

Ruptured Sigmoid Urinary Pouch following Blunt Abdominal Trauma

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ABSTRACT

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19 year old male presented with abdominal pain and constipation since 2 days, with history of trauma to abdomen 2 days back while playing with a ball. He has h/o multiple urological procedures for ectopia vesicae with epispadiasis. Repair with Jeff's functional bladder was done in 1997 and Kelly's repair was done on 4/8/2000. USG abdomen showed moderate free fluid in peritoneal cavity with septations, possibly collection. Exploratory laparotomy was performed. 200-300ml of clear fluid present at right iliac fossa, minimal pus flakes, 1 x 0.5 cm defect at sigmoid urinary pouch was detected with no other bowel or solid organ injury. Primary repair of ruptured sigmoid urinary pouch was done. Patient recovery progressed uneventfully.

Keywords: Blunt Trauma, Sigmoid Urinary Pouch, Neobladder

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INTRODUCTION

In blunt abdominal trauma isolated injury to sigmoid urinary pouch is an unusual presentation. Bladder injuries account for 1.5% of patients with blunt trauma abdomen. Extra peritoneal ruptures are more common than intraperitoneal ruptures. CT cystography is the investigation of choice for diagnosing bladder injury. Operative management is treatment for intraperitoneal rupture while extra peritoneal injuries can be managed conservatively.

Rupture or perforation of urinary reservoirs made from bowel indicates that this complication is perhaps not as rare as commonly perceived. It is a severe complication for which a high index of suspicion needs to be maintained. The rupture is often difficult to confirm without resorting to exploratory laparotomy & in particular that a negative cystogram can be misleading.³ There can also be spontaneous rupture of sigmoid colon bladder substitute. The cause of perforation or rupture is most likely acute retention of the reservoirs. In pouch rupture or perforation, a cystogram should be performed. However it can fail to show the perforation. USG or CT may reveal free intraperitoneal fluid. In case of pouch perforation, serum creatinine values are often normal, whereas urea is increased.

Patients presenting with abdominal pain, distension, peritonitis & urinary retention should be treated as perforation until proved otherwise. Sigmoid-rectal pouch could provide a reservoir with higher capacity & lower pressure.

CASE REPORT

A 19 yr-old gentleman presented to casualty with complaints of persistent abdominal pain for 3 days associated with nausea but no vomiting. He had history of trauma to abdomen with knee of co-players while playing football.

There was no history of melaena, dysuria, hematuria and loss of appetite. He did not have any external soft tissue injuries.

On examination, he had a pulse rate of 94/min, B.P.= 120/70 mm Hg, Chest- Bilateral clear, P/A examination Diffuse tenderness present all over the abdomen, Guarding present, no tenderness, no swelling in B/L Renal angle. Lower midline surgical scar mark present with stoma of the pouch present in left lumbar region. In P/R - Normal sphincter tone, loaded Rectum with hard stools present. In external genitals, micropenis, epispadiasis was present with no meatal opening seen.

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Figure 1. Perforation in the sigmoid colon urinary pouch

The patient had h/o- ectopia vesicae with epispadiasis. Repair with Jeff's functional bladder was done in Dec.1997. Kelly's Repair was done on 4/08/2000.

Initial FAST was unremarkable. USG on 3/01/17 showed right mild pleural effusion, moderate free fluid noted in peritoneal cavity with septations possibly collections. B/L hyperechoic kidneys & moderate fluid filled bowel loops noted.

The patient was taken up for emergency laparotomy. Intra-operatively, 1x 0.5 cm single perforation was noted in the sigmoid colon urinary pouch (**figure 1**) with draining ureters into the left lumbar wall (abdominal). Collection of around 200 ml clear fluid with septations & minimal pus flakes in lower abdomen & pelvis. No other bowel or solid organ injury detected. The bladder pouch was repaired with 2-0 vicryl in two layers after placing a 8 fr Foley's through (L) abdominal wall (continent opening). Thorough saline wash was given & ADK No 32 inserted in (L) paracolic gutter. The post-operative pd. was uneventful with drain becoming minimum in 3 days & urine output of 2L/day. Patient was discharged after one week.

DISCUSSION

An isolated intraperitoneal bladder rupture without any other injuries is a rare occurrence. The mechanism of intra-peritoneal rupture is due to sudden increase in intra-vesical pressure when the bladder is full.

Also, in augmented bladder, in addition to the theory that over distention may cause entero cystoplasty perforation, current detubularization techniques may produce areas of relative ischemia, which become accentuated when the augmented bladder is distended beyond a reasonable volume.⁴ In addition to over distension, a second factor such as minor blunt abdominal trauma or urethral occlusion is an identifiable cause for neobladder rupture.⁶

The most common feature of bladder rupture is hematuria, either microscopic (5%) or gross (95%).¹ Intraperitoneal rupture results in peritonism (95%), making it difficult to differentiate from other causes of peritonitis such as bowel/solid organ injury. Hematuria is absent in 15 % cases of intraperitoneal rupture.

Intraperitoneal rupture of bladder leads to urinary ascites which caused movement of solutes across concentration gradients through the peritoneum. This leads to increase in the level of serum urea, creatinine & potassium with decrease in Na concentration. This phenomenon is called "reverse auto dialysis" & presents with² pseudo renal failure.

CONCLUSION

A bladder injury can occur due to blunt trauma abdomen even in the absence of any other bony or soft tissue injury & a high clinical suspicion helps identify these injuries early.

A review of the literature involving the rupture or perforation of urinary reservoirs made from the bowel indicates that the diagnosis is often difficult to confirm without resorting to exploratory laparotomy. Conservative management of such perforations has rarely been described in the literature.⁵ A practical suggestion to help alert the doctors to the possibility of a ruptured urinary reconstruction is that such patients should carry a medical card stating the type of reservoir they have along with their special circumstances.⁶

END NOTE

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Ethical considerations: Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors. Written consent was obtained from the patient for publication of the study.

Editor's Remarks: A very uncommon case report. A high index of suspicion is required for correct preoperative diagnosis. The case is reported for its rarity.

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