

## **Peripheral Vascular Disease**

The key to the PVD examination is adequate INSPECTION, particularly of the lower limb. The decision to be made is whether to do all in inspection first, or do it in sequence as suggested below.

Look from the end of the bed at the patient, and comment on any obvious signs, such as risk factors – such as obesity, also don't miss amputations!

### **Hands**

- Inspect the hands looking for tar staining
- Clubbing
- Digital ischaemia (raynauds) or gangrene
- Temperature/capillary refill

### **Radial pulse**

- rate and rhythm
- radio-radial delay
- don't forget to perform radio-femoral delay either now or when coming to femoral

### **Brachial pulse**

- palpate both brachial's comment on character – e.g. bisferiens

### **Arterial blood pressure**

- ask the examiner for the patients blood pressure

### **Arms**

- comment on any signs of PVD in arm, such as ulceration, signs of ischaemia, but this is much rarer than in the lower limb

### **Face and neck**

- look in the eyes for corneal arcus (risk factors)
- palpate both carotids looking again at the character of the pulse
- auscultate the carotids listening for carotid bruit

### **Praecordium**

- Inspect the chest looking for sternotomy scar, or other scars.
- Palpate the apex, looking at character and position
- Palpate for ventricular heaves
- Offer to auscultate the praecordium

### **Abdomen**

- Inspect for any pulsations, commenting on any other obvious features
- Palpate for AAA (remember must feel for AAA ABOVE the umbilicus as this is the level of bifurcation) – feeling for an EXPANSILE pulsatile mass – pulsations can be merely transmitted and not suggest AAA if not expansile
- Auscultate abdomen for bruits at the level of the aorta, bilateral renal arteries and iliacs

### **Femoral pulse**

- palpate for the femoral pulse
- remember to palpate for radio-femoral delay which could suggest coarctation
- auscultate the femorals for bruits.

### **Lower limb**

- inspection is VERY important here.
  - o Scars of vascular surgery – look over the femoral artery, look in medial thigh and calf for saphenous vein harvest scar
  - o Signs of ischaemia – pallor (or cyanosis with severe ischaemia), atrophic hairless skin
  - o Look for ulceration – venous on medial gaiter (look for other signs of chronic venous hypertension – see venous examination). Arterial ulceration typically over bony points, usually painful, pale surrounding skin, cool, well defined, punched out ulcers, with little granulation. Look also on the sole of the foot for other pressure points, which can be the site of arterial ulcers. Note also that neuropathic ulcers can occur in similar area, but tend not to be painful, warm limb and pulses present.
  - o Look in between the toes and the heel looking for any fungal infection or ulceration and heel gangrene
  - o Look for any signs of gangrene in the toes
  - o Feel the lower limbs temperature
  - o Look at the capillary refill of the toes
- Pulses
  - o Popliteal – ensure you are well practised at this technique. Knee bent to ~135 degrees and palpate against the proximal posterior tibia with fingers, using the thumbs on the anterior surface for opposite force
  - o Posterior tibial – said to be 1cm below and lateral to the medial malleolus
  - o Dorsalis pedis – ask the patient to dorsiflex hallux, and palpate lateral to tendon to identify this pulse
- Perform **Buergers test** – this involves lifting the lower limbs and noting the angle that the legs become pale, especially if less than 45 degrees. Hold the legs in the air for one minute. Then ask the patient to swing around so that the legs can be lowered so that the patient is sitting on the side of the bed. Then notice time taken to regain colour. If the legs become erythematous this suggests reactive hyperaemia and is a sign of significant ischaemia of the lower limb.

- Perform **Ankle : Brachial Pressure Indices** – using a Doppler probe, identify the pedal pulse. Then inflate a BP cuff around the leg looking for the pressure at which the pulsation ceases. Repeat this at the brachial and then divide the values.
  - $>1$  = normal
  - $<0.9$  – intermittent claudication likely
  - $<0.5$  – significant ischaemia and rest pain is possible

Offer to perform neurological examination looking for sensation.

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Ensure that you are aware of the vascular surgical scars and what they might indicate. For example a scar over the femoral, and a saphenous graft harvest scar over medial thigh to knee, might suggest a femoral-popliteal bypass with reversed saphenous vein graft. Ensure you know what this means and other surgical procedures such as the non anatomical bypass procedures such as fem-fem crossover graft and axillo-femoral grafts, and what these scars may look like.