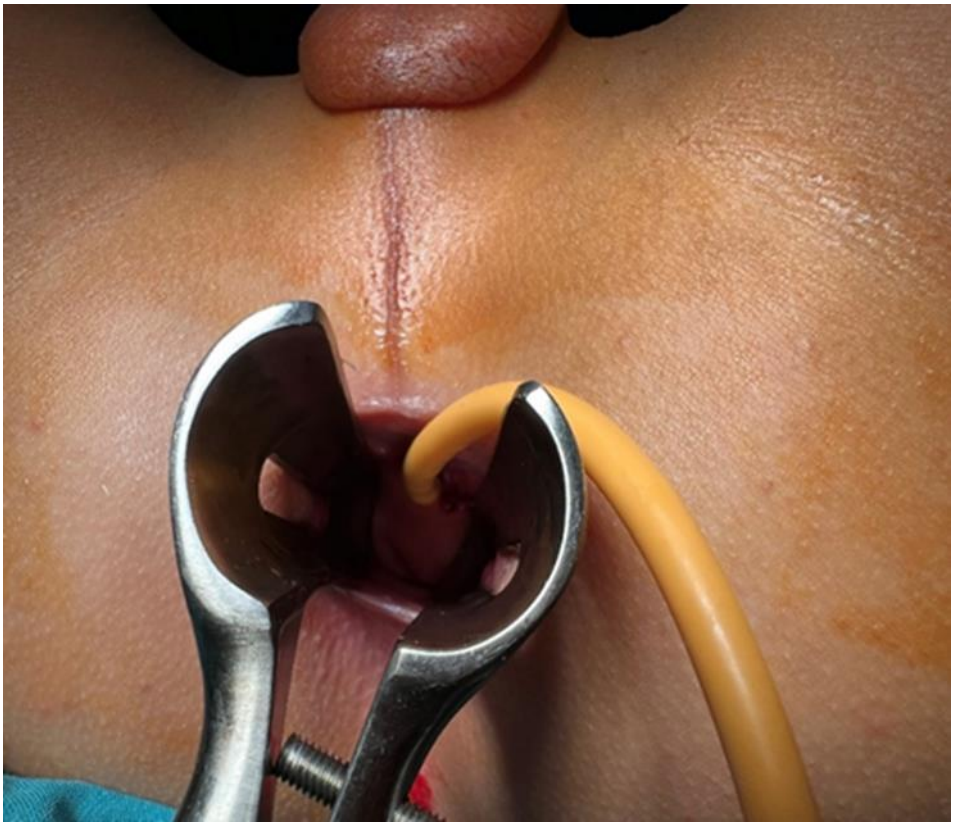

Figure 1: Anorectal exam under anaesthesia:
A- Rectal injury
B- Recto vesical fistula intubated by drain (Foley catheter).

The therapeutic decision was to perform a left colostomy and urinary diversion by bladder catheterization with a Foley catheter, thus protecting the urinary tract from infections (Figure 1). Also, these measures were intended to facilitate both directed management and spontaneous closure of the fistula.

Notably, the recto-vesical fistula was intubated with a drain during surgery but was left unstitched and removed at the conclusion of the procedure.

Follow-up evaluations demonstrated successful healing. At the four-week mark, retrograde cystography showed normal findings with no evidence of leakage or fistula recurrence, prompting the removal of the bladder catheter **(Figure 2)**. Two months post-operatively, the colostomy was closed, and an anorectal examination under anaesthesia revealed normal findings. No complications or recurrence were noted during a six-month follow-up period, underscoring the effectiveness of the chosen management approach.

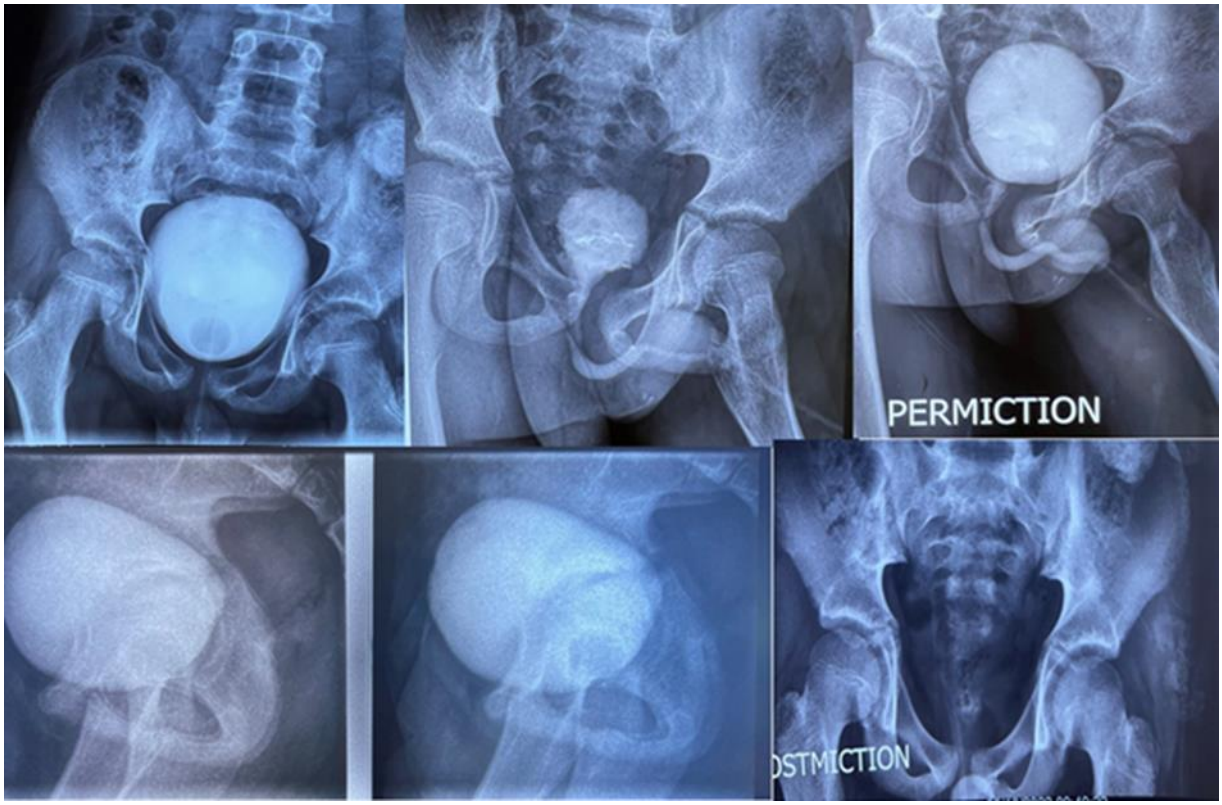

Figure 2: control cystography

Discussion

The incidence of RVF due to blunt perineal trauma is very low, with few cases reported in pediatric patients. Recto-vesical fistulas (RVF) may arise from congenital anorectal malformations, bladder and prostate surgery, gynaecological and colorectal surgery, radiation therapy for pelvic tumours, trauma, and neglected foreign bodies.[1-3]

Foreign body rectal injuries (RFB) are classified as intra-peritoneal or extra-peritoneal, depending on the severity and extent of rectal wall damage.[4-5] Abdelmoughit H. et al. reported that 73% of RFB injuries remain extra-peritoneal,[4] while Yan S. et al. found that 67% of RFB lesions do not penetrate the full thickness of the rectal wall and typically do not require surgical intervention. Full-thickness injuries of the rectal wall, however, present significant challenges and may be complicated by peritoneal

involvement.[2] Although pneumaturia is a common characteristic symptom, urinary and rectal leakages can also occur.[1]

Diagnosis of RVF can be achieved through cystography, endoscopy, CT, or MRI. Ultrasonography is also sensitive in detecting RVF but may not adequately define fistula complexity. In this case, the child presented with post-traumatic rectal bleeding, but no preoperative radiologic examination was performed. Perineal exploration under general anaesthesia, aided by methylene blue urine stain and laparoscopy, was utilized for diagnosis.

Traumatic RVF may increase mortality risk, lengthen hospital stays, and lead to complications such as recurrent urinary tract infections, pelvic abscesses, and peritonitis.[3-4] For these reasons, RVF management is challenging, with treatment options individualized based on the patient's condition and fistula size. Most small fistulas heal spontaneously within 6–8 weeks with conservative management.[1-4] Conservative treatment of RVF includes bowel rest, catheterization, and antibiotic therapy, usually reserved for mildly symptomatic fistulas not related to malignancy. For more complex cases, surgery is often necessary, with various endoscopic, laparoscopic, and open surgical techniques described in the literature.[6-7]

Historically, primary colostomy for faecal diversion has been used to treat these fistulas.[1-2] Open surgery may involve one or more staged procedures, including bowel resection, bladder repair, colostomy, and eventual colostomy closure. Studies indicate that primary resection and anastomosis can often be performed without stoma diversion.[2] Bladder repair is typically achieved by oversewing or excising larger defects, with intra-operative methylene blue injection aiding in the detection of small defects.[1-4] Persistent RVF cases may require surgical repair.

The literature does not provide a clear consensus on RVF management, particularly in the pediatric population. Yadavalli R. D. et al. described a case in which a 10-year-old boy sustained perineal trauma while bicycling. Initial conservative treatment with antibiotics, urethral catheterization, and bowel rest for 14 days showed no resolution.[1] Walker et al. successfully used a trans-vesical technique to repair traumatic recto-vesical fistula in a 14-year-old boy, initially repairing the bladder defect and then performing a colostomy and suprapubic catheterization.[8] Thurairaja et al. described conservative

RVF management in a 46-year-old man with a rectal injury after falling onto a chair, where antibiotics and a suprapubic catheter for five weeks led to fistula resolution.[9]

In this case, surgical treatment was chosen due to the large rectal wall defect and the absence of intra-peritoneal trauma. Rigorous clinical follow-up and CT cystography revealed persistent closure of the RVF.[3-4] The variety of conservative and surgical approaches in the literature reflects differences in surgeon preference, skill level, and the need for individualized treatment plans.[2]

Conclusion

Foreign body rectal trauma is a unique form of rectal trauma, and associated genitourinary injuries can lead to rectal fistulas. A conservative approach by urinary and fecal diversion may be effective for the management of extraperitoneal traumatic recto-vesical injuries. However, peritoneal involvement complicates the prognosis and often requires urgent surgical intervention. Despite multiple techniques for RVF repair described in the literature, a standard approach has not been established.

Ethical Consideration

Informed consent was obtained from all individual participants included in the study.

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Conflict of interests

There is no conflict of interest

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