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# **DISEASE** Diary

**Topic:**

Diabetes  
Foot Ulcer

**SK+F**




## Case Presentation

A 65-year-old man presents with an ulcer on the dorsum of his right foot. He noticed a sore area on the right foot 3 weeks ago and this has extended to an ulcerated lesion which is not painful. He has complained of pain in the legs for some months. This pain comes on when he walks and settles down when he stops.

He had an inguinal hernia repaired 2 years ago and he stopped smoking then on the advice of the anaesthetist. Previously he smoked 20 cigarettes per day. He drinks four pints of beer at weekends. His father died of a myocardial infarction aged 58 years.

## Examination

His blood pressure is 136/84 mmHg. The respiratory, cardiovascular and abdominal systems are normal. There is a 3 cm ulcerated area with a well-demarcated edge on the dorsum of the right foot. The posterior tibial pulses are palpable on both feet, and the dorsalis pedis on the left. The capillary return time is 4 s. On neurological examination there is some loss of light touch sensation in the toes. Varicose veins are present in the long saphenous distribution on both legs.

|  INVESTIGATIONS |                            |   |
|--|----------------------------|---|
| Laboratory Tests   | Result                     | Normal Range                            |
| Haemoglobin  | 14.3 g/dL                  | 13.7–17.7 g/dL                          |
| White cell count   | $7.4 \times 10^9/\text{L}$ | $3.9\text{--}10.6 \times 10^9/\text{L}$ |
| Neutrophils  | $4.6 \times 10^9/\text{L}$ | $1.8\text{--}7.7 \times 10^9/\text{L}$  |
| Lymphocytes  | $2.5 \times 10^9/\text{L}$ | $0.6\text{--}4.8 \times 10^9/\text{L}$  |
| Platelets  | $372 \times 10^9/\text{L}$ | $150\text{--}440 \times 10^9/\text{L}$  |
| Sodium   | 140 mmol/L                 | 135–145 mmol/L                          |
| Potassium  | 4.0 mmol/L                 | 3.5–5.0 mmol/L                          |
| Urea   | 5.1 mmol/L                 | 2.5–6.7 mmol/L                          |
| Creatinine   | 89 $\mu\text{mol/L}$       | 70–120 $\mu\text{mol/L}$                |
| Glucose  | 6.4 mmol/L                 | 4.0–6.0 mmol/L                          |
| HbA <sub>1c</sub>  | 9.1 per cent               | <7 per cent                             |

## Question

**What is the likely diagnosis?**

## Case Discussion

The presence of varicose veins raises the possibility of a venous ulcer related to poor venous return. However, venous ulcers are usually found around the medial malleolus and are often associated with skin changes of chronic venous insufficiency. This has the features of an ulcer caused by arterial rather than venous ulceration or a mixed aetiology. Arterial ulcers are often on the dorsum of the foot. Arterial ulcers tend to be deeper and more punched out in appearance. The left dorsalis pedis pulse is not palpable and the capillary return time is greater than the normal value of 2 s. The story of pain in the legs on walking requires a little more detail but it is suggestive of intermittent claudication related to insufficient blood supply to the exercising calf muscles.

The raised HbA1c suggests diabetes and prolonged hyperglycaemia. In diabetes the arterial involvement may be in small vessels with greater preservation of the pulses. The peripheral sensory neuropathy may also be associated with diabetes and lead to unrecognized trauma to the skin which then heals poorly. Other risk factors for arterial disease are the family history and the history of smoking.

Further investigations would include measurement of the ankle:brachial blood pressure ratio. If this is less than 0.97 it suggests arterial disease, and a low index would be a contraindication to pressure treatment in trying to heal the ulcer.

Ultrasonic angiology would help to identify the anatomy of the arterial circulation in the lower limbs and would show if there are correctable narrowing of major vessels. Good control of diabetes can slow progression of complications such as neuropathy and microvascular disease. Care of the feet is a very important part of the treatment of diabetes and should be a regular element of follow-up.

## Key Points

- The position and nature of ulcers provide clues to their cause.
- Diabetic feet are particularly vulnerable because of sensory loss, arterial insufficiency and high sugars. Foot care is an important element of regular diabetic management

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