

Spontaneous Renal Subcapsular Hematoma Due to Uncontrolled Hypertension Disease

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ABSTRACT Spontaneous subcapsular renal hematoma secondary to essential hypertension is an uncommon clinical condition. Patients may only be admitted with side pain or with life-threatening conditions. Early diagnosis and appropriate treatment are therefore important. While there is no problem in diagnosing such cases, treatment has not been standardized because of the lack of extensive series studies. Ultrasonography, computed tomography, magnetic resonance imaging, angiography are used for radiological diagnosis. Therapeutic modalities such as conservative approach, percutaneous drainage, nephrectomy, angioplasty are used in the treatment. In this case, a 33-year-old man with a diagnosis of uncontrolled hypertension, who was diagnosed with right renal subcapsular hematoma by imaging methods with severe right side pain, was presented in the light of the literature, with diagnosis, treatment and follow-up stages after conservative treatment.

Keywords: Hematoma; hypertension; kidney

Spontaneous subcapsular hematoma is associated with many causes, and one of them is uncontrolled hypertension. Many of the patients complain of sudden side pain. In addition, fever, nausea, vomiting, palpitations due to anemia, fatigue may accompany. In these patients, perirenal collection is seen in the urine ultrasound and subcapsular hematoma is detected in the contrast tomography. Some of these patients are being treated conservatively, while others are treated with renal angiographic embolization and nephrectomy. In this case, patient with a history of poorly controlled hypertension with severe right-sided pain and a diagnosis of right renal subcapsular hematoma diagnosed by imaging methods was presented in the light of the literature, followed by diagnosis, treatment and follow-up.

CASE REPORT

A 33-year-old male patient was admitted to the emergency room with his complaints of abdominal pain. It was a sudden onset and began 3 hours earlier. There were no fever, dysuria, hematuria or trauma and other medical comorbidities. The patient had no nausea or vomiting. Body temperature was 36.6°C. His blood pressure was 170/110 mmHg. No sensitivity and voluntary defence in abdominal examination or costovertebral angle tenderness recorded. Renal function, coagulation profile and routine urine examination did not reveal any abnormal findings. Hemoglobin level was

slightly below the normal limit. There were no pathological findings on the patient's X-ray of KUB (Kidney, ureter and bladder) region. Abdominal ultrasound revealed 3.5x3 cm subcapsular collection in the right kidney. Renal doppler ultrasonography was normal.

Contrast enhanced computed tomography (CECT) showed a subcapsular perirenal fluid collection with the maximum length of 4 cm. Right renal parenchyma was compressed by the collection. Fluid collection had a density of 32 Hounsfield units (HU). No solid component or contrast uptake was reported in the collection. Bilateral renal artery and vein had normal contrast enhancement. Renal parenchyma except the collection area appeared to be normal. Calculus, hydronephrosis or extravasation were not found in the renal pelvis or ureter. Other retroperitoneal and intra-abdominal organs were normal (Figure 1, Figure 2).

Patient was hospitalized into the urology clinic. Proper analgesia and prophylactic antibiotic were given. Patient had a resistant hypertension that could not be controlled by a calcium channel blocker. A conservative approach was chosen for the treatment method for the patient.

The patient received 2 units of red blood cells due to low hemoglobine. Patient had a fever of 38.5°C. Blood and urine cultures did not reveal any pathology. Work up for vasculopathy [perinuclear antineutrophil cytoplasmic antibody (pANCA), erythrocyte sedimentation rate (ESR), C-reactive protein (CRP)] came as negative.

On serial ultrasonography hematoma was stabilized and pain was decreased. Patient was discharged on seventh day in a stable condition. He was followed after 4 weeks with ultrasonography and 8 weeks with a CECT. At 8th week, the collection regressed to 1x1 cm. At six months, there was no pathological finding in abdominal MRI. Patient was asymptomatic at 12 months follow up and his blood pressure was controlled by a calcium channel blocker.

All permits were obtained for all examinations and treatments performed for the patient, as well as for scientific publication.

DISCUSSION

Spontaneous renal hematoma was first reported by Bonet in 1679 and later described by Wunderlich in 1856.^{1,2} Various presentations and symptoms have been described in the literature consisting "Lenk's triad" consisting of acute flank pain, tenderness and symptoms internal bleeding, mimic-



FIGURE 1: Computed tomography coronal section.

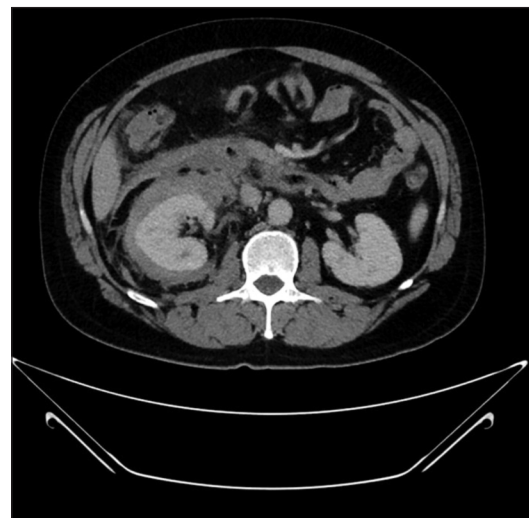


FIGURE 2: Computed tomography transvers section.

king acute abdomen (Acute appendicitis, perforated viscus or dissecting aneurysm).³

McDougal and colleagues published a review article in 1975 and they reported the causes: renal tumour (57%-87%), vasculopathy (11%-26%) and infection (5%-10%).⁴ In 2001 Zhang and colleagues found that %61.5 cases were due to tumors (31.5% malign and 29.7% benign), 17% cases were due to vascular disease, 2.4% cases were due to infection and in 6.7% cases it was idiopathic.⁵ In contrast to the other authors, Mao et al. reported 27.1% coagulation abnormality, 13.5% simple renal cysts, 13.5% (which three were associated with CA), RCC 11.1%, 11.1% ruptured abdominal aorta aneurysm, 11.1% adrenal tumors (three of them associated with CA), 8.6% polycystic kidney disease (one of them associated with CA), 6.2% idiopathic, 7.4% AML, 2.4% renal vascular disease and 1.2% infection.⁶

Ultrasound (USG) is the first choice in imagining modalities. But this imagining modality is highly dependent to the operator and small tumours may be misdiagnosed.⁷ USG must be confirmed with CECT scan because of its high sensitivity and specificity for tumours and abscesses compared to USG.⁵ MRI can be used for elective conditions. MRI can differentiate blood from tumours but MRI is not superior to the CT for small tumours.⁸ Due to high PAN incidence in the published series by Brkovic and colleagues, they recommended angiography in such conditions. Angiography can be performed using computerized tomography if the procedure does not reveal any underlying cause.⁷ In our case, CT did not reveal any underlying tumours. After 6th month, the hematoma completely resolved and MRI was used for follow-up. Because p-ANCA, ESR and CRP were all normal, selective angiography was not carried out.

There are many treatment methods to be considered patient-based. Conservative treatment, drainage and urokinase injection or nephrectomy are all viable options.⁷⁻¹² Morgentaler et al. suggests nephrectomy in non-hematous and non-fatty lesions. Patients outside of these can be followed up with serial CT.¹³ Bosniak and colleagues claimed that exploration may not be necessary in most unexplained cases because of the diagnostic success

of CECT scan with 5 mm sections.¹⁴ If aetiology is not determined at first examination, follow-up CT may be performed at 3 month intervals until the hematoma resolves and a definite diagnosis is possible.^{7,14,15}

Our patient did not have any risk factors but hypertension. Malignancy, infection and arthritis were all ruled out. Patient had controlled hypertension. We believe that all subcapsular hematomas should not be surgically explored; because hypertension induced subcapsular hematoma should always be kept in mind.

CONCLUSION

Hypertension-induced subcapsular hematoma is a rare condition and can be fatal if it is not noticed well. High blood pressure patients with spontaneous perirenal hematoma should be kept in mind. It should be remembered that it can be recurrent later after treatment.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Umut Ünal; **Design:** Umut Ünal, Mehmet Eflatun Deniz; **Control/Supervision:** Erbay Tümer; **Data Collection and/or Processing:** Umut Ünal, Mehmet Eflatun Deniz; **Analysis and/or Interpretation:** Erbay Tümer; **Literature Review:** Umut Ünal, Mehmet Eflatun Deniz; **Writing the Article:** Mehmet Eflatun Deniz; **Critical Review:** Erbay Tümer; **References and Fundings:** Umut Ünal, Mehmet Eflatun Deniz; **Materials:** Umut Ünal, Mehmet Eflatun Deniz, Erbay Tümer.

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