

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Vascular diseases Quiz - Case 2

A 56-year-old male presented to our Emergency Department with nausea and anuria of acute onset. On physical examination flank pain, more intense on the left side was found. Laboratory investigation revealed a hemoglobin (Hb) of 13 g/dL, white blood cell (WBC) count of $9 \times 10^9/L$, platelet (PLTs) count of $252 \times 10^9/L$ and serum creatinine (Cr) of 6.1 mg/dL. His past medical history included a type III thoracoabdominal aortic aneurysm (TAAA) extending from the mid-portion of the descending thoracic aorta to the level of the left renal artery, an infrarenal abdominal aortic aneurysm (AAA) and chronic renal insufficiency (baseline serum creatinine: 2.1 mg/dL) secondary to right renal artery chronic occlusion and 95% left renal artery stenosis (fig. 1).

Comment

Based on patient's medical history and presentation, either dissection or rupture of the TAAA was at first suspected. Therefore, the patient was subjected immediately to thoracic and abdominal CT scan, which however did not reveal any signs of aortic dissection or rupture.

Subsequently, total thrombotic occlusion of the 95% stenosed solitary left renal artery was assumed that was confirmed by Duplex ultrasonography. The patient was subsequently transferred to the endovascular suite, where endovascular recanalization and stenting of the occluded renal artery was performed successfully (fig. 2). Urine output was restored immediately after the procedure, and serum creatinine level was reduced to 1.6 mg/dL, 10 days postoperatively.

Thrombosis of a stenotic renal artery leading to total occlusion and acute renal failure should always be suspected in a patient with a solitary functioning kidney that presents with anuria of acute onset. After confirmation of the diagnosis with ultrasonography, attempts for renal blood flow restoration should be performed immediately. However, recanalization of a totally occluded renal artery may not be always successful and especially in patients with a solitary functioning kidney the occlusion can lead to irreversible renal failure. To avoid such a devastating result, solitary renal artery stenosis should be managed more aggressively in comparison with unilateral renal artery disease. Indeed, to date, percutaneous revascularization is strongly recommended for patients with renal artery stenosis in a solitary functioning kidney (Class IIa, Level of Evidence: B, ACC/AHA 2005 Practice Guidelines).

It should be highlighted that anti-hypertensive treatment with angiotensin converting enzyme (ACE) inhibitors could have also been the cause of acute renal failure and anuria in our patient. However, he denied being on any ACE inhibitor, despite hypertension. Angiotensin II receptor blockade (ARB) could have also caused acute renal failure to our patient, despite the fact that these agents are considered generally safer than ACEs in this setting. Although acute renal failure induced by ACEs or ARBs is commonly reversible, both these antihypertensive agents should be avoided in patients with renal artery stenosis of a solitary functioning kidney. Additionally, every patient with a solitary functioning kidney that presents with acute anuria

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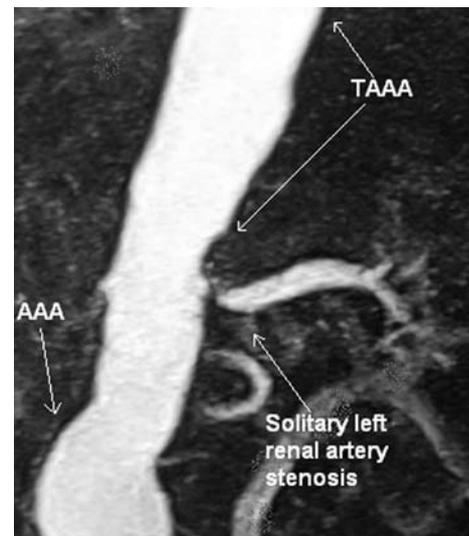


Figure 1. Computed tomography angiogram demonstrating the TAAA, AAA and solitary left renal artery stenosis.



Figure 2. Digital subtraction angiography demonstrating solitary left renal artery thrombosis (A) and recanalization after angioplasty and stenting (B).

should be investigated for ACE inhibitor/ARB intake.

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Diagnosis: Acute anuria due to solitary renal artery occlusion
