A Rare Case of Penetrating Rectal Injury

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Abstract Penetrating injuries of the colon and 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. But this case is rare not only regarding the mechanism of injury but also with respect to the depth of penetration, with the foreign body having almost reached the thorax after entry through the anal orifice.

Keywords Penetrating · Rectal · Injury

Case Report

A 13 year old boy presented to the Emergency department with a history of falling onto a smooth blunt tipped rod while playing with his friends in a river during his holidays. He dived into the river and came down inadvertently on a wooden rod which was being held vertically by one of his friends. The force of his landing on the rod caused the rod to penetrate through the anus and drive it into his body till it finally appeared subcutaneously in the left lower chest wall posteriorly. The boy was wheeled into Emergency in a knee elbow position as the rod protruding out from his anus posteriorly and towards the right for a distance of about 75 cm prevented him from lying flat or to any one side.

On admission, he was found to be haemodynamically stable and was started on intravenous fluids after intravenous access using an 18 G cannula. Blood was drawn for all pre-operative investigations including grouping and

cross matching. A portion of the rod outside the body was cut in one stroke and removed using an electric tile cutter, causing very little motion to the part remaining in situ. With this done, the boy could be positioned in the right lateral position on the trolley (Fig. 1). An emergency CT scan was done using 64slice CT scanner. It showed the track taken by the rod penetrating through the rectum and having reached the left lower chest wall (Figs. 2 and 3)).

He was then taken up for an emergency laparotomy. The anaesthesiologists intubated him while in the right lateral position, since he could not be positioned supine (Fig. 1). After anaesthetizing the patient he was then positioned supine. A midline incision was made and the abdomen entered. The rod was found to have entered the abdomen by piercing through the rectum anteriorly and then passing between the external iliac artery and vein just below the bifurcation of the left common iliac artery. After this it was

Fig. 1 Immediately after anaesthesia before turning the patient supine

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Fig. 2 CT Scan reconstruction showing the track taken by the rod

seen entering the left psoas muscle just adjacent to the left ureter and coursing upwards through the perinephric fat on the left side apposed to the anterior surface of the left kidney and piercing the chest wall just below the inferior surface of the spleen to reach the subcutaneous tissue leaving the skin of the lower chest wall at that site stretched.

The ureter was dissected and delineated. And so were the common iliac as well as the external and internal iliac vessels. The rod was then gradually withdrawn along the track it had entered and finally removed (Fig. 4) The laceration on the anterior rectal wall was repaired in two layers. A sigmoid loop colostomy was done. After thorough peritoneal lavage and ensuring good haemostasis, the posterior peritoneum was incompletely closed and the abdomen closed.

Post-operatively the boy did very well and was discharged from hospital on the tenth day. He was reviewed as outpatient and 2 months later he was readmitted for a colostomy closure which also was uneventful.

Fig. 3 The rod in the subcutaneous tissue of lower chest just adjacent to left kidney and spleen

Fig. 4 The rod being removed; showing the left external iliac vessels and the left ureter(taped)

Discussion

Impalement injuries of the anal canal with perforation of the rectum and penetration into the peritoneal cavity are very rare [1]. Causes described include fall on sharp objects, rectal foreign body, compressed air hose, sexual assault, and less commonly by rectal cleansing enema [2]. The mechanism of injury determines the site of injury with high intraluminal rectal pressures causing rectosigmoid injury and falling on sharp objects causing anorectal injuries. The predominance of anterior wall rectal injuries is explained by the anatomical posteroanterior direction of the anorectal canal [2].

There is clear evidence supporting primary repair in civilian colorectal injuries [3]. However in this case it was decided in favour of a sigmoid loop colostomy for diversion in view of the contused laceration of the rectal wall caused by the blunt rod and the faecal contamination of the peritoneal cavity. There is universal agreement regarding the need for complete diversion of the faecal stream with rectal injuries involving all layers. For extensive rectal injuries Hartmann's procedure is recommended [4]. Factors contributing to wound infection usually are delayed presentation and extensive faecal contamination of the peritoneal cavity as well as comorbidities like old age and diabetes mellitus [2]. Postoperative aggressive support is important for a good outcome [5].

Impalement injuries of the anorectum with associated injuries of the bladder, urethra as well as iliac vessels have been described in literature. But this penetrating injury beat them all when it went upto the lower chest!

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