Surg Cases

Peripheral Vascular Disease

Thyroid

General Tips for Surgical Cases

- Surgical Cases:
  - Peripheral Arterial
  - Thyroid
  - Hernias
  - Lumps and Bumps
  - Breast pathology – unlikely for ICE
  - Surgical Abdomen/stoma etc
- Not as many manoeuvres or things to ”do”
- Important to have a script and know some things to say → will make you look really smart and make examiners turn off after awhile
- Good to be able to talk through surface anatomy and link it to what you are doing or looking for to demonstrate a thought process
- For everything that you identify → explain why or give features that suggest why!
- Suggest special tests at the end or further examination

Describing Ulcers

- **T**issue (base) – devitalized tissue, slough, gangrene, granulation tissue, deeper tissues visible, foreign material
- **I**nflammation/infection
  - Superficial infection – lack of healing, pain, increased exudate, green tinge to exudate, odour, abnormal granulation tissue (dark, bleeds)
  - Deep infection – increased wound size/temperature, bone probed in base, oedema, periwound erythema >2cm, satellite breakdown, yellow/green exudate
  - **Signs of infection:**
    - **Local: erythema, warmth, swelling, purulent exudate, new/worsening pain, new/worsening malodour**
    - **Systemic: fever, tachycardia, hypotension**
    - **Spreading: increased size, lymphangitis, crepitus, wound breakdown/dehiscence**
- **M**oisture balance – quantity and quality of exudate
  - Discharge: serous, sanguinous, haemoserous, purulent
- **E**dge – sloping, punched out, underpine, hyperplastic, hyperkeratotic

Peripheral Arterial Disease

1. Exposure
   - Legs from groin to toes
   - Preserve dignitiy → keep underwear on
2. Inspection
   - “Elderly lady, alert and well at rest”
   - Colour
     - Red/mottled appearace – vasodilation from chronic limb ischaemia
     - White – severe ischaemia
     - Blue – sign of excess deoxygenated blood
   - Ulcer
     - Characteristics
       - Size – 4 x 4cm
       - Shape – round
       - Location – dorsum of her left foot
       - Edges – punched out with gangrenous edges
       - Depth – tendon/muscle visible?
     - Complications → is it infected?
       - Discharge
       - Surrounding erythema
     - Surrounding skin: “surrounding the ulcer are arterial skin changes over both lower limbs. Namely..”
       - Trophic changes → shiny and hairless skin
       - No other ulcers or gangrenous patches

Peripheral Arterial Disease

3. Palpation
   - Capillary Refill time (<3s is normal)
   - Temperature
   - Peripheral pulses – give the anatomical landmarks and vocalise as you go!
     - Dorsalis Pedis:
       - "can you please bring your big toe towards your head" → demonstrates the **extensor hallucis longus (EHL) tendon**
       - "I am feeling just lateral to the EHL fot the dorsalis pedis pulse. It is strong and well felt bilaterally"
     - Posterior Tibial pulse
       - 1 finger breadth below and behind the medial malleolus OR
       - 1/3 down a line from the medial malleolus to the heel
     - Popliteal pulse
       - "please bend your knee slightly. I am going to hold your knee with my hands to feel for the pulse behind your knee"
       - "I am feeling for the **2 heads of the gastrocnemius** and locating the pulse between the 2 heads"
     - Femoral Pulse
       - "I am palpating the femoral artery at the mid inguinal point, which is the midpoint between the ASIS and pubic symphysis"
4. Special test
   - Buerger's → pallor on elevation at 20/30 degrees
5. Offer extras
   - "I would like to palpate the abdomen for a pulsatile expansile mass

Peripheral arterial Disease

- In summary..
  - This is an 70yo M who presents with limb ischaemia
  - My positive findings is consistent with peripheral arterial disease and I say this because..
- I would like to follow up with..
  - A full CVD examination
  - Measuring the ankle brachial pressure index

Venous Disease

1. Exposure
2. Inspection
   - Ulcer
     - “a large ulcer about 10 x 10cm over the gaiter area of the right leg. It is shallow with sloping edges and a granulating base. There is some yellow discharge and surrounding erythema that suggests infection”
   - Surrounding skin
     - There are venous changes over both limbs, namely:
       - **L**ipodermatosclerosis
       - **E**czema
       - **G**aps (Ulcers)
       - **S**welling Oedema
       - **Atrophic blanche**
     - Varicose veins?
   - Overall she is a CEAP Grade C6 disease

Venous Disease

3. Inspection
   - Varicosities – dilated AND tortuous veins
     - Long Saphenous Vein
       - Origin: dorsal vein of big toe (first digit) with dorsal venous arch of foot
       - Course: passes anterior of the medial malleolus → runs up medial side of leg (trouser seam) → runs over posterior border of the medial epicondyle of the femur
       - Enters femoral vein in the saphenous opening (SFJ) – **located 3.5cm below and lateral to the pubic tubercle**
     - Short Saphenous Vein
       - Origin: merging of the dorsal vein of the 5th digit with the dorsal venous arch of the foot
       - Course: lateral aspect of the foot (inferior and posterior to the lateral malleolus) → **runs along posterior aspect of the leg → passing between the heads of gastrocnemius muscle**
       - Drains into popliteal vein at or above the level of the knee joint

Venous Disease

3. Palpation
   - Pitting oedema up to ___
   - Warmth and tenderness in addition to the erythema surrounding the gaiter area ulcer
   - Varicosities
   - Sites of incompetence
     - Palpate SFJ – 3.5cm below and lateral to pubic tubercle → feel for saphena varix
4. Offer
   - Trendelenberg test
   - Perthe's
   - Assessment of peripheral arterial disease → because this will affect management!

Venous Disease

- Summary..
  - In summary, this is a 70yo F who has chronic venous insufficiency with an active ulcer. I say that she has chronic venous insufficiency as I noted..
  - I would like to follow up with performing (special tests) and an examination of peripheral arterial disease and taking a comprehensive history

	Venous Ulcers	Ischaemic Ulcers	Neuropathic Ulcers
Pain		Painful	Painless
Site	Gaiter region over medial malleolus of ankle	Tip of toes and pressure area	Heel, metatarsal heads – pressure bearing areas
Size	Can be very large	Varying size, few mm to cm	Several cm
Edges	Sloping, pale brown	Punched out, clean	Clean
Base	Pink granulation tissue, White fibrous tissue	No Granulation tissue Bone may be exposed	Often exposing bone
Surrounding skin	Chronic venous signs	Pale/Cyanotic	Normal/Red Appearance
Temperature	May be warmer	Cold foot	Dry warm foot
Pulses	Present	Absent	Present
Sensation, reflexes, vibration	Variable	Varible	Loss
Bone	No bony deformity	No body deformity	Bony deformity – Charcots Joint

Neck Mass

Evaluating a Lump

- Site – most accurately measures with respect to a fixed landmark (bony prominence)
- Size:
  - Measure dimension in cm (if lump is large enough, use measurning tape or ruler)
- Shape
  - Hemispherical, round, exophytic
- Scars
- Colour and skin changes
  - Sinuses, discharge
  - Ulceration
  - Erythema/cellulitis

Palpating a Lump

1. Overlying skin temperature – feel with dorsum of hand
2. Tenderness
3. Surface:
    - Smooth, irregular, rough
4. Margins – clearly defined, poorly defined
5. Consistency – hard, firm, tense, soft
6. Mobility
    - Fully mobile in all directions
    - Fixed and immobile
    - In certain directions?
7. Relation to surrounding structures
    - Move in 2 pains – fixed and immobile?
    - Attached to skin, muscle, tendon, bone
8. Pulsation – place fingers on opposite sides of the lump
    - Expansile = fingers pushed apart
    - Transmitted pulsation = fingers pushed in the same direction (usually upwards)
9. Compressibility – press firmly on lump and release
    - Compressible – lump disappears on pressure but reappears on release (AV malformation)
    - Reducible – lump disappears on pressure but reappears only when another force is applied eg coughing in hernia examination

Describing Lumps (SECTOR)

- S: Site, size, shape, scars, skin changes, surface
- E: Edge, expansibility/pulsatility
- C: colour, consistency, compressibility
- T: tenderness, temperature, transilluminability
- O: others – fluctuance, fluid thrill, fixation, Lymph nodes/lumps
- R: Reducibility, relationship to structures

Neck Examination

Inspect	• Site of lump – midline, supraclavicular fossa • Skin changes, size, scars etc
Protrusion of tongue	• Open mouth and stick tongue out as far as possible • If lump moves on protrusion → likely to be a thyroglossal cyst (cyst related to base of tongue by a patent/fibrous track which runs through the central portion of the hyoid bone) • Thyroid lump does not move on protrusion of the tongue
Swallowing	• Take a sip of water, hold in mouth until instructed to swallow • Moves on swallowing – likely thyroid

Palpate	• From behind
	• Illustrated borders of neck triangles
	  ○ Anterior triangle – bordered by the
	  ▪ Anterior border of SCM
	  ▪ Midline
	  ▪ Ramus of the mandible
	  ○ Posterior Triangle
	  ▪ Anterior border of trapezius
	  ▪ Clavicle
	  ▪ Posterior border of SCM
	• Solid/cystic lump
	  ○ Midline
	  ▪ Solid: thyroid swelling
	  ▪ Cystic: thyroglossal cyst
	  ○ Anterior triangle
	  ▪ Solid: lymphadenopathy, chemodectomy
	  ▪ Cystic: branchial cyst, cold abscess
	  ○ Posterior triangle
	  ▪ Solid: lymphadenopathy
	  ▪ Cystic: pharyngeal pouch, cystic hygroma
	  ○ With SCM: SCM tumour

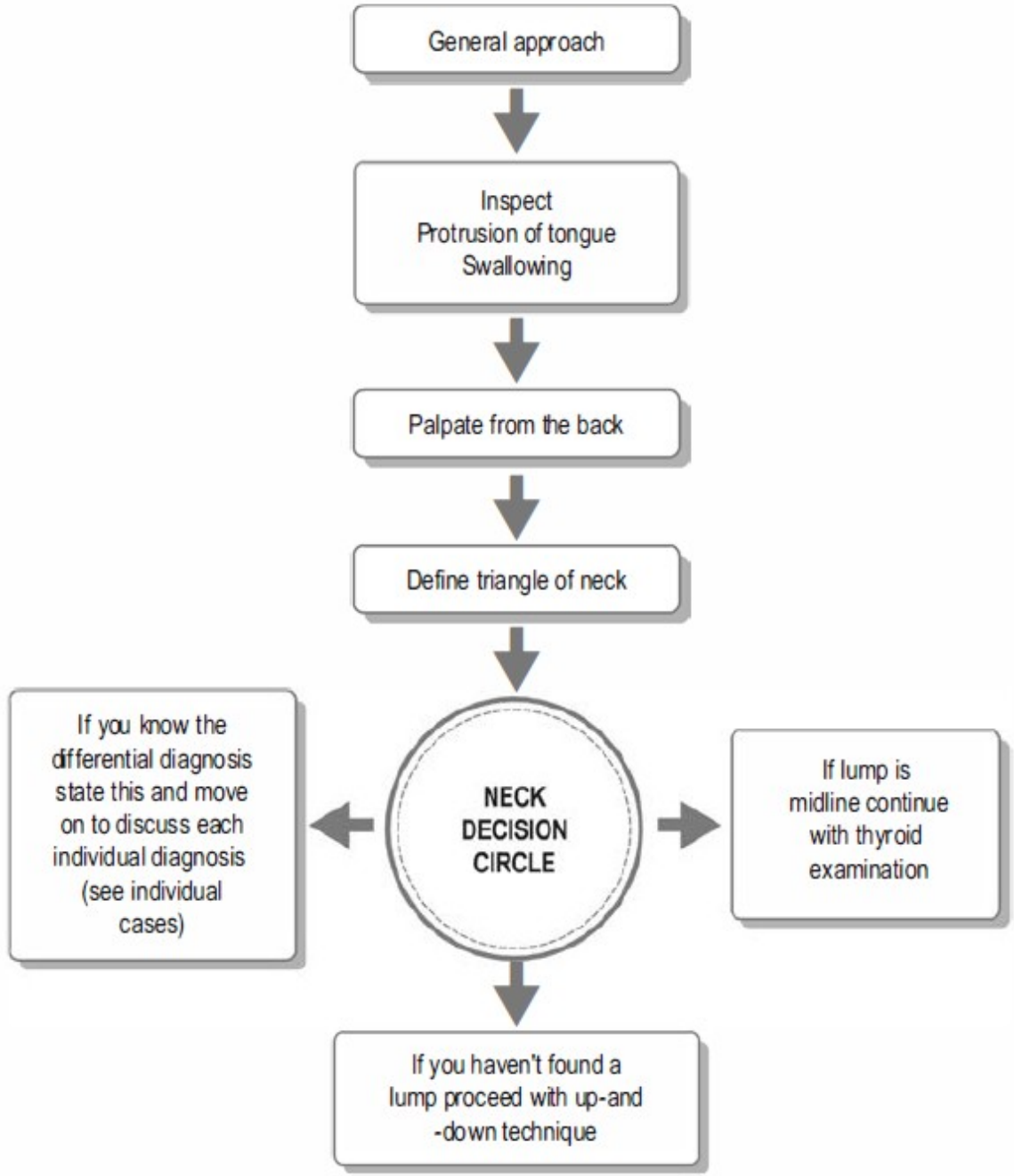

Figure 3 'Neck decision circle' approach to examination of the neck.

DDx for Neck Lumps

Midline	• Lymph Node: Submental • Thyroglossal cyst • Thyroid nodule in the isthmus • Sublingual dermoid cyst • Plunging ranula – retention cyst of the sublingual
Anterior triangle	• LN – along anterior border of sternocleidomastoid – levels 2, 3, 4 • Thyroid nodule • Submandibular gland mass – pleomorphic adenoma • Branchial cyst +/- fistula • Carotid aneurysm • Pharngeal pouch • Laryngocele
Posterior triangle	• Lymph node • Cystic hygroma – bilaterally transilluminable, lobulated cystic swelling. Congenital cystic lymphatic malformation found in the posterior triangle. • Cervical rib – thoracic outlet syndrome • Brachial plexus neuroschwanomma

DDx Lymphadenopathy

Infectious	• Viral: EBV, CMV, HIV • Bacterial: TB, streptococcus, staphylococcus, Klebsiella, haemophilus • Parasitic/fungi: Toxoplasma, acitnomycosis, protozoal

Neoplastic	• Lymphoma: Hodgkin's, Non-Hodgkins
	• Leukemia: CLL, CML/AML
	• Mets:
	  • Head and neck primary: NPC, oral cavity, oropharynx, larynx, hypopharynx, thyroid, skin
	  • Other: lungs, breast, GIT, renal

Inflammatory	• SLE, sarcoidosis, RA, Kikuchi's
Hypersensitivity	• Medications • AEDs: phenytoin, carbamazepine, allopurinol, beta-lactam abx

Thyroid

- Part 1: Thyroid Gland Itself
  - Inspection
    - Protrude tongue
    - Swallowing
    - Obvious midline lump: diffuse, solitary,
    - Scars
    - Describe the location using the anatomical triangles
  - Palpation from back
    - Protrude tongue – thyroglossal cyst
    - Repeat swallow test – feel
    - Features: puse on one edge of the lump so that can palate the other edge with ease
      - Size, tenderness, mobility, consistency
      - Diffuse, nodular
    - **Cervical LN examination**
  - Auscultate from front
    - Listen over thyroid for vascularity → hypervascular thyroid suggests Graves

Thyroid

- Part 2: Structures around the thyroid
  - Restrosternal extension
  - Palpate trachea → any tracheal deviation
  - Swallowing problems?
  - Changes in voice

Thyroid

- Part 3: Thyroid Status
  - Hands
    - Hyperthroidism: increased sweating, AF pulse, fine tremor
    - Graves: Thyroid acropachy (pseudoclubbing), vitiligo
  - Proximal myopathy
  - Reflexes – hung up reflex in hypothyroidism
  - Eyes
    - Lid lag
    - Lid retraction – sclera not visible around the iris (Dalrymple's sign)
    - Opthalmoplegia
    - Exophthalmos/ Proptosis – eye protruded
  - Pretibial myxoedema – Graves Disease

Summarising

- On examination, ____ is alert and comfortable at rest, not in respiratory distress and not cachectic looking. On inspection I noted a central neck mass, just to the right of the midline, which ascends on swallowing but not tongue protrusion. There are no overlying scars or skin changes. Palpation confirms a firm nodule, 4 x 5 cm, which has an irregular surface but is not fixed to overlying skin or underlying structures. It is not warm or tender. I am able to palpate the lower border of the mass. There were no other palpable nodules, no cervical lymphadenopathy or retrosternal dullness. Trachea is central, voice is not hoarse and there were no swallowing problems. On examination of thyroid status, I find her euthyroid with no signs of thyroid eye disease.
- In summary, ____ presents with a thyroid nodule for investigation. There are no symptoms or signs of local invasion or distant spread, and she is euthyroid.

DDx

Diffuse Enlargement (smooth or nodular)	• Multinodular goitre
	• Toxic (hyperthyroid) = graves
	• Simple colloid goitre – secondary to hyperplasia of the gland to meet physiological demand for thyroxine
	  • Iodine deficiency
	  • Increased physiological demand – puberty, lactation, pregnancy
	  • Goitrogens – uncooked cabbaged, lithium, anti-thyroid drugs
	  • Defects of thyroid hormone production
	• Thyroiditis
	  • Subacute (granulomatous) – de Quervain's
	  • Autoimmune (Hashimoto's)
	  • Reidel's – invasive fibrous
	  • Neoplastic goitre, benign/malignant

Solitary Nodule	• Degenerative cysts
	• Neoplasms
	  ○ Benign – follicular adenoma
	  ○ Malignant
	  ▪ Primary – Papillary, follicular, medullary, amaplastic
	  ▪ Secondary – SCC, lymphoma, mets from breast/kidney
	• Dominant nodule of mulinodular goitre