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Spontaneous Ureteric Rupture: An Uncommon Emergency

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ABSTRACT

Spontaneous ureteric rupture is an uncommon urologic emergency. Its presentation can vary, leading to clinical diagnostic challenges. We describe such a case, and its presentation is discussed briefly.

INTRODUCTION

Spontaneous ureteric rupture (SUR) is an uncommon urological condition. We present a case of SUR, and the presentation of SUR is discussed briefly.

CASE PRESENTATION

A 57-year-old woman presented with a 1-month history of right hypochondriac pain and a fever. The pain had localized and progressively worsened. She had no known previous illness, comorbidity, or any other constitutive symptoms. In addition, she had symptoms of jaundice and dark-colored urine. Upon examination, she was febrile, and the right hypochondriac region was tender. Biochemical investigation revealed a white cell count of 9.2 x103/μL, with serum urea and creatinine levels of 4.4 mmol/L and 66 mmol/L, respectively. The initial bilirubin level was 137 umol/L, which subsequently dropped a day later to 112 umol/L (direct: 79 umol/L, indirect: 33 umol/L). The alkaline phosphatase and alanine transaminase levels were 172 U/L and 328 U/L, respectively. Ultrasonography of the abdomen showed moderate right hydronephrosis with hydroureter. The rest of the abdominal organs were normal. Subsequent uncontrasted CT urography findings showed right perinephric and periureteric collection, suggesting perforation (Figure 1).

The previously hydronephrotic kidney had decompressed due to rupture, and a percutaneous nephrostomy was deemed difficult. A ureteroscopic assessment of the right upper urinary tract identified a stricture measuring 2 cm in length at the upper third of the right ureter, with a small perforation noted at the proximal end of the stricture (Figure 2). The drained urine culture was negative. Biopsied edges of the perforation reported a benign inflammatory process. We stented the right ureter with a double J stent. The patient recovered uneventfully after 6 days, and a repeat ultrasonography assessment 6 weeks later revealed complete collection and hydronephrosis resolution. A repeat ureteroscopy after 3 months revealed a persistent stricture that was successfully dilated endoscopically. An intravenous urogram was planned in order to assess ureteric

KEYWORDS: Spontaneous, ureter, rupture, perforation

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flow later on.

DISCUSSION

SUR is uncommon [1]. The rupture is commonly at the upper ureter, probably due to its high contractility compared to other parts of the ureter [2]. The etiologies are hydronephrosis of various causes coupled with a weakened renal pelvis, which is thin, fragile, and partially anoxic in chronic cases [1]. The ureter can also be damaged in other diseases, such as connective tissue disease with vasculitis and thrombosis [3].

Classically, SUR presents with pain, hemorrhaging, and a mass. However, it can also present with varied clinical features [1]. SUR may mimic many other causes of acute abdomen depending on laterality, and those include an appendicitis, cholecystitis, and ischemic bowel [1,4]. A collection of extravasated urine could induce chemical inflammation and, therefore, a reactive process from the surrounding abdominal viscera. Also, the mass of urinoma could exert pressure on other organs. The resulting gastrointestinal symptoms can be pronounced and lead to diagnostic confusion [4]. Jaundice in a dilated upper urinary passage is extremely uncommon. Only 3 cases have been identified in the literature so far, but these cases were associated with a giant hydronephrosis [5]. A peritoneal extension of the urinary tract dilatation, with subsequent compression onto the biliary tree instead of the usual superoinferior direction, may result in jaundice [5]. However, we could not demonstrate this linkage in our case since the distended ureter had already ruptured upon presentation and was not grossly swollen.

Jaundice could be a consequence of an overwhelming infective process, although our patient did not appear to fall into this category. Simple diagnostic imaging, such as ultrasonography, can help tremendously in making a confident diagnosis. Further detailed imaging, such as a computed tomography (CT) scan, could yield even more information.

The previous management of SUR, with emergent surgical exploration and nephrectomy, is superseded by conservative measures, such as ureteric stent insertion [1,4]. Likewise, the upper urinary system involved could have been drained by a percutaneous nephrostomy. An early ureteroscopic assessment was made in many other cases of SUR, providing not just a direct visual assessment but also an early biopsy opportunity [1,3,6,7]. There were many reported causes of SUR. The most rare, and of chief concern, was a tumor. Although scarcely seen, various types of malignant growth in the ureter had been reported as contributing factors of SUR, and, remarkably, all of these cases were reported in the Far East [8-17]. For this reason,

Figure 1. Uncontrasted CT urography showing the right periureteric and posterior pararenal collection and perinephric strandind with the presence of mild right hydronephrosis.

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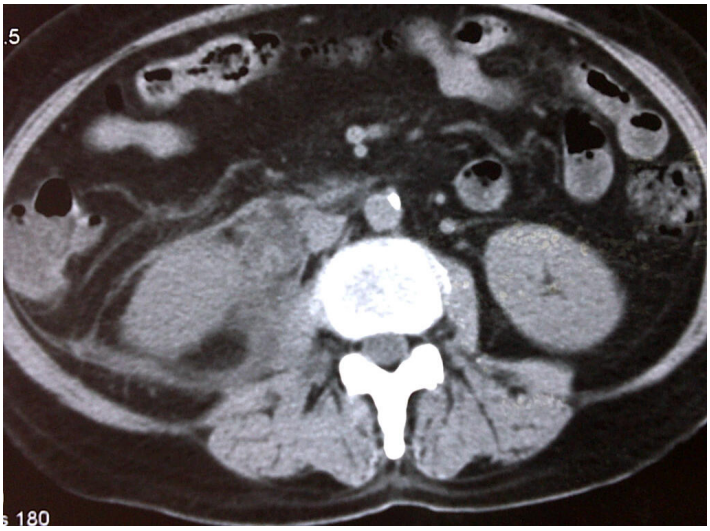

Figure 2. An endoscopic image showing the ruptured ureteral wall.

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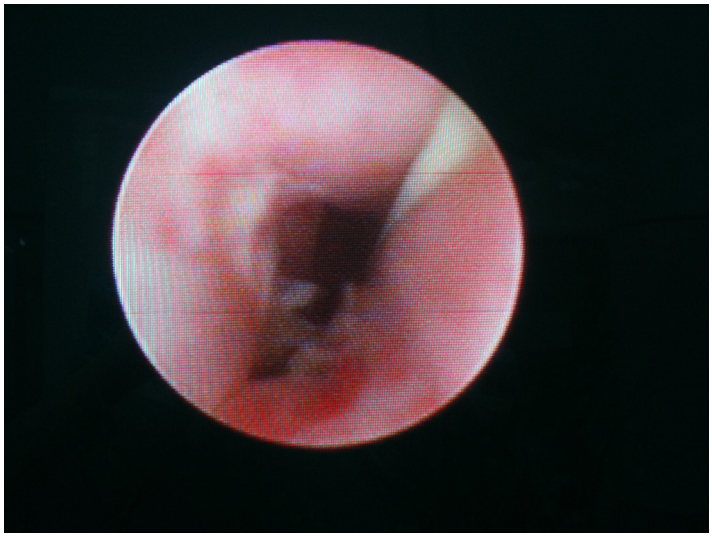

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we felt that ureteroscopy was a reasonable and suitable, albeit invasive, investigative tool in the assessment of SUR.

REFERENCES

1. Chen TL, Su YJ, Tang LM, Chang WH, Chen CC. Spontaneous rupture of renal pelvis. *Int J Gerontol*. 2007:1(3):131-133. CrossRef

2. Jerde TJ, Saban R, Bjorling DE, Steinberg H, Nakada SY. Distribution of neuropeptides, histamine content, and inflammatory cells in the ureter. *Urology*. 2000:56(1):173-178. PubMed ; CrossRef

3. Huang KH, Hsieh SC, Huang CY, Chen SC, Chen J. Dermatomyositis associated with bilateral ureteral spontaneous rupture. *J Formos Med Assoc*. 2007:106(3):251-254. PubMed ; CrossRef

4. Ashebu SD, Elshebiny YH, Dahniya MH. Spontaneous rupture of the renal pelvis. *Australas Radiol*. 2000:44(1):125-127. PubMed ; CrossRef

5. Hemal AK, Dorairajan LN, Aron M, Wadhwa SN. Obstructive jaundice: a unique presentation of primary obstructive megaureter. *Urol Int*. 1998:60(1):56-58. PubMed ; CrossRef

6. Ay D, Yencilek E, Celikmen MF, Akkas M, Ekci B. Spontaneous rupture of ureter: an unusual cause of acute abdominal pain. *Am J Emerg Med*. http://www.sciencedirect.com/science/article/pii/S073567571000611X. Published February 25, 2011. PubMed ; CrossRef

7. Koktener A, Unal D, Dilmen G, Koc A. Spontaneous rupture of the renal pelvis caused by calculus: a case report. *J Emerg Med*. 2007:33(2):127-129. PubMed ; CrossRef

8. Miyajima A, Ikeuchi K. [Spontaneous rupture of ureter caused by ureteral cancer]. *Nihon Hinyokika Gakkai Zasshi*. 1995:86(12):1789-1792. PubMed

9. Yoshimoto T, Tsujimoto Y, Kitamura K, Kuro R. [Spontaneous rupture of the ureter caused by metastatic ureteric tumor: a case report]. *Hinyokika Kiyo*. 1995:41(1):57-60. PubMed

10. Igarashi H, Onodera S, Kishimoto K, Makino H, Tomita M, Ohishi Y. [Spontaneous rupture of renal parenchyma caused by renal pelvic and ureteral cancer: a case report]. *Hinyokika Kiyo*. 1996:42(8):591-594. PubMed

11. Yoshida K, Kadowaki K, Lee KE, Kurokawa J. [A case of spontaneous repair of the ureteral rupture caused by ureteral carcinoma]. *Hinyokika Kiyo*.1997;43(7):505-507. PubMed

12. Nakayama M, Okamoto D, Murosaki N, et al. [Spontaneous peripelvic urine extravasation associated with ileocecal cancer: a case report]. *Hinyokika Kiyo*.1999;45(1):53-55. PubMed

13. Noda Y, Tujikawa K, Takada S, Sugao H, Itou Y, Osafune M. [Spontaneous renal rupture resulting from ureteral tumor left untreated for 6 years: a case report]. *Hinyokika Kiyo*. 2001;47(4):265-268. PubMed

14. Fukasawa M, Kobayashi H, Matsushita K, Araki I, Takeda M. Intraperitoneal rupture of giant hydronephrosis due to ureteral cancer accompanied by renal cell carcinoma. *J Urol*. 2002;167:1393-1394. PubMed ; CrossRef

15. Katoh Y, Hamano A, Yumura Y, Mikata K, Ooko Y, Noguchi S. [Spontaneous rupture of the ureter caused by metastatic ureteric tumor: a case report] *Hinyokika Kiyo*. 2004;50(11):795-797. PubMed

16. Inahara M, Kojima S, Takei K, et al. [Two cases of spontaneous rupture of upper urinary tract caused by the primary ureteral or renal pelvic tumor: a case report]. *Hinyokika Kiyo*. 2009;55(1):31-34. PubMed

17. Yoshii T, Horiguchi A, Shirotake S, et al. [Spontaneous rupture of the ureter as the primary symptom of malignant lymphoma]. *Hinyokika Kiyo*. 2010;56(11):639-643. PubMed

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