A 25-year-old woman presented with a headache. The general practitioner diagnosed hypertension 18 months previously, no regular antihypertensive medication was started, and the patient took bisoprolol as needed. There was no family history of hypertension.

Physical examination revealed a blood pressure of 195/115 mm Hg in both arms. Renal function tests and serum potassium was normal. A renal ultrasound showed a slightly smaller left kidney. Renal artery duplex ultrasonography showed signs of a renal artery stenosis (narrowing and an aliasing effect in the left renal artery (Figure 1A arrow) with a peak velocity of >3 m/s (Figure 1B), lower intrarenal resistance indices with a parvus and tardus intrarenal flow spectrum (Figure 1C) on the left side), and there was a suspected poststenotic aneurysm (Figure 1A arrow head). Magnetic resonance imaging showed a subtotal stenosis (Figure 2A arrow) with an aneurysm (15×15 mm) in the mid third of the left renal artery (Figure 2A arrow head). For detailed treatment planning of this fibromuscular dysplasia (FMD) with poststenotic aneurysm, we performed an angiography, which showed a complex morphological macroaneurysm with two draining arteries (Figure 2B arrows).

An antihypertensive medication with bisoprolol and amlo-dipin was started, the blood pressure dropped, and the patient was referred to surgical intervention. The intraoperative situation is shown in Figure 3A. The postoperative histological workup confirmed a medial fibroplasia (Figure 3B).

FMD is a nonatherosclerotic, noninflammatory vascular disease that most commonly affects the renal arteries and internal carotid arteries. FMD of the renal arteries leads to renal artery stenosis.1 A small percentage of patients with medial fibroplasia develop macroaneurysm, which have a risk of rupture.2 The management of hypertension secondary to renal artery FMD involves medication and revascularization. Surgery is reserved for the few patients with a macroaneurysm or with complex lesions.3

Duplex ultrasonography is an ideal screening test, because it is noninvasive and has been shown to be quite accurate in diagnosing renal artery stenosis.4 Furthermore, the patients can be monitored in a surveillance program by duplex ultrasonography after an intervention. Nevertheless, especially in complex lesions, duplex ultrasonography is highly dependent on center and operator experience.

Disclosures

None.

References


Figure 1. Renal artery duplex ultrasonography with signs of a renal artery stenosis. A, Narrowing and an aliasing effect in the left renal artery (arrow) and a suspected poststenotic aneurysm (arrow head). B, Peak velocity of >3 m/s. C, Lower intrarenal resistance indices with a parvus and tardus intrarenal flow spectrum on the left side.
Figure 2. A, Magnetic resonance imaging shows a subtotal stenosis of the renal artery (arrow) and a macroaneurysm (arrow head). B, Angiography shows a complex aneurysm with two draining arteries (arrows).

Figure 3. A, Intraoperative situation (arrow: macroaneurysm of the renal artery, arrow head: renal vein). B, Histology (HE stain) shows medial fibroplasia with disorganization of the media and segmental thinning.
Macroaneurysm in a Renal Fibromuscular Dysplasia
Martin Kimmel, Thomas Hupp, Niko Braun, Joerg Latus and Mark Dominik Alscher

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