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Case Report

Surgery Section

# Spontaneous Rupture of Urinary Bladder with Vesicocutaneous Fistula in a HIV Positive Female: Case Report

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## ABSTRACT

Spontaneous rupture of urinary bladder is a rare presentation with high morbidity and mortality. Symptoms resemble acute peritonitis in most cases. Rarely, urine circumvents via vesicocutaneous fistula. A 60-year-old bed ridden female, seropositive for Human Immunodeficiency Virus (HIV), presented to the emergency department with complaints of suprapubic ulcer and urine leak from the ulcer site for 15 days. On clinical examination, there was Spontaneous Rupture of Bladder (SRUB) secondary to chronic retention of urine was found. Computed Tomography (CT) cystogram revealed vesicocutaneous fistula. She was managed using foley's catheter insertion. Percutaneous Nephrostomy (PCN) insertion failed due to technical reasons. She soon succumbed due to Acute Kidney Injury (AKI), respiratory acidosis. This case is studied because of its rarity and importance of early diagnosis and management. Till date, no case of SRUB depicting clinical presentation in HIV patient has been reported.

**Keywords:** Bladder rupture, Cystogram, Immunocompromised, Percutaneous nephrostomy

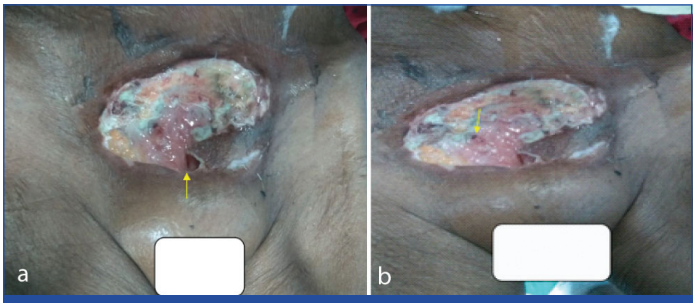
## CASE REPORT

A 60-year-old malnourished (34 kg), kyphoscoliotic, bed ridden woman presented to the emergency department with complaints of suprapubic ulcer and urine leak from the ulcer site for 15 days. Patient was relatively asymptomatic before six months. Since then, she had been continuous dribbling of urine with often normal urination in between. She also had intermittent gross painless haematuria without blood clots and tissue bits for two months. Fifteen days back she complaint for suprapubic fullness and redness of the abdominal wall, which soon turned into ulcer ulcerated to produce a vesicocutaneous fistula. She had no history of any per urethral instrumentation, trauma or past-surgical intervention.

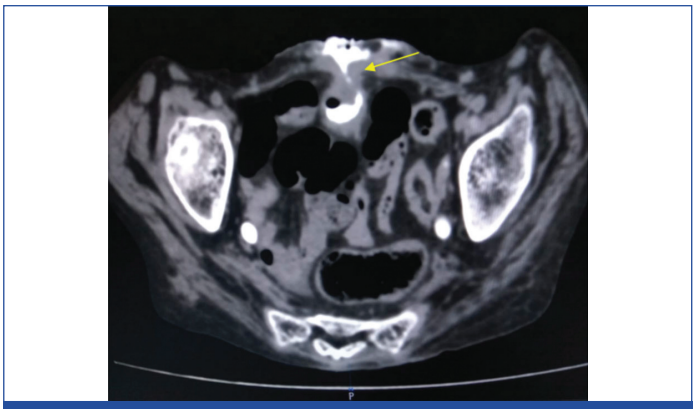
Patient was a known case of HIV, was on Anti-Retroviral Therapy (ART) (efavirenz, lamivudine, lopinavir) for 12 years (CD4 [Cluster of Differentiation count]- 283). She took Anti-Tubercular Treatment (ATT) in 2007 for six months in view of pulmonary tuberculosis. She had history of cerebrovascular accident and has residual left hemiparesis for two years. She was a known hypertensive.

On presentation she was conscious, oriented with respect to time, place and person, had a blood pressure of 138/68 mmHg, a pulse rate of 98, a respiratory rate of 26 breaths per minute and a body temperature of 37.0°C. Bilateral air entry was normal with normal S1 and S2 heart sounds. On examination, there was a 10x10 cm suprapubic ulcer with irregular margin and two vesicocutaneous fistula's size is size 0.5×0.5 cm [Table/Fig1a,b]. Digital rectal examination was unremarkable. CT cystogram revealed vesicocutaneous fistula [Table/Fig-2,3]. There were raised leukocytes (16,100 cells/μL of blood) and predominantly neutrophilia (over 80%) along with anaemia (Haemoglobin-7.9 grams per deciliter (g/dL)). The levels of blood urea nitrogen and serum creatinine were within normal limits, 11.8 mg/dL and 1.3 mg/dL, respectively. Since admission she was started on injection ceftriaxone 1.2 g intravenous (i.v.) twice daily according to the urine culture and sensitivity as it showed *Escherichia coli* with more than 100,000 colony forming unit (cfu)/mL.

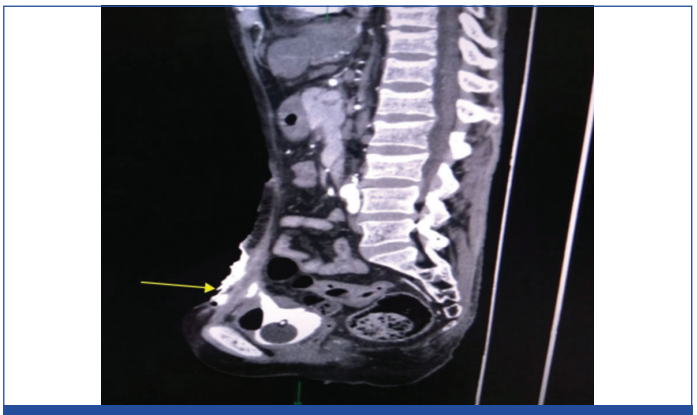
She was catheterised and had adequate urine output but leak was still present. Under all aseptic precautions bilateral PCN was attempted in prone position after five days of hospitalisation. Puncture attempted with spinal needle under fluoroscopy but was not successful on




**[Table/Fig-1a,b]:** Fistulous opening (arrow).



**[Table/Fig-2]:** CT cystogram axial cut section showing contrast leak (arrow).



**[Table/Fig-3]:** CT cystogram sagittal cut section showing contrast leak (arrow).

account of difficult positioning and kyphoscoliosis. She succumbed due to AKI (Serum creatinine 4.2 mg/dL) and respiratory acidosis (blood pH of 7.1) after seven days of hospitalisation.

## DISCUSSION

Spontaneous bladder rupture occurs one in one lac population. SRUB occurs very rarely and is due to an underlying pathology [1]. SRUB is defined as rupture of bladder which is spontaneous and occurs without any external stimulation [2]. Causes include inflammation or infection, neurogenic bladder, urine retention, pelvic irradiation, invasive tumour and idiopathic [3]. The mechanism of vesical wall perforation and burrowing through the soft tissues is the chronic trauma created by the stones on the bladder wall layers, followed by intra-cavitary bacterial infection, which can be favoured by the loss of a proper bladder clearance mechanism [4]. Vesicocutaneous fistula is rare, but can originate even in the absence of previous abdominal scars and can lead to potentially fatal sepsis, especially if it is undiagnosed in older patients with co-morbidities [4].

Increasing intravesical pressure due to chronic urinary retention and infection could have caused the rupture in present case. Immunocompromised state and lack of medical attention could have led to large cutaneous ulcer and vesicocutaneous fistula. Literature has reported SRUB as sequel to vesical calculus [5], postoperatively from inguinoscrotal hernia [6], antenatal bladder aspiration [7], bladder instability [8], factitious [9], actinomycosis [10]. Mitchell T et al., reported spontaneous bladder rupture due to chronic retention but no vesicocutaneous fistula [11]. Till date, no case of SRUB along with vesicocutaneous fistula due to chronic retention has been reported.

CT scan, Magnetic Resonance Imaging (MRI), intravenous urography and cystoscopy are useful in making a diagnosis. In this patient, CT Kidneys, Ureters and Bladder (KUB) with cystogram led to the diagnosis of vesicocutaneous fistula. In general, vesicocutaneous fistulae closes spontaneously. If closure does not occur naturally, urinary diversion should be considered [12]. Often well-epithelialised fistulous tract is the reason. Urinary diversion decreases the intravesicular pressure to allow a spontaneous closure of the fistula. Also, catheterisation checks the volume of residual urine leading to reduce intravesical pressure. It is important to treat infection to allow healing by secondary intention. If conservative management fails surgical excision of all granulation tissue and mobilisation of the bladder, subcutaneous tissue and skin is needed for closure [12]. This patient was managed with antibiotics and per urethral catheterisation, but still urine leak was present. In view of her general condition and large unhealthy suprapubic ulcer, surgical exploration was not attempted. Gulnaz M et al., described failure of bladder closure in a patient with bladder perforation with peritonitis [13]. Diversion of urine by PCN was not possible due to minimal hydronephrosis and kyphoscoliotic stature. She succumbed to sepsis and respiratory failure secondary to AKI. PCN could have probably circumvented the complications and allowed healing of the fistula and ulcer.

## CONCLUSION(S)

Spontaneous bladder rupture is a rare event and is likely to be missed due to its varied clinical presentations. To prevent septic complications, it must be diagnosed as early as possible. Present case highlights the fact that, if patient presenting with abdominal pain, ulceration in lower abdomen and leakage of urine/decreased urine output, SURB should be suspected. A CT-cystogram is mandatory to diagnose the bladder rupture.

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