

CASE REPORT

Transluminal Balloon Angioplasty of Fibromuscular Dysplasia of the Renal Artery in a 20-year-old Patient with Radial Access

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Abstract

Fibromuscular dysplasia (FMD) is a rare non—atherosclerotic arterial disease that most often affects young women. The main clinical manifestation is vasorenal arterial hypertension. The article presents a clinical case of successful endovascular treatment of FMD of the right renal artery in a 20-year-old patient. Balloon angioplasty was performed with a satisfactory clinical result. Diagnostic approaches, management tactics, as well as current literature data on the topic were discussed.

Keywords: Fibromuscular dysplasia, Renal artery, Arterial hypertension, Balloon angioplasty, Renovascular hypertension.

Introduction

Fibromuscular dysplasia (FMD) is a non-atherosclerotic, non-inflammatory arterial disease that is more common in young women. When the renal arteries are affected, FMD causes vasorenal arterial hypertension. The main morphological forms include media, intima, and perimedial hyperplasia. A typical angiographic sign is visualized — a “string of beads”. Modern treatment approaches are based on minimally invasive endovascular interventions such as balloon angioplasty. At the same time, the role of intravascular imaging increases due to the need to accurately determine the nature of stenosis and evaluate the outcome of the intervention.

A clinical case

A 20-year-old patient was admitted with complaints of a persistent increase in blood pressure to 190/130 mmHg, headaches, dizziness, impaired coordination, nausea and tachycardia. From anamnesis — arterial hypertension since the age of 16. Recurrent hypertensive crises have been observed over the past six months. According to the outpatient examination (Multispiral computed tomography

(MCT) Fig. 2, angiography, Ultrasonic duplex scanning (UDS) Fig. 1), stenosis of the right renal artery was detected up to 95% with a typical pattern of “beads” characteristic of FMD. Adrenal hyperplasia and secondary hyperaldosteronism were also noted. Surgical treatment: intraoperative selective angiography of the right renal artery was performed with radiation access (Fig. 3) followed by balloon angioplasty of the right renal artery with a 4.5×31 mm PTCA balloon (Fig. 4). A satisfactory result was achieved on the control angiography, no signs of dissection were detected (Figs 5 and 6).

There were no complications. The patient was discharged on the second day in a satisfactory condition. Supportive drug therapy has been prescribed (betalok ZOK, eplerenone, clopidogrel, acetylsalicylic acid). After a month, blood pressure normalized to 120/80 mmHg without significant fluctuations. Follow-up with a cardiologist and follow-up duplex scan after three months are recommended.

Discussion

Fibromuscular dysplasia of the renal arteries is a rare but important cause of hypertension in young patients. In most cases, the disease is diagnosed late, when antihypertensive

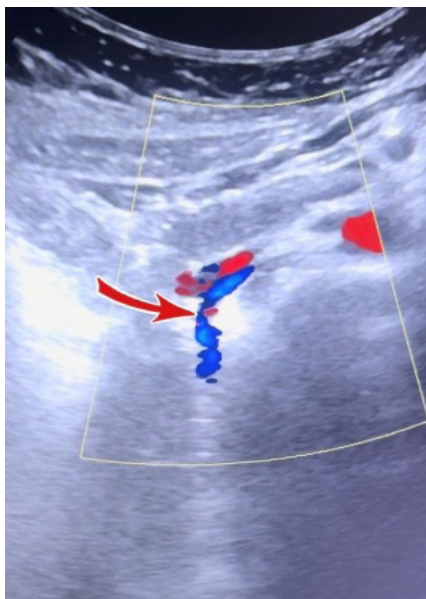


Fig. 1: UDS of the right renal artery



Fig 2: MCT angiography of the renal arteries



Fig. 3: Intraoperative selective angiography of the right renal artery



Fig. 4: Angioplasty of the right renal artery



Fig. 5: Control angiography after angioplasty



Fig. 6: Control angiography after angioplasty

therapy is ineffective. Angiography remains the “gold standard” of diagnosis, especially in the presence of the “strings of beads” symptom. Balloon angioplasty without stenting is the method of choice in the treatment of stenoses caused by FMD. At the same time, according to modern recommendations, stenting is used only in case of complications (dissection, residual stenosis). Drug-coated balloon are of interest in the future, but the level of evidence is still insufficient for their routine use in FMD. The additional use of intravascular ultrasound (IVSI) allows not only to confirm the diagnosis, but also to objectively evaluate the result of the intervention.

Conclusion

The presented clinical case demonstrates the importance of early diagnosis and an individual approach to the treatment of fibromuscular dysplasia of the renal artery. Balloon angioplasty can effectively eliminate stenosis, stabilize blood pressure and improve the quality of life of patients

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Conflict of interest

The authors declare that there is no conflict of interest.

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