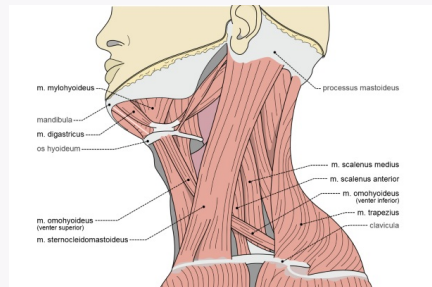
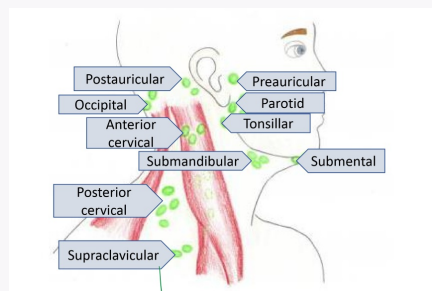


Anatomy in the neck



Lymph nodes
Thyroid + parathyroid gland
Salivary Gland
Blood Vessels
Muscles, bones, cartilage
Nerves
Oesophagus + trachea

Cervical Lymphnodes



Non-MSK causes of neck pain

Oesophagus: Indigestion, Difficulty swallowing

Thyroid: Enlargement, Infection/Inflammation, cancer

Carotid Artery: Dissection

Lymph nodes: Infection/inflammation, cancer - Submental, Submandibula, Tonsillar, Parotid, Preauricular, Postauricular, Occipital, Anterior cx, Posterior cx, Supraclavicular

Heart: MI/IHD - refer to neck and jaw + down left arm

Lung: Apical Tumours - refer to neck, shoulder and arm

- Consider

Age, Hx of the lump, Location of the lump, Exam of the lump, Exam of the head/neck

Questions to ask

Pain related to exertion, relieved by rest? Risk factors of IHD/Cardiac issues

Respiratory symptoms? Smoker?

Swellings in the neck? (lymphnodes/thyroid?) - How long? Where is it? How was it noticed? Enlarging or changing? Local symptoms? Other symptoms? Other lumps? Hx of cancer? Smoking/alcohol? Travel/trauma?

GI Symptoms?

Hx of neck traum/headache/visual disturbances/neurological symptoms?

Recent infections/ hx of cancer?

- Lumps should reduce within 6 weeks , if not, consider possible malignancy (should be seen within 2 weeks)
- Painful nodes = infection
- Firm, hard, painless = cancer

Neck Pain Causes

- Pain from superior nuchal line to the tip of T1 , sagittal planes

Caused by:

- Myofascial Pain Syndrome
- Intervertebral Joint Hypomobility
- Spondylosis
- Musculoligamentous strain/sprain
- Intervertebral Disc Derangement

Serious Disorders

- Meningitis/SAH
- Angina/MI referral
- Metastasis
- Vascular Lesions
- Oesophageal Disorders

Pitfalls

- RA
- PMR
- Fibromyalgia
- Myelopathy - look for stiffness of the legs

Lumps:

- Children: Reactive lymphadenopathy - infections in head/neck/congenital cysts
- Young adults: Inflammation/infection - Viral/bacterial adenitis, Thyroid cancer
- >40s : Malignant until proven otherwise



Refer

- Refer to GP when:

- Symptoms of Cx radiiculopathy persists/not improved with conservative management within 4 weeks
- Clinical Evidence of NR compromise
- Incapacitating Neck/Arm Pain

Injury Mechanisms

- CT best for fractures, MRI better for soft tissue damage
- F# commonly @ C1-2, C5-7 & T12-L2
- Four types of Spinal F#/Dislocation
 1. Compression
 2. Burst
 3. Seat Belt Injuries
 4. Fracture- Dislocations
- Compression:** Hyperflexion + Axial Compression - usually posterior height is maintained
- Burst Fractures** Axial loading of the spine
- Seat-Belt** Rapid Deceleration - Axis, middle + posterior structures affected

Investigations

Canadian C-Spine Rules

For Alert (GCS = 15) pts over 16 after trauma

- | | |
|--|--|
| High Risk Factor | - >65 yo or Dangerous Mechanism of injury/Paresthesia in Extremities |
| Low Risk Factor - allows safe assessment of ROM | - Simple Rear End Collision |
| | - Sitting Position in Emergency Department |
| | - Walking at any time |
| | - Delayed onset of Neck Pain |
| | - Absence of Midline Cx tenderness |

Are they able to turn their heads Left and Right 45 degrees

N/A for <16, GCS <15, Acute Paralysis, Known Vertebral Disease/ previous surgery

Dangerous Mechanism of Injury = Fall from elevation >3 ft/five stairs, axial load to head, high speed vehicle accidents (>100km/h), rollover, ejection, motorised recreational vehicles, bicycle/collisions



Features in the history

Location	- Localised/Radiating - Localised = Muscle strain, ligament sprains, manipulable lesions, facet joint/disc degeneration - Radiation into the arm = nerve/MTrps
Characteristics of pain	Sharp (acute) Dull/aching (Chronic) = Muscle/ligament/disc Deep/Boring pain = Bone/joint Electrical, numbing, tingling, shooting = neurogenic
Onset	Trauma? Anything that set it off? Life/Activity changes prior to the onset?
Aggravating & Relieving Factors	Pain during neck extension - compression of posterior elements - Usually the Facet Joints, consider NR if pain radiates down Arm - Pain with overhead Activities Consider TOS - Pain at the end of the day = chronic overuse, mechanical disorder, degeneration
Pain duration	Muscle strains = Recover in a few days to a couple of weeks Ligament Sprains = Up to a couple of months Disc Injuries/herniation = 3-6 months Chronic Pain = >6 months - degenerative, mechanical instability, chronic inflammatory/neuropathic process
Associated symptoms	Arm symptoms (pain, paraesthesia, weakness, clumsiness) Headaches, dizziness, nausea Difficulty Walking - scuffing of toes, feeling unbalanced (CSM) - Did they come on the same time as your complaint?



Red Flags

Condition	Red Flags
F#	Trauma, Loss of consciousness, Thrown from a vehicle, inability to move neck due to pain, Rust's sign, use of high doses Steroids, Pain on Percussion
Tumour	>50 yo, Pain at rest, Unexplained weight loss, Hx of cancer, Failure to improve with previous treatments, Dysphagia, Headache, Vomiting, Pain on Percussion
Infection	Systemic S&S, Risk factors (immunosuppression, underlying disease, penetrating wound, exposure to infectious disease), Intravenous Drug use, Pain at rest, Nuchal rigidity, Pain on Percussion
Spinal Cord Compression	Trauma to the neck, Paraesthesias of upper and or lower extremities, Difficulty walking/stiff gait, Babinski + Hoffman +ve, Hyperactive Reflexes, Ankle Clonus
Cerebral/Spinal Haemorrhage	Cerebrovascular symptoms/signs, Anticoagulant Use
Vertebral/Carotid Aneurysm	Cardiovascular Risk Factors, TIA

Neck Pain in Children

Consider: Infection, inflammation of cx lymphnodes - tonsillitis/pharyngitis. Meningitis, acute torticollis - Chronic Juvenile Arthritis

Neck Pain in the Elderly

Consider:

- Cx spondylosis with radiculopathy/myelopathy
- Atlantoaxial Subluxation - RA
- PMR
- Metastatic Cancer
- Pancoast Tumour
- Angina/MI
- Pharyngeal & Retropharyngeal infection/tumour



Lumps Where?

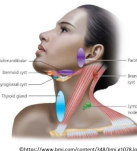
Midline: Thyroid swellings, Thyroglossal cyst, Submental lymph nodes

Lateral (anterior triangle): Thyroid swellings, Submandibular gland swelling, Lymph nodes, Parotid swellings

Lateral (posterior) : Lymph nodes, Carotid artery aneurysm, Cx ribs

Neck Lumps

Congenital	Dermoid cysts	Thyroglossal cysts	Thyroglossal cysts → <i>moves up when you swallow</i>
Developmental	Branchial cysts	Pharyngeal pouch	
Skin and subcutaneous tissue	Sebaceous cyst <i>don't pop it unless you're a doctor</i>	Lipoma <i>fat lump</i>	
Thyroid	Goitre	Malignancy	Thyroiditis
Salivary gland	Infection eg mumps <i>swollen when eating</i>	Ductal stone	Malignancy
Lymph nodes	Infection	Malignancy (primary or secondary)	



Exam

Site, Size, Shape, Surface (4 S's)

Consistency, Colour, Compressible/fluctuant (3 C's)

Transillumination, Tenderness, Tethered (3 T's)

Autoimmune

Diabetes

RA

Pernicious Anaemia

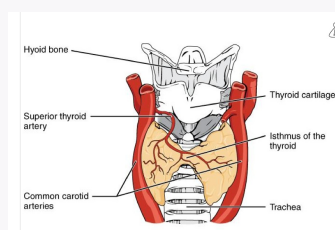
Hashimotos

MS

SLE

Vitiligo

Thyroid Anatomy

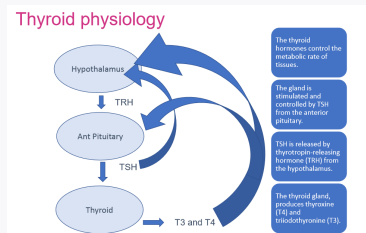


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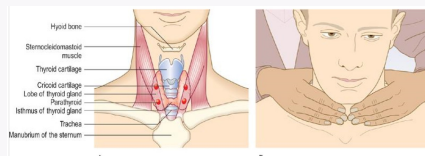
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Thyroid Physiology



Palpating the thyroid



Hypothyroidism

- If goitre = Hashimotos, if no goitre = Atrophic primary hypothyroidism

- **Caused by:** Hashimotos, Surgery/radioactive treatment to the thyroid, Side effect of medications (Amiodarone, Lithium), Iodine deficiency, Pituitary Tumour

Symptoms: Tiredness, Lethargy, Xanthomas, Constipation, Intolerance to cold, Muscle stiffness, Cramps, CTS, Menorrhagia, Slowing of intellectual activity, Reduced motor activity, decreased appetite, weight gain, Dry skin + hair loss, Deep, hoarse voice

Signs: Expressionless, dull face with periorbital + tongue swelling, Sparse hair, Pale cool skin with rough, doughy texture, Coarse dry brittle hair, Goitre, Bradycardia, Obesity, Prolonged relaxation phase of DTR, Peripheral neuropathy

- Thyroxine

Hyperthyroidism

- Grave's disease

Symptoms: Restless, nervous, emotional irritable, sleeping poorly, Tremour of the hands, Losing weight, Palpitations, Sweating and dislike of heat, Diarrhoea, SOB, Menstrual changes (light/infrequent), Skin problems - hair thinning, itching. Increased thirst, Tiredness + muscle weakness

Signs: Sinus Tachycardia (can be atrial fib), Fine tremour, Warm, moist skin, Goitre, Hyperreflexia, Proximal Myopathy, muscles weakness and wasting, exophthalmus

- **Medication:** Beta blockers, Carbimazole, Surgery: Thyroidectomy, Radio Iodine (kills iodine producing cells)

Exam: Observe + Palpate Thyroid gland with two hands standing behind the patient, get patient to swallow **Normally, gland is not palpable unless enlarged!**