

Forty-two-year-old female patient with resistant hypertension, bilateral renal fibromuscular dysplasia and intracranial aneurysm

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We present a case of a 42-year-old woman with 1-month known history of resistant hypertension. On admission the patient's blood pressure was 230/123 mm Hg and during the subsequent days ranged from 165/103 to 157/97 mm Hg (24 h ambulatory blood pressure values (ABPM) 151/102 mm Hg) despite taking 4 antihypertensive drugs (neбиволол 5 mg, аmlodipine 10 mg, clonidine 375 µg and indapamide 1.5 mg). Physical examination revealed no abnormalities. Malignant hypertension was diagnosed based on grade III fundoscopy. Laboratory data showed normal serum potassium, creatinine and estimated glomerular filtration rate (eGFR), hemoglobin and platelet count. Urine analysis showed no abnormalities. Electrographic (ECG) and echocardiographic examinations were normal. The patient had two complicated pregnancies and one miscarriage. Doppler ultrasonography revealed bilateral, significant renal artery stenosis (RAS) with renal-aortic ratio (RAR) > 6 on the right side and RAR 4 on the left side, confirmed in computed tomography angiography (angio-CT). Invasive angiography revealed typical multifocal fibromuscular dysplasia (FMD) morphology ("string of beads" appearance) with at least 2 significant lesions of the main right renal artery trunk and also multifocal FMD lesions of left renal artery, with a significant lesion in the central region of the trunk (Figures 1 A and B). Multilevel balloon angioplasty of both arteries was performed, with good final flow, without significant residual stenosis (Figures 2 A and B).

Angio-CT of carotid and vertebral arteries showed an irregular small aneurysm (2 × 2 × 2.5 mm) of the left in-

ternal carotid artery (ICA) in the C 4 segment (Figure 1 C). Other intracranial arteries were normal.

Further evaluation of the left ICA aneurysm required angiography, which confirmed left ICA aneurysm: sac (6.07 × 1.99 mm), neck 1.79 mm (Figure 1 C). No other vascular abnormalities were found in other vascular beds on angio-CT. As an irregular aneurysm with the sac bigger than 5 mm requires treatment in a patient with hypertension, the patient was offered endovascular exclusion of an aneurysm using the stent-assisted coiling technique.

In 6-month follow-up a significant decrease in blood pressure was observed and the number of antihypertensive drugs was reduced. Twenty-four h ABPM was 119/80 mm Hg while staying on 2 antihypertensive drugs (neбиволол 5 mg, аmlodipine 5 mg). On Doppler ultrasonography bilateral non-significant RAS with RAR 1.5–2 was observed.

Fibromuscular dysplasia is a nonatherosclerotic, non-inflammatory vascular disease that may involve multiple vascular beds and may result in arterial stenosis, occlusion, aneurysm or dissection [1]. Fibromuscular dysplasia lesions most commonly involve the renal arteries, which manifests clinically as hypertension. In our middle-aged patient with relatively sudden onset and short duration of symptoms, hypertension was drug-resistant and based on eye fundus examination – malignant. Revascularization by percutaneous transluminal angioplasty (PTA) resulted in blood pressure (BP) control improvement [2].

The US FMD Registry identified that cerebrovascular FMD was as common as renal FMD and a large number of

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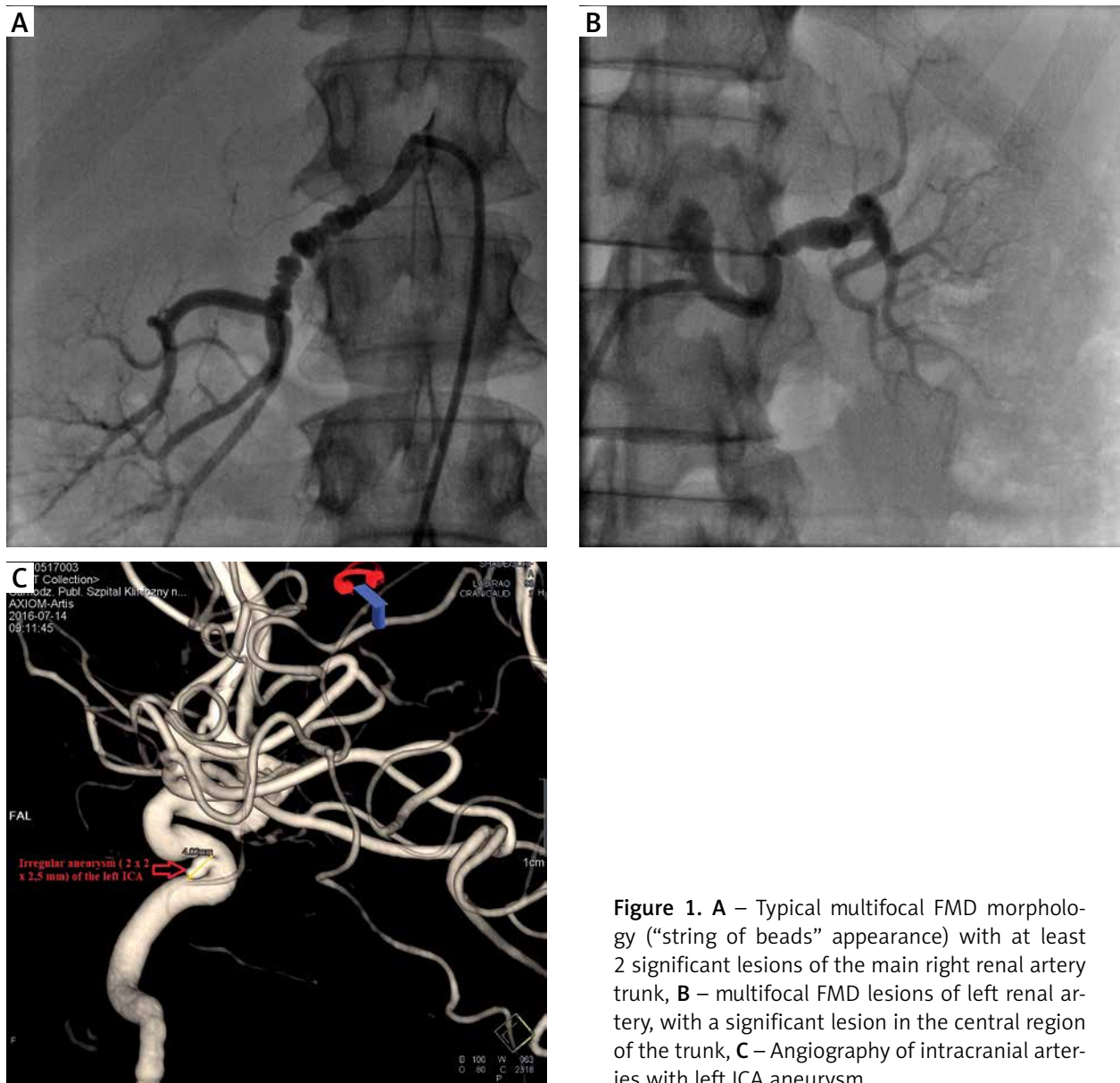


Figure 1. A – Typical multifocal FMD morphology (“string of beads” appearance) with at least 2 significant lesions of the main right renal artery trunk, B – multifocal FMD lesions of left renal artery, with a significant lesion in the central region of the trunk, C – Angiography of intracranial arteries with left ICA aneurysm

patients had FMD in multiple vascular beds. Aneurysms of carotid arteries are found in 17% of patients [3].

Our case supports that in patients with FMD in one vascular bed a high index of suspicion should be raised for diagnosis of FMD and/or vascular complications in other vascular beds [4].

Conflict of interest

The authors declare no conflict of interest.

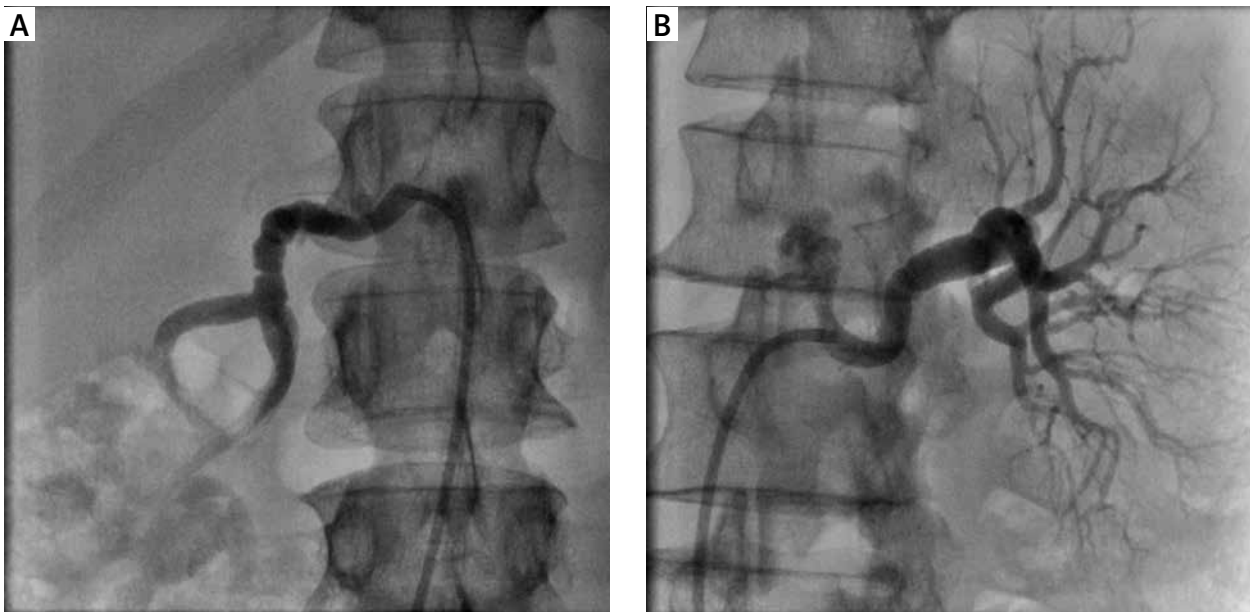


Figure 2. A – Right renal artery after percutaneous balloon angioplasty therapy, B – left renal artery after percutaneous balloon angioplasty therapy

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