SURGICAL FINALS
Passing the Clinical

Third Edition

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Section 1
General points
The clinical: examiners, patients and preparation

FORMAT

The examiners

Examiners of a long case traditionally work in pairs. There is normally one ‘internal’ examiner (from your own teaching hospital) and one ‘external’ (invited from outside). The difficulty in finding enough clinical material to assess large numbers of candidates has led to the merging of medical and surgical cases and an increase in assessments of structures. However, the text has been structured to be applicable to all forms of assessment.

You will usually be told who your examiners are. It is worth knowing their special interests, even though their questions will not be confined to these areas. Talk to medical students who have been taught by your examiners to find out any particular preferences in examination technique (eg always kneeling down to examine the abdomen).

The patients

The range of conditions that you will see in the examination is not necessarily representative of the conditions seen in general hospital care. First, you will never be given a very ill patient with, for example, an acute abdomen or an acutely ischaemic limb. Second, there are some rare conditions that crop up disproportionately in examinations: such patients usually have long-standing problems with good physical signs. Examples are AV malformations or carotid body tumours.

Patients are drawn from four sources: inpatients, patients coming up from clinics, ‘professional’ patients and simulated patients.
1. **Inpatients**

Most inpatients transferred to the examination will be awaiting operations such as hernia repairs or removal of breast lumps. Postoperative patients are also available for the clinicals: after all, you will be expected to manage such patients in your F1 and F2 years. A minority of patients will be those recovering from acute conditions, with good histories and/or physical signs that have not yet resolved.

2. **Patients coming up from clinics**

Patients with good physical signs who attend clinics in the few weeks before the clinicals are often asked to come up for the examination. Try to attend clinics in your hospital in the lead-up to finals. (For example, before surgical finals, one of the authors walked into the examination centre with a fellow candidate who pointed out two patients who she recognised: ‘He has a sebaceous cyst on his forehead. She’s got a left submandibular tumour.’ After revising these two conditions, she was given both patients as short cases!)

3. **‘Professional’ patients**

These are patients with long-standing signs who are listed on a computer database and who have been called up numerous times in the past. Such patients are usually excellent historians and may even point out their physical signs.

4. **Simulated patients**

Simulated patients are healthy individuals who are trained to simulate a patient’s illness in a standard manner. They are usually actors. Some training is usually required to ensure that they are able to bring out the main points in the history on request and within the time allowed. Simulated patients can become skilled historians and very persuasive patients, such as when replicating a psychiatric disturbance. They are often asked to give their own marks on the student encounter.

In addition a video of a patient presenting a history can be shown.
PREPARATION

Early preparation

*Don’t fall into bad habits*

Ask a doctor to watch you examine and listen to your presentations as early and as often as possible. Without this, it is very easy to acquire bad habits that are difficult to break.

*Act as a chaperone*

Senior medical students in their clinical years are often used as ‘chaperones’ in clinical examinations. Their role is to escort the candidates from room to room, ring the bells and ensure that the examination runs smoothly. If you are given this opportunity, take it. You will get an idea of the examination format and there will often be time to examine the patients yourselves afterwards. There can be no better preparation: some of the same patients may even come up the following year.

The revision period

*Team up with a colleague*

As the examination draws closer, pair up with a fellow student whose aims and standards are similar to your own and whose opinion you respect. By working in pairs, each of you can act as an examiner in turn, covering long and short cases and talking through topics that could arise in vivas. Remember that each person works at his or her own pace and thinks that the other knows more than him- or herself. The relationship should be mutually beneficial.

*Ask for senior help*

During the revision period don’t hesitate to ask for extra teaching from senior staff: they’ve all been through finals themselves and are usually glad to help. Don’t be put off by any tendency to teach by humiliation and don’t worry if you are given different information or conflicting approaches: just extract what you consider the best information from each teacher.
Bleep the FY1 and FY2 and ask for lists of patients to see as long and short cases. Ask when patients are to be admitted. Also find out when day surgery lists take place: here you will find many swellings, ulcers, varicose veins and hernias to examine.

*Revise efficiently*

This book gives plenty of lists of clinical features and provides tables of differential diagnoses. Modify these to make your own lists: you will remember best what you compile yourself. Laptops or card systems may be a useful revision aid at this stage.

Try not to work late into the night, relax before you go to bed, avoid excess coffee and keep up physical exercise. You will retain much more if you are alert during the revision period than if you are exhausted. Remember that hypnotics and anxiolytics can dull your mind on the day of the examination: take them only under medical supervision.
Neck swellings and thyroid lumps

THE HISTORY

If your patient complains of a swelling in the neck, ask the same questions as for any lump (page 40).

If you suspect lymphadenopathy, ask the following questions to determine local causes:

- Do you have any mouth ulcers or pain in your mouth?
- Do you have any pain or discharge from your nose or ears? Do you have a sore throat?
- Have you noticed any other lumps on your head or face? Do you have any difficulty swallowing?
- Do you have any difficulty breathing?

Your systemic enquiry will be important in determining generalised causes. If you suspect a goitre, ask the following specific questions.

Local effects of the swelling

- Is the lump painful?
- Do you have any difficulty or pain when you swallow?
- Do you have any difficulty breathing?
- Have you noticed any change in your voice recently?

Eye problems associated with hyperthyroidism

- Do you have double vision?
- Do you get painful, red eyes?
Systemic enquiry to determine thyroid status

1. General symptoms
   • Have you noticed a change in your appearance?
   • Are you intolerant of hot or cold temperatures?

2. Gastrointestinal symptoms
   • Have you noticed a change in your appetite/weight/bowel habit?

3. Cardiorespiratory symptoms
   • Do you get palpitations/shortness of breath on exertion/ankle swelling/chest pain?

4. Neurological symptoms
   • Have you noticed any nervousness/irritability/insomnia/loss of concentration?

5. Gynaecological symptoms (in females)
   • Have you noticed any change in your menstrual cycle?

THE EXAMINATION

A common instruction in the short case is to ‘examine this patient’s neck’ without being given any clue as to the pathology. Alternatively, you may be asked to ‘examine this patient’s thyroid gland’. In this case, proceed to the relevant section of the examination scheme below. Rarely, you may be pointed out a lump and asked to describe it (pages 40–43).

The presence of a glass of water near the patient is a good hint that there may be a goitre!

Always describe the position of neck swellings in terms of the triangles of the neck.
**SECTION 2**

‘Examine this patient’s neck’

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce yourself</td>
<td></td>
</tr>
<tr>
<td>Say what you wish to do</td>
<td></td>
</tr>
<tr>
<td>Ask the patient’s permission to proceed</td>
<td></td>
</tr>
<tr>
<td>Expose the neck, with the patient sitting up comfortably</td>
<td></td>
</tr>
</tbody>
</table>

**LOOK**

Observe from in front and from either side

- ?hyperaemia of skin
- ?scars
- ?distended neck veins
- ?obvious goitre (between thyroid cartilage and manubrium sterni)

Ask patient to take a sip of water and to hold it in his or her mouth

Then ask patient to swallow

Ask patient to stick out tongue

- ?goitre (moves on swallowing)
- ?thyroglossal cyst (moves up when tongue stuck out)
Now proceed as follows:

- If *obvious goitre*, continue examination of thyroid gland: A (below)
- If *no goitre*, examine for cervical lymphadenopathy: B (page 64)
- If you *feel an obvious lump*, proceed to C (page 65)
- If you *suspect enlargement of a salivary gland*, proceed to D (page 66)

### A. Examination of the thyroid gland

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce yourself</td>
<td></td>
</tr>
<tr>
<td>Say what you wish to do</td>
<td></td>
</tr>
<tr>
<td>Ask the patient’s permission to proceed</td>
<td></td>
</tr>
<tr>
<td><strong>LOOK</strong> (see previous page)</td>
<td></td>
</tr>
<tr>
<td><strong>FEEL</strong></td>
<td></td>
</tr>
<tr>
<td>Stand behind patient</td>
<td></td>
</tr>
<tr>
<td>Ask if the swelling is tender</td>
<td></td>
</tr>
<tr>
<td>Feel with the flat of your fingers over the thyroid (thumbs posteriorly)</td>
<td></td>
</tr>
<tr>
<td>Tell patient to take another sip of water, to hold it in his or her mouth and then to swallow</td>
<td><em>thyroid felt to move on swallowing</em></td>
</tr>
<tr>
<td>Palpate gently</td>
<td><em>tender</em></td>
</tr>
<tr>
<td></td>
<td><em>diffusely enlarged swelling</em></td>
</tr>
<tr>
<td></td>
<td><em>single nodule</em></td>
</tr>
<tr>
<td></td>
<td><em>multinodular goitre</em></td>
</tr>
<tr>
<td></td>
<td><em>texture</em></td>
</tr>
<tr>
<td></td>
<td><em>surface</em></td>
</tr>
<tr>
<td>ACTION</td>
<td>NOTE</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Palpate the cervical lymph nodes</td>
<td>?approximate size</td>
</tr>
<tr>
<td>While still standing behind patient, look over the top of his or her head</td>
<td>?associated lymphadenopathy (page 64)</td>
</tr>
<tr>
<td>exophthalmos</td>
<td></td>
</tr>
</tbody>
</table>

**ASSESS POSITION**

<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand in front of patient</td>
<td></td>
</tr>
<tr>
<td>Palpate the trachea in the suprasternal notch</td>
<td>?trachea deviated</td>
</tr>
<tr>
<td>Push each lobe to the opposite side to emphasise contralateral features</td>
<td>?any previously unnoted features</td>
</tr>
<tr>
<td>Percuss the thyroid</td>
<td>?lower limit of retrosternal extension</td>
</tr>
<tr>
<td>Auscultate over the thyroid</td>
<td>?bruit</td>
</tr>
</tbody>
</table>

**ASSESS THYROID FUNCTION**

**a. Observe overall**

Look at patient’s:

- face and skin                     | ?dry/shiny skin             |
- build                              | ?thin/fat                   |
- dress                              | ?appropriate for temperature |
- behaviour                          | ?agitated/lethargic         |

**b. Examine the hands**

Look at:

- palms                             | ?palmar erythema            |
- nails                              | ?thyroid acropachy          |

Feel:

- palms                             | ?sweaty                     |
**ACTION** | **NOTE**
--- | ---
- pulse | ?tachycardia
- large volume | ?atrial fibrillation
- fast postural tremor

Ask patient to hold arms outstretched (exaggerated by placing sheet of paper on them)

**c. Examine the eyes**

Look at:
- conjunctiva | ?chemosis/oedema/redness
- relationship of eyelid to iris | ?lid retraction
- lid lag | ?ophthalmoplegia

Ask patient to follow your finger up and down

Test the eye movements:
- Ask patient to follow a white hatpin with their eyes
- Ask him or her to report any double vision

**d. Assess neurologically**

Ask patient to rise from a squatting position (or chair) without using hands for support

Test reflexes, observing the relaxation phase:
- supinator
- biceps | ?proximal myopathy (a sensitive indicator of hypo-/hyperthyroidism)
| ?slow-relaxing reflexes (suggests hypothyroidism)
### B. Examination for cervical lymphadenopathy

<table>
<thead>
<tr>
<th><strong>ACTION</strong></th>
<th><strong>NOTE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce yourself</td>
<td></td>
</tr>
<tr>
<td>Say what you wish to do</td>
<td></td>
</tr>
<tr>
<td>Ask the patient’s permission to proceed</td>
<td></td>
</tr>
<tr>
<td>Stand behind patient</td>
<td></td>
</tr>
<tr>
<td>Examine lymph nodes <em>systematically</em>:</td>
<td></td>
</tr>
<tr>
<td>First feel the horizontal ring around the skull base:</td>
<td></td>
</tr>
<tr>
<td>• submental</td>
<td></td>
</tr>
<tr>
<td>• submandibular</td>
<td></td>
</tr>
<tr>
<td>• preauricular</td>
<td></td>
</tr>
<tr>
<td>• postauricular</td>
<td></td>
</tr>
<tr>
<td>• occipital</td>
<td></td>
</tr>
<tr>
<td>Then feel the vertical chain:</td>
<td>position of enlarged nodes</td>
</tr>
<tr>
<td>• deep cervical</td>
<td></td>
</tr>
<tr>
<td>• posterior triangle</td>
<td></td>
</tr>
<tr>
<td>• supraclavicular</td>
<td></td>
</tr>
<tr>
<td>If you feel enlarged cervical lymph nodes:</td>
<td></td>
</tr>
<tr>
<td>Look in the mouth, ears and throat with pen torch</td>
<td>primary site of infection &lt;br&gt;primary malignancy</td>
</tr>
<tr>
<td>Say that you would request a full ENT examination</td>
<td></td>
</tr>
<tr>
<td>Look carefully at the face and all over the scalp</td>
<td></td>
</tr>
</tbody>
</table>
### ACTION | NOTE
---|---
Examine:  
- inguinal nodes  
- axillary nodes  
- epitrochlear nodes | ?generalised lymphadenopathy
Examine patient above the umbilicus | ?skin lumps  
| normal respiratory system  
| breast lumps
Examine the abdomen | ?splenomegaly  
| hepatomegaly

### C. Examination of other neck lumps

| ACTION | NOTE |
---|---
Introduce yourself  
Say what you wish to do  
Ask the patient’s permission to proceed | ?neck triangle
Assess as for any lump (pages 41–43) | ?shape  
| colour  
| size  
| temperature  
| surface  
| edge  
| consistency
### ACTION

**Palpate lump as patient**
- contracts the underlying muscle, eg: sternomastoid – tell patient to push chin against your hand (away from the side of the lump);
- trapezius – tell patient to shrug his or her shoulders as you push down

### NOTE

- ?fixation to underlying muscle
- ?situated deep to muscle

Examine for cervical lymphadenopathy (as above)

### D. Examination of a salivary gland

**ACTION**

- Introduce yourself
- Say what you wish to do
- Ask the patient’s permission to proceed

**NOTE**

- ?position
- ?shape
- ?colour
- ?size
- ?temperature
- ?surface
- ?edge
- ?consistency
<table>
<thead>
<tr>
<th>ACTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look inside the mouth: observe submandibular papillae (on either side of the frenulum) and the parotid duct orifice (opposite the crown of the second upper molar tooth)</td>
<td>duct orifice: ?inflamed ?pus/exudate</td>
</tr>
<tr>
<td>Feel inside the mouth:</td>
<td></td>
</tr>
<tr>
<td>A box of plastic gloves nearby to bimanually palpate suggests that this is a suspected submandibular gland</td>
<td>?relation to tongue ?relation to floor of mouth ?tenderness</td>
</tr>
<tr>
<td>Feel along duct</td>
<td></td>
</tr>
<tr>
<td>If you suspect enlargement of the parotid gland, test cranial nerve VII: ‘screw up your eyes; blow out your cheeks; whistle’</td>
<td>?stone ?facial nerve palsy</td>
</tr>
</tbody>
</table>
SECTION 2

TYPICAL CASES

1. MIDLINE NECK SWELLINGS

You should memorise a list of midline neck swellings as shown below.

<table>
<thead>
<tr>
<th>Common</th>
<th>Uncommon</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Thyroid swellings</td>
<td>• Lymph nodes</td>
</tr>
<tr>
<td>• Thyroglossal cyst</td>
<td>• Sublingual dermoid cyst</td>
</tr>
<tr>
<td></td>
<td>• Plunging ranula</td>
</tr>
<tr>
<td></td>
<td>• Pharyngeal pouch</td>
</tr>
<tr>
<td></td>
<td>• Subhyoid bursa</td>
</tr>
<tr>
<td></td>
<td>• Carcinoma of larynx/trachea/oesophagus</td>
</tr>
</tbody>
</table>

Case 1: goitre

Revise the causes of a goitre.

a. Physiological

• Puberty
• Pregnancy.

b. Simple colloid goitre and multinodular goitre

Note: these have the same underlying pathogenesis and a multifactorial aetiology:

• Goitrogens
• Dyshormogenesis
• Iodine deficiency (epidemic, endemic)
• Autoimmune.

c. Autoimmune thyroid disease

• Hashimoto’s thyroiditis
• Graves’ disease.

d. Other thyroiditides

• De Quervain’s thyroiditis (acute)
• Riedel’s thyroiditis (chronic fibrosing).

e. Tumours

• Benign
• Malignant: primary (carcinoma); secondary (lymphoma).

f. Other

• Tuberculosis
• Sarcoidosis.

Note that if you feel a single nodule you may be feeling the following:

• One nodule of a multinodular goitre
• An enlarged lobe (eg malignant infiltration; Hashimoto’s thyroiditis)
• A true single nodule, ie a neoplasm. This may be benign (adenoma: functional or non-functional) or malignant.

You may be asked about the different kinds of primary thyroid cancers shown below.

<table>
<thead>
<tr>
<th>Type</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papillary</td>
<td>Anterolateral lump: otherwise known as ‘lateral aberrant thyroid’; may actually be an involved lymph node; slow growing</td>
</tr>
<tr>
<td>Follicular</td>
<td>Ask about bone pain (metastasises via blood)</td>
</tr>
<tr>
<td>Medullary</td>
<td>Lump feels stony-hard due to amyloid infiltration</td>
</tr>
<tr>
<td>Anaplastic</td>
<td>Usually middle-aged or elderly patients; not a discrete lump because of infiltration into surrounding tissues, rapid growth, Horner’s</td>
</tr>
<tr>
<td>Malignant lymphoma</td>
<td>Associated with long-standing Hashimoto’s thyroiditis</td>
</tr>
</tbody>
</table>
Assess thyroid status independently: you are expected to know the common causes of hyper- and hypothyroidism.

<table>
<thead>
<tr>
<th></th>
<th>Cause</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hyperthyroidism</strong></td>
<td>Graves‘ disease</td>
<td>• Autoimmune</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Younger patients</td>
</tr>
<tr>
<td></td>
<td>Multinodular goitre</td>
<td>• Goitre is diffusely enlarged with bruit</td>
</tr>
<tr>
<td></td>
<td>Functioning adenoma</td>
<td>• Older patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Most are non-functioning</td>
</tr>
<tr>
<td><strong>Hypothyroidism</strong></td>
<td>Primary myxoedema</td>
<td>• Autoimmune</td>
</tr>
<tr>
<td></td>
<td>Hashimoto’s thyroiditis</td>
<td>• Older patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No goitre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Autoimmune</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Younger patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rubbery goitre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• At an early stage patient may be hyperthyroid</td>
</tr>
</tbody>
</table>

**Investigation:** determine levels of TSH, $T_3$, and $T_4$ (euthyroid: normal TSH; hyperthyroid: $TSH \downarrow T_3 \uparrow$; hypothyroid $TSH \uparrow T_4 \downarrow$), thyroid antibodies for thyroiditis, ultrasonography to differentiate cystic and nodular disease, CT and MRI to identify infiltration, fine-needle aspiration and histological examination.

**Treatment:**

1. Iodine for deficiency.
2. Remove goitrogens.
3. Suppress TSH with thyroxine in multinodular goitres (can lead to 70% reduction in size).
5. Anti-thyroid treatment for hyperthyroidism (usually long-term carbimazole with the addition of propranolol in severe cases). Surgery for relapse, if age <40 years; radioiodine in older patients, add 2-week course of Lugol’s iodine to drug management preoperatively.


Case 2: thyroglossal cyst

This is a spherical midline lump. It feels hard and the edge is clearly defined. It moves with swallowing, but ask the patient to stick out his or her tongue: the lump will move up due to its attachment to the fibrous remnants of the thyroglossal tract; this differentiates it from a thyroid mass.

Note its position: is it suprahypoid or infrahypoid?

You may find it difficult to fluctuate and to transilluminate.

Clinical diagnosis aided by imaging, particularly the need to define glossal extension.

Investigation: the clinical diagnosis is aided by imaging, which is particularly important in defining glossal extension.

Treatment: excision of cyst and whole tract. This may loop behind the hyoid bone, requiring resection of the body and following the tract into the base of the tongue.
2. LATERAL NECK SWELLINGS

Don’t forget that an asymmetrical thyroid swelling may appear as a lateral neck swelling.

Otherwise, think of a lateral swelling as derived from paired lateral structures. Don’t forget that lymph nodes are by far the most common cause.

<table>
<thead>
<tr>
<th></th>
<th>Anterior triangle</th>
<th>Posterior triangle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lymph nodes</strong></td>
<td>• Lymph node</td>
<td>• Lymph node</td>
</tr>
<tr>
<td></td>
<td>• Cold abscess*</td>
<td>• Cold abscess*</td>
</tr>
<tr>
<td><strong>Salivary glands</strong></td>
<td>• Submandibular swelling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Parotid swelling</td>
<td></td>
</tr>
<tr>
<td><strong>Cystic structures</strong></td>
<td>Branchial cyst</td>
<td>Cystic hygroma</td>
</tr>
<tr>
<td><strong>Vascular structures</strong></td>
<td>• Carotid body tumour</td>
<td>Subclavian artery aneurysm</td>
</tr>
<tr>
<td></td>
<td>• Carotid artery aneurysm</td>
<td></td>
</tr>
<tr>
<td><strong>Other structures</strong></td>
<td>Sternomastoid ‘tumour’ (ischaemic contracture)</td>
<td>Tumour of clavicle</td>
</tr>
</tbody>
</table>

*Note: a cold abscess arises from TB involvement of the nodes: the caseating nodes point, weakening the overlying tissue and then burst, causing a ‘collar-stud’ abscess.*
Case 3: cervical lymphadenopathy

You are likely to be asked the differential diagnosis.

<table>
<thead>
<tr>
<th></th>
<th>Localised lymphadenopathy</th>
<th>Generalised lymphadenopathy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infective</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tonsillitis</td>
<td>Acute</td>
</tr>
<tr>
<td></td>
<td>• Laryngitis</td>
<td>• Infectious mononucleosis</td>
</tr>
<tr>
<td></td>
<td>• Infected skin lesion,</td>
<td>• Cytomegalovirus</td>
</tr>
<tr>
<td></td>
<td>eg sebaceous cyst</td>
<td>Chronic</td>
</tr>
<tr>
<td></td>
<td>• TB</td>
<td>• TB</td>
</tr>
<tr>
<td></td>
<td>• Toxoplasmosis</td>
<td>• Brucellosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Secondary syphilis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• HIV</td>
</tr>
<tr>
<td><strong>Neoplastic</strong></td>
<td>Metastases from</td>
<td>Lymphoma</td>
</tr>
<tr>
<td></td>
<td>carcinoma of:</td>
<td>• Hodgkin's</td>
</tr>
<tr>
<td></td>
<td>• Head and neck</td>
<td>• Non-Hodgkin's</td>
</tr>
<tr>
<td></td>
<td>• Breast</td>
<td>Leukaemias, eg chronic</td>
</tr>
<tr>
<td></td>
<td>• Chest</td>
<td>lymphocytic leukaemia</td>
</tr>
<tr>
<td></td>
<td>• Abdomen</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td>• Amyloidosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sarcoidosis</td>
</tr>
</tbody>
</table>

**Treatment:** identify the aetiology by clinical diagnosis which may be aided by fine-needle aspiration or excision biopsy; search for primary site.
You may be given a patient with enlargement of the parotid or submandibular glands. Note how long, changing features, pain.

Be able to classify the causes of salivary gland enlargement:

**a. Infection (sialoadenitis)**

*Acute*
- Viral
- Bacterial.

*Recurrent*
- Obstructive: calculus, stricture
- Non-obstructive: children, menopausal women.

*Chronic*
- Tuberculosis
- Actinomycosis.

**b. Autoimmune**
- Sicca syndrome
- Sjögren syndrome.

**c. Calculi (sialolithiasis)**

**d. Cysts**
- Simple cysts (parotid)
- Mucus retention cysts.

**e. Infiltration**
- Sarcoidosis.

**f. Systemic disease**
- Alcoholic liver cirrhosis
- Diabetes mellitus
- Pancreatitis
• Acromegaly
• Malnutrition.

g. Drugs
• Phenothiazines
• Phenylbutazone.

h. Allergy
• Iodine.

i. Malignancy
• Benign
• Intermediate
• Malignant.

Remember:
• 80% of salivary neoplastic conditions occur in the parotid gland.
• Most stones occur in the submandibular gland.

The most likely cause of parotid enlargement is a benign mixed parotid tumour. Occasionally you will see a Warthin’s tumour. The following characteristics distinguish these two tumours.

<table>
<thead>
<tr>
<th></th>
<th>Mixed parotid tumour (pleomorphic adenoma)</th>
<th>Warthin’s tumour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Just above and anterior to the angle of the jaw</td>
<td>Slightly lower: lower border of mandible</td>
</tr>
<tr>
<td>Consistency</td>
<td>Rubbery-hard</td>
<td>Soft</td>
</tr>
<tr>
<td>Mobility</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Fluctuant?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

You may be asked how you would clinically assess the malignancy of a parotid tumour. The distinguishing features are:
• Short presentation
• Painful
Hyphaemic and hot skin

Hard consistency

Fixed to skin and underlying muscle

Irregular surface and indistinct edge

Invasion of facial nerve with facial palsy.

**Treatment:** treat infection with appropriate antibiotic. Dilate strictures, remove stones and marsupialise orifice. Watch small benign tumours. In parotid surgery for benign pleomorphic adenomas, protect facial nerve and aim for conservative resection (e.g., superficial parotidectomy). Total parotidectomy and facial nerve sacrifice may be performed for infiltrating/malignant lesions. This is associated with neck dissection and lymphadenectomy to remove involved nodes with or without adjunctive radiotherapy.

**Case 5: cervical rib**

This rarely comes up in examinations.

The lump is only occasionally palpable, just above the clavicle. It may be pulsatile due to the elevated and sometimes dilated subclavian artery.

Look out for neurological and vascular features.

**a. Neurological features** (more common)

- Pain in C8 and T1 dermatomes
- Wasting and weakness of the small muscles of the hand.

**b. Vascular features** (rarer)

- Raynaud’s phenomenon
- Rest pain
- Trophic changes
- Gangrene.

**Treatment:** excise symptomatic ribs. Associated vascular lesions may require local resection of aneurysm, distal thrombectomy and sympathectomy.
**Case 6: carotid body tumour**

This is a rare condition but may come up in the examination as a short case. The tumour feels hard and is sometimes known as a ‘potato tumour’. The position is shown in the figure below.

![Diagram of carotid body tumour]

You may feel pulsation. This may result from the following sources:

- Internal carotid artery (transmitted)
- External carotid artery (running superficially)
- Tumour itself (intrinsic vascularity).

Ask about blackouts, transient paralysis and paraesthesia. Check the other side – the tumour is often bilateral.

**Treatment:** observe small, often bilateral tumours. Excise enlarging, symptomatic and invasive tumours. May need replacement of carotid artery. Essential to make the diagnosis preoperatively so that a vascular surgeon is involved.
Case 7: branchial cyst/sinus/fistula

Note that although these are developmental, arising from remnants of the second pharyngeal pouch, they present in young adults.

The cyst has a distinct edge and a smooth surface. Depending on its contents, it may or may not transilluminate.

You may be shown a branchial sinus or fistula – a small dimple in the skin, at the junction of the middle and lower thirds of the anterior edge of sternomastoid:

- Ask the patient to swallow: this will make it more obvious
- Ask about discharge.

Know the definitions of a sinus and a fistula:

a. **Sinus**: a blindly-ending track, leading away from an epithelial surface into surrounding tissue, lined by epithelial or granulation tissue. (In this instance there is no closing off of the second branchial cleft, although the upper end is obliterated.)

b. **Fistula**: an abnormal tract connecting two epithelial surfaces, lined by epithelial or granulation tissue. (In this instance the fistula connects skin to the oropharynx, just behind the tonsil.)

**Treatment**: complete excision.
FAQS AND POPULAR VIVA QUESTIONS

1. What are the causes of cervical lymphadenopathy?
2. What are the possible causes of a lump in the anterior triangle of the neck?
3. What are the causes of a thyroid swelling?
4. What are the causes of hyper- and hypothyroidism?
5. What are the indications for the surgical management of hyperthyroidism?
6. What precautions would you take in preparing a patient with hyperthyroidism for surgery?
7. What are the complications of thyroidectomy?
8. What kinds of thyroid malignancy do you know?
9. What are the sites of the openings of the submandibular and parotid ducts into the mouth?
10. What are the causes of stones in the salivary ducts? Where are they most likely to form?
11. What is the most common tumour of the parotid gland? How should it be managed?
12. What clinical features distinguish a benign from a malignant salivary tumour?
13. What are the complications of surgery to the parotid gland?
ANSWERS

1. (a) Infection: from the skin of the head and neck, the tonsils, adenoids and throat, other sites in the ear and nose, paranasal air sinuses, pharynx and larynx. (b) Part of generalised lymphadenopathy: acute (e.g., infectious mononucleosis, cytomegalovirus) or chronic (e.g., TB, brucellosis, secondary syphilis, HIV). (c) Malignancy: primary (e.g., lymphoma, Hodgkin's lymphoma and leukaemias) or secondary (e.g., metastases from carcinoma of the head and neck, breast, chest and abdomen). (d) Amyloid and sarcoid infiltration.

2. The anterior triangle lies anterior to the sternomastoid muscle below the mandible. The triangles from each side meet in the midline. Lymph nodes and abscesses such as tuberculous ones, salivary glands (submandibular and parotid), carotid body tumours, carotid aneurysms, branchial cysts and tumours of the sternomastoid.

Midline swellings may appear in either anterior triangle: thyroid swellings, thyroglossal cysts, sublingual dermoid cyst, plunging ranula, pharyngeal pouch, subhyoid bursa and carcinomas of the larynx, trachea and oesophagus.

3. Physiological enlargement at puberty and pregnancy; simple and multiple colloid that may be associated with goitrogens; dyshormogenesis; iodine deficiency; autoimmune thyroid disease (Hashimoto's thyroiditis and Graves' disease); other thyroid disease (de Quervain's and Riedel's thyroiditis); tumours: benign and malignant (primary or secondary); tuberculosis; sarcoidosis.

4. Hyperthyroidism: Graves' disease (autoimmune; younger patients with diffusely enlarged goitre and bruit), multinodular goitre (in older patients), toxic adenoma and excessive thyroxine replacement. Rare causes: metastatic thyroid carcinoma, TSH-secreting pituitary tumour, choriocarcinoma, hydatidiform mole and neonatal thyrotoxicosis.

Hypothyroidism: primary myxoedema (autoimmune; older patients with no goitre), Hashimoto's thyroiditis, over-zealous treatment with drugs, surgery or radioiodine. Neonatal cases: agenesis or maternal anti-thyroid agents.
5. Failure of medical treatment; retrosternal extension and tracheal compression; symptoms of multinodular enlargement. Note that surgical treatment is safest in the middle trimester of pregnancy.

6. Continuation of long-term carbimazole or other anti-thyroid agents; additional propranolol in severe cases and uncontrolled cardiovascular symptoms; Lugol’s iodine 2 weeks preoperatively.


8. Papillary and follicular carcinoma, medullary carcinoma (associated with multiple endocrine neoplasia types IIa and IIb), anaplastic carcinoma and aggressive neoplasms (of middle-aged and elderly patients) and malignant lymphomas (associated with long-standing Hashimoto’s thyroiditis).

9. **Submandibular:** in the floor of the mouth on the submandibular papilla, situated on each side of the frenulum of the tongue. The parotid duct opens opposite the crown of the second upper molar tooth.

10. Stenosis in the duct due to chronic infection and oral disease around the papilla. They usually occur in the submandibular gland, leading to pain and distension on eating; very rarely found in the parotid gland.

11. **Pleomorphic adenoma** – commonest parotid tumour: small non-progressive tumours – regular observation. Superficial parotidectomy or excision with a surrounding cuff of normal tissue is the surgical alternative. The more extensive excision requires particular care of the facial nerve. Occasionally radiotherapy is required for recurrent problems.

12. **Benign:** smooth, lobulated, painless, may be bilateral, when superficial may be slightly mobile, usually soft to firm, slowly enlarging over years. **Malignant:** firm to hard, fixed, rapid growth over a number of months, facial nerve involvement and infiltration of surrounding tissues.

13. **Facial nerve injury** (which may be unavoidable in treating malignant disease), Frey syndrome, gustatory sweating due to divided parasympathetic nerves growing into the skin, salivary fistula, recurrence of malignancy.