

СОВРЕМЕННЫЕ ЭНДОВАСКУЛЯРНЫЕ МЕТОДЫ ЛЕЧЕНИЯ НЕКРОТИЧЕСКОЙ ДИАБЕТИЧЕСКОЙ СТОПЫ

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<https://doi.org/10.5281/zenodo.13865949>

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.

THE IMPORTANCE OF COMPLEX SURGICAL TREATMENT FOR INFECTIOUS COMPLICATIONS OF DIABETES MELLITUS

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.

INTRODUCTION

In developed countries, up to 5-6% of the population suffers from complications of diabetes. Complications with surgical infection in diabetes mellitus account for up to 30-4% of all surgical patients. Patients with diabetes are 17 times more likely to develop gangrene of the toes and feet in general than people who do not have diabetes. In recent years, when choosing a method of surgical treatment of patients with purulent-necrotic complications of diabetic foot syndrome (DFS), endovascular methods have been introduced.

Purpose of the study: To evaluate the effectiveness of using the endovascular method of treating purulent-necrotic complications in diabetic foot syndrome.

MATERIALS AND RESEARCH METHODS

In recent years, according to a two-year scientific project at the clinical base of Samarkand State Medical University and at the Zarmed clinic, a total of 84 patients with purulent-necrotic complications of diabetic foot syndrome (DFS) have been examined. There were 53 (63%) men and 31 (34%) women. The age of the patients ranged from 27 to 82 years, averaging 57.2 ± 4.5 years. The patients had diabetes experience from 8 to 22 years. Type I diabetes mellitus was diagnosed in 6 (7%) patients, type II - in 78 (93%) patients. Severe diabetes mellitus was detected in 43 (52%) patients, moderate diabetes in 33 (40%) patients, and mild diabetes in 8 (8%) patients.

Upon admission, patients had concomitant diseases: cardiovascular (77.2%), renal (54%) and liver and biliary tract (52%). Out of 84 patients, 43 patients underwent surgical treatment using endovascular surgical tactics jointly at the Zarmed company as part of a scientific project. Of the 43 patients, 7 were men and 16 were women. The age group was from 27 to 74 years.

Standard laboratory and instrumental diagnostic methods were carried out (general blood test, urine test, biochemical blood test, blood sugar level, coagulogram, ECG, echoCT of the heart, duplex study of the artery of the lower extremities with measurement of the ankle-brachial index (ABI) before and after recanal analysis, radiography feet in 2 projections, CT angiography or X-ray contrast angiography, MSCT). Treatment in the group of patients consisted of surgical treatment of ulcerative-necrotic defects and endovascularization of the arterial bed, and the stages depended on the degree of involvement of local tissues in the wound process and the presence of signs of inflammation. All examined patients underwent endovascular revascularization of the artery of the lower extremities. Of the 43 patients, 30 were operated on via the femoral artery; two

patients underwent posterior tibial arterial access with occlusion of the superficial tibial artery. 31 patients underwent recanalization and balloon angioplasty, and 2 patients underwent thrombectomy followed by balloon angioplasty.

For recanalization of the femoral-popliteal segment, we used calf arteries 0.14 Commad (Abbot), for recanalization balloons of sizes 2.0, 2.5, 3.5 and 4.0 and large balloons 5.0 and 6.0 Admiral extreme from Medtronic. Balloon angioplasty was performed with Cordis's balloon catheters, and stenting was performed with Cordis stents. When comparing the optimal surgical treatment plan for patients, we used the classification of Bagner F.M. (1981). II degree - (12%), III degree - (70%), IV degree - (18%).

RESULTS AND DISCUSSION

Our observations have shown that with the development of purulent-necrotic complications of DFS, depending on the form, several clinical complications are revealed: the neuropathic process leads to atrophy of the foot muscles and the development of toe deformities. Due to excessive deformation of the toes, "calluses" are formed and subsequently a trophic ulcer develops.

First of all, in discussing pathological data, we must say that, unfortunately, most patients come to hospitals late with complications. The main task in the treatment of purulent-necrotic complications of DFS is to avoid high amputation of the affected limb. Considering these data, in recent years the endovascular method of revascularization of the artery of the lower extremities has been widely used, which restores arterial blood flow in the area of trophic disorders in the foot.

Before the vascularization operation, attention was paid to the nature and extent of the atherosclerotic lesion. Depending on the localization of trophic ulcers, methods of revascularization of the leg artery were selected. If trophic changes were localized on the toes, then blood flow was restored in the anterior or posterior tibial arteries. If, before the endovascular method, the main task in the treatment of purulent-necrotic complications of DFS, according to the indication, was surgical treatment - to remove critical ischemia of the affected limb. In determining the optimal method of surgical treatment, we were based on clinical data, volume of anesthesia, radiological, Doppler and angiographic data. Of the 84 patients, 49 patients underwent surgical treatment. Amputations of the metatarsal bones were performed according to Sharpe in 14 (21%) patients, amputations of one finger in 9 (13.4%), amputations of 2 fingers in 6 people, and amputations of 3 fingers in 4 (6%) patients. Amputation of the lower extremities at the shin level was performed in 4 (6%) patients, at the hip level in 12 (18%) patients.

According to angiography and CT angiography, in the group of patients (n=43), 62.8% were found to have isolated lesions of the artery of the leg or in combination with the popliteal artery. Of the 43 patients, 15 were suspected of having Mönckeberg medial calcinosis, which accounted for 35%. According to a meta-analysis, the angiome approach improves wound healing due to the direct restoration of arterial blood flow. As a result, the use of the endovascular method reduced the rate of proximal amputation to 9-10%.

CONCLUSION

Timely diagnosis of complications of DFS and the introduction of endovascular surgery into the practice of treating complications of DFS significantly reduces the number of high amputations.

Literature:

1. Abdullaev S.A., Kurbanov E.Yu. New technologies in the treatment of purulent-necrotic complications of diabetic foot syndrome. 4th International Scientific and Practical Congress "Diabetes Mellitus, Its Complications and Surgical Infections" Collection of scientific papers. November 19-21, 2019, Moscow. Page 3.
2. Abdullaev S.A., Musaev S.T. Surgical treatment of necrotizing fasciitis in patients with diabetes mellitus. 4th International Scientific and Practical Congress "Diabetes Mellitus, Its Complications and Surgical Infections" Collection of scientific papers. November 19-21, 2019, Moscow. Page 3.

3. Mary A., Hartmann A., Liabeuf S., et al. Association between metformin use and below the knee arterial calcification score in type 2 diabetes patients, *Cardiovs Diabetol.* 2017, pag.16-24.
4. Gremmels H.M., Teraa R.W., Sperengers J., Martens M., Verhaar M., Wever J.J., de Borst G.J., Vos J.A., Mali W., Overhagen H.V., Padi J.T., groups. High and immeasurable ankle – brachial index as predictor of poor amplitude – free survival in critical limb ishchemia, *J. Vas surg.*, 2018, pag.1864-1871.
5. Wagner W.A. Classification and program for diabetic, neuropatic and dysvascular foot problems. In the American can Academy of orthopedic surgeon instructional course lectures. St. Louis. Mos by Vear Book. 1997, pag.143-165.
6. Abdullayev S.A., Babajanov A.S., Kurbonov E.Y., Toirov A.S., Abdullayeva L.S., Djalolov D.A. Problems of Sepsis Diagnostic and Treatment in Diabetes Mellitus. *American Journal of Medicine and Medical Sciencess.* 2020, pag.175-178.
7. Abdullaev S.A., Dusiyarov M.M., Atoev T.T., Khuzhabaev S.T. Diabetic panja va yumshoq tukimalardagi yiringli – nekrotikaralarni mahalliy davolash technologylari. Doctor ahborotnomasi. No. 4 (108) – 2022. Samarkand, 6 – 8 betlar.
8. Khudaynazarov U.R., Abdullaev S.A., Yuldoshev F.S. Modern Approaches to Local Treatment of Purulent Necrotic Complications of Diabetic Foot Syndrome. *Texas Journal of Medical Science.* Volume 6, 2022. Pag. 35-39.
9. Abdullaev, S., Rahmanov, U., Khudoynazarov, U., Yuldashev, F., Aslamov, J., & Tulkin, A. (2022). Current approaches to the treatment of purulent-necrotic soft tissue complications in diabetic foot. *International Journal of Health Sciences*, 6(S1), pag. 7796–7802.