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Trauma and Reconstruction

Beware of the 'Ascites' Patient: Delayed Presentation of Traumatic Intraperitoneal Bladder Rupture

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ABSTRACT

Delayed diagnosis of an intraperitoneal bladder rupture is rare in the post CT era. We present a case of a middle aged male with a delayed presentation of a traumatic intraperitoneal bladder rupture. He initially presented with an acute distended abdomen and acute kidney injury after an alleged assault. He was initially admitted for investigation of his 'ascites.' This case to our knowledge is the longest delay to diagnosis (>2 weeks) for an intraperitoneal bladder rupture in the post computed tomography era and should serve as a learning point in the workup of the patient with suspected blunt bladder injury.

Introduction

Delayed diagnosis of an intraperitoneal bladder rupture is rare in the post CT era. We present a case of a middle aged male with a delayed presentation of a traumatic intraperitoneal bladder rupture (>2 weeks). He initially presented with an acute distended abdomen and acute kidney injury after an alleged assault. He was initially admitted for investigation of his 'ascites.' This case will demonstrate the importance of having a high clinical suspicion of bladder injury with evidence of blunt abdominal trauma.

Case report

A 54 year old male presented with an acute abdomen, 'ascites' and acute kidney injury (creatinine: 289 micromol/L). He was involved in an alleged intoxicated assault the night prior and woke up with severe lower abdominal pain. There was no macroscopic hematuria. He reported pre-existing worsening voiding lower urinary tract symptoms over the prior 6 months. His medical history was noted for a regular intake of 30 standard alcoholic drinks per day. Examination revealed multiple abrasions on his extremities and face, tender lower abdomen, ascites and anuria. No diagnosis of liver cirrhosis was made previously. He was initially admitted under gastroenterology for management of possible spontaneous bacterial peritonitis after initial computed tomography (CT) of the abdomen (portal venous contrast and oral contrast) revealed free intraperitoneal fluid (Fig. 1).

Concurrently, his acute kidney injury improved (creatinine: 73 micromol/L) with an indwelling catheter (IDC). Ultrasound guided paracentesis was unsuccessful as the free fluid seen on CT was unable to be seen. Multiple trials of voids were unsuccessful with abdominal discomfort and severe voiding symptoms after each occurrence. A general surgical consult was obtained. Repeat CT abdomen (after a trial of void) revealed ongoing intraperitoneal fluid around small bowel and subacute small bowel obstruction. His abdominal pain was persistent despite non-operative management for the presumed bowel obstruction. He underwent a diagnostic laparoscopy (with an IDC insitu) which revealed a small umbilical hernia that was repaired. No free fluid was seen. No comment was made on the bladder appearance during laparoscopy. Finally a urology consult was obtained due to persisting urinary retention and a flexible cystoscopy was conducted on day 19 post.

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Contributorship: AD, CY and UH researched the literature and conceived the study. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

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Figure 1. Admission computed tomography of abdomen demonstrating free intraperitoneal fluid (white arrows).

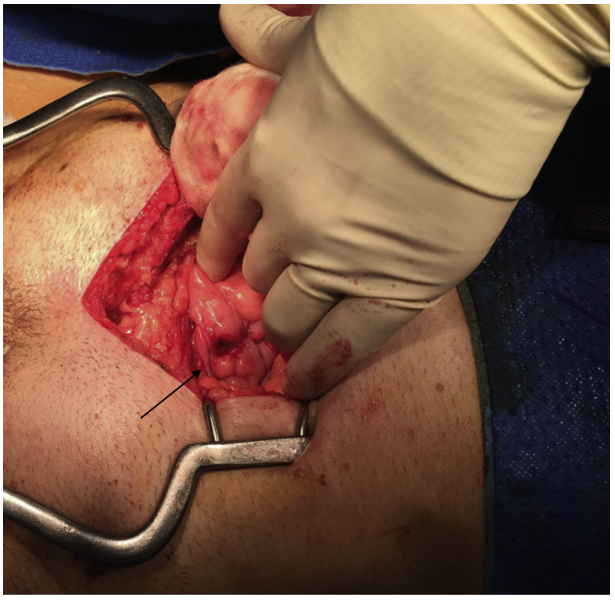

Figure 3. Intraoperative picture of bladder perforation (black arrow).

This revealed a 1 cm intraperitoneal bladder perforation in the left bladder dome and he subsequently underwent an open repair of the bladder perforation (Figs. 2 and 3). He recovered well post operation. Cystogram 4 weeks post procedure revealed no leak and he successfully passed a trial of void (Fig. 4).

Discussion

We present a rare case of delayed diagnosis of an intraperitoneal bladder rupture post blunt trauma. Whilst there have been a small handful of case reports[1–4] on delayed bladder ruptures, this case to our knowledge is the longest delay to diagnosis (>2 weeks) for an intraperitoneal bladder rupture in the post CT era. In retrospect, the history of the presenting complaint and initial examination (alcohol intoxication with suggestive blunt trauma to the abdomen, abdominal findings and acute renal failure relieved by IDC insertion) were suspicious for bladder rupture. The unsuccessful attempts at paracentesis despite evidence of intraperitoneal fluid on CT were now explained.

There are numerous learning points from this case including the high clinical suspicion for bladder injury for an intoxicated patient with evidence of blunt trauma who presents with acute kidney injury. It has been reported that intraperitoneal urine leakage results in an elevated serum creatinine due to the systemic reabsorption of toxic metabolites and creatinine, resulting in a renal failure pattern.[5] A formal cystogram and paracentesis for fluid creatinine at the time of presentation could have resulted in an earlier diagnosis and subsequent treatment. This case should serve as a cautionary tale for the assessment of an 'ascitic' patient.

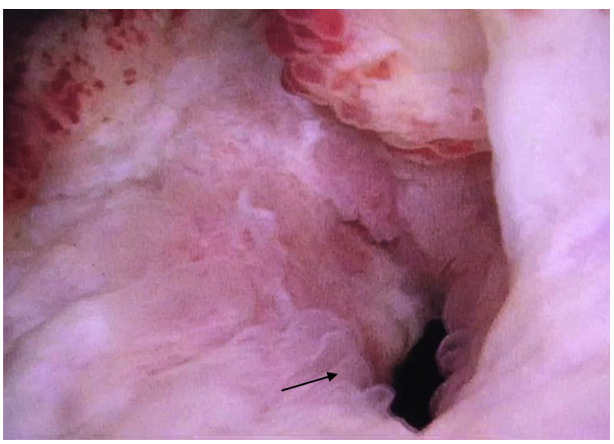

Figure 2. Left bladder dome perforation demonstrated on flexible cystoscopy.

Figure 4. Cystogram 4 weeks post repair demonstrating no leak.

Conclusion

To our knowledge, this case is the longest delay to diagnosis for an intraperitoneal bladder rupture in the post CT era. There should be a high clinical suspicion for bladder injury in intoxicated patients with an acute distended abdomen and evidence of blunt trauma. The use of an indwelling catheter may have inadvertently masked the diagnosis. A formal cystogram may help aid in obtaining the diagnosis. This case should serve as a cautionary tale for the assessment of the 'ascitic' patient.

Conflicting interests

The authors declare that there is no conflict of interest.

Acknowledgment

None.

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