



A Modern Approach To The Treatment Of Diabetic Foot Syndrome

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Abstract

Annotation:

In the period from 2020 to 2023, 31 patients with diabetic foot syndrome (DFS) aged 50 to 85 years were treated at the clinical base of SamSMU and the Zarmed company in Samarkand. Trophic lesions of the right lower limb were detected in 14 patients and the left limb in 17 patients.

Percutaneous balloon transluminal angioplasty (CTCA) with stenting for lesions of the superficial femoral artery (PBA) and isolated lesion of the popliteal artery (PA) was performed in 14 patients, without stenting in 17 patients. A positive result was obtained in patients with ischemia II B – III degree of lesion.

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Keywords: *surgical infection, purulent necrotic wounds, endovascular, angioplasty, stenting.*

Введение

The complication with surgical infection in diabetes mellitus accounts for up to 30-40% of all surgical patients. Various foot lesions occur in 25% of diabetic patients. Of these, 15% develop ulcerative necrotic forms against the background, which lead to amputation of the lower extremities.

The disappointing results associated with a large number of deaths and low effectiveness of surgical treatment in patients with necrotic foot changes in diabetes mellitus force us to search for new methods of treatment for interruption of ascending necrosis and loss of lower extremities. One of such modern minimally invasive methods that can help in preserving the foot and reduce the volume of necrotomy and resection in diabetic foot syndrome is endovascular intervention on the vessels of the lower extremities. This treatment method has long proven itself to be effective and safe.

MATERIALS AND METHODS

To improve the tactics of endovascular surgical treatment of diabetic foot syndrome

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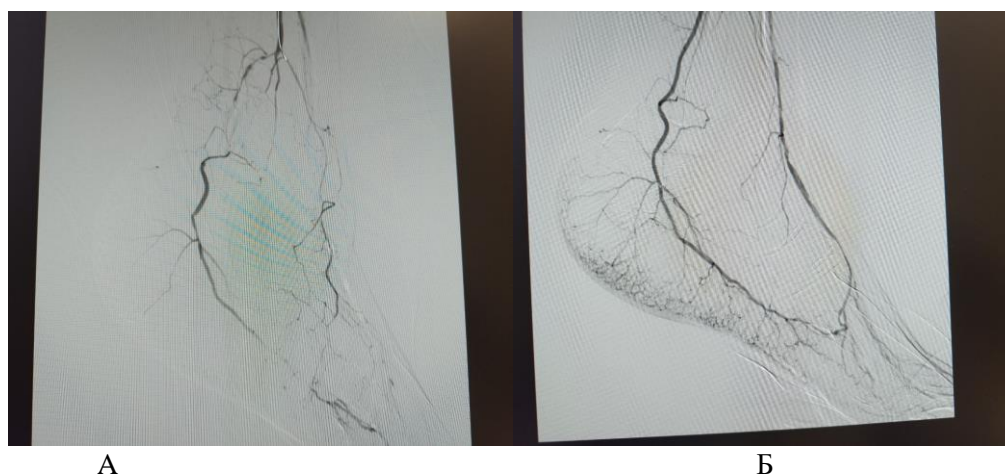
Materials and methods of research:

In the period from 2020 to 2023, we monitored 31 patients with diabetic foot syndrome (DFS) aged 50 to 85 years. Trophic lesions of the right limb were detected in 14 patients, the left limb in 16 patients and both limbs in 1 patient. Trophic ulcers of the fingers and foot were detected in 7 patients, gangrene in 14 patients, thrombosis of the vessels of the lower extremities in 2 patients, non-healing postoperative wounds in 4 patients and severe pain syndrome in 4 patients. According to MSCT data, an isolated lesion of the superficial femoral artery (PBA) was detected in 1 patient, PBA with shin arteries – 4, PBA with a pinched artery (PA) and shin arteries – 9, isolated lesion of PA – 3, PA with shin arteries – 5, isolated lesion of shin arteries - 9. In the preoperative period, patients underwent double antiplatelet therapy (thrombopol 75 mg + prasugrel 10 mg) and correction of carbohydrate metabolism disorders.

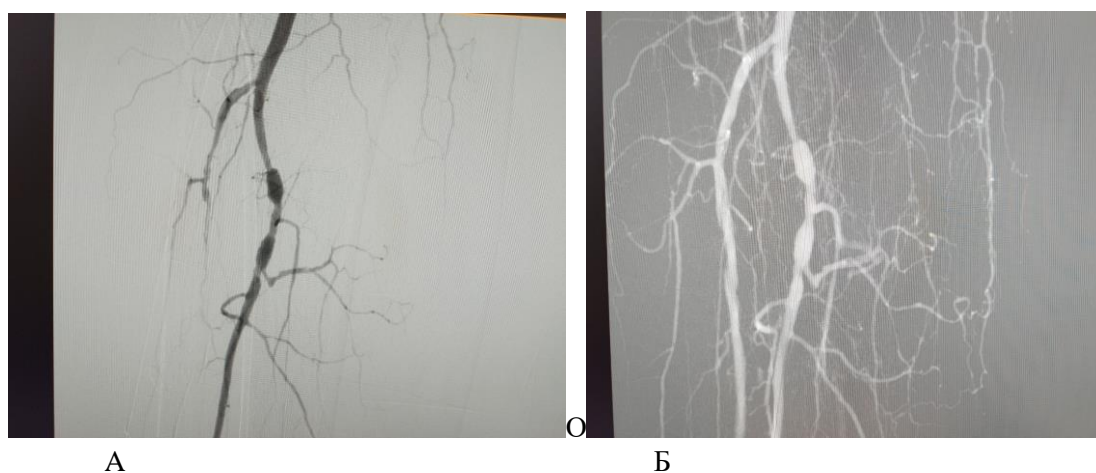
The diagnostic program included a study of the rheological properties of blood, hemostasis, ultrasound Dopplerography of the vessels of the lower extremities, MSCT angio of the vessels of the lower extremities. Oxygen tension in the interdigital space of the foot was determined both before and after surgery (1 day after surgery) in combination with dopplerography of the vessels of the lower extremities.

As a result of the examination, an endovascular treatment method was prescribed to all patients. Of the 31 patients, 15 had grade IIB-III ischemia and 16 had grade IV ischemia.

Percutaneous balloon transluminal angioplasty (CBTA) with stenting of PBA and PA was performed in 14 patients, balloon angioplasty without stenting -17. In most cases, we used antegrade trans femoral access (18 patients), in 3 cases we used retrograde tibia access. In all patients with grade IIB- III ischemia, the operation was successfully performed with complete restoration of blood flow, in 5 patients with grade IV ischemia, complete restoration of blood flow could not be achieved.



Angiogram No.1: Patient J. 1953 Occlusion of the anterior and posterior tibial arteries (A). The result of balloon angioplasty, complete restoration of blood flow through the arteries of the foot (B).



Angiogram No. 2. Patient T. 1959 Occlusion of the anterior tibial artery (A). The result of balloon angioplasty (B).

Discussion of the results of the study

A positive result was achieved in all patients with grade IIB- III ischemia, which affected the improvement of the quality of life of patients. In one patient with grade IV ischemia, despite the endovascular intervention, in the early postoperative period, ischemia progressed, which required high amputation. The complication was associated with prolonged occlusion, sedentary lifestyle and impaired medication intake in the postoperative period.

In 2 patients in the period from 1 to 2 months, repeated intervention was required due to reocclusion of the vessels of the tibia and signs of ischemia, which required repeated angioplasty. In most patients aged 3-6 months, according to ultrasound diagnostics, we observed repeated occlusion of the arteries of the lower leg, without signs of increasing ischemia, which was associated with good development of collateral circulation.

In the postoperative period, all patients were on double antiplatelet therapy for 1 year, antispasmodics, drugs that improve collateral circulation and stimulators of tissue regeneration were used for 1 month. In the long-term period, a positive result was observed in 26 patients from the study group.

Angiographic examination should be performed in all patients with diabetes mellitus who complain of pain in the lower extremities that occurs when walking at a distance of less than 200 m. Moreover, this study should be performed when ulcerative necrotic defects appear on the foot.

Restoration of the main blood flow even through one of the tibial arteries leads to a reduction in the degree of ischemia and healing of ulcerative necrotic defects.

The effectiveness of X-ray surgical methods of revascularization in patients with II–B-III degree of ischemia is not inferior to the results of open vascular surgery. In patients with grade IV ischemia, the results of balloon angioplasty and stenting are better than after the use of traditional methods of treatment of this category of patients.

The use of antispasmodics, drugs that improve collateral circulation and stimulators of tissue regeneration in the pre- and postoperative period, has a positive effect on the healing process of wounds of the lower extremities.

CONCLUSION:

1. Complete or partial restoration of blood flow through the arteries of the lower leg reduces the degree of limb ischemia and leads to an improvement in the treatment of ulcerative necrotic processes in patients with diabetic foot syndrome.
2. X-ray surgical methods of revascularization in patients with II–B–III and IV degrees of ischemia show their greater effectiveness compared with traditional methods of treatment.
3. Early diagnosis of the degree of ischemia in diabetic foot syndrome and the use of endovascular treatment is considered the most optimal way to treat diabetic foot syndrome.
4. The use of antispasmodics, drugs that improve collateral circulation and stimulators of tissue regeneration in the postoperative period has a positive effect on the healing process of wounds of the lower extremities and the duration of the remission process.

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