

Case Report: Spontaneous Bladder Rupture after Intense Vomiting in a 25-Year-Old Young Man, Surgically Treated with Robotic Method

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Abstract

A 25-year-old young adult with no urological history or comorbidity presented to the emergency room with an acute abdomen, micturition difficulty, and haematuria after a prolonged period of vomiting. Hospitalized in surgery, he was urgently subjected to a CT scan with highly suggestive contrast medium for an intraperitoneal bladder rupture from perforation, confirmed during cystoscopy and subsequent repair with robotic method. Urethrocystoscopic evaluation prior to bladder repair revealed no other bladder pathologies such as neoplasms and the ureter orifices were intact. At the level of the posterior wall versus the dome in the urachus, the presence of a bladder rupture of about 4 cm was highlighted. The patient was then subjected to the light even at a young age to bladder raffia intervention in triple layer with robotic method with contextual placement of bladder catheter. The cystography performed two weeks after the repair did not show contrast medium spills and a bladder of good capacity about 300 cc, so the catheter was removed, assisting in the resumption of spontaneous urinations with clear urine. Histological examination of the bladder margins confirmed the presence of uracal residues. Spontaneous rupture of the bladder is a rare entity with very few anecdotal cases reported in the literature, even rarer is the episode in young boys in good health and the contextual repair with robotic method never described in the literature so far. This unusual case is important, because it has shown that even normal and healthy bladders can rupture during episodes of high intra-abdominal pressure such as repeated vomiting, especially in the face of persistence of urachus, loci minor resistentiae.

Keywords: Bladder Rupture, Intense Vomiting, Robotic Methods

Case Presentation

We present the case of a young adult, male, 25 years old who comes to the emergency room for an acute abdomen picture that has arisen for a few hours associated with urination difficulties and the emission of blood clots due to urethra. In his remote medical history there are no pathologies to report and the boy had never undergone surgery and was in good health until this event. He did not smoke or drink alcohol. University student of Economics, he had completed 6 months of ERASMUS in SOUTH Korea. He did not report any urinary difficulties prior to this event nor did he ever report urinary infections or hematuria. On the evening that he arrived in the emergency room he had dined Japanese cuisine (raw seafood for dinner) and at the end of the same he presented a suspected food poisoning with nausea, violent vomiting up to 8 episodes of vomiting with considerable effort of the abdominal pressure, as he had not never had before so he described it, very strong abdominal pain and sudden difficulty in urinating despite the urge to urinate, with the emission of blood clots from the urethra such as to immediately go to the emergency room of our hospital where he was evaluated by the Surgeon for the acute abdomen from peritonitis. On physical examination the abdomen was very painful on superficial and deep palpation with Murphy and Blumberg positive. The abdominal pain was so acute that it required the use of morphine to relieve it.

Investigations

His blood tests showed an elevated white blood cell count of around 19,000. creatinine increased up to 2 mg / mL while in past tests it was always normal. He also presented a progressive anemia up to 11 g / dl. A CT scan of the complete abdomen with contrast medium with hydration for nephropathy was prepared to ascertain the diagnosis. The CT scan showed a large volume of fluid inside his peritoneum up to the liver and irregularity of the bladder dome as from a rupture in the urachus (Figure 1). The kidneys appeared regular without dilations and there were no lesions of other organs or thickening in the intestine as in abscessualized diverticulitis. A new CT scan without contrast was then performed which highlighted the previous contrast due to an examination already performed and the frank rupture of the bladder (Figure 2). Therefore, the patient was transferred to our Urology department and was easily positioned folatex 12 Fr bladder catheter with emission of minimal hematuria, the catheter was therefore replaced with folatex 16 ch which drained one liter of hematuria in the following hour. Antibiotic coverage was initiated with iv tazobactam for 3 times a day preceded by urine collection for uroculture.



Figure 1: CT scan showed a large volume of fluid inside his peritoneum up to the liver and irregularity of the bladder dome as from a rupture in the urachus



Figure 2: A new CT scan without contrast was then performed which highlighted the previous contrast due to an examination already performed and the frank rupture of the bladder

Differential Diagnosis

The differential diagnosis for this presentation includes any cause of acute abdomen, such as a ruptured hollow viscus or bowel following abscessed diverticulitis or complicated appendicitis with peritonitis.

Treatment

Under general anesthesia, a urethrocystoscopy was performed first which was intended to exclude other neoplastic pathologies at the origin or entero-bladder fistula. Urethrocystoscopy documented the extent of the perforation at the level of the dome and posterior wall in the absence of obvious neo-

plasms or fistulosis with the intestine. The bladder rupture was approximately 4 cm at regular margins as per burst. The rest of the bladder mucosa was completely normal, with no evidence of transitional cell carcinoma, inflammation, diverticula or trabeculae. In light of the young age of the patient, a reparative approach with robotic method with 4 accesses was decided. The picture that emerged confirmed what was seen in endoscopy, that is a bursting rupture of the bladder with regular margins and clots on the margin. We proceeded to biopsy of the margins whose histological result was negative with an appearance compatible with uracal residues. The bladder was then sutured in a triple layer with Vycril 4-3-2 with excellent final closure (Figure 3). The intraoperative hydraulic test was negative. A 16 ch Foley type catheter was placed with clear urine.



Figure 3: The bladder was then sutured in a triple layer with Vycril 4-3-2 with excellent final closure

Outcome and follow-up

The patient had an absolutely regular post-operative course and was discharged after 2 days with a catheter in place. After 15 days he performed a cystographic check (Figure 4)

which did not show urinary spills with a bladder of good capacity of about 300 cc, for which the bladder catheter was removed, assisting in the resumption of spontaneous urinations with clear urine without urgency. even five months after surgery, the patient is in excellent health.

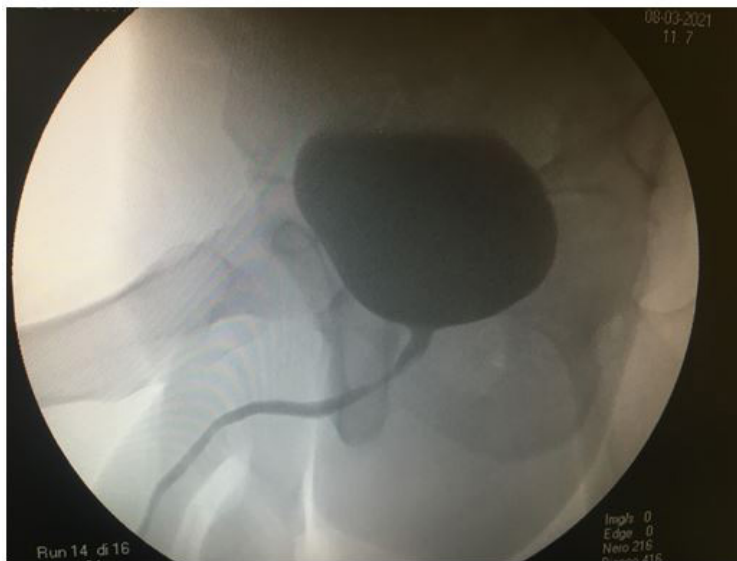


Figure 4: After 15 days Performed a cystographic check

Discussion

Spontaneous rupture of the bladder, in the absence of bruises or penetrative trauma from a bladder is a rare urological emergency. Perforation tends to be intraperitoneal, typically presenting with peritonitis, acute abdomen as well as haematuria, oliguria anuria, and impaired renal function. Its low incidence,

combined with a potentially unspecific presentation of acute abdomen, diverts many physicians from suspicion of bladder perforation with potentially serious consequences; undetected, morbidity and mortality can be high. The most common cause of urinary bladder perforation is damage to the urinary bladder wall during massive or iatrogenic abdominal trauma, endoscopic resection of bladder tumors with extensive deepening of the peri-

cystitis or removal of bladder stones with lithoclast or during Ho-lep surgery of the prostate with subsequent morcellation that can cause bladder opening as well as during gynecological or obstetric interventions such as caesarean sections with bladder opening and / or general surgery such as removal of large neoplastic masses involving the bladder. Other less common risk factors include malignant tumors of the bladder, bladder diverticulum rupture, pelvic irradiation with development of a small, slightly expandable root bladder, neuropathic bladder, and chronic obstruction of urine out flow, little expandable root bladder, neuropathic bladder, and chronic obstruction of urinary outflow as in the decompensation phase after BPH when the bladder wall is reduced in thickness. Cases that cannot be attributed to one of these are considered idiopathic, such as the patient reported here where strong abdominal pressure is hypothesized during repeated episodes of vomiting that acted on uracal residue, loci minor resistentiae.

This should act as a reminder of the importance of establishing a timeline of symptoms in these patients.

Spontaneous bladder perforation is often diagnosed during surgery, but imaging should be sought before surgery, cystography is the imaging modality of choice. In our patient's case, the diagnosis was, unusually, made before surgery despite a negative cystogram. With a previously reported diagnosis accuracy of 96%, The subsequent CT cystogram confirmed the rupture of the dome of the bladder. The reason for our negative cystogram could be was due to the large clot overlying the perforation, sealing the defect and preventing extravasation of contrast. Previous clinical cases of intoxicated patients have hypothesized that the distended bladder is weaker at the dome, making the site more likely for perforation as in this case. The site of perforation is important as it affects clinical management. For intraperitoneal lesions, the standard of care is surgical exploration with repair. Our innovation compared to all the cases in the literature is to have carried out repairs with robotic technique for an easier recovery of the patient in the post-operative period. However, if the perforation is small and the patient has multiple comorbidities and is not suitable for general anesthesia, a conservative approach can be considered antibiotics and abdominal drainage and a bladder catheter. If the rupture is extraperitoneal, management is usually conservative with antibiotics and maintaining a urinary catheter to have a low-pressure bladder

Laparoscopic repair of intraperitoneal bladder rupture is reported in the literature as a safe and minimally invasive option in appropriate cases with an experienced laparoscopist. 20-22 Patients should be clinically stable with only an isolated wound bladder present.

In conclusion, if the diagnosis of a patient with an acute abdomen includes predominant symptoms of sudden abdominal pain, hematuria, and concomitant acute kidney injury, one should consider the possibility of a rupture of the urinary bladder wall.

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