



A PENETRATING WOUND THROUGH THE ANAL CANAL CAUSING A COMBINED RECTAL AND BLADDER INJURY: A CASE REPORT

General Surgery

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ABSTRACT

Penetrating injuries of the anal canal & rectum have been reported earlier and are often associated with injuries of adjacent viscera such as bladder, uterus or vagina, prostate and seminal vesicles as well as iliac vessels. A combined rectal and urinary bladder injury can present with gross rectal bleed and hematuria, and in case of intraperitoneal extension can lead to abdominal pain and distension. This article presents an 18 year old male who came with a history of impalement injury through anal canal by a wooden foreign body. The patient had generalized abdominal tenderness and distension at presentation indicating the development of peritonitis. An emergency laparotomy was performed which revealed the foreign body in the peritoneal cavity after perforating the urinary bladder. This case is rare not only regarding the mechanism of injury but also with respect to the depth of penetration, with the foreign body laying intact in the peritoneal cavity after perforating the urinary bladder at two sites after entry through the anal orifice.

KEYWORDS

INTRODUCTION

The majority of anal canal and lower rectal injuries are secondary to penetrating trauma which are iatrogenic, sex-related, and foreign body injuries. The urinary bladder is the 2nd most commonly injured urological structure and accounts for 10% of all urological injuries. The bladder injury can be extraperitoneal, intraperitoneal or combined intra and extraperitoneal. The most common source of bladder injury is blunt trauma (80-85%) which are commonly associated with pelvic fractures (83-95%) while penetrating injuries account for less than 10% of the cases. Gunshot and stab injuries are examples of penetrating bladder injuries, while impalement causing a combined rectal and bladder injury is highly uncommon. A missed rectal injury can have devastating consequences. Although isolated bladder injury produces little morbidity or mortality, an overlooked combined rectal-and-bladder injury can produce serious morbidity and can even lead to death. Following a case report together with a review of the literature, this paper aims at reminding the clinical and therapeutic features of this rare trauma.

Case Report

An 18-year-old Male patient presented to the emergency department with abdominal pain and distension. Abdominal pain was acute in onset, progressive in nature, not relieved on medications. Patient had an alleged history of fall from height of around 6 metres onto a sharp wooden branch two days back. The force of his landing on the branch caused the rod to penetrate through the anus. The branch was removed manually by the patient itself. The patient was relatively asymptomatic afterwards until the emergence of the current symptoms.

On physical examination, the patient looked well and was stable hemodynamically. He had mild generalized abdominal tenderness and the rectal examination revealed evidence of a 2 cm wound on the anterior wall, located 4 cm proximal to the anal verge. An urgent E-FAST (Extended Focussed Assessment with Sonography in Trauma) was performed which revealed mild to moderate free fluid in peritoneal cavity with multiple internal septations. X ray flat plate abdomen was performed in erect and supine position which did not reveal any air under diaphragm.

Lab Investigations- Hb-14.3 g/dL, WBC count- 24×10^3 , PLT- 283×10^3 . The RFT, LFT & Serum electrolytes were within normal limits. A Contrast Enhanced Computed Tomography scan was performed of the Abdomen and Pelvis, which revealed a Linear Hypodense area for segment length 10 cm in vertical position within peritoneal cavity just below the anterior abdominal wall, likely foreign body (FIGURE-1) with a linear defect seen in upper most part of the anal canal for segment length 5 mm with surrounding air foci likely anal canal injury.



Figure 1. CECT scan showing foreign body in the peritoneal cavity

After taking written informed consent, patient was posted for Exploratory Laparotomy. Patient underwent surgery through classic midline vertical incision. An intact 10 x 3 cm wooden foreign body (FIGURE-2 & FIGURE-3) was retrieved from the peritoneal cavity with around 500 cc pyogenic collection drained. There was no evidence of any rectal injury. The urinary bladder wall was perforated at two sites, a 2 x 2 cm perforation at the dome of the urinary bladder (FIGURE-4) and a 2 x 2 cm perforation at the posterior wall (FIGURE-5) adjacent to the Left vesico-ureteric junction without injuring the left ureter. Bilateral ureteric catheter insertion along with suprapubic catheterization was done. The bladder wall at the rupture sites was repaired in two layers. 28 no. abdominal drain was placed in the Rectovesical pouch. A proximal Diversion Loop Sigmoid Colostomy was performed.

Patient was orally allowed on Post op day 3 after the colostomy got functional. Patient was discharged on post operative day 8 in a clinically stable condition and a functioning colostomy. Ureteric and Urinary Catheterization was kept for 30 days. A retrograde cystogram was done 30 days later and showed no further evidence of extravasation.



Figure 2. The Removed Wooden Foreign body**Figure 3.** Wooden Foreign body laying intact in the peritoneal cavity**Figure 4.** Tip of Foley's catheter coming out of the urinary bladder wall perforation at the dome**Figure 5.** 2 X 2 cm posterior bladder wall perforation

DISCUSSION

Combined Anal canal-and-bladder injury associated with penetrating wound of the perianal area are very rare. The standard management of penetrating anal canal trauma consists of perioperative antibiotics, a diverting colostomy, and presacral drainage. While providing optimal results in isolated rectal or anal canal trauma, this management scheme is inadequate in combined penetrating rectal-and-bladder injuries. Most publications dealing with combined rectal-and bladder injuries due to penetrating injury are mostly reported in lesions of the buttock and are related to gunshots. When a patient with penetrating anal trauma presents with gross rectal bleeding and hematuria, which are strong indicators of colorectal and bladder injuries, proctoscopy and cystogram should be performed [1]. To diagnose the bladder injury, it's mandatory to perform a retrograde static cystogram or a CT cystography. For the highest diagnostic accuracy, the bladder must be distended by the instillation of at least 350 cc of contrast medium. Indeed, Carroll and McAninch found that 100% accuracy could be

achieved if 350 cc contrast was instilled [2]. When a retrograde static cystogram is performed, the area behind the bladder should be imaged after the instilled contrast has been drained to obviate missing extravasation obscured by the intravesical contrast [3]. CT cystography is increasingly being performed as an alternate method of diagnosing bladder rupture and it has been shown to be as accurate as conventional cystography [1]. However, CT cystography has several advantages over plain film cystography: it is rapid and is easily performed at the same time as other CT studies, it is less affected by overlying bone fragments, and it is more sensitive to the detection of small amounts of intraperitoneal or extraperitoneal fluid [4]. Thus, when it is decided to perform a CT scan for other lesions, CT cystography must be preferred to retrograde cystography. Franko et al. recommend to treat all the rectal injuries when they are associated with genitourinary injury with diverting colostomy, rectal wound repair, presacral drainage, and rectal washout [5]. Diverting the fecal stream is the main aspect of the treatment as it reduces the risk of rectovesical fistulas development. Indeed, it is unclear, whether nonrepaired rectal defects combined with bladder injuries are associated with an increased incidence of complications. However, Franko et al. showed an increase in complications' rate in the absence of rectal wound repair in combined injuries [5]. Maull et al. had managed their patients' colon injuries by closure of the perforation and diverting proximal colostomy and the bladder injuries were treated by oversewing the perforation site [6]. The most common reported postoperative complication was fever; no patient developed sepsis though, despite gross urinary and fecal contamination [6]. Tuggle and Huber reported one case of a rectoprostatic fistula and two cases of rectovesical fistulas in the absence of rectal wound repair [7]. Because of their close anatomical proximity, such wounds are more likely to cause sepsis; we believe therefore that the use of presacral drainage, rectal wound repair, rectal washout, and diverting colostomy are mandatory; and the complications' risk is amplified if any of these measures is omitted [5]. In our case, we decided to perform a diverting colostomy without presacral drainage, and to manage the bladder injury with primary repair with prolonged Suprapubic and Foley catheterization (i.e., 30 days) with a very good result.

CONCLUSION

The management of penetrating rectal trauma can be challenging due to its uncommon nature & especially if it is associated with bladder injury. Proctoscopy may define the nature and site of penetration and should be performed upon all patients together with a cystogram CT which is the most accurate imaging examination to assess bladder injuries. The management of this rare combination consists of surgical treatment of the bladder perforation with protective diversion colostomy. We have showed that the bladder injury could be managed with prolonged Foley catheterization.

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