



Trauma and Reconstruction

“Isolated Spontaneous Renal Artery Thrombosis – A Rare Cause of Acute Flank Pain”



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ABSTRACT

Many patients present with severe abdominal pain. Renal Artery Thrombosis (RAT) is rare, serious and misdiagnosed. RAT has been well described in association with various disorders, but isolated spontaneously occurring RAT is rare and only 2 cases have been described as of date. We present a case of flank pain presenting to emergency for evaluation and discuss the clinical aspects and management. We would like to stress on the important role of serum LDH levels and CT scan in RAT. Early diagnosis may result in salvage of organ by minimally invasive techniques. Late diagnosis will almost always result in nephrectomy.

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An elderly male with no previous medical disorders or history of trauma presented with severe abdominal pain. He had been managed elsewhere for 3 days and had no relief with intravenous analgesics. His vitals and physical examination were unremarkable. All laboratory investigations were normal except for grossly elevated LDH levels. Initial non-contrast CT showed left perinephric stranding with no hydroureteronephrosis or calculus. As the patient continued to have pain out of proportion to clinical features, a repeat CT with contrast was ordered. It showed no flow in left renal artery with non enhancement of the affected kidney with normal flow on right (Fig. 1). The celiac group of vessels showed normal flow (Fig. 2). A Transthoracic ECHO done to rule out cardiac pathology was normal. Patient underwent exploration and Nephrectomy as the entire kidney was infarcted. Gross photograph revealed large occlusive thrombus completely blocking main renal artery (Fig. 3).

Renal Artery Thrombosis is usually seen in emergency departments as the patient often lands up with severe pain. The largest case series of emergency department patients gives a prevalence of about 2/1,00,000.¹ The prevalence points to the rarity of this entity. Renal Artery Thrombosis has been illustrated in some journals, but usually it is associated with other causes like vasculitis,

instrumentation, sepsis, transplant, sickle cell disease, and anti-phospholipid syndrome. Trauma has also been described as an important cause for this condition.² Renal Artery Thrombosis occurring in the absence of these precipitating factors is spontaneous or idiopathic Renal Artery Thrombosis. Renal Artery



Figure 1. Coronal reconstructed CT enhanced with IV contrast exhibiting no flow in left renal artery (larger red arrow) with non enhancement of the affected kidney with normal flow on right (smaller red arrow).

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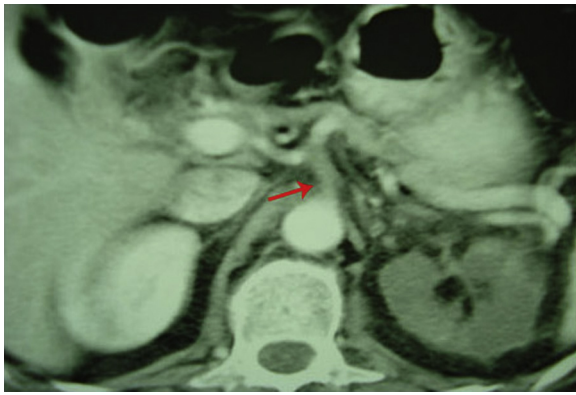


Figure 2. Coronal reconstructed CT enhanced with IV contrast exhibiting normally enhancing celiac group of vessels (red arrow).

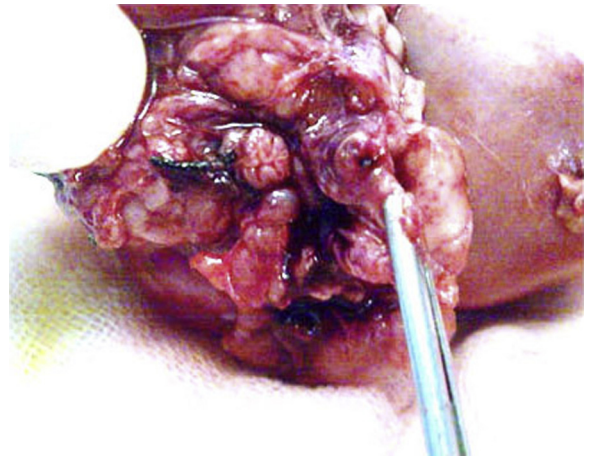


Figure 3. Gross photograph of Nephrectomy specimen showing large occlusive thrombus completely blocking main left renal artery.

Thrombosis is also known to occur in atherosclerotic disorders but here almost all the abdominal vessels and specifically the celiac group of vessels are involved. The CT in the present case shows only the involvement of renal artery with normal celiac vessels (Figs. 1 and 2). Such Isolated Spontaneous Renal Artery Thrombosis is very rare and has been reported only twice earlier.^{3,4}

Regarding, diagnostic tests, the only two tests of relevance are the serum LDH levels and contrast enhanced CT scan. The serum LDH levels can be used to prognosticate. The lower, the levels, the lesser may be the infarct and the patient can be managed medically or with minimally interventional techniques. Grossly elevated LDH levels usually indicate severe infarction as seen in our case and such patients may need nephrectomy. Contrast enhanced CT is the diagnostic test of choice in this condition as demonstrated by our study.

The optimal treatment modalities have not been described because of the rarity of this disorder. However, some reports have suggested that anticoagulants, antihypertensive and thrombolysis/thrombectomy are sufficient for the majority of patients.⁵ In the present case, the patient presented late due to wrong initial diagnosis and hence, nephrectomy was the only option. So, we feel that an early diagnosis will lead to minimally invasive therapy with successful salvage of the organ while a late diagnosis will result in organ loss.

When a patient presents to emergency department with pain out of proportion to his clinical features, a thrombotic or vascular event usually associated with gut is thought of always. We feel that in such patients, the possibility of Renal Artery Thrombosis should be considered. Elevated LDH levels are useful for prognostication and the diagnostic investigation of choice should be a contrast enhanced CT scan. Early intervention may help in conservation of the organ.

Conflict of interest

None.

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