

# A CASE OF CHRONIC RENAL VEIN THROMBOSIS TREATED WITH THROMBOLYTIC DRUGS

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**Abstract-** Renal vein thrombosis (RVT) is the most frequent vascular abnormality in newborns, but rarely seen in adults. RVT is an acute problem, and diagnostic and therapeutic approaches should be done immediately. Surgical thrombectomy is not a rational approach and the treatment of choice is conservative management and thrombolytic therapy. We present a 45 years old male patient with chronic renal vein thrombosis who was treated with thrombolytic therapy successfully.

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## INTRODUCTION

Renal vein thrombosis (RVT) is the most frequent vascular anomaly in newborns and is diagnosed one in 150–250 autopsies (1). It is rarely seen in healthy adults but has a prevalence of about 15 to 20 percent in patients with nephrotic syndrome (1). In infants it is mostly bilateral and accompanied by dehydration after diarrhea or vomiting (2). In adults it is mostly unilateral and accompanied by nephrotic syndrome, tumoral invasion to renal vein or invasion of primary retroperitoneal diseases. Since clot begins in small veins in renal parenchyma and all venous system is full, surgical treatment usually is not indicated (1, 3, 4). The treatment of RVT includes general maintenance approaches and use of thrombolytic drugs that must be started quickly. Since RVT can result in insufficiency of one or both kidneys early diagnosis and treatment are very important principles.

Here we present a 45 years old man with chronic RVT treated with thrombolytic therapy.

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## CASE REPORT

A 45 years old man referred with the complaints of right flank pain and weakness aggravated since two days. He had a history of right flank trauma because of falling from height twenty days ago. Initial diagnosis was renal colic and oral and parenteral analgesics were administered. Urine analysis revealed microhematuria and mild hydronephrosis seen in ultrasonography. After a few days patient was returned with intolerable flank pain. Intravenous urography (IVU) was done that showed normal left kidney but right kidney was not visualized. Ureterscopy and retrograde pyelography were performed for ureteral stone but no stone or obstruction was found. In DTPA isotopes scan left kidney was normal but severe decreased perfusion and function were seen in right kidney.

To rule out probable vascular problems, angiography was performed. Left arterial system, left renal vein and inferior vena cava were normal. There was no stenosis or obstruction in right renal artery but renal perfusion was diminished. Right renal vein was not seen even in late images (Fig. 1). Considering these results, we offered diagnosis of right RVT and patient was hospitalized, 20 days from first presentation and 40 days after trauma history.



**Fig. 1.** Right kidney has low perfusion and its vein not seen in delayed phase of angiography.

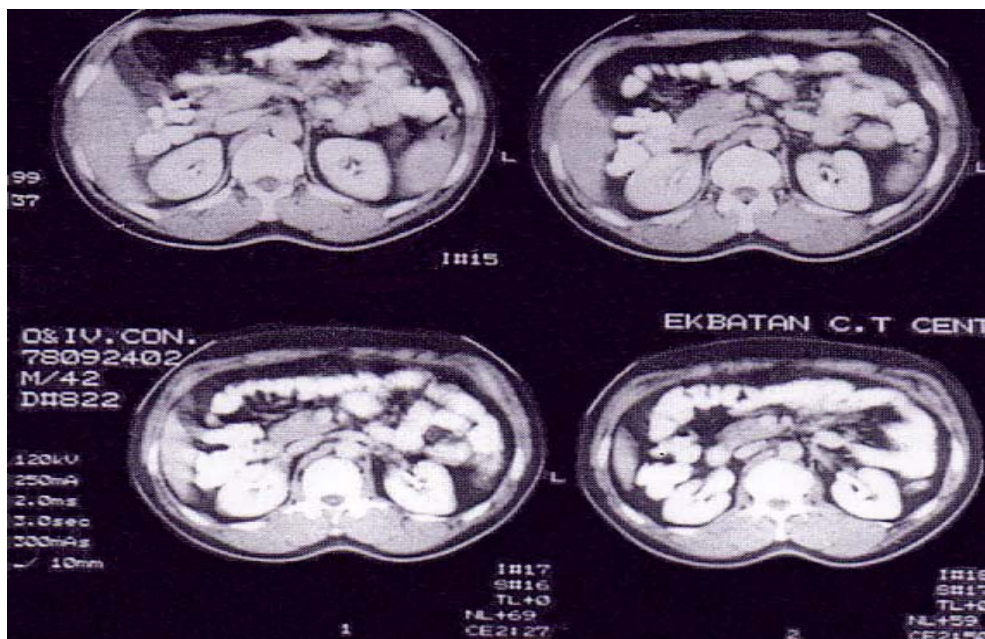
After consultation with patient, he was selected for thrombolytic therapy and was transferred to Coronary Care Unit (CCU) and streptokinase protocol was performed as follows: after taking of blood and urine samples for lab tests, a 325 mg. Aspirin pill was given and then 1.5 million units of streptokinase were soluted in 75 ml. of D/W 5% and injected in doses of 500 units per kg/min. Two hours after injection, he was transferred to urology ward and intravenous heparin with dose of 5000 units per 4 hours (30,000 units per day) was started and continued for a week.



**Fig. 3.** Isotope renal scan, three months after treatment: normal perfusion and function of both kidneys.

To evaluate probable retroperitoneal diseases, computed tomography (CT) scan was done one week after beginning of treatment. In CT scan no abnormality was found, left kidney was normal and right kidney began activation and had normal perfusion and function (Fig. 2).

Heparin was tapered gradually and patient was discharged with good general condition and without any problem. He was followed with repeated visits. Three months later isotope scan was done, right kidney had near normal perfusion and function (Fig. 3).



**Fig. 2.** CT scan revealed good right renal perfusion and function, one week after beginning of treatment.

## DISCUSSION

RVT is a medical and sometimes surgical emergency. This disorder usually occurs in neonatal period but occasionally seen in adulthood. Its pathophysiology in neonates is related to arterial and venous hypotension that results in decreased renal perfusion. Every kind of reduction in intravascular volume results in increased capability of clotting and exposes neonates to RVT. Precipitating factors for thrombosis include dehydration, infections, vascular endothelial damage, antithrombin III deficiency, C and S protein deficiency and presence of anticardiolipin antibodies (5, 6). In adults, it is pointed to nephrotic syndrome and the prevalence of thrombosis in nephrotic syndrome is 15 to 20% and in membranous glomerulonephritis is more than 50%. The increase in fibrinogen and decrease in above factors and primary retroperitoneal diseases are precipitating factors for thrombosis (1, 3). The other effective factors for renal vein thrombosis are acute pyelonephritis and abdominal surgeries as laparoscopic cholecystectomy.

It can be pointed to several diagnostic techniques for renal vein thrombosis as Doppler ultrasonography, CT scan, MRI, venography and arteriography (1, 2, 7). However, the best technique is venography, but it has several side effects and its accomplishment is not necessary. Arteriography is a diagnostic and therapeutic method by injecting the thrombolytic drugs directly into the renal artery (7).

The main discussion is about treatment. Surgical treatment has restricted indications because clot originates from small veins in renal parenchyma and it is impossible to take it out (4). Maintenance therapy such as injection of thrombolytic drugs must be started immediately. This method has high success rate in acute renal vein thrombosis and even preserved total renal function, but it is discussed in chronic renal vein thrombosis as mysterious and quiet disease and even asymptomatic one and about its need for treatment and suitable results of treatment (8, 9). Because of clot characteristics in different cases, it is pointed to about one week for immediate treatment of clot and we can find rare reports about chronic thrombosis (1, 8, and 9). In different studies and reports, early diagnosis and

treatment is recommended. In a study on renal vein thrombosis of infants, it was seen that medical success and recovery of renal function occurred in about 25% (2). In the other report it was reported that in two infants with renal vein thrombosis, thrombolytic therapy was successful in one of them (10). In the other study, in 18 infants with acute renal vein thrombosis, treatment with urokinase was successful in 50% and because of side effects of streptokinase, use of this drug is contraindicated in infants (4). In other study in adults high success in early and urgent treatment of disease with streptokinase is reported (11). In two other studies it was reported that some patients with complaints of back pain, flank pain and symptoms of urinary stones and hematuria were treated by thrombolytic drugs successfully (7, 12). Our patient who was referred with chronic renal vein thrombosis and was treated by thrombolytic drugs treatment protocol was excellent. However, on the basis of experience on this one patient, we can not present a general protocol, but feel that thrombolytic therapy in similar patients can be offered.

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