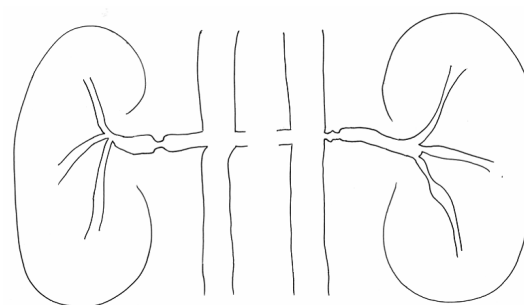


(Refer to page 88)

**Answer: Renal artery stenosis
(Fibromuscular dysplasia)**

Renal artery stenosis (RAS) is an important cause of secondary hypertension, with the vast majority being atherosclerotic in nature. In younger patients, fibromuscular dysplasia (FMD) is an important cause. FMD is a disease of medium sized arteries with preponderance for the renal arteries, and a recognised cause of refractory hypertension.¹ FMD is the commonest cause of renovascular hypertension in the under 40 year old age group, with a female preponderance of 3:1. The vast majority of stenoses in FMD lie in the mid or distal renal artery as opposed to the proximal vessel in atherosclerotic disease, which is typically within 2cm of and often involving the arterial orifice (**Panel**).

Computed tomographic angiography (CTA) with maximum intensity projection (MIP) is an accurate noninvasive technique in the diagnosis of RAS. The advent and common availability of multi-slice computed tomography (MSCT) technology has made computed tomographic angiography feasible, with results essentially comparable to traditional catheter angiography. The technique employed it important to ensure the best results. These images were acquired with the Siemens Somatom 64 CT (Siemens® Germany), using a bolus tracking technique on the supra-renal abdominal aorta using 50 mls of Ultravist 370 (Schering®, Germany)



Fibromuscular dysplasia

Atherosclerosis

iodinated intravenous contrast media, injected via an 18G cannula positioned in the antecubital fossa at a flow rate 4 mls per second. In this case MIP reconstructions facilitated the diagnosis of a high grade stenosis of the mid portion of the right renal artery. The vessel calibre was reduced to just 2mm, the appearances of which are consistent with FMD. The sensitivity and specificity of MDCT in detecting RAS is approximately 98% and 94%, respectively.² Magnetic resonance imaging (MRI) may be used, but has a tendency to overestimate the degree of stenosis. Although catheter angiography is still considered the gold standard its use is often reserved for when intervention is planned to treat the stenosis. Ultrasound is often first requested, but can be technically challenging and is user dependent. Both a high velocity waveform and waveform alterations contribute to the diagnostic process.

Balloon angioplasty is the treatment of choice in RAS secondary to FMD.³

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