

CLINICAL SKILLS: EXAMINATION OF THE PERIPHERAL ARTERIAL SYSTEM

Please note: this OSCE station may ask you to examine the peripheral arterial system, or may specifically ask you to examine the arterial system in the legs. Make sure you read the question fully and adapt the below OSCE station as appropriate.

- Wash hands
- Introduce self
- Ask permission to examine patient
- Expose patient (but can wear underwear)
- Reposition lying flat on bed

Then **'inspect'**, **'palpate'**, **'auscultate'**, and carry out **special tests**.

Inspect:

- Patient as a whole - skin colour?
- Generally inspect for signs of arterial disease (especially in the peripheries), e.g.:
 - Ulceration
 - Shiny skin
 - Loss of hair
 - Gangrenous toes and fingers
 - Previous amputations and scars from previous surgery
 - White peripheries
 - Cyanosis

Palpate:

(Compare like-for-like throughout)

- Temperature of peripheries (hands and feet)
- Capillary refill time on toes and fingers
- Measure blood pressure: do on both sides if pulses feel different
- Pulses - work from hands onwards
 - Record as normal (+), reduced (+/-), absent (-) or aneurysmal if pulsatile AND expansile
 - Radial pulse (lateral flexor aspect of wrist). Look for: radio-radial delay (indicating coarctation proximal to left subclavian), irregular rhythm (irregularly irregular - ?AF, regularly irregular - ?heart block)
 - Brachial pulse (medial aspect of cubital fossa). Note volume and character
 - Carotid pulse (between trachea and anterior border of sternocleidomastoid)
 - Examine the abdomen for an abdominal aortic aneurysm (just above umbilicus, push gently)
 - Femoral arteries (at mid-inguinal point - the point halfway along a line between the anterior superior iliac spine and the top of the pubic symphysis). Examine for radiofemoral delay: palpate radial and femoral pulses together (if there is a big delay between them = 'coarctation'/narrowing of the aorta distal to subclavian arteries)
 - Popliteal arteries (press on the posterior aspect of the tibial plateau in the popliteal fossa). Is there an aneurysm?
 - Tibialis posterior (2 cm below and posterior to the medial malleolus)
 - Dorsalis pedis (groove between 1st and 2nd metatarsals)

Auscultate:

- For bruits with diaphragm of stethoscope (ask patient to take deep breath in, then out, then hold it over the area of the pulse)
 - Carotid arteries
 - Aorta
 - Renal arteries (2cm superiolateral to the umbilicus)
 - Femoral arteries

Special tests:

- Buerger's test:
 - Lie patient down. Hold feet up together if possible to 45 degrees above patient. Keep up for 1 minute
 - Feet will drain of colour if patient has peripheral arterial disease
 - Measure angle at which the feet drain colour. Definition of Buerger's angle: the angle at which the foot drains of colour. Under 20 degrees suggests severe ischaemia
 - Then, swing down across bed, patient standing if possible. In a normal patient, the feet turn pink (quickly). In a patient with peripheral arterial disease, the feet will turn bright red (reactive hyperaemia) after around two minutes.
 - This is a Buerger's test positive. The underlying physiology: when the foot is elevated, anaerobic respiration occurs which leads to metabolite build up. This causes vasodilation in feet when they are put down again

To end my examination, I would like to

1. Assess the neurological state of the limbs to evaluate any concurrent neuropathy
2. Carry out an ABPI: check systolic pressure of DP or PTA, & the brachial artery. <1 suggests vascular disease
3. Carry out ultrasound doppler assessment (to detect pulses)

Thank the patient and ask if they would like any help to get dressed.