Features of chronic arterial stenosis or occlusion

Features of chronic arterial stenosis or occlusion in the leg

Intermittent claudication Intermittent claudication occurs as a result of anaerobic muscle metabolism and is classically described as debilitating cramp-like pain felt in the muscles that is: /uni25CF brought on by walking; /uni25CF not present on taking the first step (unlike osteoarthritis); /uni25CF relieved by rest in both the standing and sitting positions, usually within 5 minutes (unlike nerve compression from a lumbar intervertebral disc prolapse or osteoarthritis of the spine or spinal stenosis, which are typically relieved only when resting in the sitting position for longer than 5 /uni00A0 minutes). The distance that a patient is able to walk without stopping varies (claudication distance) only slightly from day to day . It René Leriche , 1879–1955, Professor of Surgery , Strasbourg, France, described this syndrome. is decreased, first, by increasing the work demands and hence oxygen requirements of the muscles a ff ected, e.g. walking up hill, increasing the speed of walking and/or carrying heavy weights, and, second, by general health conditions that reduce the oxygen delivery capacity of the arterial system, e.g. anae - mia or cardiorespiratory disease. The muscle group a ff ected by claudication is classically one anatomical level below the level of arterial disease and is usually felt in the posterior calf as the superficial femoral artery is the most commonly a ff ected artery (70% of cases). Aortoiliac disease (30% of cases) may cause thigh or buttock claudication; Leriche’ s syndrome is buttock claudication com - bined with sexual impotence, which is secondary to arterial insu ffi ciency (Figure 61.3). Rest pain As disease progression occurs the claudication distance decreases and perfusion to the leg may be so severely

CIA CIA

Figure 61.3 Aortoiliac bifurcation disease with an occluded right com

mon iliac artery (CIA) and critically stenosed left CIA. Collateralisation has occurred via the lumbar arteries (black arrow) and the inferior mesenteric artery (white arrow).

compromised that anaerobic respiration occurs even at rest, typically a ff ecting the foot and/or calf. The pain is exacer bated by lying down or elevation of the foot because of the loss of gravitational e ff ects on the perfusion pressure in the foot. The patient characteristically describes pain that is worse at night and may be lessened by hanging the foot out of or by sleeping in a chair (e ff ects of gravity restored). Even the pressure of bedclothes on the foot may exacerbate the pain. Ulceration and gangrene Ulceration occurs with severe arterial insu ffi ciency and may present as painful erosions between the toes or as shallow , especially around the malleoli. The blackened mummified tissues of frank gangrene are unmistakable (Figure 61.4), and superadded infection often makes the gangrene wet. P atients with ischaemic rest pain with or without ulceration/gangrene (tissue loss) are termed to have chronic limb-threatening isch - aemia (CLTI). These patients should be considered to have an imminently threatened leg and require urgent vascular assessment/revascularisation to prevent major amputation. Colour, temperature, sensation and movement Unlike an acutely ischaemic foot that is often cold, white, paralysed and insensate, a chronically ischaemic limb tends to equilibrate with the temperature of its surroundings and may feel quite warm under the bedclothes. Chronic ischaemia does not produce paralysis and sensation is usually intact. Patients with CLTI who have been waiting for a consultation with their leg in dependence may have a red swollen foot that may be mistaken for cellulitis by the unwary clinician. However, elevation of the limb reveals the severity of the ischaemia with venous guttering and foot pallor that changes to a red/ purple colour when the limb is allowed to hang down again (dependent rubor or the sunset foot sign) (Figure 61.5). The capillary refill time may be elicited by pressing the skin of the - heel or toe pulp, causing blanching (press for 5 seconds), and then releasing to allow colour to return; normally this takes 2–3 seconds but may be prolonged to 10 seconds in severe ischaemia. bed Arterial pulses It is standard practice to examine the femoral, popliteal, posterior tibial and dorsalis pedis arteries together with the abdomen for an aortic aneurysm, which may coexist with lower limb occlusive disease. Diminution of a femoral and/

Figure 61.4 Chronic limb-threatening ischaemia with dry gangrene. (a) Figure 61.5 Colour changes with elevation (a) and dependency (b) (b) .

with its opposite number; however, pedal pulses are either clinically palpable or absent. Popliteal pulses may be di ffi cult to appreciate; a popliteal artery aneurysm should be suspected if the popliteal pulse is prominent with concomitant loss of the natural concavity of the popliteal fossa. Pulsation distal to an arterial occlusion is usually absent, although the presence of a highly developed collateral circulation may allow distal pulses to be palpable – this is most likely to occur with an iliac stenosis. In this case, exercise (walking until claudication develops) usually causes the pulse to disappear as vasodilation occurs below the obstruction, thereby reducing the pulse pres sure. An arterial bruit, heard on auscultation over the pulse, indicates turbulent flow and suggests a stenosis. However, it is an unreliable clinical sign as tight stenoses often do not have bruits. A continuous ‘machiner y’ murmur over an artery usually indicates an arteriovenous fistula. Summary box 61.1 Features of chronic lower limb arterial stenosis or occlusion /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF Relationship of clinical findings to the site of disease In most cases the anatomical level of arterial stenosis can be determined from accurate assessment of the symptoms and signs (Table 61.1). Limb-threatening ischaemia is predominantly caused by multilevel disease, e.g. iliac and femoropopliteal disease.

Intermittent claudication Arterial pulsation diminished or absent Rest pain Slow capillary re /f_i lling Ulceration Arterial bruit Gangrene Dependent rubor or sunset foot

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Revision #1
Created 2025-12-31 15:23:06 UTC by Omar Ayman
Updated 2025-12-31 15:23:06 UTC by Omar Ayman