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SPONTANEOUS RUPTURE OF URINARY BLADDER: A CASE REPORT

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ABSTRACT

Background: Spontaneous rupture of urinary bladder (SRUB) is a rare surgical emergency that can be incorrectly diagnosed with ease. While it is more common in those with underlying bladder pathologies, this incidence may occur in patients with previously insignificant medical condition. Prompt diagnosis and surgical intervention are essential to circumvent grave complications. **Case Report:** A 60-year-old man who presented with inability to void, suprapubic pain and swelling. Initial clinical examination revealed a tender suprapubic distension with stable vital signs except for elevated blood pressure (180/104mmHG). Attempts at urethral catheterization by the casualty officer was abortive. However, while still receiving the initial care at the emergency room, the patient felt a burst in his abdomen with progressive generalized distension afterwards. Abdominopelvic ultrasound scan (USS) done showed gross ascites whereas plain abdominal radiographs (erect and supine) was suggestive of intestinal perforation. He underwent emergency laparotomy with identification of the posterior urinary bladder wall perforation which was repaired in two layers. The patient's post-operative period was uneventful. Tenth day post-surgery, the patient was discharged home with no complications. **Conclusion:** Spontaneous rupture of the urinary bladder is very rare. High index of suspicion alongside a detailed evaluation with prompt surgical intervention could avert possible complications.

KEYWORDS: Spontaneous rupture, urinary bladder, surgical intervention.

INTRODUCTION

The incidence of SRUB is overly low, formerly been described as 1: 126,000. Recent studies have revealed that the actual incidence may be 1: 50,000.1 It is yet an extremely rare entity in patients without predisposing factors such as neurogenic bladder, bladder cancers, huge bladder calculus, and exposure to radiation.[2] The commonest aetiology of urinary bladder rupture is abdominal trauma. This can result from a blunt or penetrating injury, like a motor vehicle accident or gunshot wound, to the lower abdomen leading to rupture of the dome of the urinary bladder and subsequent urinary leakage into the peritoneal cavity.[3]

SRUB has been theorized to be due to over-distension coupled with bladder wall fragility.2 Accordingly, conditions that make patients prone to excessive filling of urinary bladder in the presence of previously enfeebled bladder wall may amplify the possibility of spontaneous rupture of urinary bladder. Although, there are instances where bladder rupture occurs in the absence of a notable bladder disease. Some pathological conditions that can predispose to urinary bladder rupture include chronic urinary retention secondary to prostatic diseases, urethral stricture, female pelvic organ prolapse, inflammation and malignancy.[4]

CASE REPORT

A 60-year-old African male who presented to emergency room with about six-hours history of inability to void with progressive suprapubic pain and swelling. There was no associated fever or change in bowel habit. He is a known hypertensive who has not been complaint with medications. Also, a known patient of our urology clinic who however defaulted and he was not regular on medications. The symptoms were preceded by ingestion of alcohol.

The vital signs at presentation were temperature – 36.6oC, Oxygen saturation at room air – 100%, pulse rate (PR) – 88bpm, and Blood pressure (BP) – 187/104mmHg (for which labetalol was administered by the medical team on call). The initial physical examination revealed a middle-aged man in painful distress with a tender distended urinary bladder. An assessment of acute urinary retention secondary to benign prostatic enlargement (BPE) was made. Attempts at urethral catheterization by casualty officer failed. However, while still being attended to, the patient felt a sound in his abdomen, and sudden relief from the suprapubic pain and swelling. Further examination during urology review showed generalized abdominal distension and tenderness, guarding, and rebound tenderness. A digital rectal examination demonstrated an enlarged prostate with benign features. A diagnosis of acute abdomen secondary to? perforated viscus rule-out bladder rupture was entertained. Urgent general surgery consult was placed.

Initial laboratory findings showed hemoglobin - 13.5g/dl, white blood cells – 10.79 x 103/µL with neutrophilia (81.8%), serum urea – 10.3mmol/L (reference range - 2.5 – 7.5mmol/L) and serum creatinine – 431µmol/L (reference range – 53 -115µmol/L). Abdominopelvic ultrasound scan (USS) showed gross ascites, poorly distended urinary bladder, prostate volume of 60ml with intra-vesical protrusion of the median lobe (2.5cm). Plain abdominal radiograph (erect and supine) revealed features suggestive of intestinal perforation. Figures 1a an 1b.

Figure 1a. Plain Abdominal Radiograph - Erect. The blue arrow indicates intervening lucency between the left hemidiaphragm and the gastric fundus suggestive of subdiaphragmatic air – possible intestinal perforation.

Figure 1b. Plain Abdominal Radiograph - Supine. The blue arrows indicate paucity of central abdominal and rectal gas shadows.

Emergency laparotomy was done with intra-operative findings of 4liters of clear peritoneal fluid and a 1cm rent in the posterior bladder wall. Figure 2. The rent was repaired in two layers and suprapubic catheter left in-situ. The post-operative period was uneventful. Serum urea and creatinine became normal 5.8mmol/L and 69µmol/L respectively, and he was discharged with the suprapubic catheter. The patient has remained stable on follow-up visits.

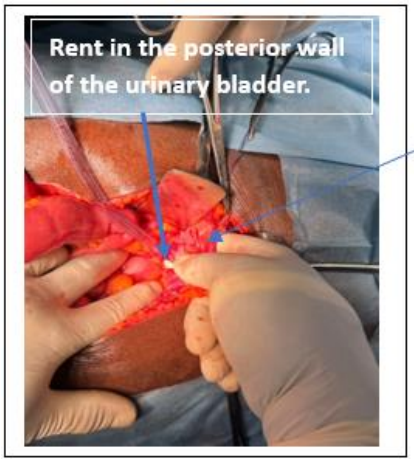

Figure 2. Intra-operative picture showing the rent at the posterior wall of the urinary bladder.

DISCUSSION

Spontaneous rupture of the urinary bladder is a rare cause of abdominal pain. Urinary bladder rupture can be a sequela of blunt and penetrating trauma to the abdomen or occur spontaneously in diseased and non-diseased bladders.5 As mentioned previously, SRUB is even very rare in patients like ours without any of the risk factors known, for example, history of bladder surgery, bladder diverticulum or tumour, pelvic radiation pregnancy-related causes.

Its clinical presentation varies and can be unspecific which usually results in wrong diagnosis or delayed treatment. Generalized abdominal pain preceded by lower urinary tract symptoms and inability (or difficulty) to pass urine should bring about suspicion for SRUB.6 SRUB can be extra-peritoneal or intra-peritoneal. Extra-peritoneal rupture presents with abdominal pain and distension, difficulty urinating, oliguria or anuria and fever while intra-peritoneal rupture leads to urinary ascites and abdominal infections (presentation is more severe than extra-peritoneal SRUB).7

The social history of the patient under study indicated he had consumed alcohol before onset of symptoms. There may be alteration in bladder fulness sensations and abnormal behavioural responses

after alcohol ingestion, these increase the risk of SRUB. Urinary retention may occur following alcohol ingestion, this may be due to rapid urinary bladder filling because of diuretic effect of the alcohol, thinning the bladder wall and hence, susceptibility to rupture.7 The foregoing could have been the cause of SRUB in our patient.

The serum creatinine of the patient under study was 431µmol/L which was suggestive of renal impairment most likely post renal azotemia. Pseudo-renal failure following SRUB has been wrongly diagnosed as acute kidney injury.6 Azotemia is proposed to be from reverse auto dialysis of the peritoneum. Urinary leakage into the peritoneum following SRUB leads to absorption of toxic products in the urine such as urea and creatinine at higher rates than normal.8

SRUB has been described as acute surgical condition with low morbidity but high mortality if not promptly treated.9 Delayed intervention will bring about severe complications like bacteria and septic shock. Surgical treatment is recommended for intra-peritoneal bladder rupture, albeit conservative treatment as in continuous urinary bladder drainage (via indwelling urethral catheter) is noted to be efficacious in nearly all extra-peritoneal bladder rupture cases.2 Computed tomography cystography has been described as what may be the best non-invasive pre-operative examination tool for both diagnosis and evaluation of SRUB.8 This was not done in our patient. The suspicion of SRUB was based on clinical presentation, abdominopelvic USS and plain abdominal radiograph. Figures 1a and 1b.

CONCLUSION

High index of suspicion for SRUB should be entertained in a patient with history of alcohol ingestion, inability to void with initial suprapubic pain which later becomes generalised, progressive abdominal distension and impaired renal function (especially in the absence of abdominal trauma). We recommend prompt appropriate intervention to avert serious complications.

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