



Acute abdomen caused by spontaneous perforation of the urinary bladder in childhood: Report of one case

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Abstract Spontaneous urinary bladder rupture in children is a very rare clinical occurrence that can be life threatening if left untreated. Patients usually present with symptoms of peritonitis and the correct diagnosis is usually made at surgery. Here, we present a case of spontaneous bladder perforation that was operated with a diagnosis of acute abdomen. No etiological factor for bladder perforation was found, and after the operation, the patient experienced no further problems.

Key words Urinary bladder; spontaneous perforation; acute abdomen; peritonitis.

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INTRODUCTION

Spontaneous bladder perforation in children is an extremely rare clinical entity that can be life threatening [1]. The exact incidence is not known. In fact, urinary bladder

perforations usually occur for reasons such as massive abdominal trauma or iatrogenic, endoscopic excision of urinary gallbladder tumors, inflammatory perforation of the urinary diverticulum, and continuous urinary catheterization [2]. The diagnosis of spontaneous bladder perforation is a challenging effort, as the patient's medical history, physical examination, and additional

exams enhance false suspicions of acute abdomen. The condition is usually discovered during laparotomy [2,3]. Herein, we present a case report of urinary bladder perforation that was operated with a diagnosis of acute abdomen.

CASE REPORT

A five-year-old girl was admitted to our Department of Pediatric Surgery with abdominal pain that had persisted for three days. There was a reduction in urine output. The patient had no history of gastrointestinal or urinary bladder disease or trauma. On admission, the physical examination revealed tenderness in the lower abdomen and abdominal distention. The laboratory findings were as follows: white blood cell count, $19,600/\text{mm}^3$; serum C-reactive protein, 12,6 mg/dL; blood urea nitrogen, 125 mg/dL; creatinine, 4,64 mg/d L; and potassium, 6,5 mmol/l. The remaining parameters of the patient were within normal limits. After urinary bladder catheterization with a 12F silicon catheter, bloodstained urine was observed. Plain radiographs of the chest and abdomen did not reveal any sign of perforation or intestinal obstruction. The abdominal ultrasound showed intraloop and Douglas's sinus fluid presence without specifying its character and quantity. The patient was promptly taken for an

exploratory laparotomy with suspicion of gastrointestinal perforation. The intraoperative examination revealed the presence of about one liter or more of serous fluid in the peritoneal cavity, but the exploration revealed no gastrointestinal perforation. During further controls, the operating surgeons observed that the posterior urinary bladder wall had a 3cm perforation. The perforated edges were excised and the urinary bladder was sutured. Two days after surgery, the creatinine level was 0.35 mg/dl, urea was 19 mg/dl, and potassium was 3.5 mmol/l. The patient was discharged without problems, and she continued to do well on routine follow-up.

DISCUSSION

Two different types of spontaneous bladder perforation have been defined: intraperitoneal and extraperitoneal. In most cases, non-traumatic bladder rupture is intraperitoneal [4]. Often, there are obscurities in establishing an exact diagnosis preoperatively, leading to a very high mortality rate. Therefore, prompt diagnosis followed by surgical intervention is the key to a successful outcome [5]. A connection to underlying bladder damage due to previous radiotherapy, inflammation, malignancy, obstruction, or other causes can be found in almost all adult patients [4]. Many factors

are believed to predispose children to spontaneous bladder perforation, such as bladder diverticula, Ehlers–Danlos syndrome, neurogenic bladder dysfunction, and bladder wall ischemia [6-9].

Clinically, patients with spontaneous bladder perforation often present with diffuse abdominal pain, ascites, abdominal distension, rigidity and tenderness, urinary retention, hematuria, and oliguria or anuria after bladder catheterization [5,10]. In the majority of cases, urinary tract infection symptoms can be the initial complaint, later accompanied by peritonism [5]. A significant amount of reabsorption of urea and creatinine through the peritoneum leads to elevated blood urea and creatinine levels [11]. The presence of urine in the bladder upon insertion of a catheter does not exclude the possibility of perforation [10]. Abdominopelvic computed tomography and cystography are appropriate noninvasive methods of evaluating problems in the bladder; cystography shows intraperitoneal contrast extravasation [12]. Macroscopic hematuria might be present in these cases, and biochemical analysis results indicating ascites may be useful indicators of the presence of urine in the peritoneal cavity [4]. In one review, a primary clinical diagnosis of acute abdomen was made in almost all patients [5]. When a diagnosis of bladder

perforation is made, surgical therapy is indicated for patients with intraperitoneal rupture, whereas extraperitoneal rupture can usually be managed conservatively [13].

When the patient described in this report presented to our clinic, her general condition was poor; therefore, she underwent emergency surgery with a diagnosis of acute abdomen. However, when her laboratory results were considered together with the operation findings, a diagnosis of bladder perforation was made. No etiological factor for bladder perforation was found, and after the operation, the patient experienced no further problems.

While patients with spontaneous bladder perforation are usually admitted with symptoms and signs of peritonitis, when they present with symptoms such as peritoneal cavity fluid presence, hematuria, oliguria, and coexisting increased urea, creatinine, and potassium levels, there is a high suspicion of bladder perforation. However, as in our case, these patients require urgent intervention due to clinical acute abdomen.

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REFERENCES

1. Wiygul J, Palmer LS. Spontaneous bladder perforation in a neonate. *Urology*. 2010 ;76(1):164-5.
2. Wieloch M, Bazylińska K, Ziemniak P. Spontaneous, idiopathic urinary bladder perforation- case report. *Pol Przegl Chir*. 2013;85(12):727-9.
3. Schein M, Weinstein S, Rosen A, Decker GAG. Spontaneous rupture of the urinary bladder delayed sequel of pelvic irradiation a case report. *S Afr Med J* 1986;70(13): 841-2.
4. Izumi J, Hirano H, Kato T, Ito T, Kinoshita K, Wakabayashi T. CT findings of spontaneous intraperitoneal rupture of the urinary bladder: two case reports. *Jpn J Radiol*. 2012 ;30(3):284-7.
5. Ahmed J, Mallick IH, Ahmad SM. Rupture of urinary bladder: a case report and review of literature. *Cases J*. 2009;14;2:7004.
6. Stein RJ, Matoka DJ, Noh PH, Docimo SG. Spontaneous perforation of congenital bladder diverticulum. *Urology*. 2005;66(4):881.
7. Jorion JL, Michel M. Spontaneous rupture of bladder diverticula in a girl with Ehlers- Danlos' syndrome. *J Pediatr Surg*. 1999;34(3):483-484.
8. Briggs JR, Minns RA, Smith II. Congenital rupture of a neuropathic bladder: report of a case. *Dev Med Child Neurol*. 1985;27(3):369-374.
9. Vasdev N, Coulthard MG, De la Hunt MN, Starzyk B, Ognjanovic M, Willetts IE. Neonatal urinary ascites secondary to urinary bladder rupture. *J Pediatr Urol*. 2009;5(2):100-104.
10. Limon O, Unluer EE, Unay FC, Oyar O, Sener A. An unusual cause of death:spontaneous urinary bladder perforation. *Am J Emerg Med*. 2012;30(9):2081.e3-5.
11. Heyns CF, Rimington PD. Intraperitoneal rupture of the bladder causing the biochemical features of renal failure. *Br J Urol*. 1987;60(3):217-22.
12. Gomes CA, de Figueiredo AA, Soares Júnior C, Bastos Netto JM, Tassi FR. Acute abdomen: spontaneous bladder

rupture as an important differential diagnosis. Rev Col Bras Cir. 2009;36(4):364-5.

13. Parker H, Hoonpongsimanont W, Vaca F, Lotfipour S. Spontaneous bladder rupture in association with alcoholic binge: a case report and review of the literature. J Emerg Med 2009;37(4):386-9.

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