

Examination of a neck lump

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Before starting your examination please:

- Wash your hands & use hand disinfectant.
- Introduce yourself, explain what you would like to do and obtain verbal consent.
- Ask the patient to sit on a chair for examination.
- Adequately expose the patient's neck to the clavicles.
- Ask the patient if they have any pain before proceeding with the clinical examination.

General inspection

Inspect the patient, looking for clinical signs suggestive of underlying pathology:

- **Scars:** may indicate previous neck surgery (e.g. thyroidectomy, lymph node biopsy/excision).
- **Cachexia:** underlying malignancy.
- **Hoarse voice:** caused by compression of the larynx due to thyroid gland enlargement (e.g. thyroid malignancy).
- **Dyspnoea or stridor:** may indicate compression of the upper respiratory tract by a neck mass.
- **Behaviour:** anxiety and hyperactivity are associated with hyperthyroidism (due to sympathetic over activity). Hypothyroidism is more likely to be associated with low mood.
- **Exophthalmos:** bulging of the eye anteriorly out of the orbit associated with Graves' disease.

Neck lump inspection

Ask the patient to localize the lump if he can.

Inspect the neck lump from the front and side, noting its location (midline, anterior, posterior triangle)

If mid-line lump is present:

Ask the patient to swallow some water, and observe the movement of the mass:

- Thyroid gland masses (e.g. a goitre) and thyroglossal cysts typically move upwards with swallowing.
- Lymph nodes will typically move very little with swallowing.
- An invasive thyroid malignancy may not move with swallowing if tethered to surrounding tissue.

Ask the patient to protrude the Tongue

- Thyroglossal cysts will move upwards during tongue protrusion.
- Thyroid gland masses and lymph nodes will not move during tongue protrusion.

*If you identify a midline neck lump or systemic signs indicative of thyroid disease, ask the examiner if a full **thyroid status examination** should be performed.*

Palpation

Assess the following:

- **Temperature:** warm lump suggest an inflammatory or infective cause (e.g. infected epidermoid cyst).
- **Site:** lump location (Midline, anterior triangle, posterior triangle).
- **Size:** assess the size of the lump (width, depth and height) in CM.
- **Shape:** lump borders (regular or irregular).
- **Consistency:** soft (e.g. cyst), hard (e.g. malignancy) or rubbery (e.g. lymph node).
- **Mobility:** mobile or tethered to other local structures. Ask the patient to turn their head as you palpate the mass can reveal if it is tethered to the underlying muscle (e.g. malignant tumour).
- **Fluctuation:** hold the lump by its sides and then apply pressure to the centre of the mass with another finger. If the mass is fluid-filled (e.g. cyst) then you should feel the sides bulging outwards.
- **Overlying skin changes:** note any overlying skin changes such as erythema (e.g. inflammatory/infective aetiology) or a punctum (a pore in the epidermis indicative of an underlying epidermoid cyst).Scar, Sinus....etc.?
- **Pulsatility:** suggests vascular origin (e.g. carotid body tumour, aneurysm).
- **Tenderness:** may indicate infective and/or inflammatory aetiology (e.g. ruptured epidermoid cyst, infected cyst).
- **Trans illumination:** apply a light source to the lump, if it is illuminated it suggests the lump is fluid-filled (e.g. cystic hygroma).
- **Vascular bruit:** auscultate the lump to listen for a bruit suggestive of vascular aetiology (e.g. carotid artery aneurysm).

Assessing lymph nodes

For any palpable lymph node, assess the following:

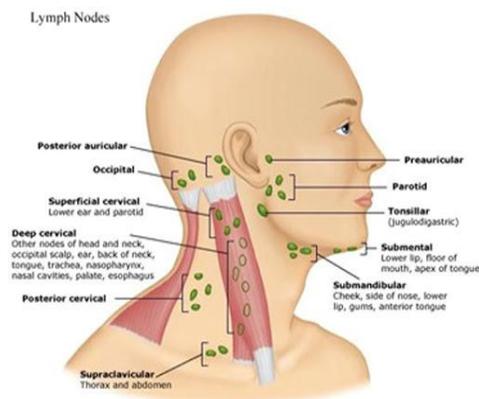
- **Site:** lymph node's location in relation to other anatomical structures.
- **Size:** assess the size of the lymph node.
- **Shape:** assess the lymph node's borders to determine if they feel regular or irregular.
- **Number:** How many palpable nodes you can feel.
- **Consistency:** determine if the lymph node feels soft, hard or rubbery.
- **Tenderness:** note if the lymph node is tender on palpation.
- **Mobility:** assess if the lymph node feels mobile or is tethered to other local structures.
- **Overlying skin changes:** any overlying skin changes such as erythema.

Interpretation of lymph node findings

- **Benign lymph nodes:** typically less than 1cm, smooth, rounded, non-tender and mobile.
- **Reactive lymph nodes:** typically smooth, rounded, tender, mobile and associated with infective symptoms (e.g. fever).
- **Lymphadenopathy associated with haematological malignancy:** widespread enlarged rubbery lymph nodes.
- **Lymphadenopathy associated with metastatic cancer:** regional lymphadenopathy in lymph node groups draining the affected organ. Lymph nodes typically feel hard, firm, irregular and are often tethered to local structures.

Palpation of cervical lymph nodes

- Position the patient sitting upright and examine from behind if possible.
 - Ask the patient to tilt their chin slightly downwards to relax the muscles of the neck.
 - Stand behind the patient and use both hands.
 - Use the pads of the index, middle and ring fingers to press and roll the lymph nodes over the surrounding tissue.
 - Use both hands (one for each side) you can note any asymmetry in size, consistency and mobility of lymph nodes.
 - Start in the submental area and progress through the various lymph node chains. Any order of examination can be used, but a systematic approach will ensure no areas are missed:
- Submental
 - Submandibular
 - Pre-auricular
 - Post-auricular
 - Anterior cervical
 - Posterior cervical
 - Occipital
 - Supraclavicular.



Palpation of the thyroid gland

Palpate both lobes and the isthmus:

- Stand behind the patient and ask them to tilt their chin slightly downwards to relax the muscles of the neck.
- Place the three middle fingers of each hand along the midline of the neck below the chin.
- Locate the upper edge of the thyroid cartilage (“Adam’s apple”) with your fingers.
- Palpate the thyroid isthmus using the pads of your fingers.
- Palpate each lobe of the thyroid in turn by moving your fingers out laterally from the isthmus.
- Ask the patient to swallow some water, whilst you feel for the symmetrical elevation of the thyroid lobes (asymmetrical elevation may suggest a unilateral thyroid mass).
- Ask the patient to protrude their tongue (thyroglossal cyst, you will feel it rise during tongue protrusion).

When palpating the thyroid gland, assess the following **characteristics**:

- **Size:** note if the thyroid gland feels enlarged.
- **Symmetry:** assess for any evidence of asymmetry between the thyroid lobes (unilateral enlargement may be caused by a thyroid nodule or malignancy).
- **Consistency:** assess the consistency of the thyroid gland tissue, noting any irregularities (e.g. a widespread irregular consistency would be suggestive of a multinodular goitre).
- **Masses:** note if there are any distinct palpable masses within the thyroid gland’s tissue (e.g. solitary thyroid nodule or thyroid malignancy).

- **Palpable thrill:** assess for evidence of a palpable thrill caused by increased vascularity of the thyroid gland due to hyperthyroidism (suggestive of Graves' disease).

To complete thyroid examination

- Localize the trachea (Deviated in unilateral huge goiter)
- Percussion over the upper sternum(retrosternal extension)
- Auscultate for bruits (thyrotoxicosis).
- Examine thyroid status(features of thyrotoxicosis)

To complete your examination

- Explain to the patient that the examination is now finished.
- Thank your patient.
- Summarise your findings.

Example summary

*I examined Mr Omar, a 32-year-old male. On **general inspection**, the patient looks comfortable at rest.*

*“**Inspection** of the neck was unremarkable, but **palpation** revealed a 1 x 2 cm mass in the **left posterior triangle**. The mass was **mildly tender** on palpation with **overlying erythema** and a **visible punctum**. The mass was smooth and round in shape. There was no evidence of tethering to the underlying tissue, however, the lesion did appear to be tethered to the epidermis. There was also no palpable lymphadenopathy in the cervical region.”*

*“In **summary**, these findings are consistent with a **infected epidermoid cyst**.”*

*“For completeness, I would like to perform the following **further assessments and investigations**.”(U/S, FNA, CT.....etc)*

Differential diagnosis of a neck lump

Midline neck lump

- **Lymph node:** often multiple and associated with underlying infection or malignancy.
- **Lipoma:** a solitary painless, rubbery, non-tender, smooth mass.
- **Dermoid cyst:** formed along the lines of embryological fusion. Dermoid cysts present as painless swellings that do not move with tongue protrusion (more common in children and young adults).
- **Epidermoid cyst:** a solitary painless mass (can be painful with overlying erythema if ruptured/infected) that has an associated punctum in the epidermis overlying the lesion. They are tethered to the epidermis and contain keratin.
- **Enlarged thyroid gland:** typically located below the thyroid cartilage.
- **Thyroid nodule:** may be single or multiple and represent adenomas, cysts or malignancy.
- **Thyroglossal cysts:** a painless, smooth fluctuant mass that rises on tongue protrusion.
- **Laryngocele:** a reducible tense mass that can increase in size during sneezing or nose blowing

Anterior and posterior triangles of the neck

The boundaries of the **anterior triangle** of the neck are:

- **Superior:** the inferior border of the mandible.
- **Medial:** the midline of the neck.
- **Lateral:** the anterior border of the sternocleidomastoid

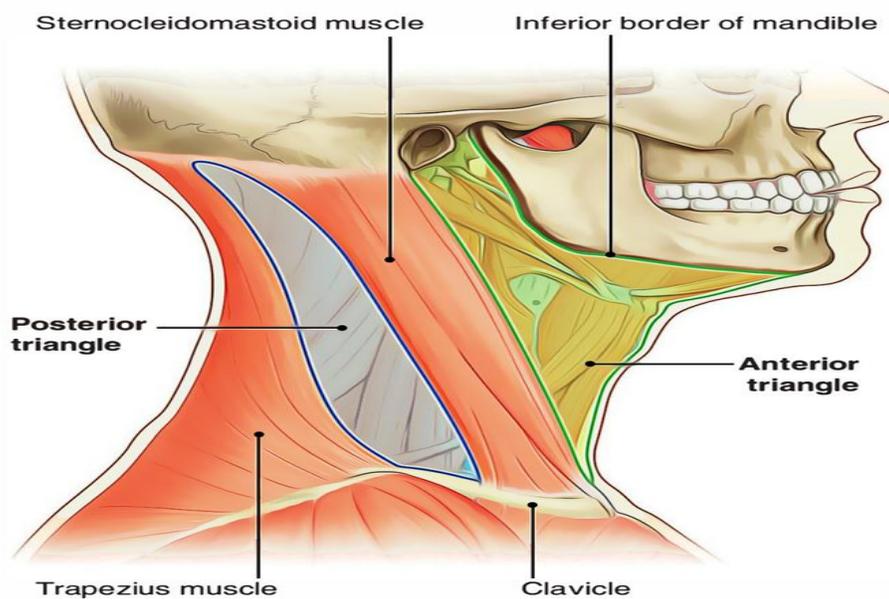
The boundaries of **posterior triangle** are:

Apex: Union of the sternocleidomastoid and the trapezius muscles at the superior nuchal line of the occipital bone.

Anteriorly: Posterior border of the sternocleidomastoid.

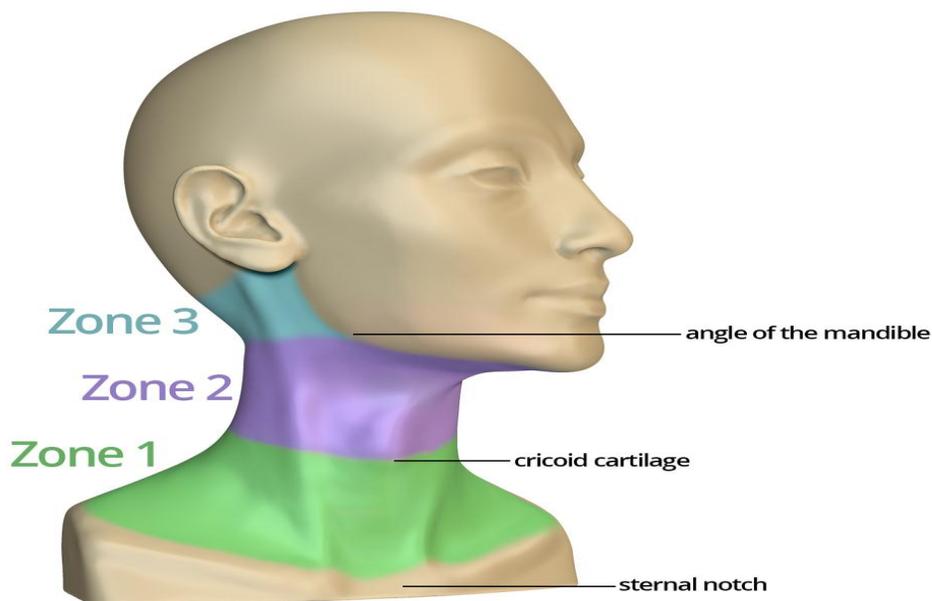
Posteriorly: Anterior border of the trapezius.

Inferiorly: Middle one third of the clavicle.



Anatomical zones of the neck .

- **Zone I:** extends from clavicles to cricoid.
- **Zone II:** from cricoid to angle of mandible.
- **Zone III :** from angle of mandible to skull base.



A. Skalski


Neck lump located in the anterior triangle

- **Lymph node:** often multiple and associated with underlying infection or malignancy.
- **Lipoma:** a solitary painless, rubbery, smooth mass.
- **Epidermoid cyst:** a solitary painless mass (can be painful with overlying erythema if ruptured/infected) that has an associated punctum in the epidermis overlying the lesion. They are tethered to the epidermis and contain keratin.
- **Submandibular gland swelling:** typically located medial to the angle of the mandible and may be caused by a salivary gland stone (sialolithiasis) and/or infection of the gland (sialoadenitis).
- **Branchial cyst:** present from birth and typically noticed in early adulthood when it becomes swollen due to infection.
- **Carotid artery aneurysm:** a pulsatile mass with an audible bruit on auscultation.
- **Carotid body tumour:** pulsatile and can be moved side to side but not up and down (due to the carotid sheath).
- **Laryngocele:** a reducible tense mass which increases in size during sneezing or nose blowing.

Neck lump located in the posterior triangle

- **Lymph node:** often multiple and associated with underlying infection or malignancy.
- **Lipoma:** a solitary painless, rubbery, smooth mass.
- **Epidermoid cyst:** a solitary painless mass (can be painful with overlying erythema if ruptured/infected) that has an associated punctum in the epidermis overlying the lesion. They are tethered to the epidermis and contain keratin.
- **Subclavian artery aneurysm:** a pulsatile mass with an audible bruit on auscultation.
- **Pharyngeal pouch:** a reducible mass.
- **Cystic hygroma:** a fluctuant mass which transilluminates typically located on the left side of the neck.
- **Branchial cyst:** present from birth and typically noticed in early adulthood when it becomes swollen due to infection.
- **Mass in the tail of the parotid gland:** typically associated with pleomorphic adenoma or primary parotid malignancy.

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