



Definition of Diabetic Foot:

Diabetic foot refers to a pathological condition in individuals with diabetes mellitus, characterized by infection, ulceration, or destruction of deep tissues of the foot. It is usually associated with neuropathy, peripheral arterial disease, and/or impaired wound healing, often leading to serious complications such as gangrene or amputation if not managed properly.

Pathophysiology of Diabetic Foot

The diabetic foot results from a combination of three major pathological factors:

1. Peripheral Neuropathy

Sensory neuropathy leads to loss of protective sensation, allowing unnoticed injuries.

Motor neuropathy causes muscle imbalance and foot deformities, increasing pressure points.

Autonomic neuropathy results in dry skin and fissures, compromising skin integrity.

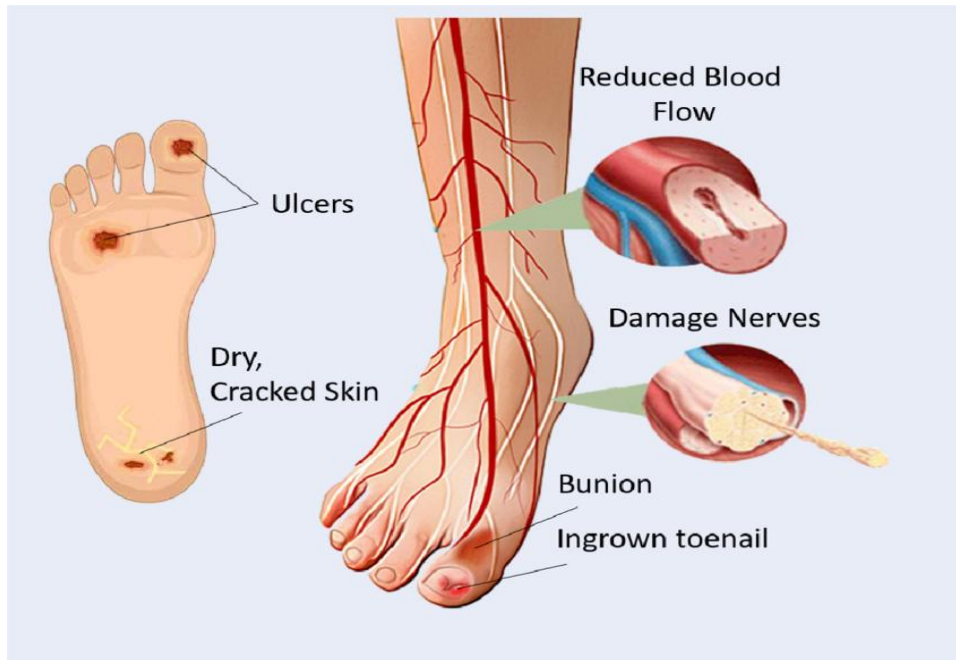
2. Peripheral Arterial Disease (PAD)

Atherosclerosis reduces blood flow to the lower limbs, impairing tissue perfusion and delaying wound healing.

3. Impaired Immunity and Infection

Hyperglycemia impairs neutrophil function, promoting infection.

Minor wounds may progress rapidly to cellulitis, abscess, or osteomyelitis.



The interplay of these factors creates a high-risk environment where minor trauma can lead to chronic ulcers, gangrene, and eventually, amputation.

Investigations in Diabetic Foot

1. Clinical Examination

Inspection for ulcers, deformities, skin changes

Palpation of peripheral pulses (dorsalis pedis, posterior tibial)

Monofilament test (10g) for protective sensation

Vibration perception (128 Hz tuning fork)

Pinprick and temperature sensation



2. Laboratory Tests

Complete blood count (CBC): look for signs of infection

Blood glucose and HbA1c: assess glycemic control

ESR/CRP: markers of inflammation

Wound culture and sensitivity (if infection present)

3. Imaging

X-ray foot: Check for osteomyelitis, gas in tissues, foreign bodies

Doppler ultrasound: Assess arterial blood flow

MRI foot: Gold standard for detecting osteomyelitis and deep tissue involvement (if needed)

4. Vascular Assessment

Ankle-Brachial Index (ABI):

Ankle-Brachial Index (ABI) is a diagnostic tool used to detect peripheral arterial disease (PAD) by comparing the blood pressure in the ankle to the blood pressure in the arm.

Normal: 1.0–1.4

<0.9 suggests peripheral arterial disease

$ABI = (\text{Systolic BP at ankle}) / (\text{Systolic BP at arm})$

Interpretation:

1.0 – 1.4: Normal

0.9 – 1.0: Acceptable

0.41 – 0.89: Mild to moderate PAD

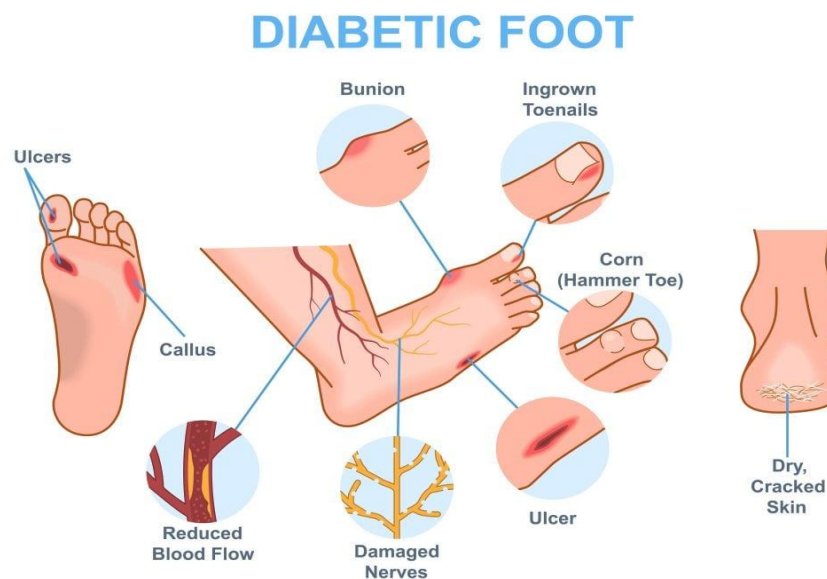
0.00 – 0.40: Severe PAD

> 1.4: Non-compressible vessels, consider toe pressure or TcPO₂

Use in Diabetic Foot:

Detects ischemia

Guides treatment planning and revascularization needs



Stages of Diabetic Foot

The stages of diabetic foot can be understood in terms of a progressive classification from risk to complication. One widely accepted model is based on the University of Texas Wound Classification System or the Wagner Classification, but here's a simplified version suitable for clinical understanding:

1. Stage 0 – At Risk Foot



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No ulceration yet

Presence of risk factors: neuropathy, foot deformities, poor circulation

Preventive care is crucial

2. Stage 1 – Superficial Ulcer

Ulcer limited to the skin (epidermis/dermis)

No deep tissue involvement

3. Stage 2 – Deep Ulcer

Ulcer extends to tendon, bone, or joint capsule

No abscess or osteomyelitis yet

4. Stage 3 – Infected Ulcer

Ulcer with abscess, osteomyelitis, or joint sepsis

Local signs of infection may be evident

5. Stage 4 – Gangrene (Localized)

Partial foot gangrene (e.g., toes or forefoot)

Tissue death due to ischemia and/or infection



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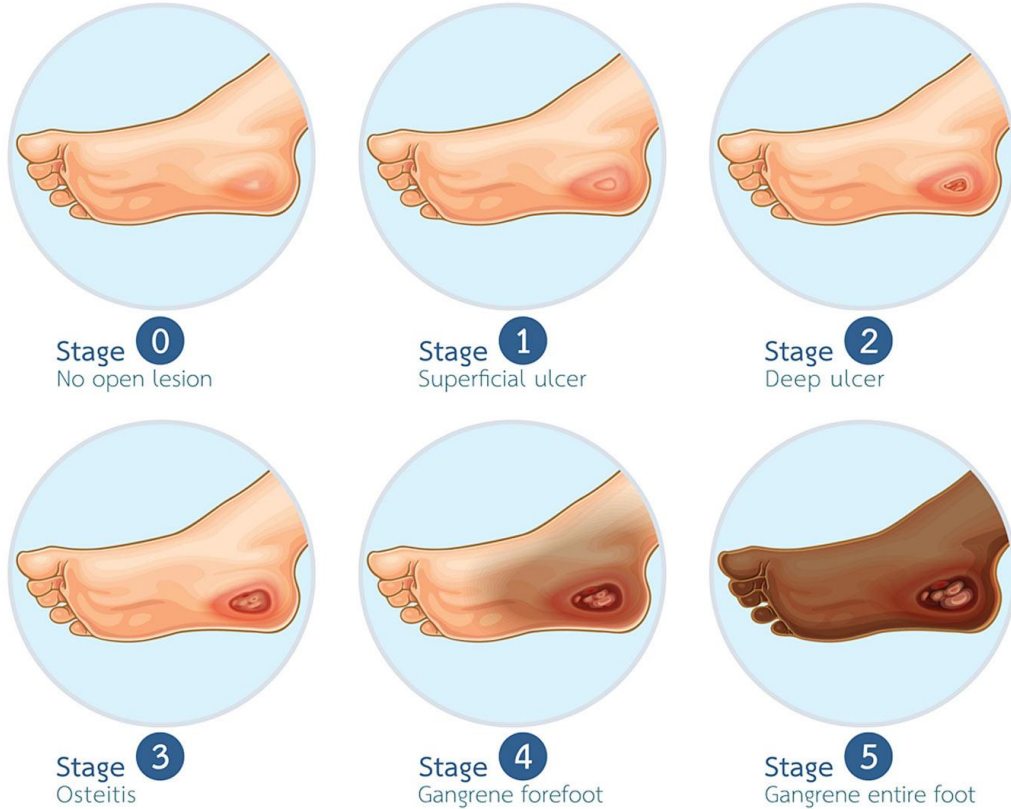


6. Stage 5 – Extensive Gangrene

Involvement of most of the foot

Often requires surgical intervention or amputation

Diabetic Foot Ulcer and Wound at Various Stages



The management of diabetic foot involves a multidisciplinary approach aimed at preventing complications, treating ulcers, and preserving limb function. Here's a structured overview:

Management of Diabetic Foot

1. Preventive Care

Patient education on foot hygiene and footwear

Daily foot inspection (especially in neuropathy)

Control of blood glucose, blood pressure, and lipids



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Regular podiatric evaluation

2. Wound Care

Debridement: Removal of necrotic tissue

Dressing: Moist wound healing environment (hydrocolloid, alginate, etc.)

Offloading: Use of total contact cast, special footwear

3. Infection Control

Culture-based antibiotic therapy

Treat both superficial infections and deep-seated infections (e.g., osteomyelitis)

Surgical drainage if abscess is present

4. Vascular Management

Assessment of blood flow (ABI, Doppler studies)

Revascularization procedures: Angioplasty or bypass surgery if critical ischemia is found

5. Surgical Intervention

For abscesses, gangrene, or non-healing ulcers

Includes minor debridements to major amputations



6. Rehabilitation and Follow-up

Custom footwear and orthotics

Gait training and mobility support

Regular follow-up visits to prevent recurrence

Wound Management & Basics

Wound healing occurs in stages:

hemostasis,

inflammation,

proliferation,

and maturation.

Wounds may be acute (surgical, traumatic) or chronic (pressure ulcers, diabetic ulcers).

Wound Assessment Tools

TIME Framework:

Tissue,

Infection,

Moisture,

Edge



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Do's and Don'ts in Diabetic Foot

Do's

Inspect feet daily for cuts, blisters, redness, or swelling

Wear well-fitting shoes and clean, dry socks

Control blood sugar levels effectively

Seek medical attention promptly for any foot injuries

Keep feet clean and moisturized (avoid moisturizing between toes)

Don'ts

Avoid walking barefoot, even indoors

Do not self-treat corns or calluses

Avoid heating pads or hot water bottles on feet

Don't ignore signs of infection or color change