

A Rare Case of Spontaneous Rupture of the Urinary Bladder

Abstract:

Sir,

We present the case of a 17 year old girl who attended the emergency department complaining of suprapubic pain and urinary retention for the previous 18 hours. A urinary catheter was inserted with passage of 800mL of urine with frank haematuria and relief of her pain. She had a raised white blood cell count of $15.7 \times 10^9/L$ and a creatinine of $178 \mu\text{mol/L}$. A urine specimen was taken which later yielded a pure growth of candida. X-ray of the abdomen showed multiple gas filled loops of small bowel.

The following morning the catheter was removed. Computed tomography of the abdomen and pelvis showed bilateral renal scarring and mild prominence of the renal collecting systems. Subsequent ultrasound showed free fluid in the pelvis but was poorly tolerated due to pain, relieved by re-insertion of a urinary catheter. Repeat ultrasound was carried out the following day. Despite clamping the catheter, the urinary bladder remained empty. There was a persistent low volume of free fluid and marked peritonism in the right iliac fossa. She proceeded to laparoscopy and was found to have a 3cm defect in the dome of her urinary bladder (Figure 1) with an urinoma in the right iliac fossa. The defect was sutured laparoscopically. Vaginal candidiasis was confirmed by culture swab. Histopathology of the tissue surrounding the perforation revealed fibrinous necrotic debris. She made an uncomplicated recovery. A cystogram on day 10 confirmed a satisfactory repair (Figure 2), the catheter was removed and the patient was discharged once she had voided normally.

Figure 1: Ruptured dome of urinary bladder as seen at laparoscopy

Figure 2: Post-operative cystogram confirming successful repair.

Spontaneous rupture of the urinary bladder has an incidence of 1:126,000, 79% occurring in males.^{1,2} 90% of bladder ruptures can be attributed to abdominal trauma while several other risk factors have been reported. These include bladder wall tumours, neuropathic bladders, patients who have undergone cystoplasty, local radiotherapy, large urethrovessical stones, alcohol binge drinking, chronic local inflammation or infection, long term indwelling catheters and normal vaginal delivery. It presents with diffuse lower abdominal pain, urinary retention or oliguria (as the bladder drains intra-peritoneally) and urinary ascites. Urea and creatinine are often elevated (due to peritoneal reabsorption) mimicking acute renal failure.^{1,2,4} Abdominal imaging may show free fluid in the pelvis. The gold standard for diagnosis is cystography showing extravescical contrast, however it is often a diagnosis made at laparoscopy. If the defect is not apparent, retrograde cystourethrogram may be useful in identifying the site of rupture.⁴ Post-operative cystogram should be carried out to ensure an adequate repair.

Our patient had both candidiasis and had been binge drinking on the day prior to admission. Alcohol may predispose to bladder rupture through obtunding the urge to void and through its diuretic effect.⁴ Candidiasis may cause dysuria and predispose to urinary retention. We postulate that a combination of binge drinking and cystitis resulted in this unusual presentation. Overall mortality may be as high as 47%. Prompt diagnosis and repair are central in achieving a favourable outcome. Diagnosis rests on a high index of suspicion in patients with any of the above risk factors.

P Hughes, N Ravi
St. James's Hospital, James's St, Dublin 8
Email: phughes@tcd.ie

References

1. Basavaraj DR, Zachariah KK, Feggetter JGW. Acute abdomen - remember spontaneous perforation of the urinary bladder. J R Coll Surg Edinb. 2001 Oct;46:316-317.
2. Jayathilake A, Robinson R, Al-Samir A, Manoharan M. Spontaneous rupture of bladder presenting as peritonitis. N Z Med J. 2002 Oct 25;115:U222
3. Dooldeniya MD, Khafagy R, Mashaly H, Browning AJ, Sundaram SK, Blyani CS. Lower abdominal pain in women after binge drinking. BMJ. 2007;335:992-3.
4. Saleem MA, Mahmoud MA, Gopinath BR. Spontaneous urinary bladder rupture: a rare differential for lower abdominal pain in a female patient. Singapore Med J 2009;50:e410.