Dr. Carlos Moros Cristóbal.
Resident physician in Physical Medicine and Rehabilitation.
Hospital Universitario Virgen del Rocío, Seville. Spain.

Dra. Carmen Rodríguez Burgos.
Attending physician in Physical Medicine and Rehabilitation.
Hospital Universitario Virgen del Rocío, Seville. Spain.

Update in the management of diabetic foot

Diabetic foot remains one of the most frequent and severe complications in people with diabetes. It is estimated that up to 25% will develop a foot ulcer during their lifetime (1). These lesions not only affect quality of life, but also constitute the leading cause of non-traumatic amputation in developed countries (2).

Beyond the physical impact, diabetic foot leads to prolonged hospitalizations, functional limitation, loss of autonomy, and a significant emotional and social burden. It also represents a high healthcare cost, especially when treatment is delayed or not carried out in a structured manner (8).

Traditionally, management has focused on the skin lesion and infection. However, in recent years a broader view has been consolidated, recognizing it as the final consequence of progressive alterations in sensation, biomechanics, and circulation. This paradigm shift has allowed efforts to focus on prevention, early detection, and multidisciplinary management, achieving reduced complications when addressed in time (3).

Diabetic foot is not just a wound; it is the final manifestation of a progressive disorder that can be prevented if risk is identified early.

WHY DOES DIABETIC FOOT OCCUR?

The development of diabetic foot is multifactorial. The 3 main pathophysiological pillars are:

- **Diabetic neuropathy:** reduces sensitivity, so the person may not perceive small wounds or friction.
- **Peripheral arterial disease:** reduces blood flow and impairs healing.
- **Infection:** may rapidly complicate an apparently mild lesion (5).

In addition, neuropathy causes clinical signs such as loss of sensitivity, altered proprioception, intrinsic muscle weakness, and changes in plantar load distribution. All these factors favor progressive deformities (claw toes, arch collapse, bony prominences), generating areas of hyperpressure.

This combination of sustained pressure and lack of sensitivity, together with circulatory alterations, are the main triggers for the progression from minor lesions to ulcers. Therefore, diabetic foot should not be understood solely as a cutaneous problem, but as the final consequence of a progressive structural and functional disorder.

RISK ASSESSMENT: THE MOST EFFECTIVE PREVENTION TOOL

One of the most important advances in recent years has been **risk stratification**, meaning that not all people with diabetes have the same risk of developing these lesions (3).

International clinical practice guidelines recommend an annual foot examination in all people with diabetes, including:

- Skin inspection (color, cracks, calluses, etc.)
- Assessment of deformities
- Sensory evaluation (monofilament)
- Vascular examination
- Balance and fall risk assessment
- Joint and muscle evaluation

Current guidelines propose classifying risk as low, moderate, or high, allowing the establishment of follow-up frequency and appropriate preventive measures. Thus, in high-risk individuals, follow-up should be closer and include early orthotic interventions. »

DIABETIC FOOT REMAINS ONE OF THE MOST FREQUENT AND SEVERE COMPLICATIONS IN PEOPLE WITH DIABETES. IT IS ESTIMATED THAT UP TO 25% WILL DEVELOP A FOOT ULCER DURING THEIR LIFETIME

RISK LEVEL	MAIN CHARACTERISTICS	RECOMMENDED FOLLOW-UP
Low	No neuropathy or vascular disease	Annual review
Moderate	Neuropathy or isolated vascular disease	Every 3–6 months
High	Neuropathy plus deformities, history of ulcer or amputation	Every 1–3 months

TABLE 1: Simplified risk classification and recommended follow-up

UP TO 40% OF ULCERS RECUR WITHIN THE FIRST YEAR. THEREFORE, WOUND DISCHARGE SHOULD NOT BE CONSIDERED THE END OF THE PROCESS; THIS DISEASE IS CONSIDERED A CHRONIC CONDITION

» **Therapeutic education** is one of the fundamental pillars. Teaching daily foot inspection, maintaining proper hygiene, moisturizing the skin, and wearing appropriate footwear significantly reduces the occurrence of lesions (3).

Current management of diabetic foot ulcers
When a lesion appears, management must be early and multidisciplinary. Current recommendations include:

1. Pressure off-loading

Off-loading is the central element in the treatment of neuropathic plantar ulcers (4), as without eliminating repeated mechanical pressure, healing is unlikely.

Total contact casting is the method with the strongest evidence, although adapted removable devices may also be used. Adherence is key: an effective device loses its usefulness if not used correctly.

During the off-loading period, muscle weakness, stiffness, or balance impairment may occur. Rehabilitation support helps prevent these complications and promotes maintenance of mobility.

2. Infection control

Not all ulcers are infected, so antibiotics are not always indicated (5). Diagnosis is clinical. In case of infection, treatment must be adjusted according to severity and culture results when indicated, and hospitalization may be required in complex cases. Early diagnosis reduces the number of severe complications such as osteomyelitis.

3. Revascularization

In individuals with significant peripheral arterial disease, evaluation by vascular surgery is essential. Endovascular revascularization techniques have improved significantly in recent years, increasing the chances of limb salvage by restoring blood flow and thus reducing the risk of amputation (7).

4. Local wound care

This includes debridement of necrotic tissue, appropriate selection of dressings according to exudate type, moisture control, and periodic follow-up.

Currently, there is no single ideal dressing; selection must be individualized according to lesion characteristics.

AFTER HEALING: PREVENTING RECURRENCE

Up to 40% of ulcers recur within the first year (2). Therefore, wound discharge should not be considered the end of the process; this condition is regarded as chronic.

Secondary prevention should include periodic footwear review, insole adjustment, gait re-education, control of progressive deformities, and early evaluation for corrective surgery when indicated. The goal is not only to close the wound but to prevent recurrence.

Treatment success is not measured solely by healing, but by preserving autonomy and the ability to walk.

AMPUTATION AND REHABILITATION PROCESS

When amputation is unavoidable, the objective becomes maximizing functional recovery. Management must be early and include stump preparation, prevention of contractures, control of neuropathic or phantom pain, prosthetic training, and psychological support.

Early intervention improves functional independence and reduces long-term disability.

NEW TRENDS AND RECENT ADVANCES

In the last decade, new strategies have emerged: advanced therapies such as dermal matrices or skin substitutes, negative pressure therapy in selected ulcers, and the development of specialized units composed of multidisciplinary teams.

Current evidence shows that specialized units reduce major amputations (6). The multidisciplinary approach is currently the gold standard in diabetic foot management, with reduced amputation rates observed in specialized units that include different specialists and health care professionals.

The functional approach complements medical and surgical treatment, providing a person-centered perspective focused on maintaining mobility and independence. It should be kept in mind that success in diabetic foot management is not measured only in terms »

WARNING SIGN	WHY IS IT IMPORTANT?	WHAT TO DO?
Wound that does not improve within 48 hours	May indicate infection or poor healing	Consult a healthcare professional
Redness around a lesion	Possible onset of infection	Do not apply home remedies and seek medical evaluation
Increased pain or swelling	May indicate a deep complication	Early medical evaluation
Discharge or foul odor	Signs of active infection	Urgent medical attention
Change in coloration (pale, bluish, or very red foot)	May indicate circulatory problems	Priority consultation
Fever associated with a foot lesion	Possible systemic involvement	Go to the emergency department
New area of hardness or painful callus	Risk of ulceration due to hyperpressure	Podiatric evaluation

TABLE 2: Warning signs in the foot: when to seek medical attention?

» of healing, but in the person's ability to continue walking and maintaining autonomy.

THE ACTIVE ROLE OF THE PERSON WITH DIABETES

Active patient participation is essential. Therapeutic education improves treatment adherence and promotes early detection of lesions. Therefore, it is important to recognize signs that require immediate consultation.

Simple daily actions (foot inspection, avoiding walking barefoot, consulting for any wound that does not improve within 48 hours, etc.) can make a difference, preventing severe complications. D

CONCLUSIONS

- Diabetic foot is a frequent complication but largely preventable if early action is taken on biomechanical and neurological risk factors.
- Early risk detection reduces the occurrence of ulcers.
- Treatment must be rapid, structured, and multidisciplinary.
- Adequate pressure off-loading and customized orthoses reduce ulcer recurrence.
- Education of people with diabetes is a key tool to prevent amputations.

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