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## Evaluation of the Patient with a Diabetic Foot in the Chronic Wound Service: A Case Report

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### ABSTRACT

Diabetic foot (DF) are wounds that appear on the feet in diabetic patients and do not heal for a long time. It is important to investigate the presence of an obstruction in the leg veins in patients with DF. DF is a common and serious complication of diabetes. It is an important cause of morbidity and mortality in diabetic patients. The principles of essential surgical and non-surgical wound care are indispensable factors in the healing of these wounds. The patient, who underwent surgical debridement, was continued with negative-pressure wound therapy and silver foam dressing for wound healing.

**Keywords:** Diabetes mellitus, diabetic foot, wounds and injuries



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### INTRODUCTION

Diabetes mellitus (DM), a metabolic disease characterized by chronic hyperglycemia, is an important public health problem in Turkey as well as all over the world.<sup>[1]</sup> Diabetic foot (DF) is the most prominent among the chronic complications of DM.<sup>[2]</sup> DF prevalence is 4%, and annual incidence is 2.2–6% in diabetic individuals. The incidence of DF development reaches 34% during the life of a diabetic patient.<sup>[3]</sup> The most important results of DF problems are circulatory disorder, wounds that do not heal, and amputation. More than 25% of people with diabetes develop DF during their lifetime, and approximately 20% of moderate-to-severe DFs cause amputation.<sup>[4,5]</sup> Moreover, diabetes lasts more than 10 years, advanced age, body mass index (BMI), retinopathy, diabetic peripheral neuropathy, peripheral vascular disease, uncontrolled glycated hemoglobin (HbA1c), foot deformity, pressure sore, infection, inappropriate foot self-care habits, smoking, prior ulceration/amputation history, chronic kidney disease dyslipidemia, and Vitamin D deficiency are the main risk factors for the development of foot lesions in DM.<sup>[6]</sup> In this case report, we present a patient with DF followed in the chronic wound service.

### CASE REPORT

An 83-year-old female patient registered in the home health unit with diagnoses of DM for 20 years, hypertension for 18 years, congestive heart failure (CHF) for 10 years, and asthma for 9 years. Samsun University Training and Research Hospital Wound Care and Palliative Ser-

vice admitted to the patient that the general condition of the patient had deteriorated, and her oral intake had decreased. There were runny sores under both feet. The patient often had a fever. In the patient's history, it has been determined that she uses diabetes medications irregularly and ignores her diet, has had a wound on the left and right foot base for 5 years, and has occasional discharge from the existing wound. In the patient's family history, it was learned that her mother had DM and her father had CHF. Furthermore, a physical examination of the patient; the general condition was medium-bad, conscious, cooperative, and disoriented. The patient's temperature was 38.1°C, blood pressure was 110/80 mmHg, pulse rate was 108 beats/min, breathing count was 16/min, and there were injuries to a 12×8×7 cm, a foul-smelling ulcer that started at the base of the left foot and extended to the laterality of the foot. In the right ankle heel area, there was a 3×3×4 cm purulent discharge and foul-smelling ulcer wound. The DF wound of the patient is shown in Figure 1. Meanwhile, the patient had a fungal infection on her toenails, and her skin had dry. Moreover, peripheral pulses were weakly palpable. Existing DF wounds of the patient; Meggit-Wagner classification was considered Stage 3. According to the Infectious



**Figure 1.** Diabetic foot wound of the patient.

Diseases Society of America, classification was considered stage serious and PEDIS Stage 4. Laboratory parameters of the patient are summarized in Table 1. Albumin replacement was performed in the patient with low albumin. The patient's nutrition was started with the parenteral solution intravenous, and the patient's nutrition continued with diabetic enteral products and enteral products with glutamine content when oral intake began. The patient who underwent surgical debridement continued with negative-pressure wound therapy (NPWT) for two sessions. At the end of the treatment, silver foam dressing was continued with debridement cream and antiseptic spray. During the hospital stay, the patient the dose of anticoagulants was increased as a result of arterial doppler ultrasonography when no pulse was obtained in the left foot dorsal during the routine foot examination. According to the magnetic resonance imaging results, the anti-biotherapy of the patient who was not considered for amputation was extended to be completed in 6 weeks. DF care training was given to the patient and her relatives.

Consequently, relatives of the patients were informed that blood sugar monitoring and a diabetic diet were important. In addition, the patient, whose dressing days were determined with the Home Health Unit, was discharged with health in stable condition.

## DISCUSSION

DFs are frequently encountered in primary healthcare.<sup>[2]</sup> As a result of the development of infection and loss of tissue and organs, the patients go through a long and troubled process. In this regard, DFs have become a serious social problem since it creates a heavy economic burden for the relatives of patients and society.

Ucar et al. reported that Maggot debridement therapy (MDT) could be a complementary, fast, and effective treatment option.<sup>[7]</sup> In addition, they argue that providing a painless MDT session with a very low cost of treatment can increase the rate at which patients and physicians prefer this treatment method. Malekian et al. conducted a clinical trial on the effect of maggot therapy (MT) on DF and indicated that MT is a safe and effective method for the treatment of DF.<sup>[8]</sup> In a case report study by Parizad et al., they used combination therapy, surgical debridement, MT, NPWT, and silver foam dressing to treat the patient's DFs.<sup>[9]</sup> After they reported 1 month of hospitalization, the patient was discharged from the hospital.

Ozkarabulut et al. reported that diabetic patients with normal BMI, who had insulin resistance tests, blood sugar follow-ups, and HbA1c tests regularly, whose results were

**Table 1.** Laboratory parameters of the patient

	Normal range	Before treatment	After treatment
White blood cells (μ/L)	4.500–10.500	11.500	6.700
Hemoglobin (g/dl)	12.0–17.4	10.6	12.8
Glucose (mg/dl)	74–106	143	127
Albumin (g/dl)	35.0–52.0	21.6	24.2
Creatinine (mg/dl)	0.67–1.17	0.5	0.6
C-reactive protein (mg/dl)	0–5	189.3	79.6
ESR (mm/h)	0–10	58	22

ESR: Erythrocyte sedimentation rate.

normal, diabetes complications, and higher nutritional information levels, took the necessary measures for themselves.<sup>[10]</sup> In addition, it was determined that patients who knew more about DF took the necessary measures to prevent DFs development.

Our case report shows the importance of interdisciplinary patient care and the importance of primary health-care services. In addition, it is seen that the patient's health is rapidly restored with surgical debridement, NPWT, and silver foam dressing treatment methods with a multidisciplinary patient care approach.

## CONCLUSION

It is known that DF development can be significantly reduced with good foot care and training and a multidisciplinary team approach. Thus, the application of this approach in the treatment of DF reduces morbidity and mortality. Since treating complex wounds such as DFs are a time-consuming and costly process, it is recommended to use innovative methods to reduce costs and speed up the wound healing process.

## Disclosures

**Informed Consent:** Written informed consent was obtained from the patient.

**Conflicts of Interest:** No conflicts of interest between authors.

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