Case report

SPOTANEOUS RUPTURE OF URINARY BLADDER: A Case Report

ABSTRACT

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***INTRODUCTION*: Bladder rupture is most commonly seen following some form of trauma. However, Spontaneous bladder rupture (SPONTANEOUS BLADDER RUPTURE) may also occur in rare cases and often presents with non-specific clinical features and this results in delay of diagnosis and management.**

***CASE PRESENTATION*: A 51-year-old Male laborer presented with abdominal distension, pain, vomiting, not passing stools and urine. After undergoing diagnostic tests the patient was diagnosed to be having bladder rupture. Patient was taken for emergency surgery and the bladder perforation was found and closed by primary suturing. Patient was discharged 10 days after the procedure. Patient was kept on active follow up for 2 months and experienced no further complaints in this case.**

***DISCUSSION*: In most of the cases of bladder rupture, there is a history of antecedent trauma. But bladder rupture can occur even in absence of a history of trauma. So causes of non-traumatic spontaneous rupture of bladder, although rare should be ruled out in such patients if diagnostic uncertainty persists. Bladder rupture can present as a case of pseudo renal failure with acute abdomen. Almost always, there is an underlying abnormality which leads to spontaneous rupture.**

***CONCLUSION:* Urinary Bladder rupture is an emergency condition. If left untreated or undiagnosed for long it will be fatal. Therefore, high index of clinical suspicion is necessary for early diagnosis and proper treatment of bladder rupture.**

Keywords: ***Bladder rupture, Cystogram, Pseudorenal failure, Diagnostic challenge.***

1. INTRODUCTION

Pressure of more than 300 cm H2O is required to rupture a normal bladder. Rupture most commonly occurs because of a direct blow to the distended organ. This trauma often leads to perforation in the dome, the thinnest and least supported part of a distended bladder. [1]

Spontaneous bladder rupture encompasses cases where there is no history of trauma.

The pathophysiological mechanisms involved lead to the rupture of the bladder in its weakest portion, which, as a rule, is the peritoneal segment. [2]

Spontaneous bladder rupture occurs if there is an underlying pathology.

The causes of vesicular necrosis can be categorized as direct or indirect. Direct causes are those producing direct cellular death, for example, chemical solutions, excessive heat, radiation, indwelling catheters, calculi, infection, prostatic electrocoagulation, and carcinoma. Indirect causes of vesicular necrosis are those that interfere with blood supply, for example, the presence of a gravid uterus, urinary retention, trauma, pelvic thromboembolic events, or diabetes. Vesicular necrosis is most often seen in patients with prolonged labour, intentional ligation of the internal iliac arteries to control bleeding, or urinary tract infections. [3]

Patients normally present with one of these conditions and have a short history of severe lower abdominal pain. [4]

The clinical presentation of the patients with bladder rupture is variable and apart from abdominal pain includes variable urinary complaints.

Diagnosing a spontaneous urinary bladder rupture can be challenging, even with the aid of Computed Tomography (CT). If untreated, it can lead to severe complications such as sepsis, renal failure and hyperkalemia, and can eventually cause death. [5]

2. PATIENT PRESENTATION:

A 50-year-old Married Male Farmer presented with following complaints.

Abdominal distension and pain since 2 days.

Sudden onset, Mild to moderate severity, initially in the lower part of the abdomen and then all over the abdomen,

Vomiting and not passing stools and urine since 2 days.

The patient had no complaint of fever or no history of trauma.

The patient was non-smoker and non-alcoholic and no other significant past history.

2.1 CLINICAL FINDINGS:

The patient had a pulse rate of 96 beats per minute, blood pressure – 116/78 mm Hg, respiratory rate of 16 times per minute and temperature of 98.8 Fahrenheit.
On examination abdomen was tense and distended with generalized guarding present all over the abdomen.
After Foleys catheter insertion the distension and tenderness was relieved significantly.
Patient was asymptomatic with no significant clinical findings for the entire duration when the Foley catheter was in situ.
Patient developed findings similar to those on admission after removal of Foleys catheter.

2.2 INVESTIGATIONS:

The patient was vitally stable. Blood was sent for standard workup including hemoglobin, total white blood count, platelet count, Prothrombin time and International Normalized Ratio (INR). The patient was sent for erect X ray chest and abdomen and kidney, ureters and bladder, followed by ultrasonography of the abdomen. After stabilization of the patient, the patient underwent a CT scan. Cystogram was done. Micturating Cystourethrogram was attempted after that which was unsuccessful as patient was not able to pass urine. Ascitic fluid tapping was done and sent for total white blood cells and levels of creatinine and urea.

2.3 THERAPEUTIC INTERVENTION :

Patient had tachycardia and guarding with distended abdomen on examination. Patient was first thought of as a case of abdomen distension due to medical causes, and was first managed by physician.
Patient was unable to pass urine voluntarily and a Foley catheter was inserted and patient passed approximately 4 liters of urine and experienced relief from pain and abdomen distension. Ascitic tapping was done and it was suggestive of elevated WBC counts in the ascitic fluid. A CECT of abdomen and pelvis was done with catheter in situ and which was not suggestive of any abnormality. So Micturating Cystourethrogram and Cystogram were attempted to rule out urethral and bladder pathology as patient was unable to pass urine voluntarily.

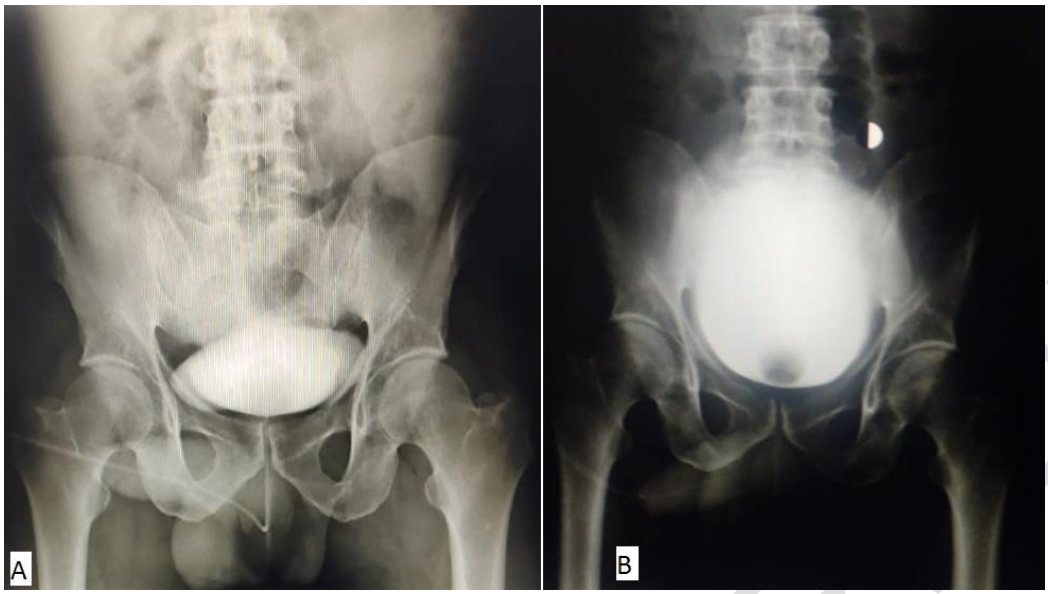

Figure 1:

A- Cystogram immediately after injecting the radiopaque contrast.

B- Cystogram after 30 minutes of injecting the radiopaque contrast.

Cystogram revealed leakage of dye into the peritoneum. Diagnostic aspiration of the ascitic fluid was done and sent for biochemical examination and it revealed elevated levels of creatinine indicating a leak from the urinary system.

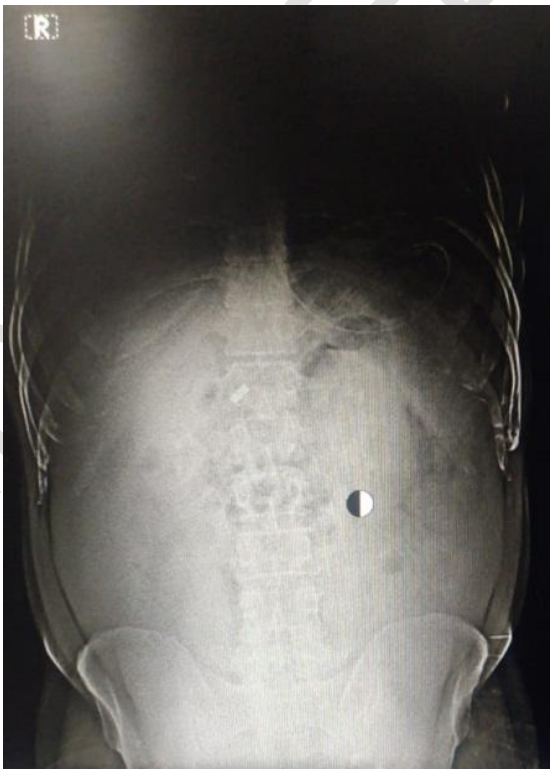

Figure 2: X-ray abdomen erect taken 1 hour after Cystogram

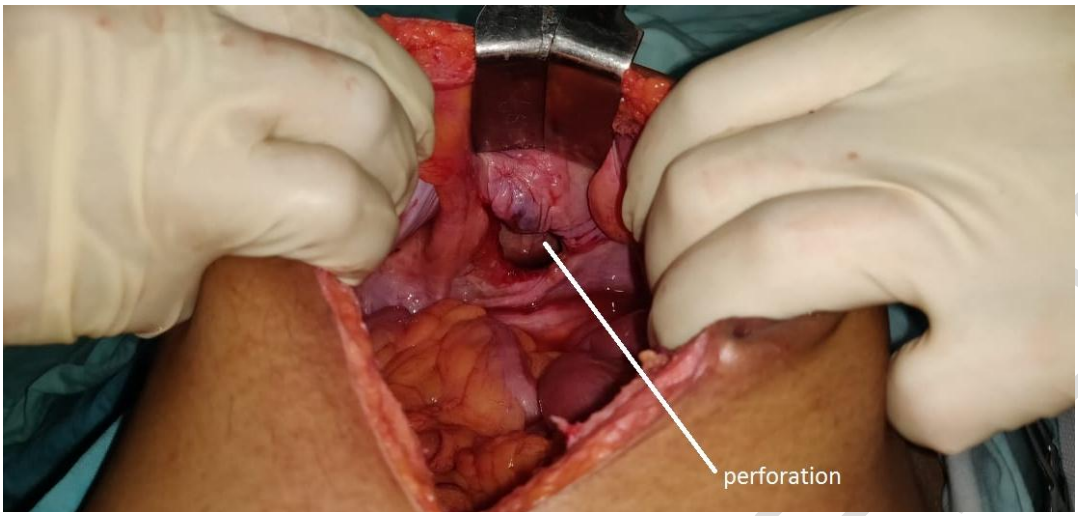

Figure 3: Intraoperative finding of perforation in bladder. (Upward direction points to the caudal end of the patient where two Langenbeck retractors are visible)

Emergency exploratory laparotomy was done and patient had a bladder perforation which was closed in two layers. A pre-vesical drain and another pelvic drain kept. A Foley catheter was inserted per urethrally.

2.5 FOLLOW–UP AND OUTCOME:

The pelvic drain was removed on the 5th post-operative day. The pre-vesical drain was removed on 8th postoperative day .Patient was discharged on 10th day after removal of Foley catheter.
Histo-pathological examination of the margin of the perforation was suggestive of congestion of the thin walled vascular capillaries in the deep muscular layer.
Patient was subsequently followed up on weekly basis for 1 month and on monthly basis for 2 more months thereafter. After 3 months of follow-up, patient had no complaints.
A repeat cystogram was performed on follow-up and it showed no leak.

3. RESULTS AND DISCUSSION

Spontaneous rupture of the urinary bladder is a rare occurrence and is often the result of an underlying pathology. [6]
Some important factors in the etiology of spontaneous bladder rupture and their recurrences are: weakening of the bladder wall with enterocystoplasty; radiation injury; and surgical scar of cystolithotomy or diverticulum. These factors are compounded by decreased compliance, overdistension, increased bladder outlet resistance and severe cystitis. Because the weakening factor may not be modifiable, it is pertinent to meticulously manage the compounding factors to prevent occurrence of spontaneous bladder rupture. [1]

The patients with neurogenic bladder, a history of enterocystoplasty, after pelvic radiotherapy or malignant bladder tumors are most prone to develop the complication. [2]

Clinically, most patient present with lower abdominal pain with associated symptoms of dysuria, anuria, and hematuria. In most cases the symptoms of urinary tract infection were the initial complaints; these were later accompanied by peritonism. [7]

If a rupture exists for an extended period of time (>24 hours), urine tests may show microscopic hematuria. Furthermore, an elevated serum creatinine due to reuptake of urine creatinine through the peritoneum is commonly seen. [8]

The immediate relief of abdominal pain after catheterization could be explained by the significantly reduced intraperitoneal extravasation of urine, intraperitoneal pressure, and peritoneal irritation after the relief of urinary retention. [9]

The imaging test of choice is cystography, which shows intraperitoneal contrast extravasation. Accuracy is close to 100%. [3]

Computed tomography may show free intraperitoneal fluid, even though this finding alone does not warrant a definitive diagnosis. [3]

If intra-peritoneal rupture has occurred, patients present with peritonism and blood tests consistent with acute renal failure due to the intra-peritoneal resorption of urine. [4] Retroperitoneal rupture may be treated conservatively, but otherwise surgery is often the only modality of treatment. [4]

Conservative management should also be considered for temporarization in severely septic patients with intra peritoneal bladder rupture if a delay in surgery is contemplated. Accurate diagnosis is mandatory before conservative management. [1]

Awareness of this serious condition, which has a high mortality rate (47%), as well as early surgical intervention is prerequisite to prevent the undesirable progression to abdominal sepsis and death. [2]

4. Conclusion

Spontaneous intraperitoneal bladder rupture is a rare event whose course can be severe and even lethal if early diagnosis and treatment are not achieved. [7] Almost all the cases have some underlying pathology which makes their bladders prone to rupture. Early diagnosis can prevent significant mortality associated with this condition as it prevents severe complications. Patients may recover after intervention for the bladder rupture, but it's prudent to find the underlying cause and treat that as well so to prevent any future of the bladder.

CONSENT (WHERE EVER APPLICABLE)

Informed consent was obtained from the patient for treatment and management on admission. Also the patient consent was obtained for publication of article postoperatively.

ETHICAL APPROVAL (WHERE EVER APPLICABLE)

None

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