SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medical and Surgical Emergency

Emergency Management of Diabetic Foot: Experience of Cheikh Khalifa Hospital

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DOI: https://doi.org/10.36347/sasjm.2026.v12i01.011 | **Received:** 12.11.2025 | **Accepted:** 20.01.2026 | **Published:** 28.01.2026

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Abstract **Original Research Article**

Diabetic foot is a severe complication of diabetes mellitus and a major cause of non-traumatic lower-limb amputation. We conducted a retrospective descriptive study including 40 patients admitted to the emergency department for diabetic foot between 2020 and 2025. The mean age was 65 years with a marked male predominance. Type 2 diabetes accounted for almost all cases. The mean delay before consultation was 34 days. Lesions were predominantly severe, mainly gangrene, with a high prevalence of advanced Wagner stages. Amputation was required in more than three-quarters of patients. These findings highlight the severity of diabetic foot managed in emergency settings and underline the importance of early detection and multidisciplinary management to reduce amputation risk.

Keywords: Diabetic foot – Emergency department – Amputation – Diabetes mellitus.

INTRODUCTION

Diabetic foot is a frequent and serious complication of diabetes mellitus, resulting from the association of peripheral neuropathy, lower-limb peripheral arterial disease, and increased susceptibility to infection. It represents a major public health issue due to its high morbidity, functional impairment, and socioeconomic burden. According to international data, approximately 15–25% of diabetic patients will develop a foot ulcer during their lifetime, and nearly 85% of non-traumatic lower-limb amputations are related to diabetes [1,2].

Despite advances in diabetes management, diabetic foot remains associated with a poor prognosis, particularly in low- and middle-income countries where delayed consultation and limited access to specialized care are common. Emergency departments often represent the first point of contact for patients presenting with complicated, infected, or ischemic lesions.

The aim of this study was to describe the experience of diabetic foot management in the emergency department of Cheikh Khalifa Hospital, to analyze patient characteristics, therapeutic approaches, and short-term outcomes.

MATERIALS AND METHODS

This was a retrospective descriptive study conducted in the emergency department of Cheikh Khalifa Hospital. Diabetic patients admitted for diabetic foot between November 12, 2020, and August 29, 2025, were included. Incomplete medical records and non-diabetic amputations were excluded.

Collected data included demographic characteristics, diabetes history and follow-up, clinical, paraclinical, therapeutic, and outcome data. Lesion severity was assessed using the Wagner classification. Statistical analysis was descriptive.

RESULTS

A total of 40 patients were included. The mean age was 65 years (range: 36–89 years), with most patients aged between 60 and 69 years. A marked male predominance was observed, with men accounting for 72.5% of cases (male-to-female ratio: 2.6). Type 2 diabetes was almost exclusive, affecting 97.5% of patients, highlighting the vulnerability of this population to podiatric complications.

Nearly half of the patients were receiving insulin therapy alone, while one quarter were treated with oral antidiabetic drugs only. Regular diabetes follow-up was reported in just over half of patients,

indicating insufficient long-term management. Cardiovascular risk factors were frequently associated, including hypertension, smoking, and hypercholesterolemia.

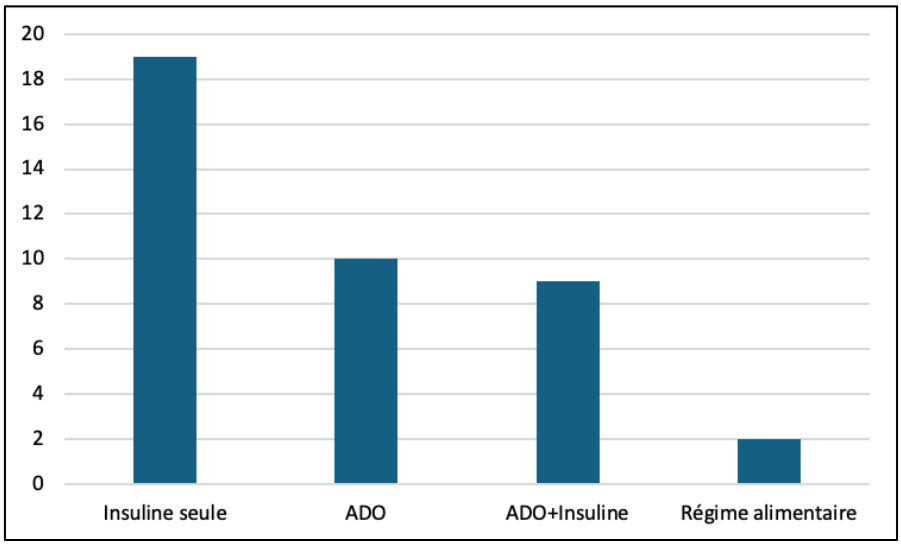

Figure 1: Distribution of patients according to diabetes treatment

The mean delay between lesion onset and emergency consultation was 34 days (range: 2 days to 3 months). Most patients sought medical care after several weeks, reflecting a significant delay in management. Lesions were most often triggered by minor traumatic foot wounds, frequently neglected due to peripheral neuropathy.

Clinically, gangrene was the most frequent presentation, followed by necrosis and plantar ulcers. Lesions mainly affected the toes, then the forefoot, with occasional extension to the entire foot or leg. According to the Wagner classification, advanced stages predominated, with grades IV and V accounting for 60% of cases, indicating high severity at admission.

Biologically, mean blood glucose at admission was 1.93 g/L, reflecting poor glycemic control. Microbiological samples, obtained in slightly more than half of patients, revealed polymicrobial infection in nearly two-thirds of cases. Vascular assessment demonstrated significant peripheral arterial disease in the vast majority of explored patients.

Therapeutic management relied on a multidisciplinary approach combining broad-spectrum empirical antibiotic therapy, local wound care, and surgery. Antibiotics were administered in 90% of cases. Despite these measures, amputation was required in 77.5% of patients, ranging from toe amputation to transtibial amputation depending on lesion extent.

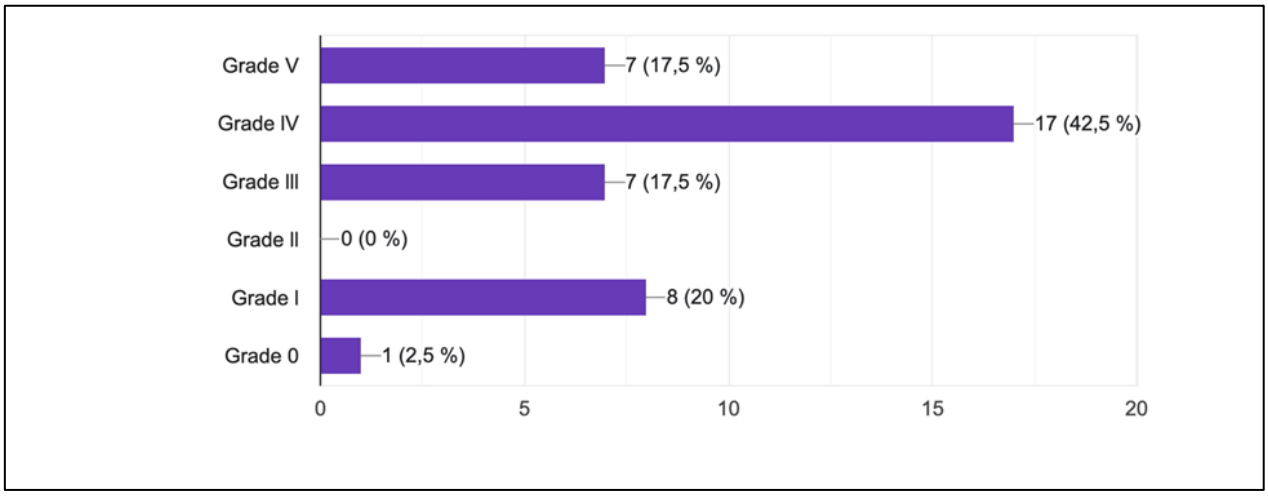

Figure 2: Distribution according to Wagner stage.

The mean length of hospital stay was 5 days. Clinical outcome was favorable in 83.8% of cases. The main complications were post-amputation stump infections and lesion recurrence.

Table 1: Summary of types of intervention

Type d'intervention	Nombre de patients	(%)
Traitement conservateur	9	22,5
Amputation des orteils	16	40,0
Amputation de l'avant-pied	8	20,0
Amputation transtibiale	7	17,5
Total	40	**100**

DISCUSSION

This study shows that diabetic foot managed in the emergency department is predominantly characterized by advanced, severe, and often mutilating forms. Patient profiles were marked by advanced age and a strong male predominance, findings widely reported in the international literature [3–6]. Male predominance may be explained by greater exposure to vascular risk factors, trauma, and more frequent delays in seeking care.

The mean consultation delay exceeding one month is a major determinant of severity. Several studies have demonstrated that delayed management significantly increases the risk of deep infection, critical ischemia, and amputation [7,8]. This delay is multifactorial, related to diabetic neuropathy causing loss of protective sensation, lack of therapeutic education, self-medication, and limited access to specialized care [9].

The predominance of gangrenous lesions and advanced Wagner stages observed in our series is comparable to findings from many African and North African studies, where patients often present late [10–12]. Conversely, in countries with specialized multidisciplinary diabetic foot units, amputation rates are markedly lower, often below 20% [13].

The high amputation rate in our study reflects the initial severity of lesions and the major role of associated ischemia. The near-constant presence of peripheral arterial disease highlights the central role of vascular impairment in diabetic foot prognosis. These findings confirm that prevention, early detection, and prompt management of initial lesions are key factors in reducing morbidity and the need for amputation.

Table 2: Type of amputation according to the literature

Niveaux d'amputation	Orteil	Avant-pied	Jambe	Cuisse
VANDAMME	53,2%	21%	18,5%	7,5%
FTOUHI	43,82%	14,2%	19,7%	22,3%
EL KHADIR	59%	10,24%	28,2%	2,56%
QUARI	61,3%	--	26,7%	16%
Zouhair	50%	15%	33%	16%
Notre étude	40,0%	20,0%	17,5%	--

Our results emphasize the need to strengthen patient education, improve regular diabetes follow-up, and develop rapid care pathways integrating emergency medicine, surgery, vascular medicine, and wound care. The establishment of specialized diabetic foot units could significantly reduce amputation rates and improve functional outcomes.

Table 3: Length of hospital stay by country.

Pays	Durée d'hospitalisation (en jours)
USA	40
France	21
Tunisie	37
Arabie Saoudite	22
Zouhair	7
Notre étude	5

CONCLUSION

Diabetic foot managed in the emergency department remains a severe condition, dominated by advanced forms related to significant diagnostic delay. A comprehensive strategy based on prevention, early detection, and multidisciplinary management is essential to reduce amputation rates and improve outcomes for diabetic patients.

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