

PENETRATING TRAUMA TO INNER THIGH CAUSING BLADDER AND SIGMOID COLON INJURY WITH RETAINED INTRAVESICAL FOREIGN BODY – A CASE REPORT

Moganakannan Mathuranthakie., Natarajan Kumaresan*, Chandru Thirunavukkarasu., Neelakandan Ramasamy and Velmurugan Palaniyandi

Department of Urology, Sri Ramachandra Institute of Higher Education and Research (SRIHER), Porur, Chennai, Tamilnadu, India

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ABSTRACT

Penetrating injury to bladder is less common than blunt injury. This is a unique case of bladder injury due to penetrating trauma through inner thigh. We report a 16-Year-old boy came to Emergency with alleged history of accidental fall from a height of 10 feet over a vertically oriented, sharp pointed triangular asbestos sheet penetrating his right inner thigh into abdomen. A 30cm long asbestos sheath from the thigh was removed under local anesthesia. Patient presented with pallor, tachycardia, hypotension and abdominal guarding with hematuria on per urethral catheter. Patient was resuscitated and CT imaging done showed intravesical foreign body with bladder injury and pneumoperitoneum. Emergency laparotomy was done. Partial transection of sigmoid colon was identified. Bladder opened, foreign body retrieved and bladder injury repaired. This case of bladder injury is unique because of the entry-point and trajectory of the stab injury causing bladder and hollow viscus injury.

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INTRODUCTION

Penetrating bladder trauma can either be due to gunshot wound or stab injury. In such cases, the point of entry of the wound can be from the abdomen, buttock or rarely thigh. An eye of suspicion must be kept to avoid missing occult injuries in cases with isolated bladder injury.[1] A careful attention and a complete evaluation should be given to identify the associated bowel and vascular injury and an emergency laparotomy is warranted to avoid devastating complications [2] when indicated. We hereby report a case of a young boy who had a penetrating bladder injury with sigmoid colon injury with thigh as point of entry of stab (asbestos sheet) through a different trajectory pathway with retained intravesical foreign body. Emergency laparotomy with foreign body retrieval, bladder injury repair and sigmoid colostomy was done for the patient.

Case Report

A sixteen-year-old boy came to Emergency with alleged history of accidental fall from a height of 10 feet over a vertically oriented, sharp pointed triangular asbestos sheet, which penetrated his right medial thigh and entered his abdomen. This 30cm long asbestos sheath protruding from the thigh was removed under local anesthesia at a nearby hospital. Patient was conscious, oriented and presented with pallor, tachycardia (Pulse rate- 124/min), hypotension (Blood pressure-90/60 mm Hg) and abdominal guarding with hematuria on per urethral catheter. Peripheral pulses are felt.

There was a sutured wound on the medial aspect of right thigh [Fig.1]. Per rectal examination was normal. Blood investigations revealed Hb-8.5 g%, total count-11,600 cells/cu.mm, renal function test and serum electrolytes were within normal limits. X-Ray Abdomen and Pelvis showed foreign body in the pelvis [Fig.2]. Contrast enhanced CT abdomen and pelvis imaging done showed pneumoperitoneum [Fig.3a], hemoperitoneum [Fig.3b], intravesical foreign body with bladder injury [Fig.3c and 3d]. Patient was resuscitated with intravenous fluids and blood. Emergency laparotomy was done. Partial transection of sigmoid colon was present with faecal contamination. Sigmoid colostomy done.



Fig 1 Sutured wound on medial aspect of right thigh

*Corresponding author: **Natarajan Kumaresan**

Department of Urology, Sri Ramachandra Institute of Higher Education and Research (SRIHER), Porur, Chennai, Tamilnadu, India

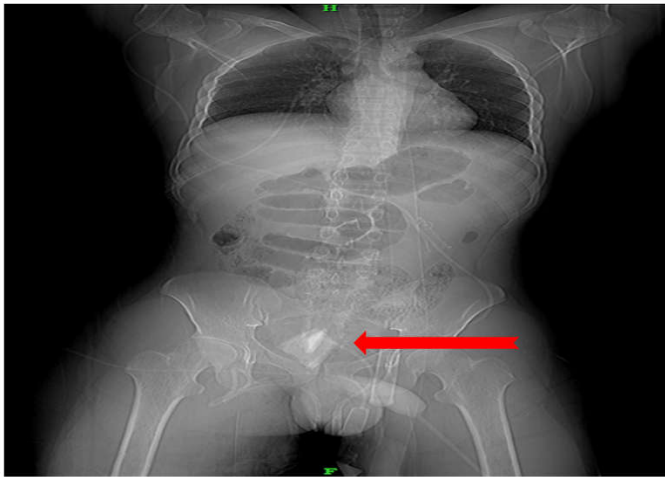


Fig 2 X-ray abdomen and pelvis showing foreign body in pelvis (Red arrow pointing foreign body)

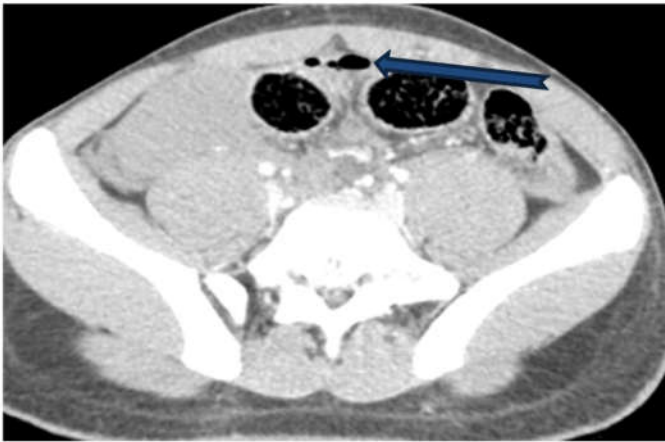


Fig.3a Plain CT showing pneumoperitoneum (blue arrow pointing gas)

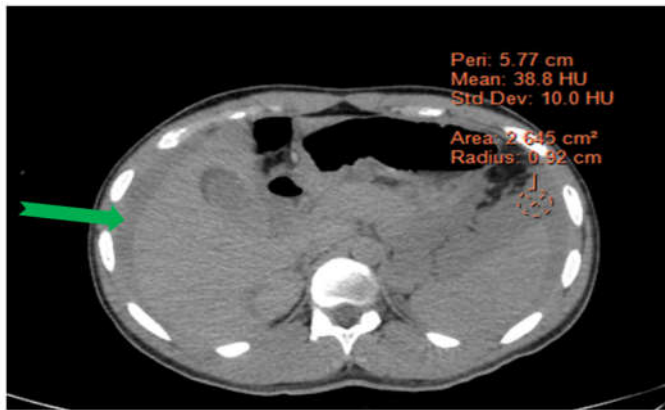


Fig.3b Plain CT showing hemoperitoneum (green arrow pointing fluid- blood)



Fig 3c&d Contrast enhanced CT showing intravesical foreign body with bladder injury

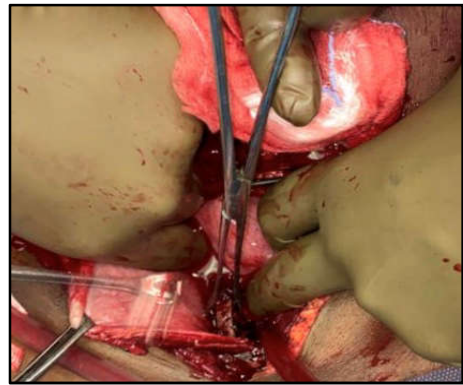


Fig 4a Intra operative picture of foreign body retrieval from bladder



Fig.4b Retrieved foreign body (asbestos sheet)



Fig.5 Postoperative follow-up of patient showing healed right thigh wound and functioning colostomy with supra pubic catheter

Foreign body projecting from left lateral wall of bladder identified. Bladder opened, intravesical foreign body and another foreign body projecting from posterolateral wall of the bladder removed (Fig.4a and 4b). Bladder tear at the base (entry point) and left lateral wall (exit point) sutured transvesically. Bladder closed in layers after keeping a supra pubic catheter and perivesical drain. Abdomen closed in layers after keeping a pelvic drain. Sutures removed from the thigh wound, wash given, loose sutures placed and compression dressing given. Postoperative period was uneventful. Per urethral catheter was removed on the second week and suprapubic catheter, a week later. Patient was doing well on postoperative follow up [Fig.5a and b] and was planned for colostomy reversal at later date.

DISCUSSION

Penetrating bladder trauma is less common than blunt trauma accounting for 14-49% [3]. The most common entry points of bladder injury are via anterior abdomen, rectum and buttock. In our patient, the entry point is through the thigh, which is an uncommon site of entry[4]. The trajectory pathway of the stab

in our case is through a subcutaneous plane in thigh, then passing superiorly behind the pubis, a through and through injury of bladder and the stab further moved posterolaterally causing sigmoid colon injury. Such an extensive injury indicates a high degree of impact of stab. Bladder injury is rarely isolated and is often associated with multiple injuries [5]. A high index of suspicion should be maintained to avoid missing occult vascular [6] and bowel injury [7]. Our patient is fortunate that in spite of a high impact injury, he did not sustain any major vascular injury, which might end up in an acute collapse. Haematuria either microscopic or gross is an indicator of genitourinary injury but may be absent in 15% of patients with intraperitoneal bladder injury [5]. In a stable patient or after resuscitation with normal renal parameters, a cross sectional imaging CT with contrast can be helpful in identifying the nature of injury-intraperitoneal or extraperitoneal bladder rupture, extent of injury, associated bowel and vascular injury and any retained foreign body. In general, abdominal CT is inferior in the diagnosis of bladder injury compared to retrograde cystogram unless CT cystography is used [8]. Bladder injury can be extraperitoneal or intraperitoneal or both. In our case, the bladder injury is both intraperitoneal (as the foreign body breached the bladder and peritoneum) and extraperitoneal (as the bladder tear communicated with the fistulous tract in the thigh). Extraperitoneal can be managed by urethral catheterization alone while intraperitoneal bladder injury requires a combination of laparotomy and urethral drainage [9,10]. The reasons for surgical repair in intra peritoneal bladder injury are low rates of spontaneous healing, high risk of peritonitis, acidosis and pseudo renal failure with consequent electrolyte imbalance [11]. Our patient with bladder injury and sigmoid colon injury with retained foreign body underwent emergency laparotomy. Usually, a bowel diversion procedure is considered in traumatic colon injury. As in our case, a sigmoid colostomy was done. The foreign body was removed after opening up the bladder and bladder rent was closed transvesically with absorbable sutures after thorough inspection of the bladder. Transvesical closure of bladder rent is considered in multiple bladder injuries as in our case, as it favors the following advantages

1. Inspection of ureteric orifice for extension of bladder injury to it.
2. Any retained intravesical foreign body can be removed.
3. Extensive peri vesical dissection required for extravescical closure may result in neurogenic assault to the bladder leading to voiding dysfunction [12].

Laparoscopic repair of bladder injury can be considered in selected patients with isolated intra-abdominal bladder injury with no other abdominal injury [13].

CONCLUSION

Penetrating bladder injury can have different trajectory pathway of injury and the point of entry of the stab via thigh is a rare presentation, as in our case. Most of the time it is associated with occult bowel or vascular injury.

Hence a high index of suspicion must be kept to avoid missing such injury. Emergency laparotomy should be considered in such situations with multiple injury as a lifesaving procedure. Regarding the repair of bladder injury, transvesical repair of bladder injury offer several advantages than extra vesical repair.

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