Urinary Infection and Spontaneous Subcapsular Renal Hematoma

Jian-Feng Liu, Yong-Hong Cai, Ke-Zhong Zhao*, Zhang Lian, Rui-Hong Han, De-Li Zhang, Zhan Yan, Jin-Lei Wang, Wan-Ying Zou and Zhao Jin

Jinghai Clinical College, Tianjin Medical University, Tianjin, P.R. China

**Abstract:** Spontaneous subcapsular renal hematoma is an uncommon entity. We report a 54-year-old lady presenting with high fever, dysuria followed 5 days later by acute onset left flank pain and uncontrolled hypertension. Ultrasound, computed tomography and magnetic resonance imaging showed a subcapsular hematoma in the left kidney. Except urinary tract infection and hypertension, no particular cause for the condition could be found. Symptoms and size of the collection decreased on conservative treatment. The collection disappeared on MRI at 6 weeks follow-up. She was asymptomatic at 23 months follow-up.

**Keywords:** Renal hematoma, spontaneous renal rupture, subcapsular.

**INTRODUCTION**

Spontaneous subcapsular renal hematoma (SPH) is a diagnostic dilemma. It is a rare condition in clinical practice. Although lots of research has been done in the subject, still it remains elusive. Previously, renal tumor was thought to be the underlying cause when there was no obvious etiology and radical nephrectomy was advised. We report our experience of a case who developed SPH in association with urinary tract infection. She was treated conservatively with good outcome.

**CASE REPORT**

A 54-year-old female presented with a long history of intermittent micturition and dysuria. She started having high grade fever 5 days ago. On the day of presentation, she had acute onset of left flank pain. It was sudden in onset and severe in intensity and associated with nausea and hematuria. On examination, her blood pressure for as much as 150/96 mmHg about 10 years. Not taking any antihypertensive medications.

The left flank was exquisitely tender. There was no organomegaly. Genital and pelvic examinations were normal. Laboratory examination revealed hemoglobin of 92 g/L, RBC 3.18×10^{12}/L, WBC 36.54×10^9/L, N 0.94, and platelet count of 2.89×10^{11}/L. Urine culture grew *Citrobacter freundii*, sensitive to moxalactam, which was promptly started.

On abdominal ultrasonography, the left kidney was enlarged and showed a subcapsular collection extending from upper to lower pole (Fig. 1). Renal parenchyma was compressed by the collection. Doppler study ruled out any arteriovenous fistulae. Right kidney, urinary bladder and rest of the abdominal organs were within normal limit. Computed tomography (CT) (Fig. 2) revealed well-defined subcapsular pocket of fluid of size 6.3×5.5 cm on the anterior aspect compressing the left kidney.

The Hounsfield unit of the collection was 79, suggestive of clotted blood. There was no solid component or abnormal contrast uptake in the collection. Magnetic Resonance Imaging (MRI) was done. The upper pole of the left kidney revealed the 4.0×2.9 cm of circular signal shadow. There were for high T2WI signal and for the low signal T1WI. The renal capsule around the left kidney under visible arc liquid signal shadow. T2WI displayed contour signal, T1WI displayed mixed signal. Around the left kidney liquid signal and the upper pole of the kidney cystic lesions interlinked (Fig. 3). Both kidneys were functioning normally and both the ureters and urinary bladder were normal. Complete bed rest was advised, proper analgesia and antibiotic was given and she responded well to this treatment. Her symptoms decreased within 10 days. Her blood pressure was brought under control with two drugs - metoprolol and amlodipine. The erythrocyte sedimentation rate, and C-reactive protein became negative. Follow-up laboratory examination revealed hemoglobin of 110 g/L, RBC 3.86×10^{12}/L, WBC 6.02×10^9/L, N 0.94, and platelet count of 3.56×10^{11}/L. The MRI was repeated after 6 weeks, and showed marked regression of the collection (Fig. 4). She was asymptomatic at 23 months follow-up and her blood pressure was well controlled without any medication.

**DISCUSSION**

“Spontaneous renal capsule apoplexy” was first described by Bonnet in 1700, however only in 1856 gave Wunderlich give his name to this rare condition. A recent literature review on spontaneous renal hemorrhages [1] pointed out that tumors and angiomyolipoma represent more than 50% of the causes. Only one case of spontaneous perirenal hematoma following low-dose aspirin treatment has been reported [2].

Ultrasound is extremely valuable for rapid identification of the condition. Sometimes, they might be misdiagnosed as renal tumor or an abscess [3]. The findings have to be confirmed by CT scan. It has higher sensitivity and

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*Address correspondence to this author at the Department of Nephrology, Jinghai Clinical College, Tianjin Medical University, Tianjin, P.R. of China; Tel: +86-22-68924230; Fax: +86-22-28942928; E-mail: kzz2568@126.com*

Fig. (2). Computed tomography at presentation (2010-9-28). Computerized tomography of abdomen demonstrated hematoma around the left kidney (arrow).

Fig. (3). Magnetic resonance imaging at presentation (2010-10-9). Magnetic Resonance Imaging of abdomen demonstrated hematoma around the left kidney (arrow).

Fig. (4). Magnetic resonance imaging after the treatment of 6 weeks (2010-11-13). Magnetic Resonance Imaging of abdomen demonstrated disappearance of hematoma and simple cyst in the upper pole of the left kidney (arrow).
Spontaneous subcapsular renal hematoma might arise from a variety of situations. Although initially small renal cell carcinoma was thought of as the most common reason, the cause might not be evident in many cases. We propose that urinary tract infection might be one of the causes. Proper control of hypertension can save the kidney.

CONFLICT OF INTEREST
The authors confirm that this article content has no conflict of interest.

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