

Acute Peritonitis Due to Spontaneous Bladder Rupture

Abdi El Mostapha^{1*}, Ghannam Youssef¹, Nedjim abdelkerim Saleh¹,
Hissein Haggur¹, Dakir Mohamed¹, Debbagh Adil¹ and Aboutaieb Rachid¹

¹Department Urology, Chu Ibn Rochd Casablanca, Morocco.

Authors' contributions

This work was carried out in collaboration among all authors. Author AEM managed bibliographical research and writing. Authors GY, NAS and HH managed writing and translation. Authors DM, DA and AR managed reading and correction. All authors read and approved the final manuscript.

Article Information

Editor(s):

(1) Dr. Punit Bansal, RG Stone and Superspeciality Hospital, India.

Reviewers:

(1) Osama Gheith, Mansoura University, Egypt.

(2) Shatha Hussain Ali, Al-Nahrain University, Iraq.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/64004>

Case Report

Received 29 October 2020

Accepted 03 January 2021

Published 20 January 2021

ABSTRACT

Spontaneous bladder rupture is a rare condition. Inflammation and chronic infection are the main contributing factors. Perforation secondary to a bladder tumor is much more rare and it poses a real diagnostic and therapeutic problems. We report a rare case of an elderly patient of 50 years old man chronic smoker of about (40 packs per year) with a history of recurrent low urinary tract infections, a trans-urethral bladder tumor resection on 13 June 2019. Endoscopic exploration: large infiltrating tumor at the level of the posterior and lateral wall with histopathological study confirming transitional cell carcinoma (urothelial carcinoma) infiltrating the detrusor muscle classified PT2 high grade. The patient received 8 sessions of radiotherapy and 5 sessions of chemotherapy. Admitted for bladder tumor complicated with acute peritonitis. The patient had consulted at the emergency department for an acute abdomen, in which the clinical examination found a conscious patient, slightly discolored conjunctiva, febrile at 38°C with diffusely abdominal pain, tensing abdominal and a pain of pouch of Douglas by rectal examination. Laboratory result findings a hyperleukocytosis of 15000 elements/mm³, CRP at 35 mg/l and renal insufficiency with estimation of the glomerular filtration flow rate (GFR):18 ml/min/1,73 m². The abdomino-pelvic ultrasound shows a peritoneal effusion of a little abundance. Abdomino-pelvic CT scan was

*Corresponding author: Email: davecf05@hotmail.fr;

requested, which had shown a pneumo-peritoneum with bladder perforation. The patient was urgently taken to the emergency room for an exploratory laparotomy with an extensive peritoneal lavage and suture of the bladder wound after removal of all necrotic margins with urinary diversion by bladder catheterisation. A thoraco-abdomino-pelvic scan was performed later and showed pulmonary and hepatic metastases of a secondary origin indicating a palliative treatment. Spontaneous urinary bladder rupture is a rare emergency which can may be misdiagnosed as gastrointestinal tract perforation. It should be suspected in patients with acute abdomen with a history of bladder tumor.

Keywords: Tumor; bladder; peritonitis.

1. INTRODUCTION

Spontaneous bladder perforation is a rare and fatal condition.

In 1929, Sisk and Wear defined the condition as: "if the bladder ruptures without external stimulation, it is spontaneous and deserves to be reported as such" [1]

The normal anatomical position in the true pelvis and its elasticity are protective [2]. Predisposing causes for spontaneous bladder rupture include: tumor, inflammation, stones, tuberculosis, diverticulum or surgical scar. Other predisposing causes are altered sensitivity [3], radiotherapy [4]. Symptoms are often non-specific and misdiagnosis is common. Delayed diagnosis due to the absence of pathognomonic signs and the generally insidious evolution contribute to this severity. Tumor forms have a poor prognosis. We present a case of spontaneous bladder rupture and we analyze the diagnostic, prognostic and therapeutic aspects raised by this interesting pathology, which has multiple etiologies.

2. CASE PRESENTATION

Mr. A.H. is 50 years old man chronic smoker of about (40 packs per year) with a history of recurrent low urinary tract infections, a trans-urethral bladder tumor resection on 13 June 2019. Exploration: large infiltrating tumor at the level of the posterior and lateral wall with histopathological study confirming transitional cell carcinoma (urothelial carcinoma) infiltrating the detrusor muscle classified PT2 high grade. The patient received 8 sessions of radiotherapy and 5 sessions of chemotherapy. A control cystoscopy showed a decrease in tumor size. The history of his condition goes back to two years by the installation of a clotting terminal hematuria with episode of acute urinary

retention. In addition, the patient had consulted at the emergency department for an acute abdomen, in which the clinical examination found a conscious patient, slightly discoloured conjunctiva, febrile at 38°C with diffusely abdominal pain, tensing abdominal and a pain of pouch of Douglas by rectal examination. Laboratory result findings a hyperleukocytosis of 15000 elements/mm³, CRP at 35mg/l, Kalemia (K⁺): 5.1 mEq/L and renal insufficiency with creatinine of 40 mg/l, estimation of the glomerular filtration flow rate (GFR) :18 ml/min/1,73 m². Normocytic normochromic chronic anemia with a Hb of 8g/dl. The X-ray of the abdomen without preparation shows crescent-shaped clefts under diaphragm (Image A).

The abdomino-pelvic ultrasound shows a peritoneal effusion of a little abundance. Abdomino-pelvic CT scan was requested, which had shown a pneumo-peritoneum with bladder perforation. The patient was taken directly to the operating room. Surgical exploration found a peritoneal effusion whose color resembled urine with perforation of the bladder dome and foci of necrosis. an abundant peritoneal lavage was performed with resection of necrotic margins and suturing of the perforated wall. The patient was placed on triple therapy with beta lactamine, imidazoles and aminoside. The postoperative follow-up was simple. a tap scanning was later requested which showed lung and bone metastases of a secondary origin indicating a palliative treatment.

3. DISCUSSION

Spontaneous bladder rupture also called non-traumatic bladder rupture or idiopathic bladder rupture is a rare entity, only a few dozen cases are described in the literature [5]. It is mainly seen after the fifth decade, with a slight male predominance. Perforation is most often located

in the bladder dome, the least resistant part of the bladder, which contributes to a rupture in the peritoneal cavity [6]. Diabetics with decreased bladder sensitivity leading to chronic urinary retention and recurrent urinary tract infections may also have increased incidence of bladder rupture. Other causes of spontaneous bladder rupture other than infection were mentioned in the literature. Gomes and al. reported alcoholism as a cause of spontaneous bladder rupture due to altered sensitivity [7]. Bladder causes are the most frequent, and are represented as acute or chronic inflammatory lesions (radio cystitis, tuberculosis, bilharzia) [8]. Our patient had

repeated urinary tract infections and benefited from radiotherapy sessions which predisposes to spontaneous bladder rupture. The clinical picture is non-specific, and may include abdominal pain, hematuria, oliguria or even anuria. These cases are usually overlooked and should be suspected when the predominating symptoms include acute peritonitis, sudden abdominal pain, peritoneal cavity fluid, oliguria, with increased serum creatinine [9]. Thus, the clinical exam often stops at the diagnosis of peritonitis and not of its bladder origin [10]. Our patient had consulted at the emergency department for an acute abdomen, in which the clinical examination found

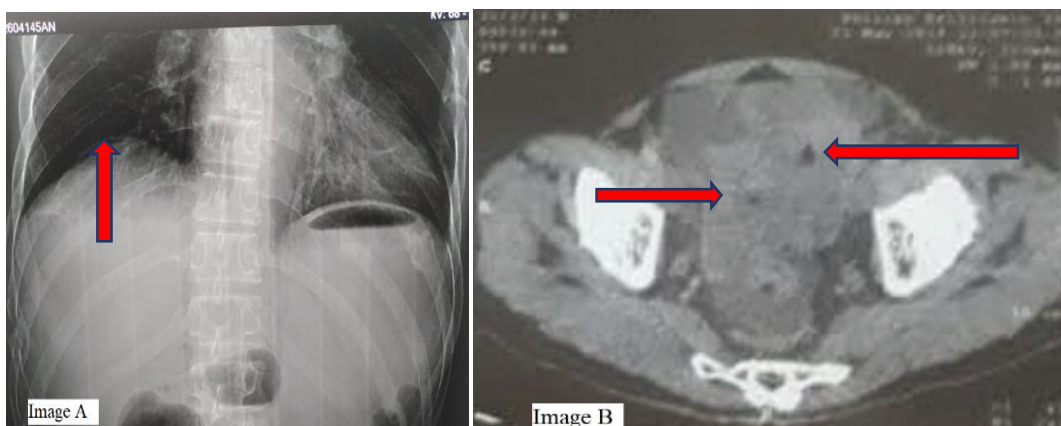


Image A. The X-ray of the abdomen without preparation showing subhepatic crescent clarity
Image B. Non-injected uroscanner showing bladder lesion(tumor) with an intra bladder air bubbles

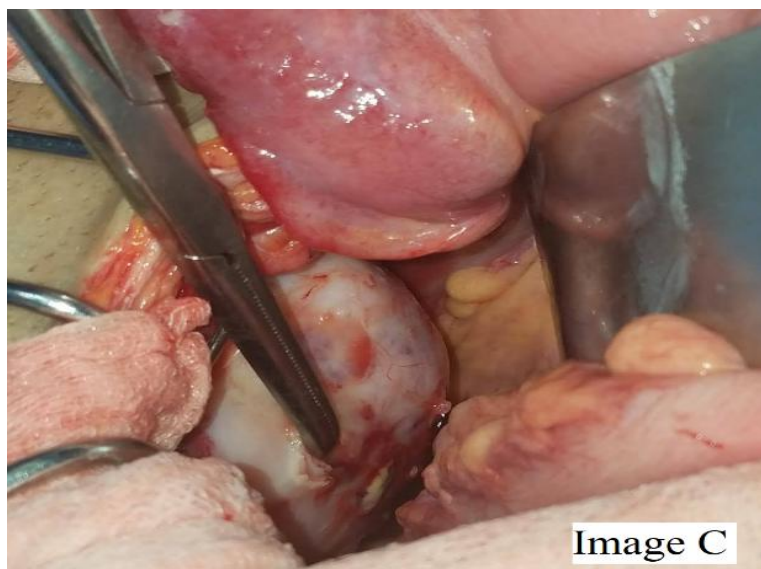


Image C. Bladder perforation with focal points of necrosis

a conscious patient, slightly discoloured conjunctiva, febrile at 38°C with diffusely abdominal pain, tensing abdominal and a pain of pouch of Douglas by rectal examination. Laboratory tests revealed, a rapid increase in urea and creatinine by peritoneal reabsorption of urine is not uncommon [11]. The radiological examination of choice is cystography, which shows extravasation of the contrast medium. The X-ray of the abdomen without preparation shows pneumoperitoneum and objective ultrasound shows peritoneal effusion [12]. The X-ray of the abdomen without preparation shows crescent-shaped clefts under diaphragm in our patient and a Abdomino-pelvic CT scan showed bladder lesion(tumor) with an intra bladder air bubbles. Perforation of a bladder tumor is much rarer [5]. Treatment of Spontaneous Bladder Rupture (SBR) include 2-layer closure of debrided perforation edges, urinary drainage by urethral catheter. Tumor lesions pose a real therapeutic problem, since they are most often infiltrating and metastatic, requiring palliative treatment; simple suturing after excision of the perforation margins [13]. Our patient benefited from an abundant peritoneal lavage followed by suturing after removal of the necrotic margins and placement of a Redon drain.

4. CONCLUSION

Spontaneous urinary bladder rupture is a rare emergency which can may be misdiagnosed as gastrointestinal tract perforation. It should be suspected in patients with acute abdomen with a history of bladder tumor. The number of radiotherapy sessions should take into account the risk of bladder perforation, especially in the case of bladder tumor associated with recurrent urinary tract infections. The uroscanner is the reference examination for the diagnosis. The bladder must be systematically explored in case of acute peritonitis. The vital prognosis depends on the rapidity of the therapeutic management.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Sisk IR, Wear JB. Spontaneous rupture of the urinary bladder. *J. Urol.* 1929;21:517–521.
2. Kivlin D, Ross C, Lester K, Metro M, Ginsberg P. A case series of spontaneous rupture of the urinary bladder. *Curr Urol.* 2015;8(1):53-56.
3. Gomes CA, de Figueiredo AA, Soares C, Bastros JM, Tassi FR. Acute abdomen: Spontaneous bladder rupture as an important differential diagnosis. *Rev Col Bras Cir.* 2009;36(4):364-365.
4. Wakamiya T, Kuramoto T, Inagaki T. Two case of spontaneous rupture of the urinary bladder associated with irradiation cystitis, repaired with omentum covering. *Hinyokika Kiyo.* 2016;62(10):545-548.
5. Atalay AC, Karaman MI. Spontaneous rupture of a bladder with invasive bladder carcinoma: A case report. *Afr. J. Urol.* 1999;3:52-53.
6. Rasmusen JS. Spontaneous bladder rupture in association with carcinoma. *Scand. J. Urol. Neph.* 1994;28:323-326.
7. Mardani M, Shahzadi M, Rakhshani N, et al. Spontaneous perforation of urinary bladder secondary to candida cystitis: Acute abdomen of urologic origin, *Surg. Infect. (Larchmt).* 2008;9:525–527.
8. Ficarra V, Beltrami P, Giusti G, Tontodonati M, Zanon G, Malossini G. Perforation vésicale spontanée due à une cystite à éosinophiles: A propos d'une observation. *Prog. Urol.* 1997;7:1012-1014.
9. Wieloch M, Bazylinska K, Ziemniak P. Spontaneous idiopathic urinary bladder perforation. Case report. *Pol Przegl Chir.* 2013;85(12):727-729.
10. Huffman JL, Schraut W, Bagley DH. Atraumatic perforation of bladder. Necessary differential In evalation of acute condition of abdomen. *Urology.* 1983;1:30-35.
11. Patel RI, Haas C, Spirnak JP, Erhardt C. Spontaneous extrperitoneal bladder rupture. *J Urol.* 1998;159(6):2089-2090.

12. Basu A, Mojahid I, Williamson EP. Spontaneous bladder rupture resulting from giant vesical calculus. *Brit. J. Urol.* 1994;74:385-386.
13. Shroff S, Lee JO, Townsend AR. Spontaneous rupture of the bladder in pregnancy. A case report. *Urologia Internationalis.* 1994;52:179-180.

© 2021 Mostapha et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/64004>