

Renal Artery Stenting in Takayasu Arteritis

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Abstract: Renal artery stenosis is a critical cause of renovascular hypertension and chronic renal failure, often attributed to atherosclerosis in older individuals and Takayasu arteritis in younger patients. This case report details the clinical presentation, investigation, and successful management of a 27-year-old male with resistant hypertension, Takayasu arteritis grade 5, and bilateral renal artery stenosis. Diagnostic evaluations revealed significant vascular occlusions, including bilateral renal arteries, managed through percutaneous transluminal renal angioplasty (PTRA). Post-intervention, the patient's hypertension and renal function significantly improved, with sustained recovery during follow-up on antiplatelet therapy, statins, and methotrexate. This case underscores PTRA's efficacy as a viable treatment for Takayasu arteritis-associated stenosis despite its restenosis risk, offering promising short-term outcomes and improved quality of life.

Keywords: Renal artery stenosis, Takayasu arteritis, Percutaneous transluminal renal angioplasty, Resistant hypertension, Vascular occlusion

1. Introduction

Renal artery stenosis is the major cause of renovascular hypertension accounts 1 - 10%. It is the important cause of chronic renal failure. Atherosclerosis remains main cause, other causes in young patients are Fibromuscular dysplasia, Takayasu arteritis and other autoimmune disorders

Takayasu arteritis is an inflammatory and stenotic disease of medium and large sized arteries [1]. Renal revascularization in Takayasu arteritis has been infrequently reported because of technical problems.

2. Case Report

27-year-old male presented with 1-month history of resistant hypertension [on ACE inhibitors, beta blocker, calcium channel blocker, diuretic], blurring of vision, headache and claudication pain in left upper limb. No history of skin rash, fever, joint pains. There was no significant family history or associated comorbidities.

Physical examination revealed significantly different blood pressures between the both arms, 210/110mmHg in right arm and 110/70mmHg in left arm, 230/120mmHg in right leg and 240/130mmHg in left leg respectively, Radial and brachial pulses are feeble on Left upper limb, where as other extremity pulses were normal. On auscultation Left Subclavian bruit present and carotid and abdominal bruits were detected. Fundus examination revealed Grade 3 Hypertensive retinopathy changes. Systemic examination does not revealed any abnormality.

INVESTIGATIONS: On further evaluation his hematological and biochemical values are within their normal ranges except for the renal parameters RFT is 1.9 mg/dl, ESR and CRP are within normal limits. In Abdominal ultrasonography size of kidneys were in normal ranges, echogenicity of parenchyma was not altered. Two dimensional ECHO showed Left ventricular hypertrophy. chest x-ray was normal. Three dimensional CT angiogram revealed - **Complete occlusion of left subclavian artery with good collaterals, complete occlusion of Superior Mesenteric artery and severe stenosis of bilateral renal arteries [99%] with Left vertebral artery stenosis [90%]**

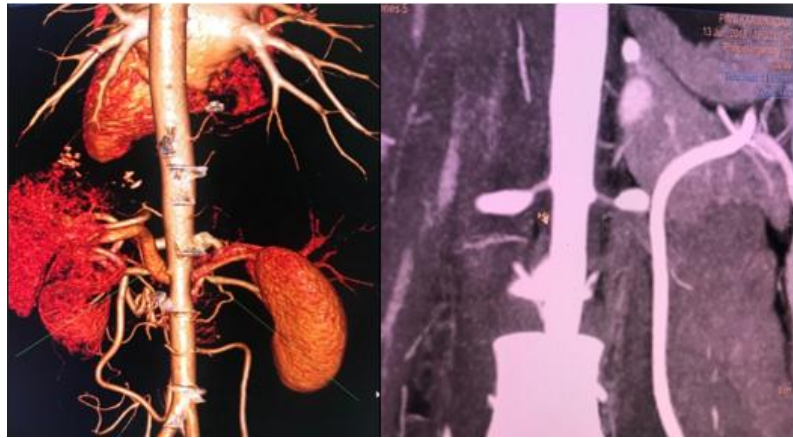


Figure 1, 2: CT angiogram - showing bilateral renal artery stenosis

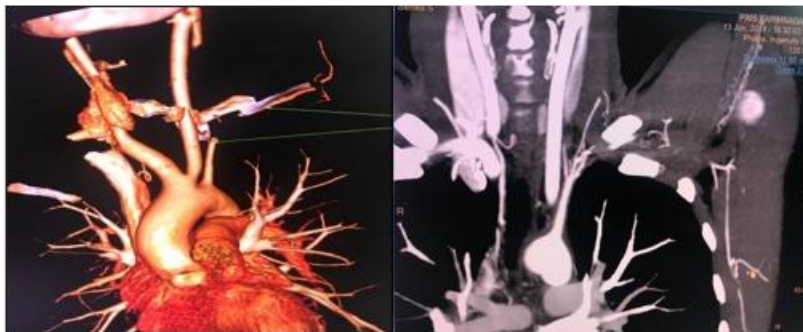


Figure 3, 4: CT Angiogram - showing left subclavian artery occlusion with collaterals

The final diagnosis of our patient was TAKAYASU ARTERITIS grade 5 (Involvement of left subclavian artery, superior mesenteric artery, bilateral renal arteries).

Management: After conventional renal angiogram he underwent bilateral percutaneous transluminal renal angioplasty (PTRA) successfully. Sequential predilation was done with 3×12mm NC TREK Balloon, Stenting was done with DES 6×20mm, 6.5×24mm, Grade 3 TIMI flow

was attained, post operative period was uneventful. Post procedure his hypertension was controlled with small dose of beta blocker, calcium channel blocker. Renal parameters dramatically improved RFT 1.5 mg/dl.

He is been followed up for 2 months on antiplatelets, statins and small dose of Beta Blockers and CCB, Later he was in followup with Rheumatologist and was on Methotrexate.



Figure 5, 6: Conventional renal angiogram showing bilateral renal artery stenosis



Figure 7, 8: After renal stenting

3. Discussion

Non specific aortoarteritis also called Takayasu arteritis occurs world wide but is seen more frequently in orient. It is seen in young patients in india. Hypertension is the most common clinical feature, seen in 75% of cases. Most patients have stenosis of the thoracic or perirenal segment of the aorta with a long stenosis beginning at the origin of the renal artery. The angiographic features are well documented.

In this disease, hypertension is one of the poor prognostic indicator. Medical therapy has no place in the definitive management, because it would entail a life long commitement to drug therapy with attendant risk of losing renal function from progressive disease. **Percutaneous transluminal renal angioplasty** has emerged as a viable alternative for treating suitable patients who have takayasu arteritis [2]. PTRA offers less invasive and safe method for relief of stenotic lesions in patient with takayasu arteritis but has high rate of restenosis [3]. Hypertension was rapidly declined after intervention, with reducing the number of antihypertensive drugs or ceasing them completely.

We conclude that Eventhough PTRA in takayasu arteritis is associated with higher chances of restenosis but it shows encouraging short term results and acceptable complication rate [4], The result is good in this case with improved renal function and adequate control of Hypertension.

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