

## Peripheral Vascular Examination Done by Munerah alOmari.

### A. General

- Introduce self and gain consent
- Wash hands
- Ensure patient is adequately exposed (from upper thigh to feet in lower limb examination)
- Look for medical equipment / therapies (e.g GTN spray, ECG pads, oxygen) if you don't know the equipment say: he's connected to a device that I UNFORTUNATELY don't know what it is.
- General inspection of patient: General comfort, Pallor, Amputations

### B. Inspection of hands and arms

- Tar staining (Smoking)
- Capillary refill (at level of heart, both limbs, normal <2s)
- Pallor
- Hair loss
- Atrophic nail changes
- Xanthomata (Hyperlipidemia risk factor)
- Skin (pigmentation and discoloration)
- Nails (thickened in chronic ischemia, thinning in acute, discoloration, clubbing)

### C. Palpation of hands and arms

- Radial pulse (rate, rhythm, character)
- Radio-radial delay (Aortic dissection, Aortic coarctation (delayed on left depending on level of coarctation), Subclavian artery stenosis)
- Radio-femoral delay (Aortic coarctation)
- Brachial pulse assess volume
- Blood pressure
- Skin temperature.
- Joint movements/muscle strength.
- Sensation.

### D. Inspection of head and neck

- Xanthelasma
- Corneal arcus
- Central cyanosis (look under the tongue)

### E. Palpation of head and neck

- Carotid pulse (also auscultate for bruits)

### F. Examination of precordium

- Scars (e.g. thoracotomy, pacemaker, left axilla)
- Auscultation of heart valves

### G. Examination of abdomen

- Observe for pulsatility
- Palpate for abdominal aortic aneurysm (The aorta should be pulsatile but should not be expansile.)
- Auscultate for renal and aortic bruits

### H. Examination of femoral pulse

- Palpate (both at once)
- Auscultate for bruits

### I. Examination of lower limbs (MOST IMPORTANT)

#### Inspection: DON'T forget to compare right and left!

- Both limbs are present with no missing toes
- Hair loss (shiny hairless)
- Muscle atrophy (Calf muscle)
- Pallor
- Ulcer:

Venous ulcers – moderate to no pain – larger /shallow – associated with venous insufficiency / varicose veins

Arterial ulcers – very painful – deep punched out appearance – associated with diabetes mellitus / peripheral vascular disease

- Scars
- Nail changes (thickened in chronic ischemia, thinning in acute, discoloration, clubbing)
- Achilles tendon xanthomata
- Skin (pigmentation and discoloration)
- INSPECT BETWEEN THE TOES TO CHECK FOR ULCER/INFECTION, LIFT THE LEG TO CHECK FOR POSTERIOR SIDE AND CHECK THE HEELS!!!
- Varicose vein (ask the patient to stand up)

#### Palpation:

- Temperature (both legs with dorsum of your hand)
- Tenderness (look at the patient face)
- Edema (press over the medial malleolus, bony prominences)
- Pulses – Popliteal, posterior tibial and dorsalis pedis (check the next page)
- Sensation is to identify limb paresthesia which can be a symptom of acute limb ischemia.

#### - Buerger's test:

lift the limb up to 90 degrees slowly. Limb will become pale at any degree below 90° if it's abnormal. (it's called burger angle) In ischemia at 15-30 degrees, in 30-60 seconds. Vascular angle less than 20° indicates severe ischemia.

After elevating the leg ask patient to sit and dangle their leg, in ischemia leg will turn from white to pink to red-purple color. Normally it will remain pink.

- Venous guttering – Inspect for this during Buerger's test After raising the legs, the patient is asked to dangle them and they're observed. Delayed venous return happens when there is no adequate arterial supply, normally venous return takes about 10 seconds, if it's longer that means it's delayed.

**Auscultation:**

- Femoral artery
- popliteal artery

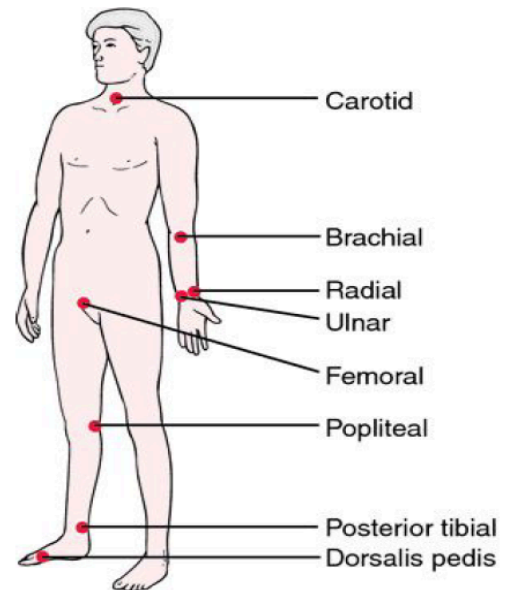
**J. Closure**

- Thank patient, ensure they're comfortable and ask if they need any help in getting dressed
- Wash hands

To complete my examination, I would like to..."

- Full cardiovascular examination
- Ankle brachial pressure index
- Peripheral neurological examination

<b>Femoral artery</b>	Just below the inguinal ligament
<b>Popliteal artery</b>	at the middle of popliteal fossa
<b>Posterior tibial artery</b>	The posterior tibial artery pulse can be readily palpated halfway between the posterior border of the medial malleolus and the Achilles tendon
<b>Dorsalis pedis artery</b>	the pulse is felt on the top of the foot, between the first and second metatarsal bones.



**Remember the 6Ps (acute ischemia):**

- Pain • Paralysis • Pallor • Paresthesia • Polar (Poikilothermia) • Pulselessness

**Charcot foot:**

If the patient is Diabetic take a look in diabetic foot examination.

<https://geekymedics.com/diabetic-foot-examination-osce-guide/>

**Leg ulceration:**

**Table 21.5 Differential diagnosis of leg ulceration**

Clinical features	Arterial ulcer	Venous ulcer
<b>Gender</b>	Men > women	Women > men
<b>Age</b>	Usually presents > 60 years	Typically develops at 40–60 years but patient may not present for medical attention until much older; multiple recurrences are the norm
<b>Risk factors</b>	Smoking, diabetes, hyperlipidaemia and hypertension	Previous DVT, thrombophilia, varicose veins
<b>Past medical history</b>	Most have a clear history of peripheral, coronary and cerebrovascular disease	More than 20% have a clear history of DVT; many more have a history suggestive of occult DVT, i.e. leg swelling after childbirth, hip/knee replacement or long bone fracture
<b>Symptoms</b>	Severe pain is present unless there is (diabetic) neuropathy; pain may be relieved by dependency	About a third have pain, but it is not usually severe and may be relieved on elevation
<b>Site</b>	Normal and abnormal (diabetics) pressure areas (malleoli, heel, metatarsal heads, 5th metatarsal base)	Medial (70%), lateral (20%) or both malleoli and gaiter area
<b>Edge</b>	Regular, 'punched-out', indolent	Irregular, with neo-epithelium (whiter than mature skin)
<b>Base</b>	Deep, green (sloughy) or black (necrotic) with no granulation tissue; may involve tendon, bone and joint	Pink and granulating but may be covered in yellow-green slough
<b>Surrounding skin</b>	Features of severe limb ischaemia	Lipodermatosclerosis, varicose eczema, atrophe, blanche
<b>Veins</b>	Empty, 'guttering' on elevation	Full, usually varicose
<b>Swelling</b>	Usually absent	Often present