Case report

SPONTANEOUS RUPTURE OF URINARY BLADDER: A Case Report

ABSTRACT

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***INTRODUCTION*: Bladder rupture is most frequently seen after some form of trauma. However, Spontaneous bladder rupture (SBR) may also occur in rare cases and often presents with non-specific clinical features and this results delaying the diagnosis and management.**

***CASE PRESENTATION*: A 51-year-old Male laborer presented with abdominal distension, pain, vomiting, constipated and with not passing urine. The patient was diagnosed with bladder rupture. Immediately was surgical explorer finding the bladder wall perforation; therefore, it closed by primary suturing. Patient was discharged 10 days after the procedure with active follow up for 2 months and experienced no further complaints.**

***DISCUSSION*: In most of the cases of bladder rupture, there is a history of trauma; however, SBR can occur without history of trauma. It could present as a case of pseudo renal failure with acute abdomen. This suspicion is infrequent; however, it must be considered. Almost always, there is an underlying abnormality.**

***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

Spontaneous bladder rupture (SBR) encompasses cases where there is no history of trauma. It is known that a pressure of more than 300 cm H_2O is required to rupture a normal bladder most commonly over the dome, the thinnest and least supported part of the bladder [1] and as a rule, it is the peritoneal segment. [2]

Almost ever, SBR occurs if there is an underlying pathology. The etiologies of this can be categorized as direct or indirect. Direct are those producing direct cellular death, for example, chemical solutions, excessive heat, radiation, indwelling catheters, calculi, infection, prostatic electrocoagulation, and carcinoma. Indirect are those that interfere with blood supply, for example, the presence of a gravid uterus, urinary retention, trauma, pelvic thromboembolic events, or diabetes. Bladder necrosis is most often seen in patients with prolonged labor, 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 is variable and apart from abdominal pain includes different urinary complaints; this becomes a challenge to get to the final diagnosis, 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 death. [5]

2. PATIENT PRESENTATION:

A 50-year-old male presented to emergency with abdominal complaints of distension for about 2 days, initially in the lower part of the abdomen and then all over the abdomen. Also he had history of vomiting, constipation and inability to pass urine without fever or history of trauma.

The patient was non-smoker and non-alcoholic and had 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 were relieved significantly.
Patient was asymptomatic with no significant clinical findings for the entire duration when the Foley catheter was in situ.
However, after removing urinary catheter patient developed findings similar to those on admission.

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 conservatively.
Patient was unable to pass urine voluntarily and a Foley catheter was inserted and he 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 CT 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.

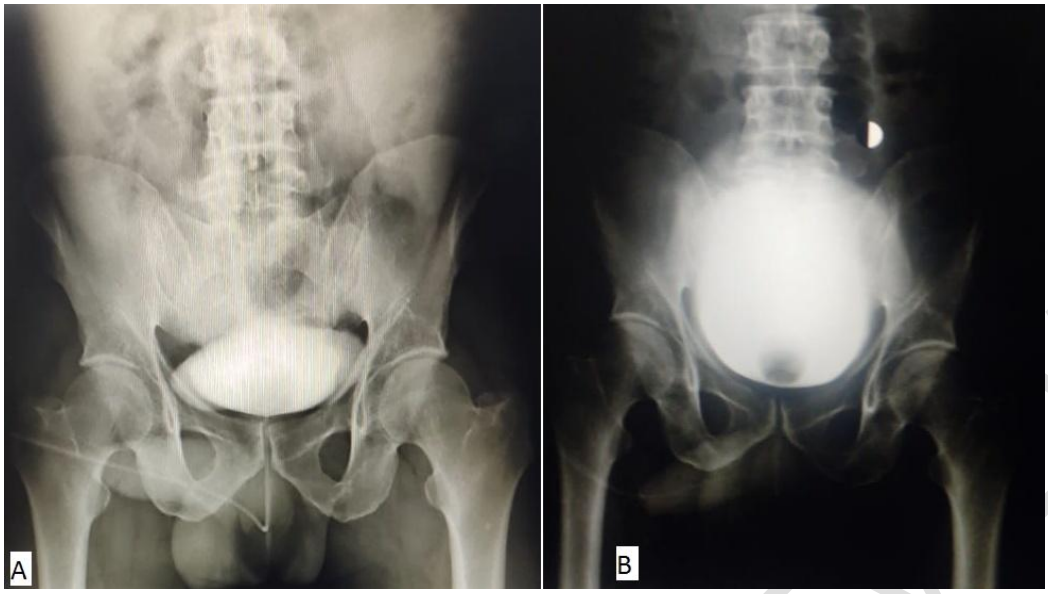

Figure 1:
- A- Cystogram immediately after injecting the radiopaque contrast.
- B- Cystogram after 30 minutes of injecting the radiopaque contrast.

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

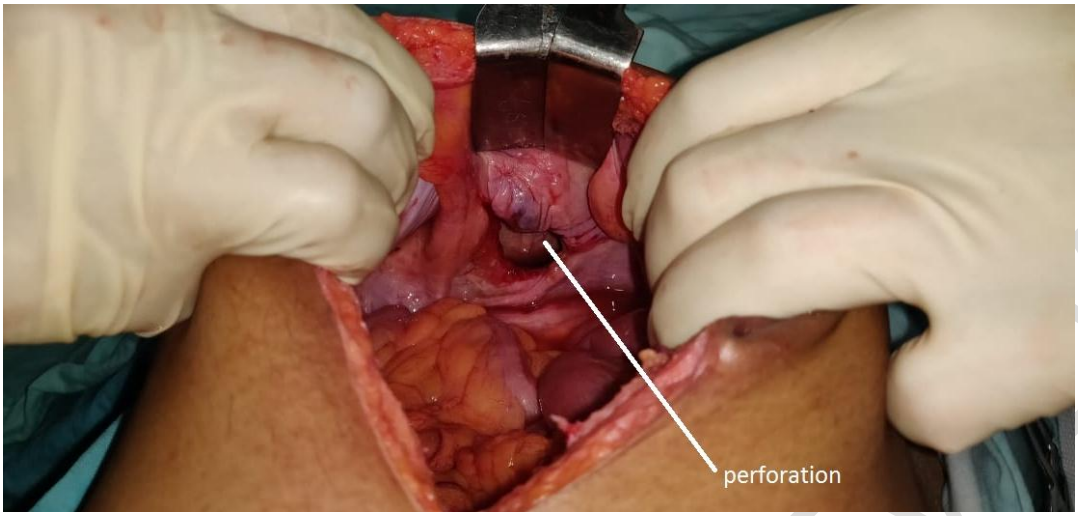

Figure 3: Intraoperative finding of perforation in bladder. (Upward direction points to the caudal end of the patient where two Langenbeck retractors are visible)

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 were 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 discharge, patient had no complaints, a repeat cystogram was performed and it demonstrated no urinary leak.

3. RESULTS AND DISCUSSION

SBR of the urinary bladder is a rare entity 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 SBR. [1]

The patients who are more predisposed are those with a neurogenic bladder, a history of enterocystoplasty, after pelvic radiotherapy or malignant bladder tumors. [2]

While most ruptures are intraperitoneal with resultant urinary ascites, extra peritoneal ruptures have also been described.[7]

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. [8]

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. [9]

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. [10]

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

CT scan 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]

Exploratory laparotomy is considered to be the gold standard of diagnosis as almost all the reported cases were diagnosed intraoperatively during a laparotomy for acute peritonitis. [11]

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]

The cause for the SRB in our patient could not be attributed to any specific etiology. It could be possible that the patient's old age may have led to weakening of the bladder wall musculature over time.

The rate of correct diagnosis of urinary rupture is 43.2–52.5%, and many cases have to undergo exploratory laparotomy. [12].

Only a timely surgical repair offers the possibility of a favorable prognosis, but the conditions in which the clinical picture is presented almost never are clear and for this reason it is a clinical condition burdened with a very high mortality rate. [13]

4. Conclusion

Intraperitoneal SBR is a rare event whose course can be severe and even lethal if early diagnosis and treatment are not achieved [8], and it must be suspected in high risk cases. 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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