

## PAPER DETAILS

TITLE: Renal ArteryThrombosis Due To Blunt Trauma: Case Report

AUTHORS: Havva Sahin KAVAKLI,Neriman Defne ALTINBAS,Mehmet GÜMÜS,Erol SENER,Pelin Erdem ERDOGAN,Veli ATALAY

PAGES: 44-46

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/662674>

# Künt Travmaya Bağlı Renal Arter Trombozu: Olgu Sunumu

## *Renal Artery Thrombosis Due To Blunt Trauma: Case Report*

Havva ŞAHİN KAVAKLI<sup>1</sup>, Neriman Defne ALTINTAŞ<sup>2</sup>, Mehmet GÜMÜŞ<sup>3</sup>,  
Erol ŞENER<sup>4</sup>, Pelin ERDEM ERDOĞAN<sup>1</sup>, Veli ATALAY<sup>5</sup>

1 Ankara Atatürk Eğitim ve Araştırma Hastanesi, Acil Tıp Kliniği, Ankara

2 Ankara Atatürk Eğitim ve Araştırma Hastanesi, Dahiliye Yoğun Bakım, Ankara

3 Ankara Atatürk Eğitim ve Araştırma Hastanesi, Radyoloji Kliniği, Ankara

4 Ankara Atatürk Eğitim ve Araştırma Hastanesi, Kalp Damar Cerrahisi Kliniği, Ankara

5 Ankara Atatürk Eğitim ve Araştırma Hastanesi, Nefroloji Kliniği, Ankara

### ABSTRACT

We report a case of bilateral renal artery thrombosis and dissection of the left renal artery due to blunt trauma. The patient was a 54-year-old woman who had fallen from about 2 to 2.5 m height. A computed tomography scan with intravenous contrast showed a lack of contrast in the left kidney. Angiography showed complete occlusion and dissection of the left renal artery, and partial occlusion of the right renal artery. Thrombolytic therapy was not considered because of recent surgical interventions. She was successfully treated by percutaneous transluminal angioplasty and stent implantation.

**Keywords:** Renal Artery Thrombosis, Trauma, Percutaneous Transluminal Angioplasty, Stent.

**Received :** 19.04.2010

**Accepted:** 27.05.2010

### ÖZET

Biz künt travmaya bağlı bilateral renal arter trombozu ve sol renal arter diseksiyonu olgusunu rapor etmekteyiz. 54 yaşındaki bayan hasta yaklaşık 2-2.5 m. yüksekten düşmüştü. İntravenöz kontrast verilerek çekilen tomografide sol böbreğin kontrast tutmadığı görüldü. Anjiyografi sol renal arterde tam oklüzyon ve diseksiyon, sağ renal arterde parsiyel oklüzyon gösterdi. Hastanın yeni geçirdiği cerrahi girişimler nedeniyle trombolitik tedavi düşünülmeydi. Hasta perkutan transluminal anjiyoplasti ve stent uygulamasıyla başarılı bir şekilde tedavi edildi.

**Anahtar Sözcükler:** Renal Arter Trombozu, Travma, Perkutan Transluminal Anjiyoplasti, Stent.

**Başvuru Tarihi :** 19.04.2010

**Kabul Tarihi:** 27.05.2010

**Yazışma Adresi/Corresponding to:**

Dr. Havva Şahin Kavaklı

Ankara Atatürk Eğitim ve Araştırma Hastanesi

Acil Tıp Kliniği, Bilkent Yolu No: 3 Ankara - Türkiye

e-mail: hasan.kavakli@isbank.net.tr

Tel: 0 532 784 02 25

## INTRODUCTION

Acute posttraumatic bilateral renal artery thrombosis is a rare entity and there are only few reports on the subject <sup>(1)</sup>. Multiple mechanisms may be involved in the pathophysiology. Sudden deceleration causes subintimal tears which may be followed by subintimal dissection and thrombosis. As well, compression of the renal artery between anterior abdominal wall and the vertebral bodies is also considered to contribute to the condition. Left renal artery is commonly involved since it is more mobile than the right one <sup>(1,2)</sup>. Immediate intervention is important to preserve renal functions. When surgical management or thrombolytics are not plausible, percutaneous transluminal angioplasty (PTA) can be a safe option <sup>(3)</sup>.

We are presenting a case of traumatic complete left renal artery thrombosis and partial right renal artery occlusion that was treated by PTA.

## CASE REPORT

A 54-year-old woman was transferred from another center for surgical revascularization of posttraumatic renal vein thrombosis, after initial stabilisation and surgical intervention following a fall from 2-2.5 m height. Splenectomy, repair of the superior mesenteric artery and the inferior vena cava had been performed besides ligation of the right ovarian vein. On admission, 24 h after the injury, she was in good condition, except for the ongoing left abdominal pain. She was hemodynamically stable. Laboratory examinations revealed leukocytosis and anemia (WBC:18.200/mm<sup>3</sup>, Hb: 9.4 g/dL, Hematocrit: 28%, platelets 122 K/uL). Serum creatinine and urea were 1.3 mg/dL and 41 mg/dL respectively. Microscopic urine analysis revealed erythrocyte 50/HPF, leukocyte cluster 34/HPF and leukocyte 65/HPF. Computed tomography (CT) showed complete thrombotic occlusion of the left renal artery 1 cm distal to its origin. Right renal artery was patent, but its contour was irregular. CT depicted soft plaques which caused 30 to 40% narrowing at the right renal artery orifice. Angiography revealed dissection and complete thrombotic occlusion of the left renal artery (Figure 1). Multidisciplinary evaluation was made with physicians from the department of vascular surgery, urology, and radiology. Thrombolytic therapy could not be administered because of recent operations. PTA was planned. Left renal artery was approached and the dissection bypassed with a guidewire. PTA was attempted with a 5 mm balloon along the renal artery. But the filling defect and the dissection persisted and therefore a 6x18 mm stent was implanted.

## DISCUSSION

Renal artery thrombosis, although well recognized, remains a rare complication of blunt abdominal trauma <sup>(4,5)</sup>. It can induce renal dysfunction and hypertension. Management options include observation only, thrombolytic therapy, nephrectomy, surgical intervention, and, more recently, PTA with or without stenting <sup>(6,7,8)</sup>. PTA is a valuable alternative to surgical treatment in selected patients <sup>(6,8)</sup>.

After blunt trauma, presence of renal artery thrombosis indicates severe injury. Traditionally, surgical revascularization has been

the treatment of choice. Surgical revascularisation may increase morbidity and mortality while success is limited, therefore risks and benefits should carefully be weighed and conservative management considered for asymptomatic patients with unilateral involvement <sup>(9)</sup>. As well, most patients have concomitant more severe injuries which require more immediate intervention. When surgical revascularization is planned, it should be performed within 24 hours of the injury, to decrease ischemia time, because the kidney is extremely vulnerable <sup>(10)</sup>.

On the other hand, aggressive renal revascularization is indicated for treatment of bilateral renal artery occlusion or unilateral occlusion in a solitary kidney regardless of time delay, unless the patient is unstable and surgical intervention means prolonging surgery and endangering patient life to save some of the renal function. Patients who are managed expectantly without revascularisation require close monitoring for onset of hypertension and possible renal failure <sup>(3,9)</sup>.

In our case, surgical revascularization was not considered, because the ischemic time was longer than the suggested 24 hours. Involvement was unilateral, complete occlusion was present only on the left side. As well, the patient was not hypertensive and the blood creatinine levels were normal. PTA and stenting were considered appropriate for the patient.

In summary conservative management should be preferred to treat unilateral blunt renal artery thrombosis to protect the patients from risks of surgery. However these patients need a close follow-up to identify the subgroup that may develop hypertension. Surgeons should critically assess the overall clinical status of these patients with the added risk of mortality against chances of recovering the renal function. At this point, endovascular stenting may be an attractive option, to be further evaluated, to preserve renal functions after traumatic renal artery dissection while obviating the risks of a major surgery in multi-trauma patients <sup>(9)</sup>.



## REFERENCES

1. Nakayama T, Okaneya T, Kinebuchi Y, Murata Y, Iizuka K. Thrombolytic therapy for traumatic unilateral renal artery thrombosis. *Int J Urol* 2006;13:168-70.
2. Lee JT, White RA. Endovascular management of blunt traumatic renal artery dissection. *J Endovasc Ther* 2002;9:354-8.
3. Rha SW, Wani SP, Suh SY, Kim EJ, Kim JW, Park CG, et al. Images in cardiovascular medicine. Successful percutaneous renal intervention in a patient with acute traumatic renal artery thrombosis. *Circulation*. 2006;114:583-5.
4. Spirnak JP, Resnick MI. Revascularization of traumatic thrombosis of the renal artery. *Surg Gynecol Obstet* 1987;164:22-6.
5. Greenholz SK, Moore EE, Peterson NE, Moore GE. Traumatic bilateral renal artery occlusion: successful outcome without surgical intervention. *J Trauma* 1986;26:941-4.
6. Chabrot P, Cassagnes L, Alfidja A, Mballa JC, Nasser S, Guy L, et al. Revascularization of traumatic renal artery dissection by endoluminal stenting: three cases. *Acta Radiol* 2010;51:21-6.
7. Dinchman KH, Spirnak JP. Traumatic renal artery thrombosis: evaluation and treatment. *Semin Urol* 1995;13:90-3.
8. Klink BK, Sutherin S, Heyse P, McCarthy MC. Traumatic bilateral renal artery thrombosis diagnosed by computed tomography with successful revascularization: case report. *J Trauma* 1992;32:259-62.
9. Jawas A, Abu-Zidan FM. Management algorithm for complete blunt renal artery occlusion in multiple trauma patients: case series. *Int J Surg* 2008;6:317-22.
10. Muñoz D, Gutierrez C, Hidalgo F, Rebassa M, Mus A, Ozonas M. Traumatic renal artery thrombosis. *Scand J Urol Nephrol* 1998;32:296-8.