

Spontaneous subcapsular renal hematoma: A case report and review of literature

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Abstract Spontaneous subcapsular renal hematoma is not a common entity. We report a 38-year-old lady presenting with sudden onset right flank pain with uncontrolled hypertension and she was found to have subcapsular collection in the right kidney on ultrasonography. Finding was confirmed on computed tomography. Except hypertension, no particular cause for the condition could be found. Symptoms and size of the collection decreased on conservative treatment. They completely disappeared on ultrasonography at 6 months follow-up. She was asymptomatic at 18 months follow-up.

Key Words: Subcapsular, renal hematoma, spontaneous renal rupture

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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.^[1] We reproduce our experience with a case treated recently by conservative approach with good outcome.

CASE REPORT

A 38-year-old female presented to us with history of recent onset right flank pain. It was sudden in onset and moderate in intensity and associated with nausea. There was no history of fever, hematuria or trauma. On examination, temperature was normal and her blood pressures were persistently high.

There was mild tenderness in the right flank. There was no organomegaly. Genital and pelvic examinations were normal. Laboratory examination revealed hemoglobin of 12.2 g/dl. Total counts, renal function, coagulation profile and urine routine microscopy were normal. X-ray of KUB region did not reveal any abnormal radiopaque shadow. On abdominal ultrasonography, both the kidneys were of normal size, shape and position. There was a subcapsular collection of size 9.5×6 cm anteriorly extending from upper to lower pole in the right kidney [Figure 1]. Renal parenchyma was compressed by the collection. Doppler study ruled out any arteriovenous fistulae as a cause for the collection. Left kidney, urinary bladder and rest of the abdominal organs were within normal limit. Computed tomography with urography (CT IVU) was done. It revealed well-defined subcapsular pocket of fluid collection of size 10×6×2 cm on the anterior aspect compressing the right kidney. The Hounsfield unit of the collection was 50, which was suggestive of clotted blood. There was no solid component or abnormal contrast uptake in the collection. Both the kidneys showed prompt excretion. Both the ureters and urinary bladder were normal. She was advised complete bed rest. Proper analgesia and antibiotic was given. She responded well to conservative treatment. Her symptoms decreased within 2 days. Her blood pressure was brought under control with

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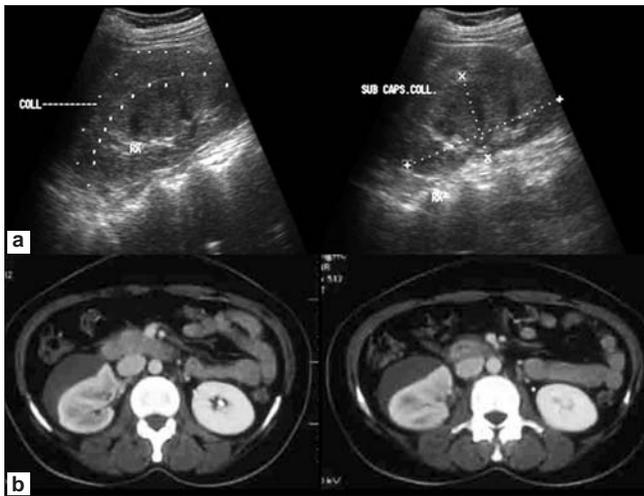


Figure 1: Ultrasonography (a) and computed tomography (b) at presentation

two drugs – beta blocker and calcium channel blocker. On serial sonography, the size of the hematoma decreased. She was discharged on fourth day in stable condition. She was followed up at 6 weeks. Repeat CT scan was done at that time. Collection at that time regressed to $3.6 \times 3 \times 1$ cm [Figure 2]. Hounsfield unit of the collection decreased to 20. Work up for vasculopathy [perinuclear antineutrophil cytoplasmic antibody (pANCA), raised erythrocyte sedimentation rate (ESR), raised C-reactive protein (CRP)] came as negative. Repeat sonography at 6 months showed complete resolution of the hematoma with a normal-sized right kidney. She was asymptomatic at 18 months follow-up and her blood pressure was well controlled without any medication.

DISCUSSION

Spontaneous renal hematoma was initially reported by Bonet in 1679.^[2] It was later on described by Wunderlich in 1856.^[3] Although it may present with “Lenk’s triad” consisting of acute flank pain, tenderness and symptoms of internal bleeding, various presentations have been described in the literature.^[4] It may mimic acute abdominal conditions like acute appendicitis or perforated viscus or dissecting aneurysm.^[5]

Ultrasound is extremely valuable for rapid identification of the condition. Sometimes, they might be misdiagnosed as renal tumor or an abscess.^[6] The findings on ultrasonography have to be confirmed with CT scan finding. It is 100% sensitive for diagnosis. It gives valuable information regarding the cause of hematoma. It has higher sensitivity and specificity than ultrasound for identification of an underlying mass.^[7] If there is fat density in the hematoma, then it strongly suggests angiomyolipoma. It also gives valuable information about the contralateral kidney.^[8] Magnetic resonance imaging (MRI) is a useful alternative to CT scan. Although it can differentiate

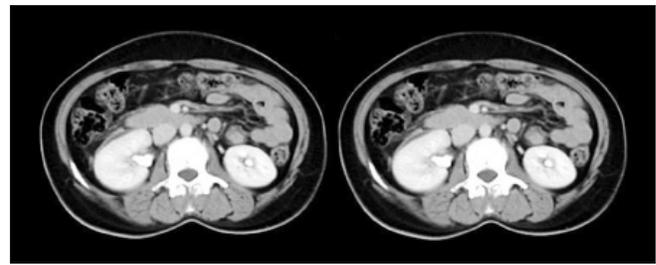


Figure 2: Computed tomography at 6 weeks

blood from tumor, however, it might add any benefit over CT scan once small tumors are concerned.^[1]

According to Brkovic *et al.*, angiography is mandatory whenever CT scan fails to reveal the underlying cause. It is due to high incidence of polyarteritis nodosa (PAN) in their series. Typical angiographic findings of PAN are eccentric or concentric nodules, aneurysms and vessel stenosis or occlusions localized in segmental and interlobular arteries.^[6] Mukamel *et al.* also stressed the role of angiography.^[9] If radiologic investigations failed to identify the cause of SPH, surgical exploration and biopsy was generally recommended previously.^[10,11]

Regarding etiology, meta-analysis done by Zhang *et al.* found that 61.5% cases were due to tumors (31.5% malignant and 29.7% benign),^[7] 17% cases were due to vascular disease, 2.4% cases were due to infection, and in 6.7% cases it was idiopathic.^[7] McDougal *et al.* reviewed the literature in 1989. He found that of a total 123 cases, tumor was accounted for in 57–87% cases. Vasculopathy was present in 11–26% of cases. Infection was accounted for in 5–10% of cases. Few cases were idiopathic.^[12]

Recently, Lal *et al.* reported a case of bilateral spontaneous renal hematoma due to metastasis of choriocarcinoma.^[13] This condition might be accountable to antiplatelet drug therapy also.^[14] Cozzoli *et al.* have reported this condition even during pregnancy.^[15]

There are two schools of thought regarding management of such cases. Kendall *et al.* proposed radical nephrectomy as a treatment of such conditions where there is no apparent etiology and normal contralateral kidney with careful pathological examination because of high incidence of small renal tumors.^[1]

In contrast, Morgentaler *et al.* proposed nephrectomy only in patients with nonfatty lesions other than hematoma. All other patients were followed by serial CT scan.^[16] Bosniak *et al.* even claimed that operative exploration is not necessary in most unexplained cases because of the diagnostic accuracy of CT scan using 5 mm sections and contrast medium.^[17] If etiology cannot be determined at the primary examination,

follow-up CT should be performed at 3 month intervals until the hematoma resolves and a definite diagnosis is possible. Conservative management is also supported by Brkovic *et al.*, Koo *et al.*, Srinivasan *et al.*, and Powelet *al.*^[6,17-20]

In our patient, hypertension seems to be the only predisposing cause for the condition as infection, malignancy and vasculopathy were ruled out. However, hypertension might be due to the hematoma also as her blood pressure was well controlled on follow-up without any medication. We believe not all patients with SPH require nephrectomy.

CONCLUSION

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 hypertension might be one of the causes. Proper control of hypertension can save the kidney.

REFERENCES

1. Kendall AR, Senay BA, Coll ME. Spontaneous subcapsular renal hematoma: Diagnosis and management. *J Urol* 1988;139:246-50.
2. Bonet T. Sepulchretum, sive anatomiapractica ex cadaveribus morbobdenatis. Geneva: L Chouet; 1679.
3. Wunderlich CR. Handbuck der Pathologie und Therapie. In: Polkey, Vynalek, editors. 2nd ed. Stuttgart, Ebner and Seubert; 1856.
4. Lenk R. Uber Massenblutungen in das Nierenlager. *Dtsch Zeits Chir* 1909;102:222.
5. Orr WA, Gillenwater JY. Hypernephroma presenting as an acute abdomen. *Surgery* 1971;70:656.
6. Brkovic D, Moehring K, Doersam J, Pomer S, Kaelble T, Riedasch G, *et al.* Diagnosis and management of spontaneous perirenal haematomas. *Eur Urol* 1996;29:302-7.
7. Zhang JQ, Fielding JR, Zou KH. Etiology of spontaneous perirenal hemorrhage: A meta-analysis. *J Urol* 2002;167:1593-6.
8. Belville JS, Morgentaler A, Loughlin KR, Tume SS. Spontaneous perinephric and subcapsular renal hemorrhage: Evaluation with CT, US, and angiography. *Radiology* 1989;172:733-8.
9. Mukamel E, Nissenkorn I, Avidor I, Servadio C. Spontaneous rupture of renal and ureteral tumors presenting as acute abdominal condition. *J Urol* 1979;122:696-8.
10. El Seweifi A, Engelman U, Hohenfellner R. Spontaneous perirenal hematoma due to a small perihilar renal cell carcinoma. *Eur Urol* 1988;14:163-5.
11. Pollack HM, Popky GL. Roentgenographic manifestations of spontaneous renal hemorrhage. *Radiology* 1974;110:1-6.
12. McDougal WS, Kursh ED, Persky L. Spontaneous rupture of the kidney with perirenal hematoma. *J Urol* 1975;114:181-4.
13. Lal A, Singhal M, Kumar S, Bag S, Singh SK, Khandelwal N. Bilateral renal and jejunal metastasis of choriocarcinoma presenting as spontaneous renal hemorrhage. *Cancer Imaging* 2009;9:56-8.
14. Capitanini A, Tavolaro A, Rosellini M, Rossi A. Wunderlich syndrome during antiplatelet drug therapy. *Clin Nephrol* 2009;71:342-4.
15. Cozzoli A, Teppa A, Gregorini G. Spontaneous renal hemorrhage occurring during pregnancy. *J Nephrol* 2003;16:595.
16. Morgentaler A, Belville JS, Tume SS, Richie JP, Loughlin KR. Rational approach to evaluation and management of spontaneous perirenal hemorrhage. *Surg Gynecol Obstet* 1990;170:121-5.
17. Bosniak MA. Spontaneous subcapsular and perirenal hematomas. *Radiology* 1989;172:601-2.
18. Koo V, Duggan B, Lennon G. Spontaneous rupture of kidney with peri-renal haematoma: A conservative approach. *Ulster Med J* 2004;73:53-6.
19. Srinivasan V, Turner AG, Blackford HN. Massive intraperitoneal hemorrhage associated with renal pathology. *J Urol* 1994;151:980-1.
20. Powell PH, Giggings AE. Safeguarding the kidney after non-traumatic perirenal haemorrhage. *Br J Urol* 1981;53:210-1.

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