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Spontaneous Atraumatic Urinary Bladder Rupture Secondary to Alcohol Intoxication: A Case Report and Review of Literature

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

ABCE 1 **Mohammed Muneer**
BDE 2 **Husham Abdelrahman**
DEF 3,4 **Ayman El-Menyar**
BDE 2 **Ahmad Zarour**
BCD 5 **Ahmed Awad**
DEF 2 **Hassan Al-Thani**

1 Department of Surgery, Plastic Surgery Section, Hamad General Hospital, Doha, Qatar
2 Department of Surgery, Trauma Surgery Section, Hamad General Hospital, Doha, Qatar
3 Department of Surgery, Trauma Clinical Research, Hamad General Hospital, Doha, Qatar
4 Department of Clinical Medicine, Weill Cornell Medical College, Doha, Qatar
5 Department of Radiology, Hamad General Hospital, Doha, Qatar

Corresponding Author: Ayman El-Menyar, e-mail: aymanco65@yahoo.com
Conflict of interest: None declared

Patient: Male, 45
Final Diagnosis: Atraumatic urinary bladder rupture
Symptoms: Drowsiness • diffuse abdominal pain • vomiting
Medication: None
Clinical Procedure: CT cystogram • exploratory laparotomy • urinary bladder repair
Specialty: Urology

Objective: Unusual clinical course
Background: Spontaneous rupture of the urinary bladder (SRUB) secondary to alcohol intoxication is an uncommon presentation with high morbidity and mortality. Herein, we reported a rare case of spontaneous atraumatic rupture of the urinary bladder due to alcohol intoxication.

Case Report: A 45-year-old Sri Lankan man presented with drowsiness, diffuse abdominal pain, vomiting with odor of alcohol, and urinary retention 24 hours prior to the index admission. CT cystogram confirmed the urinary bladder rupture at the dome, which was repaired through exploratory laparotomy.

Conclusions: An SRUB patient with alcohol abuse often presents with non-specific symptoms due to absence of a traumatic event, which results in missed or delayed-diagnosis. Early diagnosis and management of SRUB is crucial for uneventful recovery.

MeSH Keywords: Alcoholism • Rupture • Urinary Bladder

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/894992>



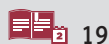
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Background

Spontaneous rupture of the urinary bladder (SRUB) secondary to acute alcohol intoxication is an uncommon presentation that might be associated with life-threatening complications [1]. The diagnosis of such atraumatic event requires a high index of suspicion as the patients present with nonspecific abdominal pain and may not provide a clear history [2]. Such a situation could mask the underlying disease, which may result in increased morbidity and mortality. Saliba et al. [3] suggested that patients presenting with alcohol intoxication and acute abdominal pain or ascites should be considered for the differential diagnoses of SRUB. There are only few cases in the literature that describe the occurrence of SRUB due to alcohol intoxication in the absence of associated traumatic bladder injury. Herein, we report a rare case of SRUB secondary to alcohol intoxication, together with a review of the current literature, for better understanding of this unusual phenomenon.

Case Report

A previously healthy 45-year-old Sri Lankan man presented with drowsiness, diffuse abdominal pain, vomiting (with odor of alcohol), and acute urinary retention of 24 hours prior to the index admission. Past medical history was insignificant, as he denied any history of trauma, diabetes mellitus, or illicit drug use. However, he admitted frequent alcohol intake and his last alcohol intake was a large bottle of locally made alcohol.

Physical examination revealed a drowsy male in acute distress. Blood pressure was 90/50 mmHg with heart rate of 115 beats per minute and low-grade fever. Respiratory rate was 23 breaths per minute. Abdominal examination revealed diffuse tenderness, and rigidity, which was more pronounced in the

suprapubic area. A Foley catheter was inserted and drained a frank bloody fluid.

The initial laboratory workup revealed higher levels of white blood cell count ($20.8 \times 10^3/\mu\text{l}$), blood glucose (156.6 mg/dl), serum creatinine (5.36 mg/dl), urea nitrogen (38.9 mg/dl), lipase (101 U/l), and serum lactate (48.8 mg/dl). The hemoglobin level and platelet count were normal. The liver function profile showed increased alanine aminotransferase (ALT) (66 U/l) level, but aspartate aminotransferase and total protein were within the normal range. Follow-up blood investigations within the first 24 hours after admission revealed a decline in the initial readings – WBC ($18.8 \times 10^3/\mu\text{l}$), blood glucose levels (81 mg/dl), serum creatinine (1.56 mg/dl), urea nitrogen (32.2 mg/dl), ALT (46 U/l), lipase (62 U/l), and lactate (32.5 mg/dl).

Abdominal ultrasound showed gushing of normal saline from the dome of the bladder injected through the Foley catheter. CT cystogram showed intra-peritoneal contrast leakage and a defect at the dome of the urinary bladder (Figure 1A, 1B).

Immediately, the patient underwent exploratory laparotomy. A bladder biopsy from the dome was taken to exclude any pathology and then the bladder defect was closed in 2 layers using a continuous technique, in which a running suture was placed to obtain a water-tight closure. An indwelling catheter was left for 14 days to facilitate healing of the bladder defect. A cystogram was done prior to catheter removal. Histopathological findings were negative for atypia, malignancy, and granulomatous changes.

The patient's hospital course was uneventful, with smooth recovery. He was discharged home with a regular follow-up in the out-patient clinic.

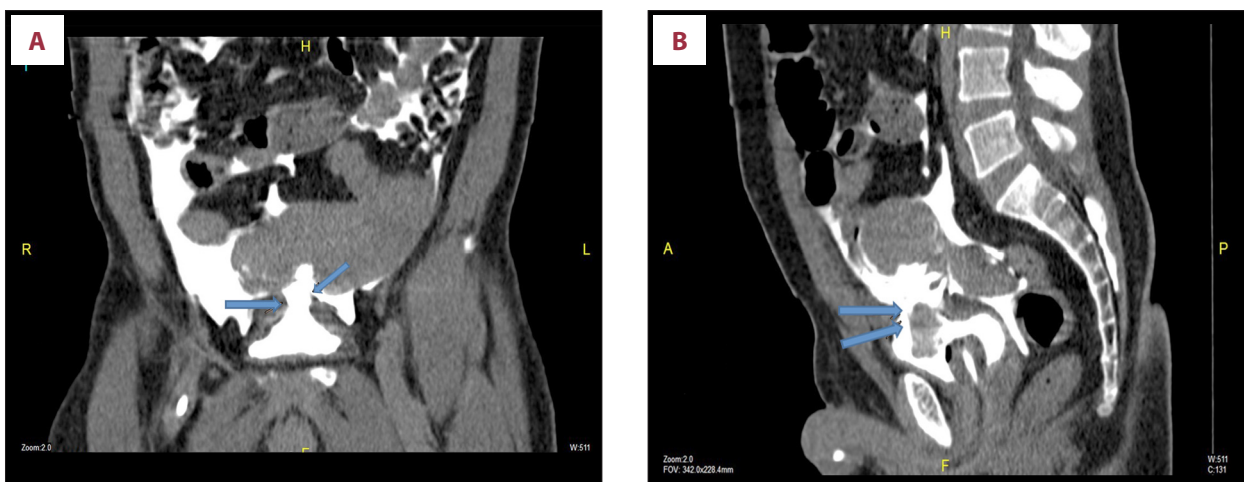


Figure 1. (A, B) CT cystogram showing the intraperitoneal fluid collection and urinary bladder rupture at the dome.

Table 1. Review of atraumatic SRUB cases presented with alcohol intoxication.

Authors	Year	No. of cases
Bennett et al. [8]	1980	1
Munshi et al. [10]	1999	1
Lynn et al. [7]	2003	1
Dooldeniya et al. [9]	2007	3
Parker et al. [11]	2009	1
Daignault et al. [2]	2012	1
Moreno-Alarcón et al. [12]	2014	1
Present case	2015	1

Discussion

Spontaneous rupture of the urinary bladder (SRUB) is often associated with malignant disease, bladder outflow obstruction, neurogenic bladder, or combined factors [4,5]. Despite the low incidence of SRUB (1:126 000), it has a high mortality (47%) [6]. This could be attributed to the delayed diagnosis, as it could be easily missed and is difficult to be distinguishable from the other causes of acute abdominal pain, especially in the absence of a history of traumatic event. A review of the literature revealed 9 published cases in the English literature of idiopathic SRUB associated with alcohol intoxication (Table 1) [2,7–12]. Dooldeniya et al. [9] reported 3 female cases with SRUB after binge drinking. Alcohol-intoxicated patients have altered sensorium and abnormal behavioral response to bladder filling, resulting in an increased risk of SRUB [2]. An earlier report suggested that urinary retention in these cases may be due to rapid filling of the bladder secondary to the diuretic effect of alcohol. The distention of the urinary bladder may lead to an atonic decompensated bladder which becomes stretched and thinner [13]. As the dome of the urinary bladder is the weakest point within the bladder wall, over-distension and thinning of the dome eventually lead to bladder rupture [14]. Moreover, nausea and vomiting might lead to enhanced intra-abdominal pressure and higher probability of SRUB [3]. Usually, SRUB involves intra-peritoneal bladder rupture associated with urinary ascites and intraperitoneal contamination [2]. On the other hand, extraperitoneal rupture of the bladder is infrequent [15].

During the initial stages, the clinical manifestations of bladder rupture remain minimal, vague, and diffuse. Such a presentation

might lead to delayed diagnosis and might be mistaken for other abdominal pathologies [16]. Therefore, clinical diagnosis SRUB requires a high index of suspicion. Previous reports showed that the early diagnosis and treatment of atraumatic SRUB is strongly associated with favorable outcomes [2]. In our case, the abdominal ultrasound revealed gushing of normal saline (injected through a Foley catheter) from the dome of the bladder, indicating a urinary bladder rupture. This maneuver is not commonly used in the literature. The diagnostic accuracy of conventional non-contrast abdominal CT (61%) is relatively lower than that of retrograde cystogram (96%) [17]. However, the diagnosis of bladder rupture by CT cystography is preferred over the retrograde cystography, as it is less invasive and the findings are comparable with that of a retrograde cystogram [18]. Usually, patients with intraperitoneal bladder rupture at the dome require surgical intervention. On the other hand, extraperitoneal rupture can be successfully treated conservatively [19]. In the present case, intraperitoneal bladder rupture was identified by CT scan with ascending urethrography and necessitated immediate exploratory laparotomy and suturing of the urinary bladder dome.

Conclusions

In conclusion, spontaneous bladder rupture is a rare event with minimal or vague presentation. Our case should alert front-line physicians to consider spontaneous bladder rupture in cases of alcohol binge in the differential diagnosis of acute abdomen. High index of suspicion is the key for early diagnosis of SRUB in patients with history of alcoholic binge drinking in association with suprapubic or diffuse abdominal pain and oliguria. Moreover, early recognition is important for timely management, which eventually minimizes the morbidity and improves patient outcome.

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Statement

The authors have no conflict of interests and no financial issues to disclose. This case report was approved by the Medical Research Center (IRB # 14294/14), Hamad Medical Corporation, Doha, Qatar.

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