Spontaneous Renal Artery Thrombosis: A Case Report

Li Wang, Shantanu Singh, Qi Sheng Yao, Xiao Kang Wang, Congbo Chen, Yong Yang, Xiao Xin Gong

Department of Urology and Andrology,
Taihe Hospital Affiliated to Hubei University of Medicine,
Shiyan, Hubei. PR. China. 442000

Corresponding author: Shantanu Singh
Department of Urology and Andrology,
Taihe Hospital Affiliated to Hubei University of Medicine,
Shiyan, Hubei. PR. China. 442000
E-mail address: shantanu512@gmail.com
FAX numbers: (+86) 719 8801218
Telephone numbers: (+86) 719 8801456
ABSTRACT

Background

Most common cause of spontaneous renal artery thrombosis is abdominal blunt trauma and poses a diagnostic challenge for urologists. This article describes a rare case of spontaneous renal artery thrombosis and reviews occurrence in spite of absence of any underlying triggering cause.

Case Presentation

A 56 year old man with no previous health problems presented to the emergency department of our hospital with complaint of abdominal pain and nausea. Computerized tomography angiogram (CTA) of the abdomen and pelvis confirmed thrombus in left renal artery. It also showed near complete infarction of left kidney. There was no evidence of aortic plaques on the Computerized tomography angiogram and no evidence of cardiac thrombus on Echocardiogram.

Conclusion

This case illustrates particular difficulties urologist may face in diagnosing these types of cases. With reporting of our case, we want to raise the awareness of the possibility of spontaneous renal artery thrombosis in patients presenting with acute abdomen. Patient was treated conservatively with anti-coagulation. He showed good response to the treatment with resolution of the thrombus and improvement in the renal perfusion.
Keywords

1. Abdomen, Acute
2. Flank pain
3. Renal artery
4. Infarction, Renal
5. Thrombosis
Most cases of renal artery clots are due to thromboemboli which usually originate from a thrombus in heart or aorta. In-situ thrombosis of renal artery is uncommon. Most common causes of in-situ thrombosis are blunt abdominal trauma\(^1\) and atherosclerotic lesion of the renal artery. There are case reports of it being associated with polycythemia vera\(^2\), pregnancy, hypercoagulability, renal transplantation\(^3\), intra-aortic balloon placement\(^4\), renal angiography, oral contraceptives\(^5\), cocaine injection\(^6\), nephrotic syndrome, systemic lupus erythematous\(^7\), renovascular hypertension, infective endocarditis\(^8\), Ehlers-Danlos syndrome, renal surgery. However, spontaneous renal artery thrombosis without any known cause is extremely rare. We describe such a case.

**CASE REPORT**

A 56-year-old man was referred to the authors’ hospital with severe, unremitting abdominal pain of 3 days duration associated with nausea and vomiting. He denied history of trauma. Review of rest of the systems was negative. He had no prior medical history, no prior hospitalizations, and no prior surgery. Specifically, he had no history of diabetes mellitus, hypertension, hyperlipidemia, heart disease, or atrial fibrillation.

On examination, patient was afebrile, normotensive and in normal sinus rhythm. Abdominal examination was remarkable for tenderness and guarding over the left flank area.

A computerized tomography angiogram (CTA) of the abdomen and pelvis revealed a thrombus at the origin of the left renal artery, a normal caliber aorta with no evidence of aortic plaques (Fig.2), and near complete infarction of left kidney (Fig.1). Using...
Emission Computed Tomography glomerular filtration rate (GFR) of left kidney was determined to be 9 ml/min and of right kidney 67 ml/min. Echocardiogram was normal with no evidence of clots in the cardiac chambers. CT scans of the chest and head were negative. Other tests, specifically white blood cells, platelets, LDH in blood and urine analysis were normal.

Anticoagulation was started with full dose low molecular weight heparin. Thrombolytics were not used because it had already been three days since the onset of symptoms. Anticoagulation was later switched to warfarin. Patient’s symptoms gradually resolved, and a repeat CT scan on 7th day of hospitalization showed resolution of the thrombus and restoration of the left kidney perfusion (Fig.3). Plan is to treat with warfarin for total of six months.

DISCUSSION

Renal artery thrombosis usually happens to adults aged from 30 to 50 years. Most patients suffer a sudden, sharp unremitting pain in the flank or upper abdomen or lower back pain, and this could be associated with fever, leukocytosis, nausea, and vomiting. Few of them may have hematuria and proteinuria. The disease is rare while there is no underlying known disease process triggering the formation of thrombus in the renal artery. The triad of flank pain, hypertension, and hematuria should alert one to the possibility of acute renal artery occlusion [9]. But any symptom above-mentioned is not unique for renal artery thrombosis.

This case is unique as there is no underlying known disease process triggering the formation of thrombus in the renal artery. This patient was previously healthy, with no evidence of trauma, atherosclerotic disease or any of the other disease associations
described in the introduction above. With reporting of our case, we want to raise the awareness of the possibility of spontaneous renal artery thrombosis in patients presenting with acute abdomen. This diagnosis may be underreported because there are no specific symptoms, signs or tests short of contrast imaging of the renal artery to make the diagnosis. In fact, in our own case the diagnosis was missed at the outlying hospital and even after patient was referred to our hospital, the diagnosis was first considered only when the thrombus was seen on the CT imaging study done as part of generic work up for acute abdomen. Besides CT imaging, magnetic resonance imaging can also be used to confirm the diagnosis.\textsuperscript{[10]}

Our case is also unique in that it does not conform to the commonly held belief that LDH is elevated in patients with renal infarction.\textsuperscript{[11]} Even though our patient had sizeable renal infarction but the LDH was normal. Thus a normal LDH can not be relied upon to rule out renal infarction.

This patient had resolution of symptoms and restoration of perfusion with anticoagulation when treatment was initiated in timely manner. Thrombolytics can also be considered in cases that are diagnosed within about six hours of onset of symptoms. Surgical interventions such as autotransplantation or nephrectomy can be avoided with timely diagnosis and initiation of thrombolysis and/or anticoagulation. Excellent outcomes with timely diagnosis underscore the need to consider renal artery thrombosis in differential diagnosis of acute abdomen.
CONSENT

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

AUTHORS’ CONTRIBUTIONS

Li Wang (LW) Helped to draft the manuscript
Shantanu Singh (SS) Prepared manuscript, performed literature search
Qi Sheng Yao (QY) Helped to obtain images
Xiao Kang Wang (XW) Supervised the draft
Cong bo Chen (CC) Reviewed the final draft
Yong Yang (YY) Prepared manuscript
Xiao Xin Gong (XG) Structured overall manuscript

ACKNOWLEDGMENTS

There are no acknowledgments for this case report

CONFLICTS OF INTEREST

There are no conflicts of interest for any of the authors
REFERENCES


Figure 1. CT scan showing left renal infarct
Figure 2. Focal thrombus at the origin of left renal artery
Figure 3. CT 7 days after treatment showing improved left kidney perfusion