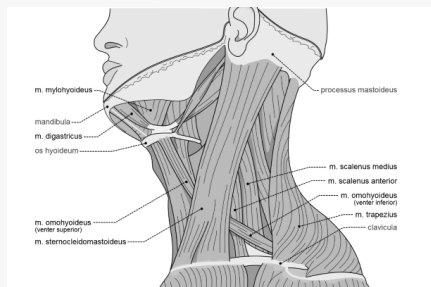
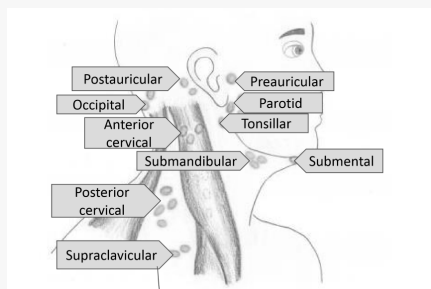


### Anatomy in the neck



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, Submandibular, 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



By **Siffi (Siffi)**  
[cheatography.com/siffi/](https://cheatography.com/siffi/)

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### Features in the history

<b>Location</b>	- Localised/Radiating  - Localised = Muscle strain, ligament sprains, manipulable lesions, facet joint/disc degeneration - Radiation into the arm = nerve/MTrps
<b>Characteristics of pain</b>	Sharp (acute) Dull/aching (Chronic) = Muscle/ligament/disc  Deep/Boring pain = Bone/joint  Electrical, numbing, tingling, shooting = neurogenic
<b>Onset</b>	Trauma? Anything that set it off? Life/Activity changes prior to the onset?
<b>Aggravating &amp; Relieving Factors</b>	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
<b>Pain duration</b>	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
<b>Associated symptoms</b>	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



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### 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

<b>Congenital</b>	Dermoid cysts	Thyroglossal cysts		
<b>Developmental</b>	Branchial cysts	Pharyngeal pouch		
<b>Skin and subcutaneous tissue</b>	Sebaceous cyst <i>skin tags - always report it</i>	Lipoma <i>faty lump</i>		
<b>Thyroid</b>	Goitre	Malignancy	Thyroiditis	
<b>Salivary gland</b>	Infection eg mumps <i>swollen when eating</i>	Ductal stone	Malignanc y	
<b>Lymph nodes</b>	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

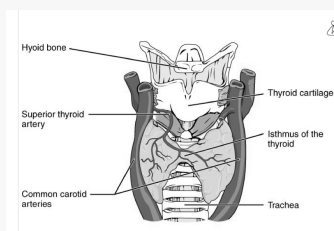
Hashimotos

MS

SLE

Vitiligo

### Thyroid Anatomy

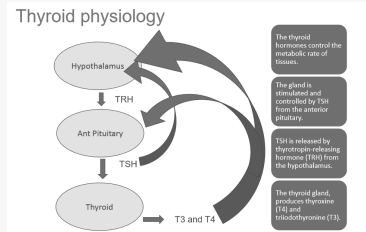


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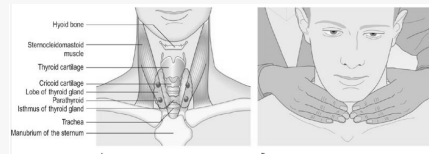
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### Thyroid Physiology



### 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, Lethary, Xathomas, 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!**

C

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