Conclusion

Sonar and CT scan and the abovmentioned laboratory investigations should be used to supplement each other. In our patient the sterile culture and response to antibiotics favoured the diagnosis of amoebiasis.

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A case of renal artery stenosis — FMD or atherosclerosis, a diagnostic dilemma

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A 22-year-old female patient was referred from a peripheral hospital with a 1-year history of uncontrolled hypertension. The laboratory findings showed normal urea and creatinine levels.

The left kidney was not visualised on excretory urography. Renal ultrasound showed a small left kidney measuring 69 mm in length with a cortex of 0.7 mm. Captopril scintigraphy showed a small left kidney with poor perfusion and suboptimal excretion. These findings were suggestive of renovascular hypertension, and a renal angiogram was suggested. The aortogram (Fig. 1) and a selective left renal arteriogram (Fig. 2) showed marked smooth stenosis of the proximal left renal artery, with no beading. No post-stenotic dilatation was noted. Perfusion to the left kidney was reduced. The right renal artery was normal (Fig. 3). There were no signs of involvement of the abdominal aorta and its branches. Balloon angioplasty of the left renal artery was attempted without appreciable success. Due to intractable hypertension the patient underwent a left nephrectomy. No complications were encountered postoperatively, the blood pressure dropped to 100/60 mmHg, and the patient remained normotensive until discharged.

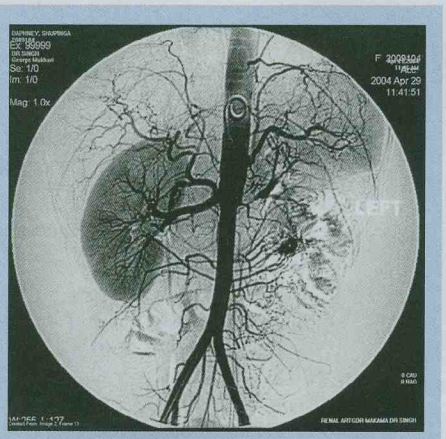

Fig. 1. Abdominal aortogram showing smooth narrowing of the left renal artery.

Fig. 2. Selective left renal arteriogram showing renal artery stenosis and a small left kidney.

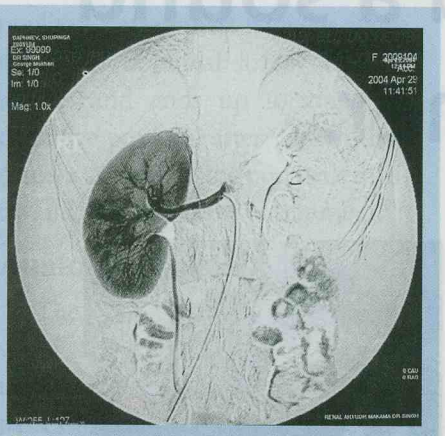

Fig. 3. Selective right renal arteriogram showing a normal-sized kidney and a normal renal artery.

Discussion

Renal artery stenosis (RAS) should be suspected in patients presenting with sudden-onset hypertension or chronic renal failure. In some patients, it is only discovered at postmortem studies (49%). The suggestive criteria of renovascular disease include severe/sudden onset of hypertension, which is refractory to therapy plus the presence of abdominal bruits.

RAS attributable to fibromuscular dysplasia (FMD) or atherosclerosis represents an important cause of secondary hypertension. The former predominates in young women, while atherosclerosis is usually encountered in individuals over the age of 55 years.

FMD, a non-atheromatous cause of RAS, comprises a collection of disorders that variably affect the intima, media or adventitia of the vascular tree. This group accounts for nearly 10% of RAS cases and is classically diagnosed in female individuals 15 - 50 years of age. Four histological types are described which correlate with angiographical findings. The classical one is medial fibroplasia which involves the distal two-thirds of the renal artery, with strings of beads on angiography. This type of FMD is easy to dilate at low pressure and has excellent long-term results. The other types, i.e. intimal fibroplasia, fibromuscular hypoplasia and subadventitial fibroplasia show smooth segmental stenosis which may involve the more proximal portion of the renal artery, as was seen in our patient. However they tend to be symmetrical and often have post-stenotic dilatation. They are less amenable to angioplasty, as was noted in our patient. It should be noted that if FMD is not detected early, the patient can develop secondary atheromatous RAS (ARAS), and so the two conditions may coexist.

ARAS accounts for 90% of cases. This commonly occurs in men above 50 years of age, and usually involves the ostium and the proximal third of the renal artery. It causes smooth stenosis without beading, as was noted in our patient. Usually when ostial disease is present there is more extensive aortic disease. The stenosis may be smooth and symmetrical or eccentric and asymmetrical and is often associated with calcifications. Post-stenotic dilatation may be present. ARAS is progressive, the incidence increases with age, particularly in patients with diabetes, hypertension or aorto-occlusive disease.

Ultrasound is used as the first imaging modality in RAS, whatever the cause. It demonstrates a significant difference in the size of the two kidneys. There is increased blood velocity at the site of the stenosis on Doppler; limitations of Doppler are the size of the patient as well as individual variations. Computed tomography (CT) angiogram is considered sensitive and accurate in identifying significant stenosis.

Magnetic resonance (MR) angiogram is accepted to be the optimal noninvasive investigation; its setback is its inability to grade the degree of stenosis. It provides information on flow, kidney size, symmetry of enhancement and post-stenotic dilatation. However, it has fewer complications than renal arteriography.

In most centres renal arteriography is still considered the gold standard for assessment of renovascular disease. Stenting or angioplasty can be done at same setting. However it should be noted that selective injection into a diseased renal artery may cause dissection and even precipitate renal artery occlusion.

Our patient was a young female with proximal renal artery involvement, without involvement of the abdominal aorta or its other branches, and no beading or post-stenotic dilatation was observed. Because of these features we concluded that our patient had an uncommon type of FMD that causes smooth stenosis of the proximal renal artery, although symmetrical involvement and post-stenotic dilatation were not observed.

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