

Hyperhomocystinaemia causing complete Unilateral renal artery Stenosis with Hypertensive Retinopathy– An unusual Case Report

Kruthi Dave¹, Maulik P Patel²

Aims Hospital, Ahmedabad, India

Corresponding Author: Kruthi Dave, AIMS Hospital, Ahmedabad, India.

Received: January 06, 2024; **Published:** January 20, 2024

Abstract

This report describes an unusual case of hypertensive retinopathy and choroidopathy with unilateral renal artery stenosis secondary to hyperhomocystinaemia.

Keywords: Hypertensive Retinopathy; Choroidopathy; Renal Artery Stenosis, Hyperhomocystinaemia.

Background

Renal artery stenosis is a narrowing of artery that carry blood to kidney (Figure 1) [1]. Renal artery stenosis often leads to secondary hypertension and kidney damage. Hypertensive retinopathy is a common clinical finding among hypertensive patients [2]. Hyperhomocystinaemia leads to renal artery stenosis can be considered as one of the rare cause [3]. However, numerous studies investigated the role of homocysteine as a predictor of vascular diseases. Most often seen in older people with atherosclerosis [4].

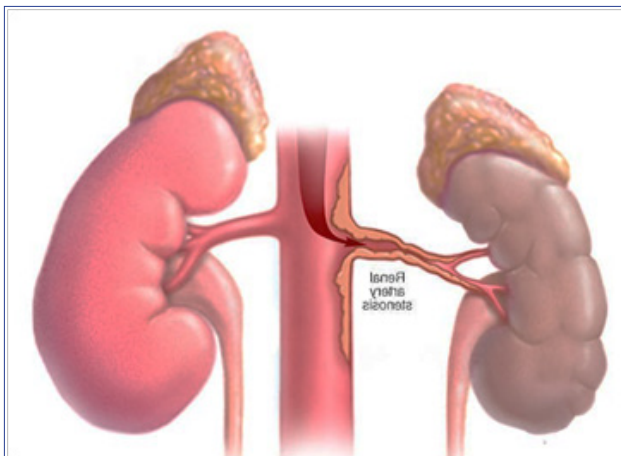


Figure 1: Left renal artery stenosis leading to the kidneys becomes narrowed, preventing adequate blood flow to the kidneys.

Case Presentation

A 56 year old male came to our hospital in emergency department with history of blurring of vision in both eyes. He consulted ophthalmologist, where he was diagnosed with bilateral retinal haemorrhages. Blood pressure was found 250/140 millimetres of mercury (mmHg) at time of arrival as well as ST-T segment changes in echocardiogram. Therefore, the patient was admitted to our hospital for further management.

After admission he went through all the investigations. Blood investigations suggested altered lipid profile, significantly increased homocysteine levels, borderline HbA1C levels, significantly elevated urine micro albumin and altered creatinine. On ophthalmology examination patient was found to have retinopathy & choroidopathy. On sonography examination left kidney appeared small in size with grade I increase renal echo-pattern. Right kidney showed compensatory hypertrophy with grade I increase in echo-pattern. On renal colour doppler (Figure 2) examination left kidney showed absent arterial flow within main renal arteries, interlobar arteries and intersegmental branches. However, the left renal vein appeared normal and showed normal colour filling. The findings suggested complete left renal artery stenosis. For further confirmation renal angiography was done (Figure 3) and it showed 100% left renal artery stenosis.

Conclusions
Hyperhomocystinaemia leads to renal artery stenosis can be considered as one of the rare causes [3]. However, numerous studies investigated the role of homocysteine as a predictor of vascular diseases. A positive association was demonstrated between plasma homocysteine levels and extent of atherosclerosis [3]. However, Hypertensive retinopathy & choroidopathy is a common finding among hypertensive patients[2].

Renal artery stenosis (RAS) is the major cause of renovascular hypertension and may account for 1-10% of the 50 million cases of hypertension [4]. Ultrasound and doppler are useful in finding out renal artery disease progress early [5]. Intra-arterial digital subtraction angiography is the standard diagnostic test for Renal artery stenosis (RAS) [6].

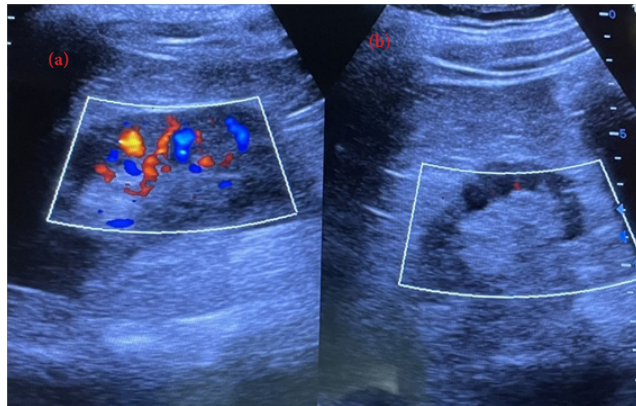


Figure 2: Renal colour doppler examination showing (a) normal right renal artery Doppler. (b) Left kidney showed absent arterial flow within at main renal arteries, interlobar arteries and intersegmental branches.

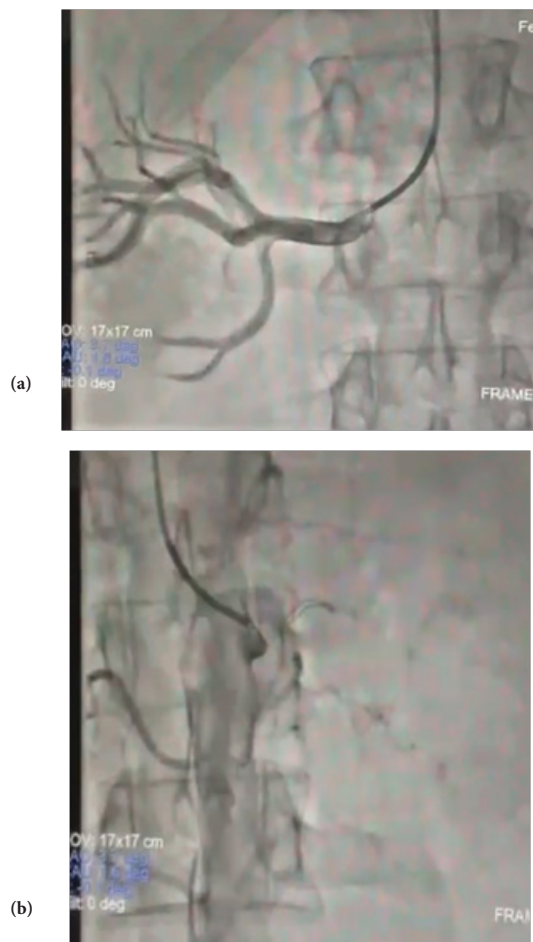


Figure 3: (a) Normal right renal angiography. (b) Left renal angiography showed 100% left renal artery stenosis.

References

1. Safian RD. "Textor SC: Renal-artery stenosis". *N Engl J Med* 2001; (344): pp431–442.
2. Wong TY, Mitchell P. "Hypertensive retinopathy". *N Engl J Med* 2004; 351: 2310–2317. doi: 10.1056/NEJMra032865
3. McCully KS. "Vascular pathology of homocysteinemia: implications for the pathogenesis of arteriosclerosis". *Am J Pathol* 1969; (56): pp111–128.
4. Hansen KJ. "Prevalence of renovascular disease in the elderly: a population-based study".
5. Hoffmann U. "Role of duplex scanning for the detection of atherosclerotic renal artery disease". *Kidney Int* 1991; (39): pp1232–1239.
6. Erley CM. "Gadolinium-based contrast media compared with iodinated media for digital subtraction angiography in azotaemic patients". 19(10): pp2526-31.