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NEW ENDOVASAL SURGICAL APPROACHES TO TREAT PURULENT-NECROTIC COMPLICATIONS OF THE DIABETIC FOOT

Abdullaev S.A.,
Makhmudov T.B,
Saidullaev Z.Ya.
Zhuraev A.A.
Samarkand State Medical University

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Abstract:

Advances in the diagnosis and treatment of diabetes have led to an increase in the life expectancy of patients, which, in turn, has caused the emergence of a large number of late complications of the disease. At the same time, such formidable complications as heart pathology, renal failure, blindness, and foot lesions develop. Diabetic foot takes a leading position in this list. In the report of the WHO Expert Committee on Diabetes Mellitus, diabetic foot syndrome (DFS) is not considered a manifestation of diabetic angiopathy, but is recognized as an independent disease.

Keywords: Surgical approach, angiopathy, diabetic foot, diabetes mellitus

INTRODUCTION. According to the definition, diabetic foot syndrome (DFS) is "a pathologic condition of the feet in diabetes mellitus associated with pathology of the peripheral nerves, vessels, bones, skin and soft tissues of the foot, leading to the development of chronic ulcerative conditions, bone-destructive changes and infectious-necrotic lesions" [1,6].

The risk of developing SDS increases with age and duration of diabetes course. Every fourth patient with DM is at high risk of developing SDS, 6-15% of patients develop ulcerative defects of the feet, which are not recognized in time, become infected and are a frequent cause of lower limb amputation [2,7].

The frequency of occlusive lesions of the main arteries of the lower limbs on the background of DM ranges from 29 to 81% of all observations. The frequency of amputations in diabetic gangrene is 83.1%, from 50 to 70% of all nontraumatic amputations fall on diabetics, while the dismal rates of hospital mortality - up to 40% - remain. [3,8]. About 50% of patients who underwent unilateral high amputation are able to move only within the apartment, and in 51-73% develop purulent-necrotic changes on the foot of the remaining limb, which are often an indication for its amputation [4]. A.S. Efimov rightly noted that "diabetes begins as a disease and ends as a vascular pathology" [5,9]. The development of SDS is based on four main damaging factors: diabetic neuropathy, diabetic osteoarthropathy, diabetic angiopathy and infection, which are closely interrelated, have a strong effect on each other and rarely exist in isolation. Often there is a predominant effect of one of them, these factors and form the following clinical forms (accepted by WHO): neuropathic, neuroischemic (mixed) and ischemic. In the developed world, up to 5-6% of the population suffers from a complication of diabetes mellitus. Complication with surgical infection in diabetes mellitus makes up to 30-4% of all surgical patients. In 17 times more in patients with diabetes mellitus develop gangrene of the toes and the whole foot than people not suffering from diabetes. In recent years, endovasal methods have been introduced in the choice of surgical treatment of patients with purulent-necrotic complications of diabetic foot syndrome (DFS)

AIM OF THE STUDY: To evaluate the effectiveness of using endolvazal method of treatment of purulent-necrotic complications in diabetic foot syndrome.

MATERIALS AND METHODS OF RESEARCH: 84 patients with purulent-necrotic complications of diabetic foot syndrome (DFS) were examined in the clinical base of Samarkand State Medical University and in the clinic "Zarmed" for the last years according to the two-year scientific project. There were 53(63%) males and 31(34%) females. The age of the patients ranged from 27 to 82 years, averaging 57.2 + 45 years. The patients had a history of diabetes ranging from 8 years to 22 years. Type I diabetes mellitus was diagnosed - in 6(7%) patients, type II - in 78(93%) patients. Severe diabetes mellitus was diagnosed in 43(52%) patients, moderate - in 33(40%) patients and mild - in 8(8%) patients.

At admission patients had concomitant diseases: cardiovascular (77.2%), renal (54%) and liver and jejunal tract (52%).

From 84 patients - in 43 patients according to the scientific project the operative treatment by endovasal surgical tactics was performed jointly in the company "Zarmed". Out of 43 patients there were 7 men and 16 women. The age range was from 27 to 74 years old

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Standard laboratory and instrumental diagnostic methods were performed (general blood analysis, urine, biochemical blood analysis, blood sugar, coagulogram, ECG, cardiac echoCT, doublex examination of the arteries of the lower extremities with measurement of ankle-shoulder index (ABI) before and after recanalization, radiography of the foot in 2 projections, CT-angiography or X-ray contrast angiography, MSCT).

Treatment in the group of patients consisted in surgical treatment of ulcer-necrotic defects and endovascularization of the arterial channel, and the stage depended on the degree of local tissue involvement in the wound process and the presence of signs of inflammation.

Endovascular revascularization of the lower limbs artery was performed in all examined patients. Out of 43 patients, 30 patients underwent surgery of Dostopamus through femoral artery, two patients underwent posterior bolshobersoviy arterial access with occlusion of tibial artery. 31 patients underwent recanalization and balloon angioplasty and 2 patients underwent thrombectomy followed by balloon angioplasty.

For recanalization of the femoral-femoral segment we used 0.14 Commad(Abbot) tibial arteries, for recanalization balloon sizes 2.0, 2.5, 3.5 and 4.0 and large balloons 5.0 and 6.0 Admiral Extreme by Medtronic. Balloon angioplasty was performed with Cordis balloon catheters and stenting was performed with Cordis stents.

When comparing the plan of optimal surgical treatment of patients we used the classification of Bagner F.M.(1981). II degree-(12%), III degree-(70%), IV degree-(18%).

Results and Discussion:

Our observations showed that in the development of purulent-necrotic complications of SDS, depending on the form, several clinical complications are revealed: neuropathic process leads to atrophy of the foot muscle and development of toe deformity. Due to excessive deformation of the toes, "calluses" are formed and subsequently trophic ulcer develops.

First of all, in the discussion of these pathologies, we must say that unfortunately, most patients come to the hospital late with a complication.

The main task in the treatment of purulent-necrotic complications of SDS is to avoid high amputation of the affected limb. Taking into account these data, in recent years, endovasal method of revascularization of the artery of the lower limbs, which restores arterial blood flow in the zone of trophic disorders on the foot, has been widely used.

Before vascularization surgery we paid attention to the nature and extent of atherosclerotic lesion. Depending on the localization of trophic ulcers, methods of revascularization of the lower leg artery were chosen. If trophic changes were localized on the toes of the foot, the blood flow was restored in the anterior or posterior tibial arteries. If before endovasal method the main task in the treatment of purulent-necrotic complications of SDS on the indication was surgical treatment - to remove the affected limb from critical ischemia. In determining the optimal method of surgical treatment we were based on clinical data, anesthesia volume, radiological, Doppler and angiographic data. Out of 84 patients 49 patients underwent surgical treatment. Amputations of metatarsal bones according to Sharpe were performed in 14 (21%) patients, amputations of one finger in 9 (13,4%), 2 fingers in 6 patients, 3 fingers in 4 (6%) patients. Amputation of lower limbs at the level of tibia was performed in 4(6%) patients, at the level of femur in 12(18%) patients.

According to angiography and CT-angiography in the group of patients (n-43) 62,8% of patients had isolated lesions of the tibia artery or in combination with the hamstring artery. Out of 43 patients, 15 patients had suspected Menkeberg medial calcinosis, which was 35%.

According to metanalysis, angiosomal approach improves wound healing due to direct restoration of arterial blood flow. As a result of the endo-isal approach, the proximal amputation rate decreased to 9-10%.

CONCLUSION. Timely diagnostics of SDS complications and introduction of endovasal surgical operation into practice of SDS complications treatment significantly reduces the number of high amputation.

LITERATURE

1. Abdullaev S.A., Kurbanov E.Y. 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 "yu Collection of scientific papers. November 19-21, 2019., Moscow. Pp. 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 "yu Collection of scientific papers. November 19-21, 2019., Moscow. Pp.

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3.Mary A., Hartmann A., Liabeuf S., et al. Association between metformin use and below the knee arterial calcification score in type 2 diabetik 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 ampulation – 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.Абдуллаев С.А., Дусияров М.М., Атоев Т.Т., Хужабаев С.Т. Диабетик панжа ва юмшоқ тўқималардаги йирингли – некротикяраларни махаллий даволаш технологиялари. Доктор ахборотномаси. №4 (108) – 2022. Самарқанд, 6 – 8 бетлар.

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.