



Treatment of Purulent-Necrotic Soft Tissue Complications in Diabetic Foot

Abdullayev S.A.

Professor, Department of General Surgery
Samarkand State Medical University

ABSTRACT

One of the frequent complications of diabetes mellitus (DM) is the lesion of human blood vessels, leading to the development of diabetic foot. Literature data and daily practical observation show an increase in the frequency of diabetic foot (30-70%), which raises the urgency of the issue of this disease treatment. This article contains data on the results of surgical treatment of 151 diabetic patients complicated with diabetic foot and purulent-necrotic inflammations of soft tissues. Our work presents the basic principles of treatment of purulent-necrotic complications of diabetes mellitus. The effectiveness of local application of Acerbin solution and two-stage surgical tactics in the complex surgical treatment of purulent-necrotic complications of diabetes mellitus has been proved.

Keywords:

diabetic foot, purulent-necrotic complications, Acerbine.

Introduction. One of the frequent complications of diabetes mellitus (DM) is damage of human blood vessels. High blood sugar levels lead to vasoconstriction. Reduced vascular caliber is one of the main causes of reduced blood flow, most often to the tissues of the lower extremities.

One of the serious complications of diabetes mellitus is diabetic foot. The cause of the development of diabetic foot is a lesion of the vessels and nerves of the limbs.

In recent years, the literature and daily practical observation show an increase in the frequency of diabetic foot due to smoking, the annual increase in the number of patients with obesity and arterial hypertension.

The formation of diabetic foot ulcers is largely due to mechanical factors (high pressure on the feet when walking, rubbing against shoes, and various blunt traumas).

With prolonged walking under the influence of a mechanical factor, ulceration develops, which is easily infected.

Purpose of the study: to improve complex, local and surgical treatment using new technologies.

Materials and methods of research: 151 patients with diabetes mellitus complicated by diabetic foot and purulent-necrotic soft tissue inflammation were observed in the purulent-septic department of Samarkand City Medical Association. Among the patients examined, 87 were male and 64 were female. The age of diabetic patients ranged from 30 to 78 years. The age varied from 30 to 60 years old. The duration of diabetic history of the examined patients ranged from 8 to 22 years. Concomitant cardiovascular diseases were detected in 76% of patients, renal diseases - in 54%, hepatic diseases and pathology of gallbladder and biliary tract - in 51% of patients.

Type I diabetes mellitus (DM) was detected in 12 (7.9%) patients, and type II DM in 139 (92.1%) patients. Severe form of this disease was registered in 48% of patients, moderate - in 41% and mild - in 11% of patients.

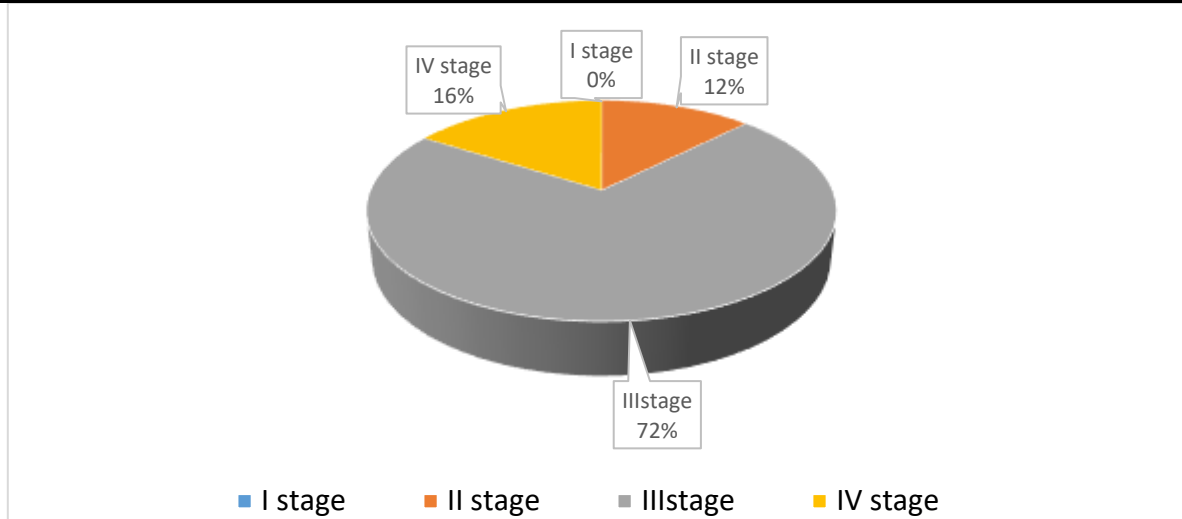


Diagram 1: Distribution of patients according to the severity of tissue damage in diabetic foot syndrome according to Wagner F.M. (1981) classification.

For surgical treatment, we used Wagner F.M. (1981) classification, used to assess the severity of tissue damage in diabetic foot syndrome. According to this classification, among the patients observed, grade II lesions were found in 19 (12.5%), grade III in 108 (71.5%) and grade IV in 24 (16%) patients. Wet necrosis of toe tissue was detected in 101 (66.9%) patients and dry necrosis in 50 (33.1%) patients. Ischemic ulceration of the heel area occurred in 37 (24.5%) patients.

Ischemic blisters in the foot area were found in 40 (26.5%) patients, gangrene of one toe was detected in 38 (25.1%) patients, two toes in 24 (15.9%), three toes in 27 (17.9%) and all toes in 22 (14.6%).

During their stay in the hospital, patients underwent blood and urine tests, biochemical tests to determine blood and urine sugar content, ECG, chest X-ray and radiography, ultrasound, limb Doppler, foot bone radiography, computed tomography and angiography of the lower extremities.

Results and discussion of materials: Our observations showed that the clinical manifestation of disease developed depending on the degree of soft tissue involvement with purulent-necrotic complications. With neuropathy muscle atrophy develops, followed by finger deformities. Because of the development of deformities of the toes there

appear calluses and, gradually, trophic ulcers. With the development of ischemia, purulent-necrotic phlegmon appears in the tissues of the foot. Purulent necrotic phlegmon in diabetic foot syndrome often leads to sepsis, which makes treatment much more difficult. This condition in diabetes mellitus is based not only on disorders of carbohydrate metabolism, but also disorders of protein and fat metabolism. Profound changes contribute to disorders of liver, kidney, cardiovascular and nervous system function.

Purulent infection negatively affects metabolism, acidosis develops, the body's defense function weakens, and the infection spreads throughout the body. In this condition we often observed the development of purulent-necrotic fasciitis in patients.

In the treatment of purulent-necrotic complications of diabetic foot syndrome, our tactics were based on the following basic principles: dynamic monitoring of blood sugar and its correction, antibiotic therapy and control of its action, treatment of related diseases, accurate determination of the form of diabetic foot and its severity, the use of local treatment.

Our primary goal was to remove the foot from a state of critical ischemia, in addition, we paid special attention to traditional treatment, that is, immunocorrection and infusion-transfusion therapy.

In surgical treatment of diabetic foot according to modern requirements early diagnosis and wide dissection of phlegmon is necessary. After evacuation of pus, it is necessary to perform a thorough revision, if necessary, fasciotomy and necrectomy.

It is worth noting that even in the infiltrate stage diabetic foot phlegmon should be opened with wide skin incisions and fasciotomy, which significantly reduces the pressure on the soft tissues, preventing ischemia.

The main goal of surgical treatment of purulent-necrotic complications of diabetic foot is to save the limb from high proximal amputations. Therefore, in recent years we have introduced in practice a two-stage surgical treatment.

At the first stage we made relaxing long incisions, wound revision, fasciotomy and necrectomy depending on the size of purulent-necrotic phlegmon. Wound sanitation and adequate drainage were performed thoroughly. In recent years we started to use Acerbin solution, which has a keratolytic, antiseptic, analgesic and accelerating wound healing effect. At the second stage, we performed radical surgery - staged necrectomy three to eight times, as indicated. During the interstage period, we managed to stabilize the general condition of the patients, to remove the affected limbs from critical ischemia.

Among 151 patients, the Sharpe amputation of the foot was performed in 37 (24.5%) patients, exarticulation of one toe in 23 (15.2%), two toes in 24 (15.9%), three toes in 27 (17.9%), all toes in 22 (14.6%) patients. Amputation at the thigh level was performed in 4(2.6%) patients, amputation at the tibia level in 4(2.6%) patients. When determining the level of limb amputation, in addition to objective data, we used the results of Doppler and angiography.

Using the above surgical treatment tactics, we achieved reduction of proximal surgeries from 20% to 7.5%.

Conclusion: We believe that local application of Acerbin solution and two-stage surgical tactics is the optimal way of complex surgical treatment of purulent-necrotic complications and diabetic foot in diabetes mellitus.

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