EXAMINATION FOR THYROID DISEASE

❑ Hands

▪ Inspection

Inspect the patient's hands for peripheral stigmata of thyroid-related pathology:

- **Dry skin: associated with hypothyroidism.**
- **Excessive sweating: associated with hyperthyroidism.**
- **Thyroid acropachy: similar in appearance to finger clubbing but caused by periosteal phalangeal bone overgrowth secondary to Graves' disease.**
- **Onycholysis: painless detachment of the nail from the nail bed associated with hyperthyroidism.**
- **Palmar erythema: reddening of the palms associated with hyperthyroidism,**

chronicliver disease and pregnancy.

▪ Peripheral tremor

Peripheral tremor is a feature of hyperthyroidism reflecting sympathetic nervous system overactivity.

To assess for evidence of a subtle peripheral tremor:

1. **Ask the patient to stretch their arms out in front of them.**
2. **Place a piece of paper across the back of the patient's hands.**
3. **Observe for evidence of a peripheral tremor (the paper will quiver).**

- **Carpal tunnel syndrome**
- **Vitiligo**

RADIAL PULS E

Palpate the patient's radial pulse, located at the radial side of the wrist, with the tips of your index and middle fingers aligned longitudinally over the course of the artery. Once you have located the radial pulse, assessthe rate and rhythm.

Youcancalculate the heart rate ina numberof ways,includingmeasuring for 60 seconds, measuring for 30 seconds and multiplying by 2 or measuring for 15 secondsand multiplying by 4.

For irregular rhythms, you should measure the pulse for a full 60 seconds to improve accuracy.

Face:

❑ General inspection

Inspect the patient's face for clinical signs suggestive of thyroid pathology:

- **Dry skin: associated with hypothyroidism.**
- **Excessive sweating: associated with hyperthyroidism.**
- **Eyebrow loss: the absence of the outer third of the eyebrows is associated with hypothyroidism (although this is a rare sign).**

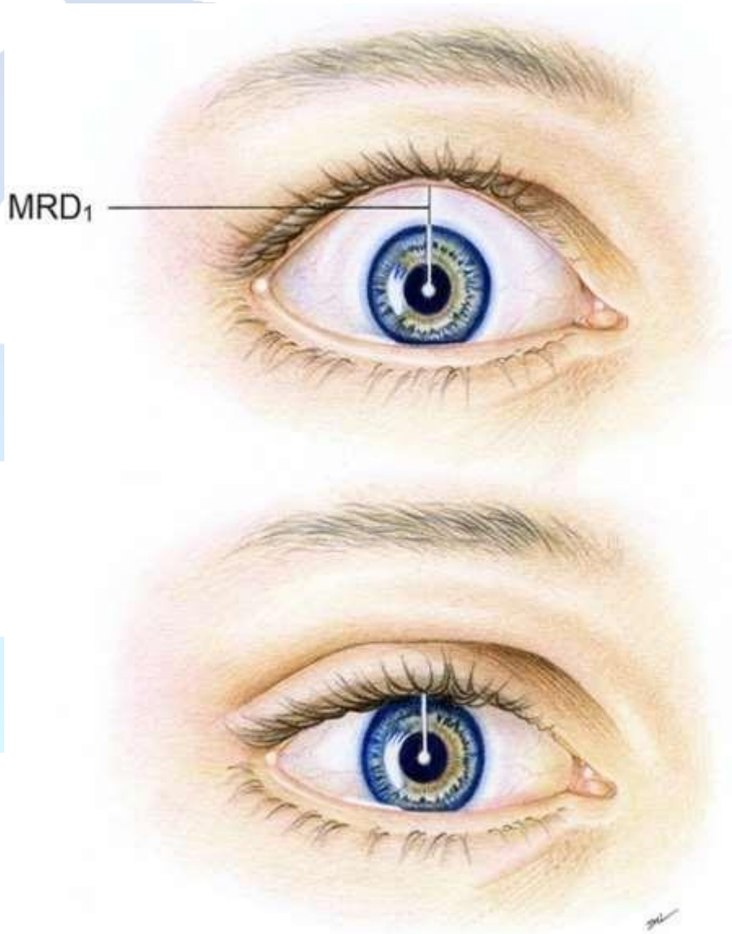
Eyes:

Inspect the eyes for evidence of eye pathology associated with Graves' disease (known as Graves'ophthalmopathy) including: lid retraction, eye inflammation, exophthalmos (also known as proptosis), eye movement abnormalities and lid lag.

Lid retraction

Toidentify lid retraction inspect the eyes from the front and note if sclera is visible between the upper lid margin and the corneallimbus (thisindicative of lid retraction).

Upper eyelid retraction isthe mostcommon ocular signof Graves' diseaseand is thought to occur due to sympathetic hyperactivity causing excessive contraction of the superior tarsal and levator palpebrae superioris muscles.



• Exophthalmos

To identify exophthalmos, inspect the eye from the front, the side and from above.
Exophthalmos isbulgingof theeye anteriorly out of the orbit. Bilateral exophthalmos develops in Graves' disease, due to oedema and lymphocytic infiltration of orbital fat, connective tissue and extraocular muscles.

- **Eye inflammation**

Inspect for evidence of inflammation affecting the eyes.
Due to lid retraction and exophthalmos, the eye is more prone to dryness and the development of conjunctivaloedema (chemosis), conjunctivitisand in severe cases corneal ulceration.

• Lid lag

Lid lag refers to a delay in thedescentof theupper eyelid in relation to the eyeball when looking downward. Lid lag is another feature of Graves' disease and occurs due to a combination of lid retraction and exophthalmos.

To assess for evidence of lid lag:

1. **Hold your finger superiorly and ask the patient to follow it with their eyes, whilst keeping their** head still.

2. Move your finger in a downwards direction whilst observing the patient's upper eyelids as the patient's eyes follow your finger. If lid lag is present, the upper eyelids will be observed lagging behind the eyes' downward movement, with the sclera being visible between the upper lid margin and the corneal limbus.

THYR OID GLAND EXAMINATION

INSPECTION

Thepatient shouldbe seated or standing in a comfortable position with the neckin a neutral or slightly extended position.

Inspectthe midline of the neckfrom the front and the sides noting any masses(e.g. goitre) or scars (e.g.previous thyroidectomy). The normal thyroid gland should not bevisible.

Further inspection of a mass

If a massis identified during the initial inspection, perform some further assessments to try and narrow the differential diagnosis.

SWALLOWING

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 moveupwards with swallowing.**
- **Lymph nodes will typically move very little with swallowing.**

- **Tongue protrusion**

Ask the patient to protrude their tongue:

Thyroglossal cysts will moveupwards noticeably during tongue protrusion. Thyroid gland masses and lymph nodes will not move during tongue protrusion

THYR OID PALPATION

Palpate each of the thyroid's lobes and the isthmus:

1. **Stand behind the patient and ask themto tilt their chin slightly downwards to relax the muscles of the neck to aid palpationof the thyroid gland.**
2. **Place the three middle fingers of each hand along the midline of the neck below the chin.**
3. **Locate the upper edge of the thyroid cartilage ("Adam's apple") with your fingers.**
4. **Move your fingers inferiorly until you reach the cricoid cartilage. The first two rings of the trachea are located below the cricoid cartilage and the thyroid isthmus overlies this area.**
5. **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).**
6. **Ask the patient to protrude their tongue (if a massrepresents a thyroglossalcyst, you will feel it rise during tongue protrusion**

PERCUSSION

Percussion of the sternum

Percussthe sternum moving downwards from the sternal notch to assess for retrosternal dullness.

Retrosternal dullness may indicate a large thyroid mass extending posteroinferiorly to the manubrium.

AUSCULTATION

Auscultation of the thyroid gland

Auscultate each lobe of the thyroid gland for a bruit using the bell of the stethoscope.

A bruit indicates increased vascularity, which typically occurs in Graves' disease.

REFLEXES

Reflexes are assessed to screen for hyporeflexia and delayed reflexes which is associated with hypothyroidism. Themostcommonlytested reflexes are the biceps reflex or the knee jerk reflex (you only need to assess one).

PRETIBIAL MYXOEDEMA

Pretibial myxoedema is a form of diffuse mucinosiss in which there is an accumulation of excessglycosaminoglycans in the dermis and subcutaneous of the skin. It usually presents itself asa waxy, discoloured induration of the skin onthe anterior aspect of the lower legs (pretibial region). Pretibibial myxoedema is a rare complication of Graves' disease.

Proximal myopathy is a potential complication of both multinodular goitre and Graves' disease. Patients develop wasting of their proximal musculature causing difficulties in tasks such as standing from a sitting position.

To screen for proximal myopathy ask the patient to stand from a sitting position with their arms crossed (to minimise their ability to mask proximal muscle weakness). Make sure to stand close to the patient to prevent them from falling. An inability to stand up would suggest proximal muscle weakness.

The Diabetic Foot

There are two main presentations:

- **Neuropathic: neuropathy predominates but the major arterial supply is intact.**
- **Neuroischaemic: reduced arterial supply produces ischaemia and exacerbates neuropathy. Infection may complicate both presentations**

INSPECTION

- hair loss and nail dystrophy.
- Examine the skin (including the interdigital clefts) for excessive callus, skin breaks ,infections and ulcers
- Discoloration Distal pallor can suggest early Ischaemia while purple/black discoloration suggests gangrene
- Ask the patient to stand so that you can assess the foot arch; look for deformation of the joints of the feet.

PALPATION

- Feel the temperature of the feet
- Examine the dorsalis pedis and posterior tibial pulses. If absent,evaluate the ankle:brachial pressure index

TESTS FOR NEUROPATHY

- Test for peripheral neuropathy: use a 10-g monofilament to apply a standard, reproducible stimulus. . Avoid areas of untreated callus. Sensory loss typically occurs in a stocking distribution.
- Assess dorsal column function by testing vibration and proprioception

NOTES:

- Loss of sensation to vibration and proprioception are early signs of diabetic peripheral neuropathy

- Sensory neuropathy is present if the patient cannot feel the monofilament on the sites , This suggests loss of protective pain sensation and is a good predictor of future ulceration.

- Charcot's arthropathy is disorganised foot architecture

ACROMEGALY

- Look at the face for coarsening of features, thick, greasy skin, prominent supraorbital ridges, enlargement of the nose, prognathism (protrusion of the mandible) and separation of the lower teeth

- Examine the hands and feet for soft-tissue enlargement and tight-ftting rings or shoes, carpal tunnel syndrome and arthropathy

- Assess the visual felds

- Check the blood pressure

Acromegaly

Caused by over-secretion of **growth hormone (GH)** from the **pituitary gland**.
The condition is rare and tends to present between 30 and 50 years of age.

↑Blood Pressure

Sleep Apnoea

Headaches

Prominent supra-orbital ridge.
Coarse oily skin.

Mood swings
Low self-esteem
Body image distortion
Social withdrawal
Anxiety

Insulin resistence occurs leading to **Diabetes**

Macroglossia
(large tongue)
Wide spaced teeth
Deep voice

Prognathisim
Prominent *Jaw*

Sweating

Proximal Muscle Weakness

Greek
"pro"=forward
"gnathos"=jaw

Goitre
+/-
Hyperthyroidism

"Spade-like" hands + ↑risk of Carpal tunnel syndrome

Progressive Heart Failure

Kyphosis

↑Shoe Size

↑Risk of colonic polyps & colon cancer

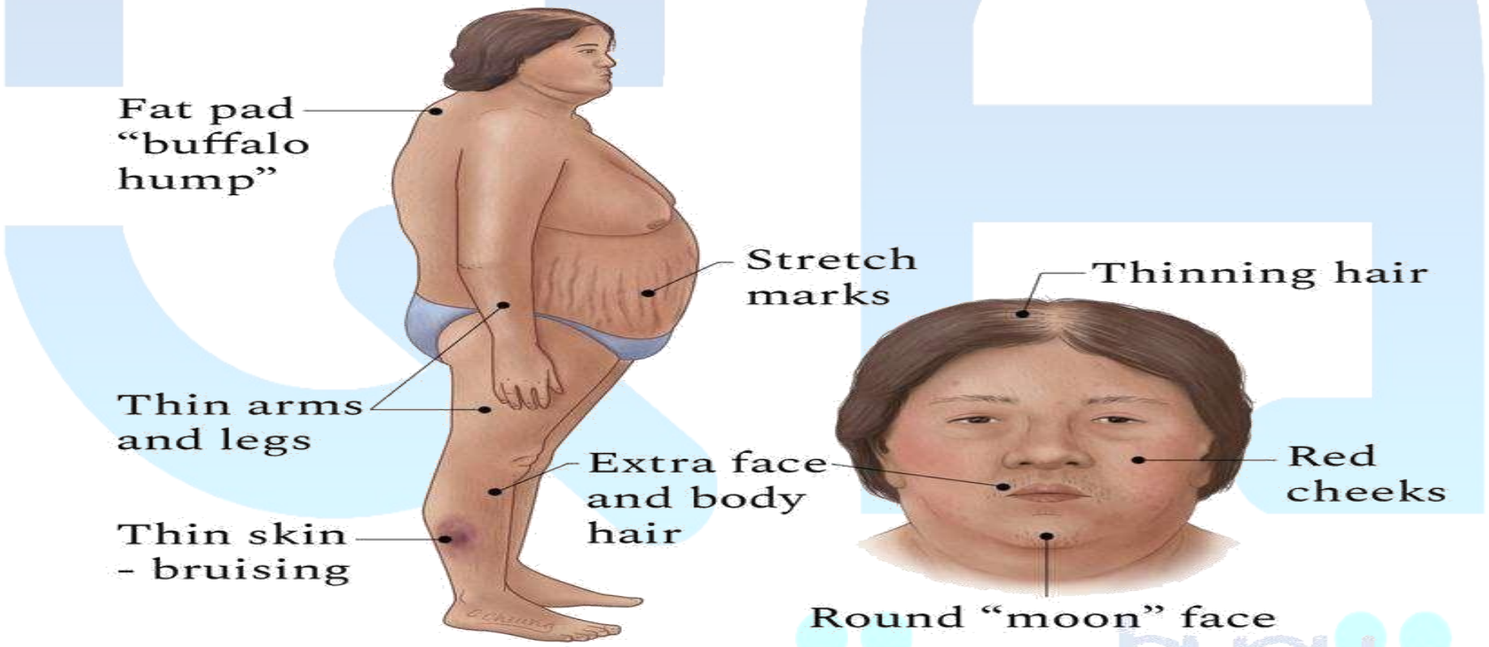
Arthralgia

Done by: QMA Team

Cushing syndrome

- **Look at the face and general appearance for central obesity; there may be a round, plethoric ‘moon’ face ,dorsocervical fat pad (‘buffalo hump’).**
- **Examine the skin for thinning and bruising , striae (especially abdominal; , acne, hirsutism and signs of infection or poor wound healing.**
- **Examine the legs for proximal muscle weakness and oedema.**
- **Perform ophthalmoscopy for cataracts and hypertensive retinal changes**

❖ **Measure the blood pressure.**



HYPOCALCEMIA

SYMPTOMS

- ~ ASYMPTOMATIC
- ~ TETANY (muscular spasms)
- ~ PERIORAL TINGLING

CHVOSTEK'S SIGN

ABOVE SYSTOLIC for 3 min.

TROUSSEAU SIGN