

could pass urine well and remained alright.

## Abstract

**Objective:** Intra-abdominal rupture of urinary bladder. Bladder injuries are commonly seen in patients sustaining fracture of pelvis. We report a case of intra-abdominal rupture of urinary bladder in a patient with a fracture of the pelvis. The patient was managed conservatively and was able to pass urine well and remained alright. This case highlights the importance of diagnosing bladder injury not associated with pelvic fracture.

**Methods:** We prospectively studied four patients who presented to us and were diagnosed to have intra-abdominal rupture of urinary bladder. The patients were managed conservatively and were able to pass urine well and remained alright. This case highlights the importance of diagnosing bladder injury not associated with pelvic fracture.

**Results:** All the patients were young males who sustained the blunt injury to lower abdomen. Three of four patients presented with distended abdomen and absent bowel sounds. Investigations revealed evidence of reverse peristalsis. One patient was kept on conservative treatment had persistent symptoms on removal of per urethral catheter. All the patients underwent closure of bladder rent on laparotomy and improved after surgery.

**Conclusion:** The diagnosis of intra-abdominal rupture of urinary bladder should be considered in all patients who present with injury to the lower abdomen on full bladder with history of haematuria. They should be investigated with retrograde cystography and immediate repair of bladder tear should be performed to prevent the leakage of urine into the peritoneal cavity. Conservative management is usually not successful.

**Keywords:** Bladder rupture; Cystogram; Pseudo renal failure; Pelvic fracture

## Introduction

Rupture of urinary bladder following abdominal trauma can be extraperitoneal or intraperitoneal. Extraperitoneal rupture of bladder occurs mostly in association with pelvic fracture [1]. It occurs on the lateral wall where the fascial attachments attach it to the pelvic walls or a bony spicule which directly lacerates the organ. Intraperitoneal rupture of bladder can occur spontaneously or following trivial trauma to the lower abdomen when the bladder is full. When left untreated, the isolated intraperitoneal rupture is uniformly fatal [2]. The diagnosis is not always straightforward and the old adage that to make a diagnosis one must think about it continues to be true for bladder rupture.

## Material and Methods

We prospectively studied four cases diagnosed to have sustained intraperitoneal rupture of urinary bladder. The patients were studied for the demographic profile, inciting factors causing rupture of bladder, time to presentation, symptoms and signs at presentation, blood and imaging studies done, and management done for the patient. We tried to ascertain the optimal management for the patients who develop intraperitoneal rupture of urinary bladder (Tables 1 and 2).

**Case No. 1:**

## Case No. 2

A 30 year old gentleman wakes up in night to pass urine and fell down from the roof about 15 feet high where he was sleeping after alcohol ingestion. He was admitted to the nearby hospital with fracture of ulna and inability to pass urine, lower abdominal pain and distension of lower abdomen. He was catheterised which was kept for 10 days and later removed. But again after the catheter removal, he was unable to pass urine and started developing pain abdomen. Hence, he was catheterised again and was referred to us. His examination was normal and investigations are noted in table 3. There was no microscopic haematuria on urine examination. Cystogram was done which revealed hourglass appearance (Figure 1). He was operated to close the defect.

Received September 09, 2012; Published February 22, 2013

S, Ram NK, Bansal N (2013) Intra-abdominal Rupture of Urinary Bladder—A Diagnostic Conundrum. 2: 660. doi: 10.4172/2155-6215.1000066

Copyright: © 2013 Gupta S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

investigations at presentation are detailed in (Table 3). A diagnosis of intraperitoneal rupture of urinary bladder was kept. Ultrasonography of the abdomen revealed free fluid in the peritoneum and the catheter was found lying in the peritoneal cavity at surgery. A 4cm rent in the dome of urinary bladder was sutured in a water tight fashion. No other intraperitoneal injuries were noted.

### Discussion

Bladder injuries are frequently present with blunt and penetrating injuries to the abdomen. It has been reported to occur in 5-12% patients with blunt injuries [3]. Traumatic bladder injuries are more frequently extraperitoneal than intraperitoneal. Peters found 58% injuries to be extraperitoneal, 34% to be intraperitoneal and 8% to be a combination

peritoneum which means that the extravasated urine was thus drained from the peritoneum. The serum urea, creatinine and potassium levels were found elevated and levels of serum sodium were less after 24 hrs. It occurs because of the reabsorption of various solutes excreted in urine towards the concentration gradient, also termed reverse autodialysis. The longer the time to presentation the more severe are the biochemical alterations. Case no. 2 did not have typical biochemical alterations because he was put on continuous bladder drainage before he presented to us.

Gross or microscopic haematuria is a useful indicator of genitourinary tract injury but there may be absence of haematuria in 15% patients with intraperitoneal rupture of urinary bladder [6]. Only one of our patients did not have haematuria (case no. 2) which may be because he was managed at some other centre for the initial 10 days.

Diagnosis can be confirmed by retrograde cystography which if carefully performed can detect intraperitoneal rupture bladder in 100% cases. However, it can miss the diagnosis if post void films are not taken. Carroll noted that in 13% patients extravasation could be seen in post drainage films alone [7]. For cystography the bladder should be filled with at least 350-450ml of contrast material to allow adequate distension. In cases of intraperitoneal rupture of urinary bladder a cystogram will show contrast collecting within the peritoneal cavity