🦶 H&E — DIABETIC FOOT

PART I — HISTORY

1️⃣ Identifying Data

- Age (usually >40 years)
- Known case of Diabetes Mellitus?
- Duration of diabetes?

Why important?

Longer duration → more neuropathy + vasculopathy.

2️⃣ Chief Complaints

- Ulcer over foot × duration
- Swelling × duration
- Pain × duration

- Discharge × duration

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3 HISTORY OF PRESENT ILLNESS

A. Ulcer

Ask:

- When did it start?
- How did it start? (trauma? shoe bite?)
- Increasing in size?
- Discharge (pus / foul smell)?

Why?

Neuropathic ulcers often start after trivial trauma.

B. Pain

Very important.

- Painless ulcer → neuropathic
- Severe pain → ischemic
- Deep throbbing pain → abscess

Diabetic neuropathy reduces pain sensation.

C. Swelling / Redness

Suggest infection.

D. Fever

Indicates spreading infection or osteomyelitis.

E. History of Trauma

Small unnoticed trauma common.

F. History of Claudication

Ask:

- Calf pain on walking?
- Rest pain?

Suggests peripheral arterial disease.

G. Sensory Symptoms

- Numbness
- Tingling
- Burning sensation

Indicates neuropathy.

H. Glycemic Control

- Regular medications?
- Insulin?
- Compliance?

Poor control → poor healing.

I. Previous Ulcers / Amputation

High recurrence risk.

DIFFERENTIAL COMPONENTS FROM HISTORY

1. Neuropathic ulcer
2. Ischemic ulcer
3. Neuroischemic ulcer
4. Infected diabetic foot

PART 2 — EXAMINATION

Expose both lower limbs from knee downward.

Compare both sides.

A. GENERAL EXAMINATION

- Pallor
- Dehydration
- BMI
- Signs of sepsis

B. LOCAL EXAMINATION

INSPECTION

A. Ulcer Location (Very Important)

Location	Suggests
Plantar surface	Neuropathic

Tips of toes	Ischemic
Lateral malleolus	Pressure
Heel	Bedridden

B. Size, Shape, Margins

Neuropathic ulcer:

- Round
- Punched out
- Surrounded by callus

Ischemic ulcer:

- Irregular
- Sloping edges
- Pale base

C. Base

- Slough
- Granulation
- Exposed tendon
- Bone visible?

If bone visible → suspect osteomyelitis.

D. Discharge

- Serous
- Purulent
- Foul smelling

E. Surrounding Skin

- Callosity
- Redness
- Blackening (gangrene)

- Cellulitis

F. Deformities

- Claw toes
- Charcot foot
- Hammer toes

Neuropathy causes deformities.

PALPATION

A. Local Temperature

Warm → infection

Cold → ischemia

B. Tenderness

Deep tenderness → abscess

Minimal tenderness → neuropathy

C. Peripheral Pulses (Very Important)

Check:

- Dorsalis pedis
- Posterior tibial
- Popliteal
- Femoral

Absent pulse → ischemia.

D. Capillary Refill Time

2 seconds → arterial insufficiency.

E. Probe to Bone Test

Gently probe ulcer.

If bone felt → osteomyelitis likely.

NEUROLOGICAL EXAMINATION

Must be done.

A. Sensory Testing

- Light touch
- Pinprick
- Temperature
- Vibration (128 Hz tuning fork)
- Position sense

Loss suggests neuropathy.

B. Monofilament Test

10 g monofilament applied to plantar surface.

Inability to feel → loss of protective sensation.

C. Ankle Reflex

Often absent in neuropathy.

VASCULAR EXAMINATION

- Buerger's test
- Dependent rubor
- Hair loss
- Shiny skin

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1 Buerger's Test

Used to assess arterial insufficiency in lower limb.

- Principle

When an ischemic limb is elevated:

→ Arterial supply is insufficient
→ Limb becomes pale

Because gravity reduces already compromised blood flow.

- How to Perform (Step-by-Step)

1. Make patient lie supine.
2. Elevate both legs to about 45 degrees.
3. Maintain for 1–2 minutes.
4. Observe color of soles.

- Positive Buerger's Test

If foot becomes pale on elevation → arterial insufficiency.

- Buerger's Angle

The angle at which pallor appears.

- Normal: No pallor even at 90°
- Mild ischemia: Pallor at < 60°
- Severe ischemia: Pallor at < 30°

👉 The lower the angle, the worse the ischemia.

Examiner loves this line.

2️⃣ Dependent Rubor

This is the second part of Buerger's test.

- What Happens?

When ischemic limb is placed in dependent position (dangle legs over bedside):

It becomes:

- Reddish
- Dusky red
- Purple

This is called dependent rubor.

🔹 Why Does It Occur?

Due to:

- Chronic vasodilation
- Loss of autoregulation
- Reactive hyperemia
- Capillary dilation

When blood rushes in → exaggerated redness.

🔹 Time Taken

- Normal limb → pink immediately.

- Ischemic limb → delayed return of color (>10–15 seconds).

This delay is also significant.

🧠 Summary Table

Test	Finding	Significance
Elevation pallor	Foot turns pale	Arterial insufficiency
Low Buerger's angle	Pallor at low angle	Severe ischemia
Dependent rubor	Red/purple foot on dependency	Chronic ischemia
Delayed capillary refill	>2 sec	Poor perfusion

🔎 Questions

Q: Why does pallor occur on elevation?
Because arterial pressure is insufficient to overcome gravity.

Q: Why rubor occurs on dependency?
Because chronically dilated capillaries fill excessively.

Q: Is Buerger's test useful in venous disease?
No — it assesses arterial disease.

⚠️ Important

Do NOT confuse with:

Buerger's disease (Thromboangiitis obliterans) — a different condition.

CLASSIFICATION — WAGNER

Grade	Description

0	No ulcer, high-risk foot
1	Superficial ulcer
2	Deep ulcer (tendon/bone exposed)
3	Deep ulcer + abscess/osteomyelitis
4	Forefoot gangrene
5	Whole foot gangrene

TYPES OF DIABETIC ULCERS

❑ Neuropathic Ulcer

- Warm foot
- Pulses present

- Painless
- Callus
- Plantar surface

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2 Ischemic Ulcer

- Cold foot
- Pulses absent
- Painful
- Tips of toes

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3 Neuroischemic

Mixed features.

COMMON VIVA QUESTIONS

- Why diabetic ulcer is painless?
- What is Charcot foot?

- What organisms cause infection?
- Why healing is delayed in diabetes?
- Difference between neuropathic and ischemic ulcer?
- Indications for amputation?

-> The End <-