Case report

Spontaneous rupture of the fornix due to a ureteral lithiasis of 3 mm causing a urinoma: report of an original case

Saleh Abdelkerim Nedjim, MD*, Mostapha Abdi, MD, Mahmoud Al Affi, MD, Hissein Hagguir, MD, Hamza Ait Mahanna, MD, Abdellah Nachid, MD, Amine Moataz, MD, PhD, Mohamed Dakir, MD, PhD, Adil Debbagh, MD, PhD, Rachid Aboutaieb, MD, PhD

Urology Department, Ibn Rochd university hospital, Casablanca, Morocco

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ABSTRACT

Rupture of the pyelocalyceal cavities or fornix is a rare and potential urological emergency. It is most often secondary to obstructive uropathy. It can lead to extravasation of urine at the peri-renal or retro-peritoneal level, which can have serious consequences. The clinic reported the case of a 37-year-old patient who presented to the emergency department with hyperalgesic (right) renal colic. Intense right lumbar tenderness was found on clinical examination, renal function was preserved. The radiological examination, CT scan mainly, revealed a significant ureteralhydrenephrosis by urinary meatus calculus measuring 3 mm with a density of 271 HU and a peri-renal effusion and extravasation of the PDC at a late time. The emergency therapeutic management consisted of a bypass with a double J stent. The evolution was marked by a clinico-biological improvement.

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Introduction

Rupture of the pyelocalyceal cavities or fornix is a rare and potential urological emergency. It is secondary to an obstruction of the ureter or the pyeloureteral junction. It usually occurs in the calyx or pyelon [1]. This rupture can lead to peri-renal or retro-peritoneal extravasation of urine. This can lead to several serious consequences, including urinoma, abscess formation, urosepsis, and renal failure which could be irreversible. It is recorded as “spontaneous” if the circumstance of occurrence is other than trauma, iatrogenic manipulation, degenerative kidney disease, or previous surgery [2]. The primary objective of treatment is to reduce pressure in the upper urinary tract [3]. We report a case of Spontaneous Rupture of the fornix due to a 3 mm ureteral lithiasis causing urinoma (Figs. 1–4).

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* Corresponding author.
E-mail address: nedjimsaleh@gmail.com (S.A. Nedjim).
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presence of a fluid collection in the right anterior paral kidney compartment extended to the right iliac fossa (Image 2), dense fluid density with irregular contours with extravasation of the contrast product at the late stage (Image 3). The bladder is almost empty with a thin wall and homogeneous density. Biologically, hemoglobin was 14 g/dl (12 – 16), white blood cells were 14,000/mm² (4,000 – 10,000), and protein c-reactive was 218 ng/ml (less than 5). Creatinine level was 9 mg/L (7 – 14). Urine analysis was sterile. The emergency therapeutic management consisted of bypass by a double J stent (Image 4) and antibiotic therapy. The evolution was marked by a clinico-biological improvement.

**Discussion**

Spontaneous rupture of the fornix is rare and may or may not be of traumatic origin [2]. In a study conducted by Ercil et al on 43 patients, the lithiasis cause was identified in 74.4% of cases; in four patients (9.3%) no cause was found [4]. In our current case, it is a 3 mm lithiasis sitting in the right ureteral meatus.

The clinical presentation is varied. It may be mild flank pain, nausea, and vomiting, or an acute abdominal pain. Clinical presentations such as pyelonephritis, appendicitis, duodenal ulcer, and biliary colic(symmetric lithiasis) have been reported [5]. In our patient, the symptomatology was dominated by hyperalgesic low back pain with abrupt onset against a background of intermittent chronic pain.

From a diagnostic point of view, ultrasound can identify hydroureterohydronephrosis, the presence of collections, or the presence of stones. However, the reference examination is a CT scan with late time acquisition. It can accurately show the extravasation of the contrast agent and the exact site of rupture [6]. In this case, ultrasonography has shown its limitations; since it objectified hydronephrosis but not the effusion. The CT scan with an injection of the contrast agent and late acquisition made it possible to make the diagnosis by highlighting the dilatation, effusion, and extravasation of the contrast agent.

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**Clinical case**

A 37-year-old patient, without comorbidity, with intermittent right low back pain with no other associated signs evolving for one year attended to the emergency department for intense right low back pain. Clinical examination found a conscious patient with tenderness, hemodynamically and respiratory stable. the temperature was 38.3°C. The right iliac fossa was very sensitive. No bladder globe. Renal ultrasonography (Image 1) revealed a slightly enlarged right kidney with regular contours, measuring 12 × 5 × 4 cm with uraterohydronephrosis without obstruction. right kidney of normal size, with regular contours, moderate uretero-pyelocalic dilatation predominantly at the pyelic level upstream of an enclosed lithiasis of the right ureteral meatus of 3 mm and 217 HU and with the

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**Fig. 1 – Longitudinal section ultrasound showing a uraterohydronephrosis on a right kidney discreetly increased in size and regular contours.**

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**Fig. 2 – Axial section of uroscanner showing a significant uraterohydronephrosis and peri-renal collection upstream of a ureteral meatus calculus measuring 3 mm with a density of 271UH.**
Fig. 3 – Axial (left) and coronal (right) sections showing a peri-renal effusion and extravasation of the contrast medium at the late time.

Fig. 4 – Unprepared urinary tract showing a right double J ureteral tube.

However, precautions must be taken for contrast media as they may cause or increase extravasation due to their diuretic effect [7].

Immediate urinary diversion is essential for successful treatment. The definitive treatment of stones should be delayed until the rupture has healed completely. Open surgical procedures are rarely necessary for patients with PRRS due to stone disease [7]. The shunt was performed as an emergency procedure, using a double J ureteral stent. Renal urine collected during endoscopic maneuvers was cloudy.

The prognosis varies according to the underlying pathology, renal lesion, site of rupture, and presence of infection [8]. If untreated, this formed urinoma can lead to perirenal abscess formation, sepsis, retroperitoneal fibrosis, loss of renal function, and even death [9]. Post-operative outcomes were favourable. This could be explained by the bypass that was done in the emergency room and the antibiotic therapy.

Conclusion

Spontaneous rupture of the pyelocalyceal cavities or the fornix is a rare emergency, rarely encountered in current urological departments. It is of multiple etiologies, it can be caused by a 3 mm calculus that can be expelled spontaneously or by therapy. In the face of hyper-Algic lumbar pain, ultrasonography knows is the definitive examination. The CT scan remains the examination of choice. Emergency treatment consists of a urinary diversion by double J ureteral stent or percutaneous nephrostomy. However, the etiological treatment must not be forgotten and must be done at a distance from the acute episode.

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