FORMED ATHEROSCLEROTIC VALVE AS ONE OF THE REASONS FOR UNSUCCESSFUL BALLOON ANGIODILATION OF THE VESSELS OF THE LEG IN DIABETIC FOOT SYNDROME

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Abstract: The article analyzes endovascular treatment of 43 patients with diabetic foot syndrome and occlusion of the arteries of the leg. Three patients were identified in whom the cause of unsuccessful angiodilation was the presence of a formed atherosclerotic valve. This problem is discussed and methods for solving it are proposed.

Keywords: diabetic foot, mature atherosclerotic valve, balloon angiodilation, stenting.

ФОРМИРОВАННЫЙ АТЕРОСКЛЕРОТИЧЕСКИЙ КЛАПАН КАК ОДНА ИЗ ПРИЧИН НЕУСПЕШНОЙ БАЛЛОННОЙ АНГИОДИЛЯЦИИ СОСУДОВ НОГИ ПРИ СИНДРОМЕ ДИАБЕТИЧЕСКОЙ СТОПЫ

Аннотация: В статье проанализировано эндоваскулярное лечение 43 пациентов с синдромом диабетической стопы и окклюзией артерий голени. Выявлено три пациента, у которых причиной неудачной ангиодилатации стало наличие сформировавшегося атеросклеротического клапана. Обсуждается данная проблема и предлагаются методы ее решения.

Ключевые слова: диабетическая стопа, зрелый атеросклеротический клапан, баллонная ангиодилатация, стентирование.

INTRODUCTION

With the growth of the world's population, there is an increase in the number of people suffering from diabetes mellitus and, accordingly, its complications. The leading role in the complications of diabetes mellitus is played by diabetic foot syndrome, which in most cases leads to disability of the patient. Despite the intensive development of modern technologies, the endovascular method of treating occlusive-stenotic lesions of the arteries of the leg is the most common method of treatment. This treatment method is painless and allows the patient to be discharged the next day after surgery. Surgical intervention allows you to restore the lumen of stenotic or occluded vessels of the leg using balloon angiodilation. In most cases, a balloon catheter solves this problem, but there are cases where it becomes necessary to implant a stent to solve this problem. One such indication for stent implantation is the presence of an atherosclerotic valve in the patient.

MATERIALS AND METHODS

The work is based on data obtained from the analysis of 43 patients with critical lower limb ischemia (CLI), after they underwent angioplasty and stenting of the arteries of the leg. In 4 patients from this group (9.3%), we found a formed atherosclerotic valve in the lumen of the artery of the leg, preventing the flow of arterial blood in the distal direction. n 3 patients, the valve was formed in the anterior tibial artery (ATA) and in 1 patient in the posterior tibial artery (PTA).

At the preoperative stage, all patients underwent Doppler sonography and MSCT angiography of the vessels of the lower extremities; unfortunately, these research methods cannot detect the presence of an atherosclerotic valve.

At the first stage, all patients underwent intraoperative diagnostic angiography to identify the nature of the damage to the vessels of the leg (Ang. 1). Recanalization and balloon angiodilation of the peroneal artery and posterior tibial artery did not cause any problems for us.

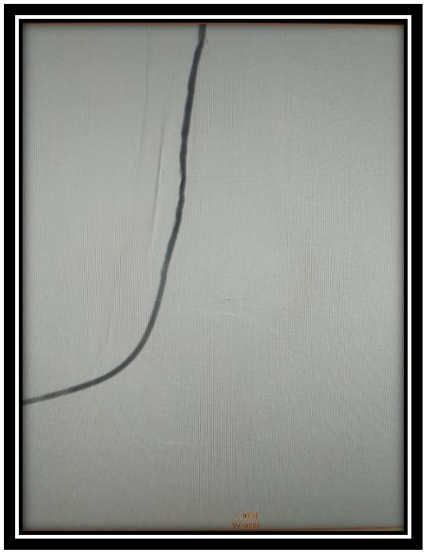
We did not experience any particular problems while conducting the guide through the ATA. Balloon angiodilation, in order to avoid dissection, we carried out a balloon with a diameter of 2.0 -2.5 mm, along the entire length of the artery. This allowed us to perform recanalization without the possibility of dissection of the vessel wall, regardless of the density of the atherosclerotic plaque.

Angiography No. 1. Patient Zainiev R. born 1959 Intraoperative angiography. Proximal occlusion of the anterior tibial artery and peroneal artery. Critical stenosis of the posterior tibial artery.

Angiography No. 2. Patient Zainiev R. born 1959 Restoration of blood flow through the peroneal artery and PTA, occlusion of the ATA is maintained.

Multiple antegrade balloon angiodilation of the arterial lumen in the area of the atherosclerotic valve was performed, which did not bring any result, and we did not experience any significant problems when passing the conductor through the site of occlusion. Repeated use of antispasmodics intraoperatively was also unsuccessful (Ang. 2). In the course of practical work, we began to notice that when performing balloon dilatation along the entire length of the artery,

its lumen remained occluded, i.e. there was no current in the distal direction. We were faced with the question of the reason for the lack of blood flow.



Angiography No. 3. Patient Zainiev R. born 1959. Retrograde puncture of the PTA. An introducer is installed in the lumen.

To solve this problem, we performed a puncture of the ATA in its distal part with the installation of a 4 F introducer; passing the conductor in the antegrade direction also did not cause any problems (Ang. 3).

Angiography No. 4. Patient Zainiev R. born 1959 Retrograde contrast enhancement of the ATA. The presence of normal blood flow along the ATA, peroneal artery and PTA, visualization of the atherosclerotic valve.

Retrograde contrast enhancement of the vessel showed its complete patency in the antegrade direction and the presence of a formed atherosclerotic valve (Fig. 4).

Using a retrograde approach, we also performed balloon angiodilation of the vessel, which did not restore blood flow in this vessel in the antegrade direction. The only solution in this case is to place a stent, and if a rotablator is available, an attempt to eliminate the atherosclerotic valve that has formed.

CONCLUSION

One of the reasons for unsuccessful attempts at balloon angiodilation may be the presence of a formed atherosclerotic valve. The use of balloon angiodilation does not restore blood flow in the affected vessel in patients with this pathology. A dense atherosclerotic plaque that forms the valve is not amenable to balloon angiodilation and does not change its shape. A diagnosed, mature atherosclerotic valve is a direct indication for stenting of the vessels of the leg and the use of a rotablator.

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