



# HEAD AND NECK ULTRASOUND: REVIEW OF SONOGRAPHER'S TRAINING, PRACTICE AND CAREER DEVELOPMENT.

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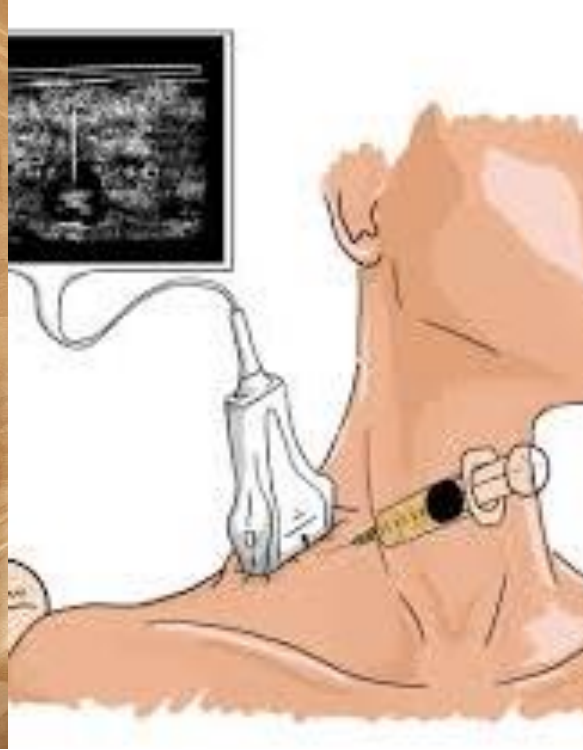
*Author, UKSONO.*



# OUTLINES

- Introduction
- Objectives
- Head and Neck Ultrasound; What is included.
- Training Available
- Practice of head and Neck Ultrasound
- Career Development
- Conclusion





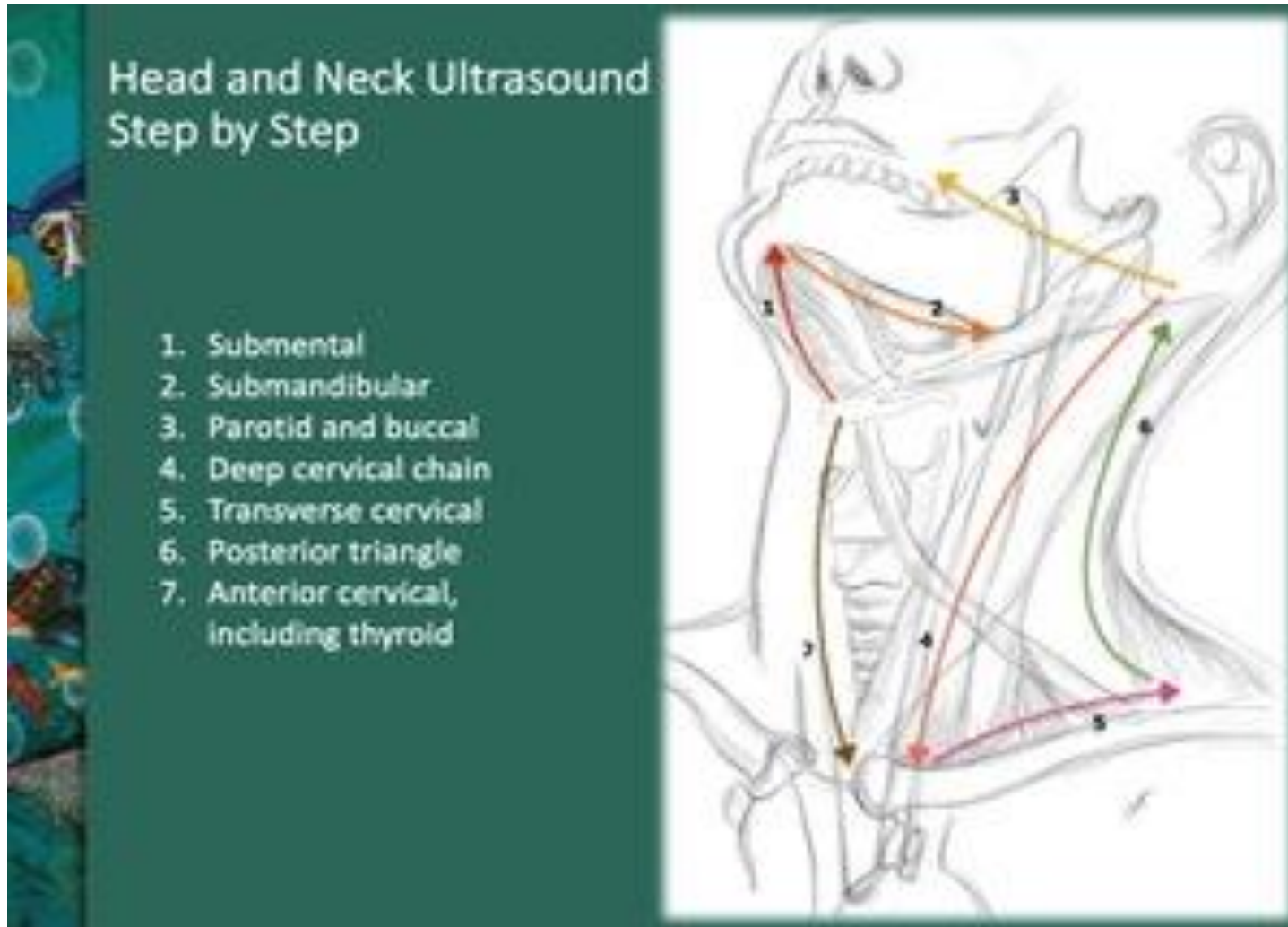
# INTRODUCTION

- Head and Neck ultrasound has over the years been seen as a specialty of general ultrasound.
- Radiologist and Sonographers alike are seen performing various head and neck ultrasound scans.
- How complex is this specialty? What training is required for Sonographers? What challenges are there?

# **OBJECTIVE**

- To evaluate the sonographic anatomical regions in head and neck ultrasound
- Review available training for interested Sonographers
- Discuss the practice of Head and Neck Ultrasound
- Review the career development in head and neck ultrasound

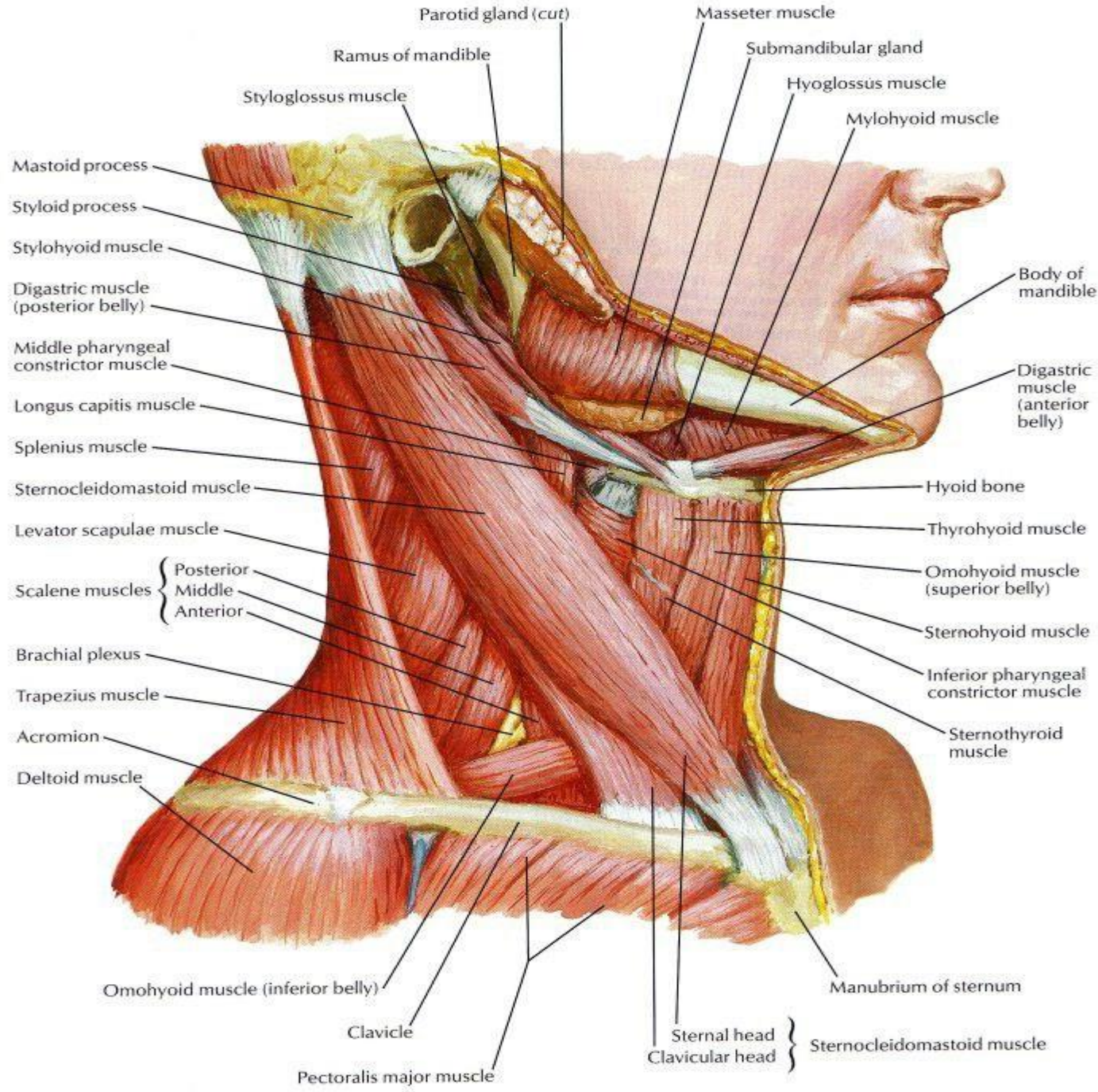
- **HEAD AND NECK ULTRASOUND; WHAT IS INCLUDED.**



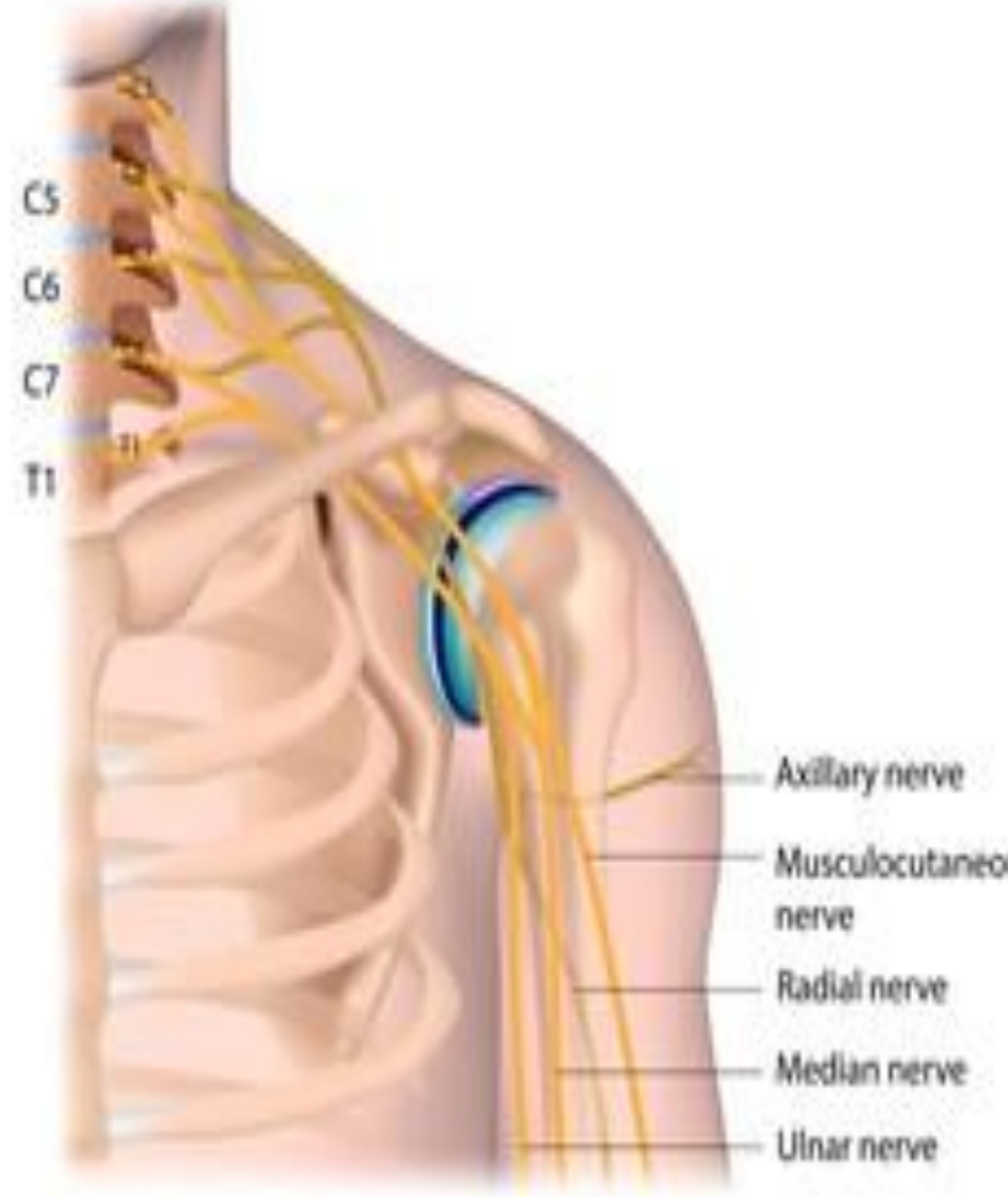
**Others:**

- Tongue/cheek
- Scalp-e.g. pilomatricoma
- Vascular; CCA, ICA, ECA, IJV etc.
- Other HN soft tissue lumps/tumours amenable to Ultrasound.





# The Brachial Plexus

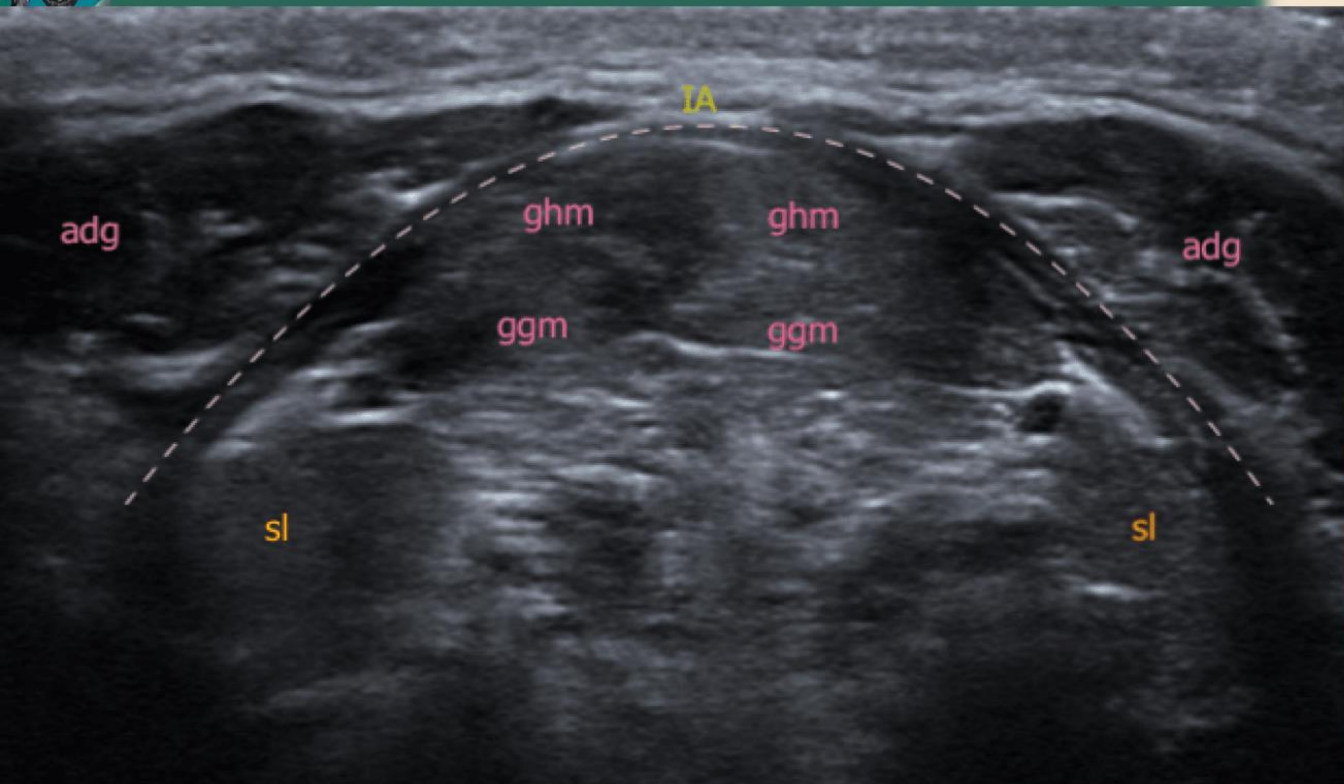
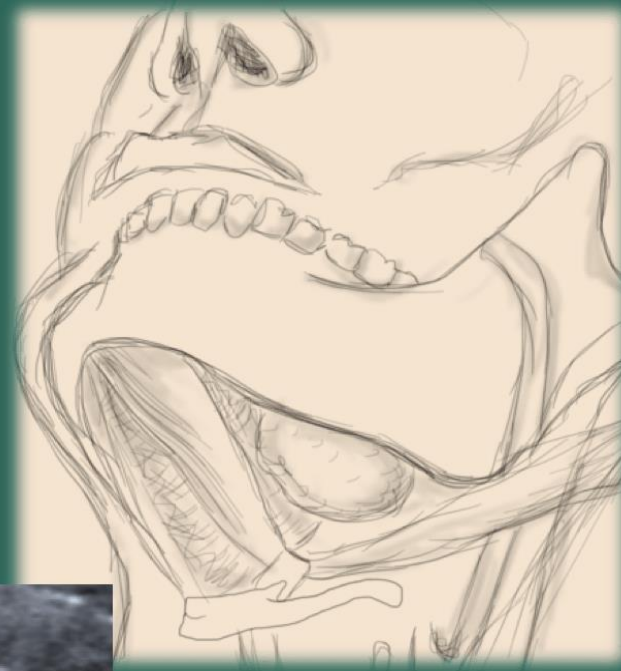




# 1. Submental

## Submental Triangle

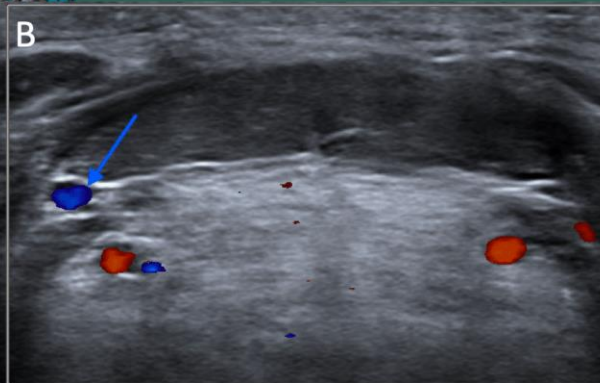
- Base – Hyoid bone
- Floor – Mylohyoid muscle
- Apex - Symphysis mentis
- Sides – Anterior bellies of digastric muscles
- Content – Submental lymph nodes



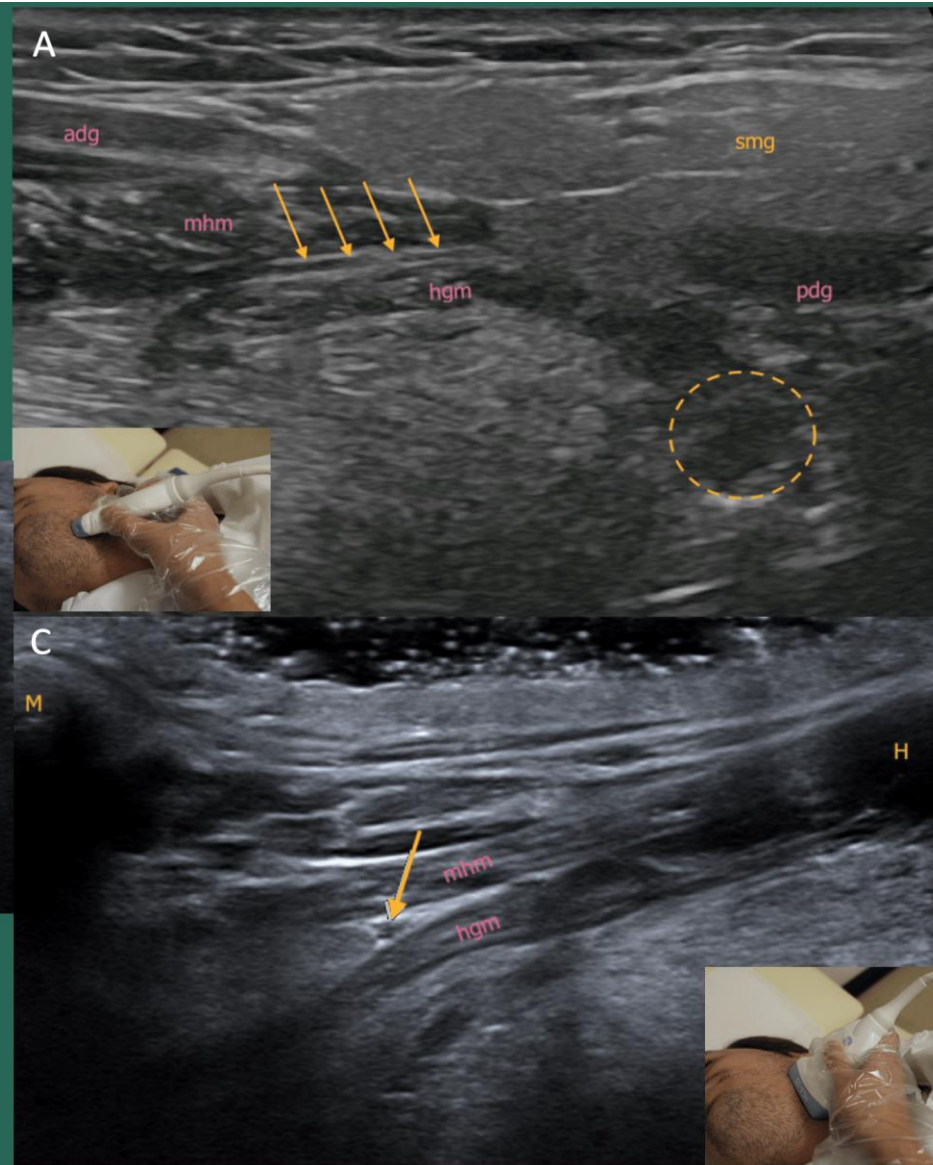
# SUBMANDIBULAR REGION

## 2. Submandibular

**TIP:** Submandibular duct runs between the hyoglossus muscle and the mylohyoid muscle



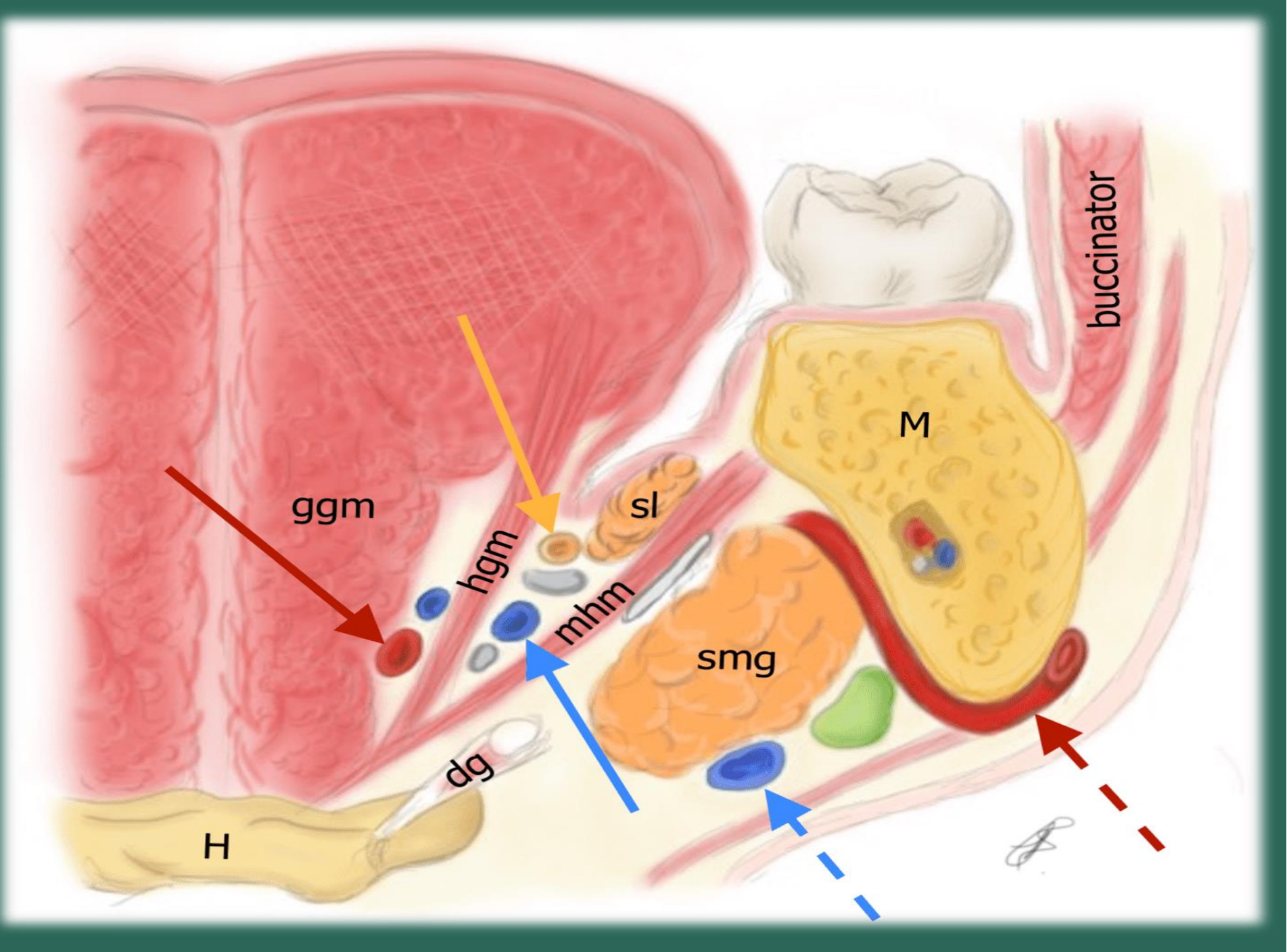
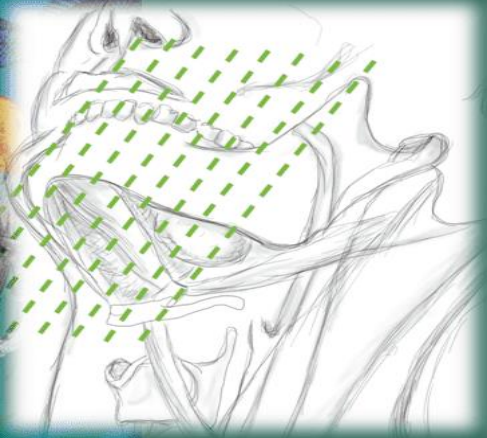
**TRICK:** Color Doppler helps to distinguish the submandibular duct from lingual vein



**Reference:** Pedro Hispano, ULS Matosinhos, Portugal 2018; Department of Radiology, IPO Porto, Porto, 2018

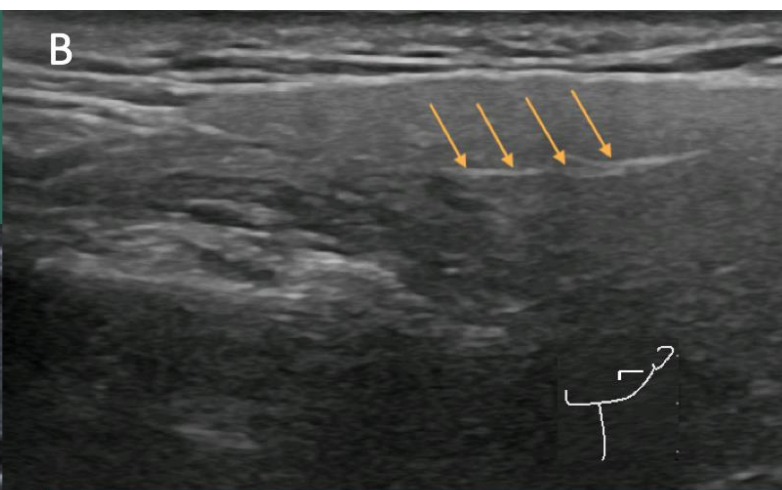
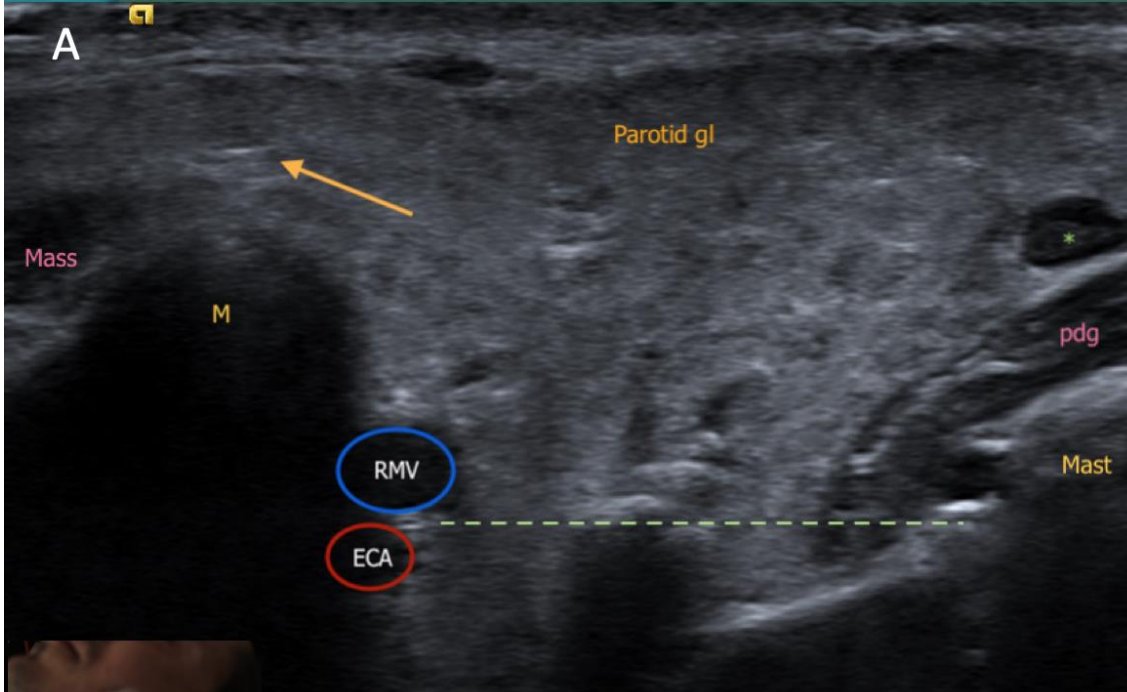


# Coronal section





### 3. Parotid and Buccal



**TRICK:** Parotid duct – echogenic line

**TIP:** Vessels divide superficial and deep parotid lobes

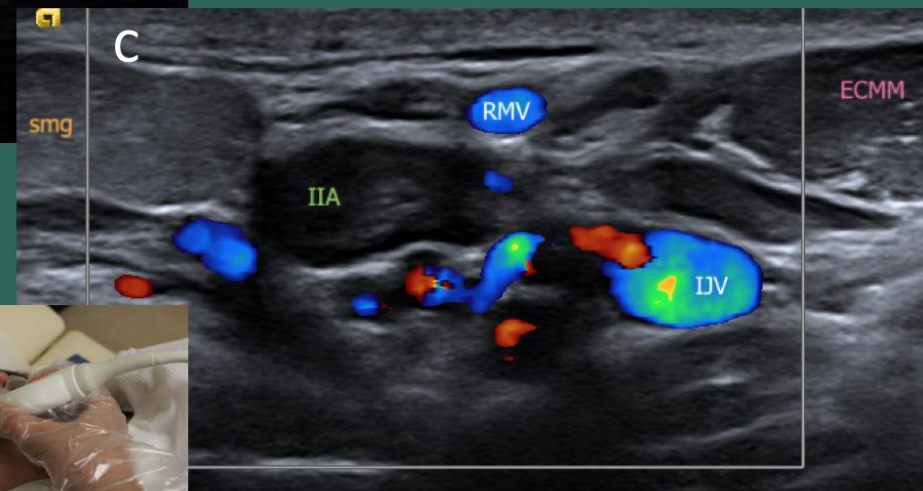


**Retromandibular vein (RMV) is a landmark.**

**TIP:** superficial to RMV: facial nerve

**TRICK:** Displacement of the RMV determines lesion origin:

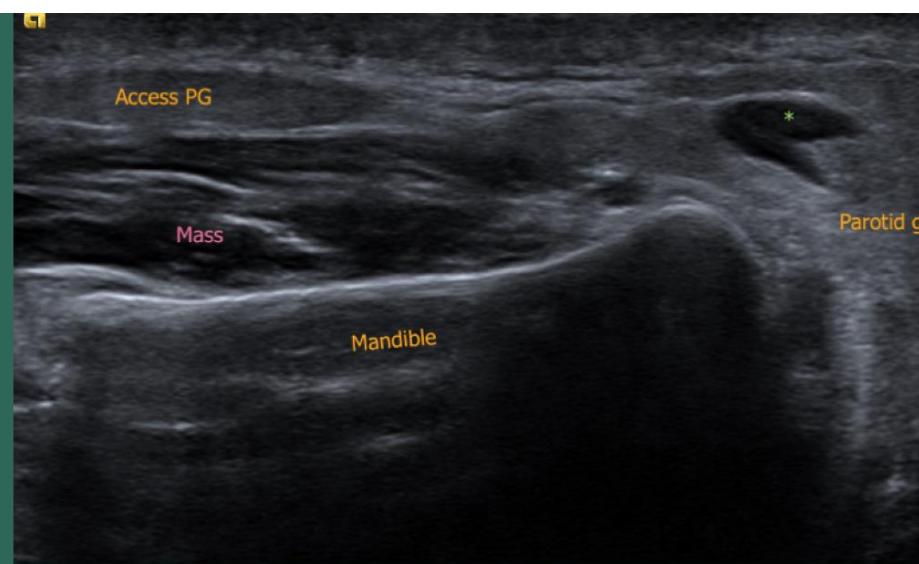
- Anteriorly: parotid
- Posteriorly: submandibular



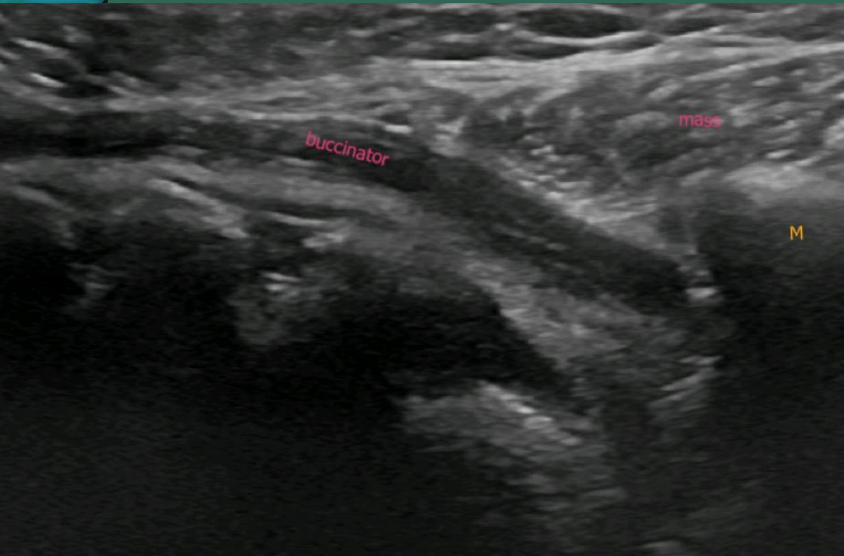
**References:** Department of Radiology, Hospital Pedro Hispano, ULS Matosinhos, Portugal 2018; Department of Radiology, IPO Porto, Porto, 2018

### 3. Parotid and Buccal

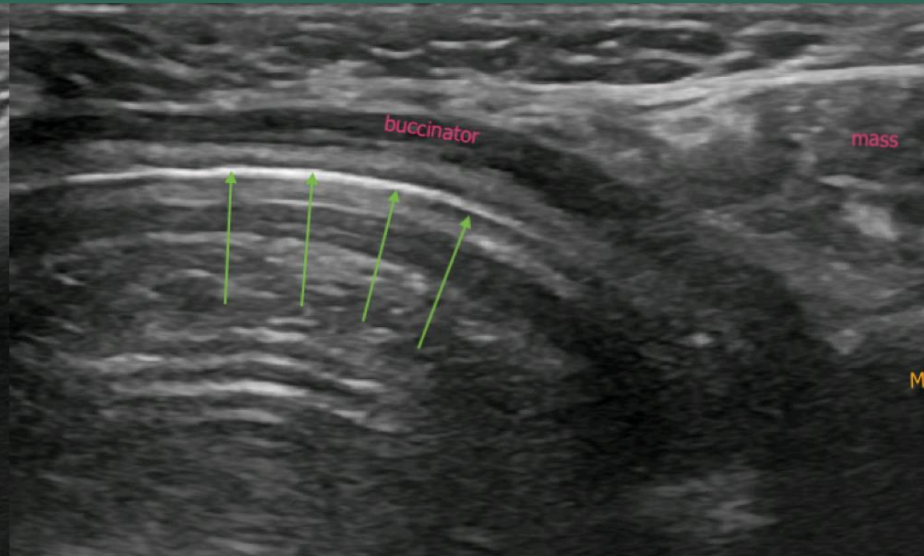
**TIP:** Accessory parotid lobes are usually superficial to masseter muscle



**TRICK:** Buccinator is better identified with cheeks puffed-out



Cheeks relaxed



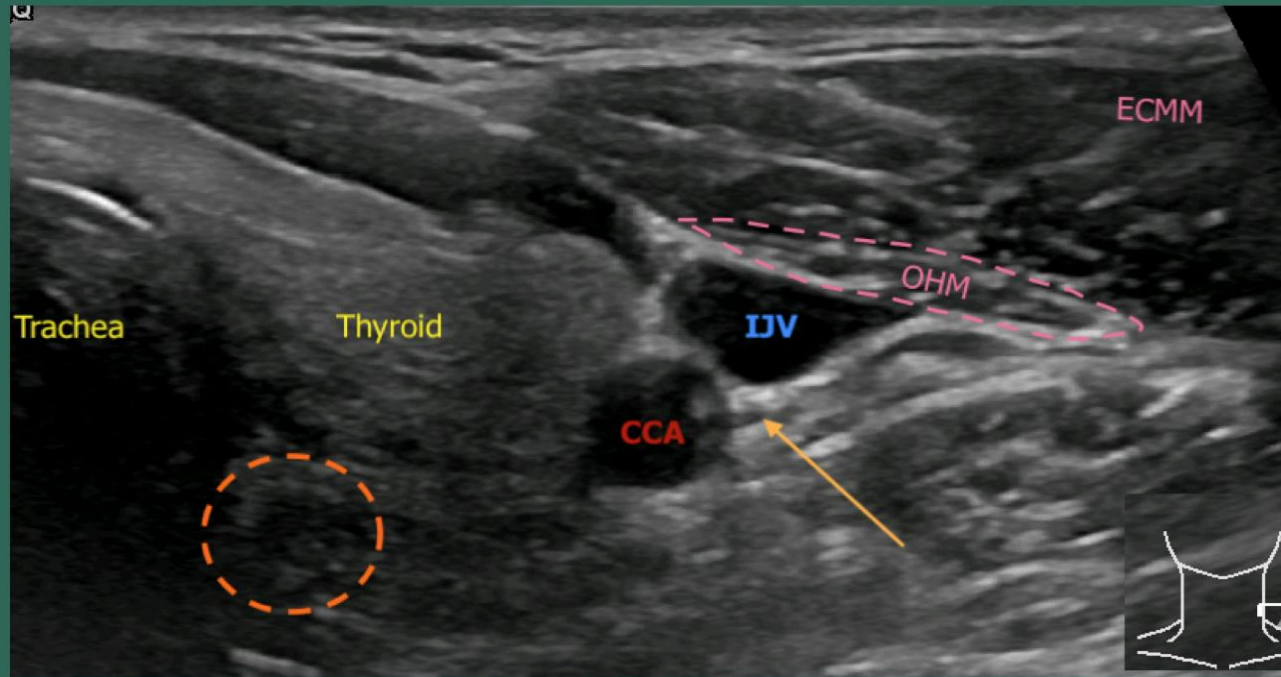
Cheeks puffed-out

References: Department of Radiology, Hospital Pedro Hispano, ULS Matosinhos, Portugal 2018; Department of Radiology, IPO Porto, Porto, 2018



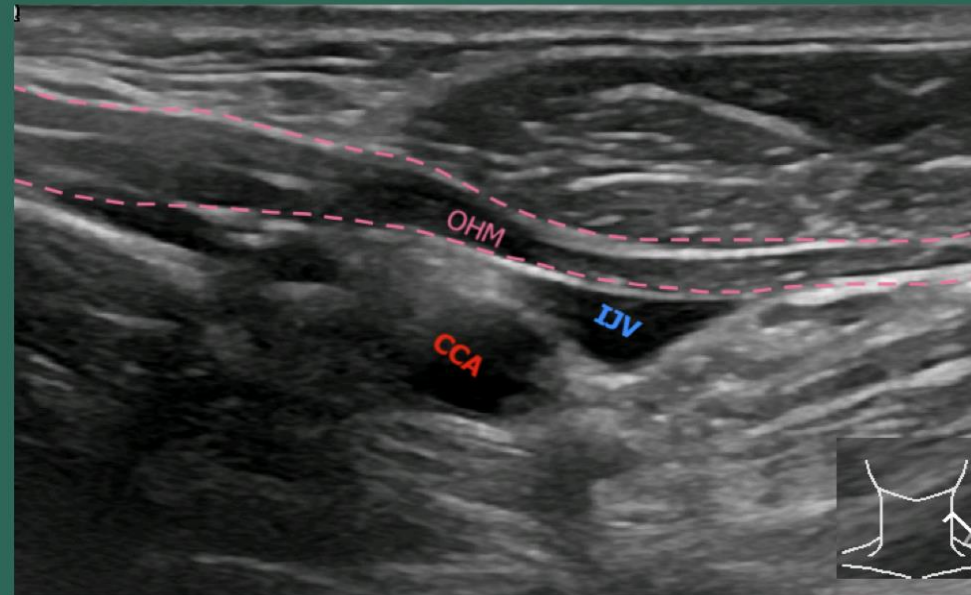
## 4. Deep Cervical Chain

**TRICK:** Internal Jugular Vein should be at the middle of the field of view



**TIP:** Omohyoid muscle is an important surgical landmark

**TRAP:** Omohyoid central tendon can mimic a deep cervical lymph node  
Two ultrasound planes are recommended!

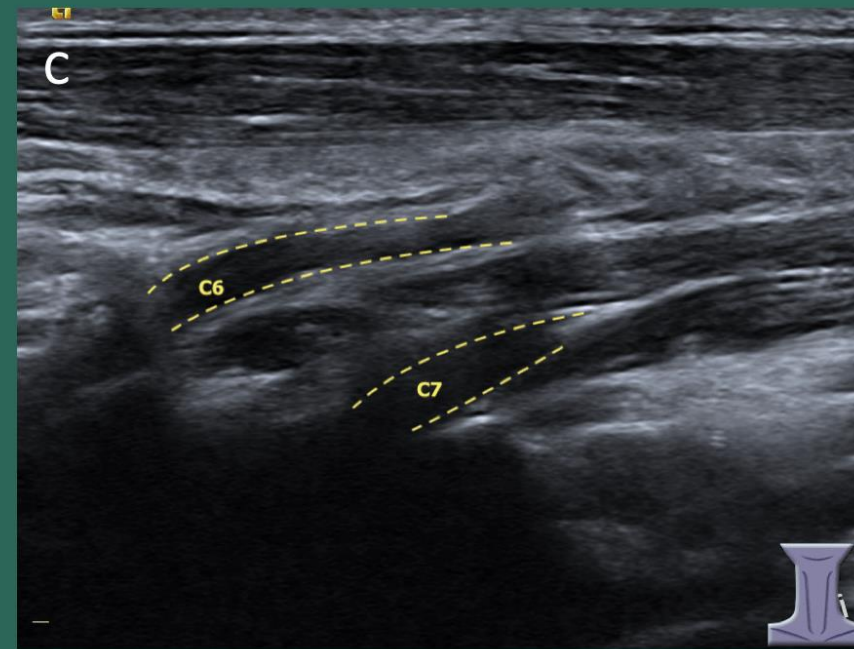
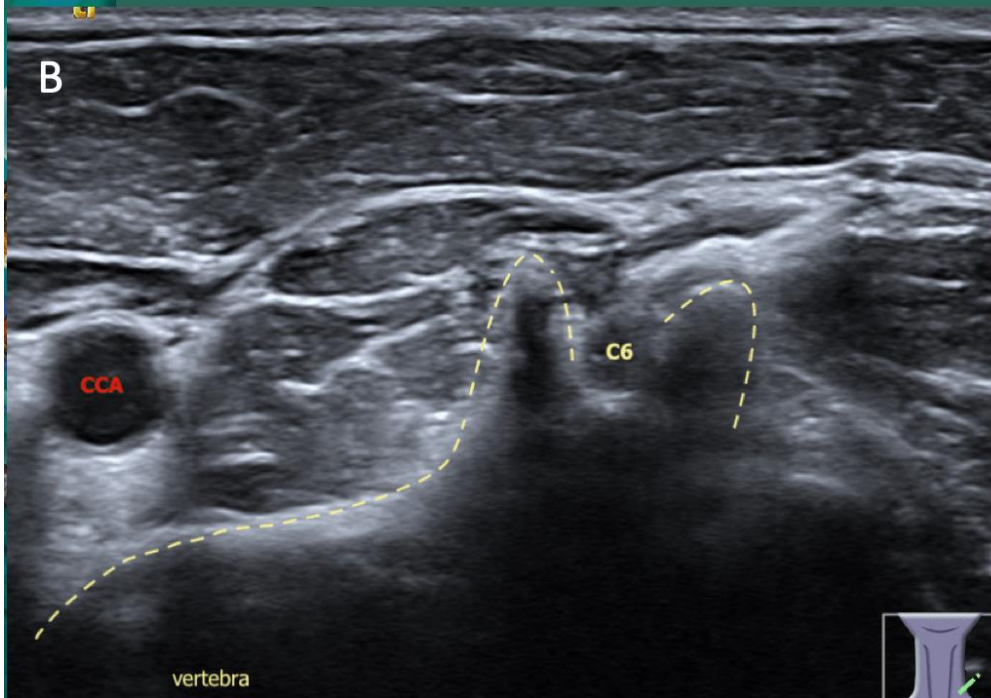
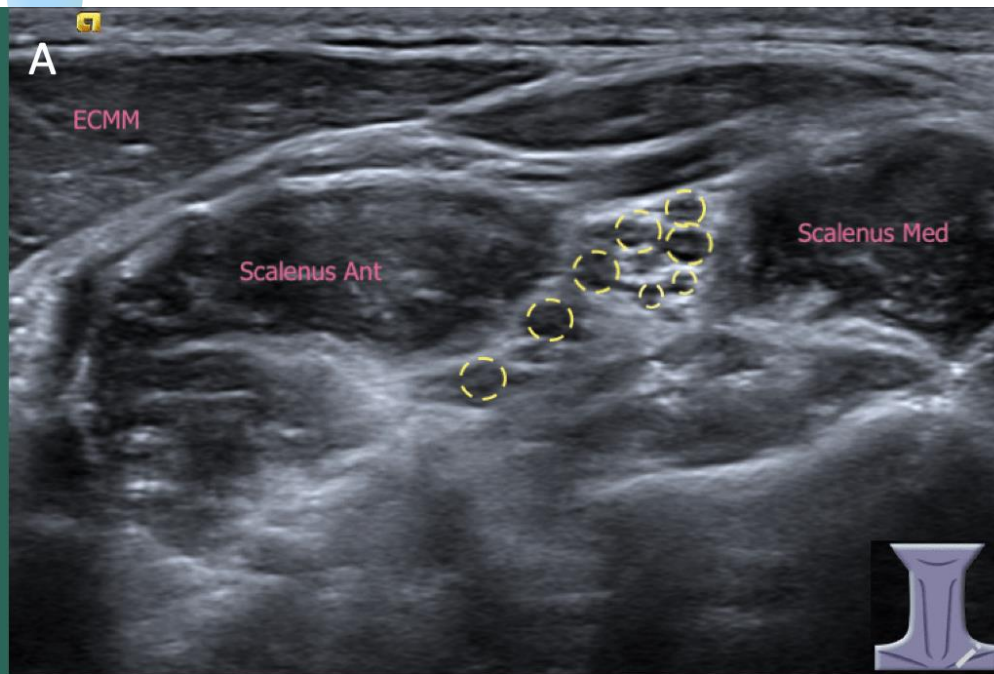


**References:** Department of Radiology, Hospital Pedro Hispano, ULS Matosinhos, Portugal 2018

## 5. Transverse Cervical

**TIP:** Scalenus anterior muscle is an important landmark of the root of the neck.

**TRICK:** To find the brachial plexus follow the posterior border of Sternocleidomastoid muscle.

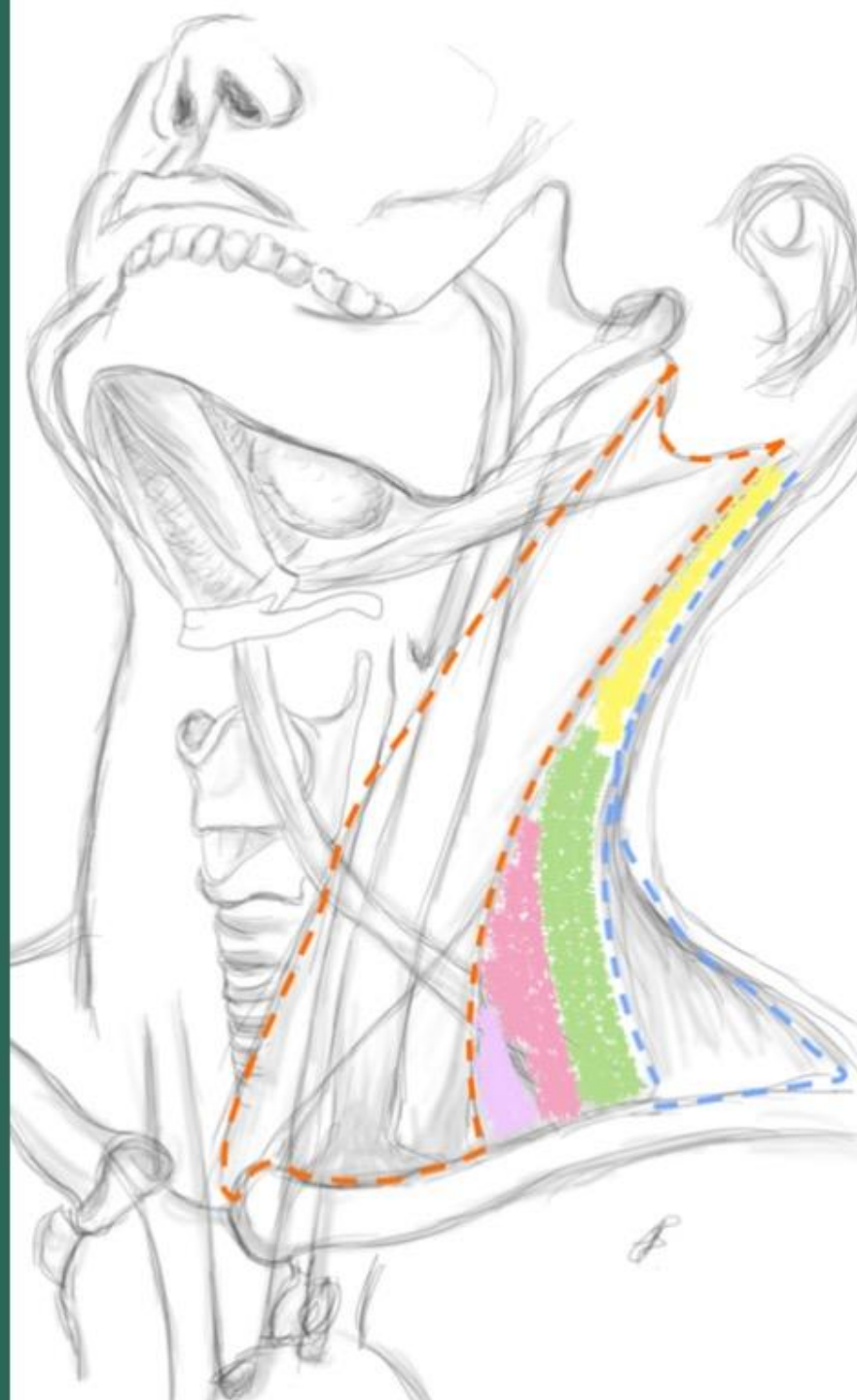


*References:* Department of Radiology, IPO Porto, Porto, 2018



## 6. Posterior Triangle

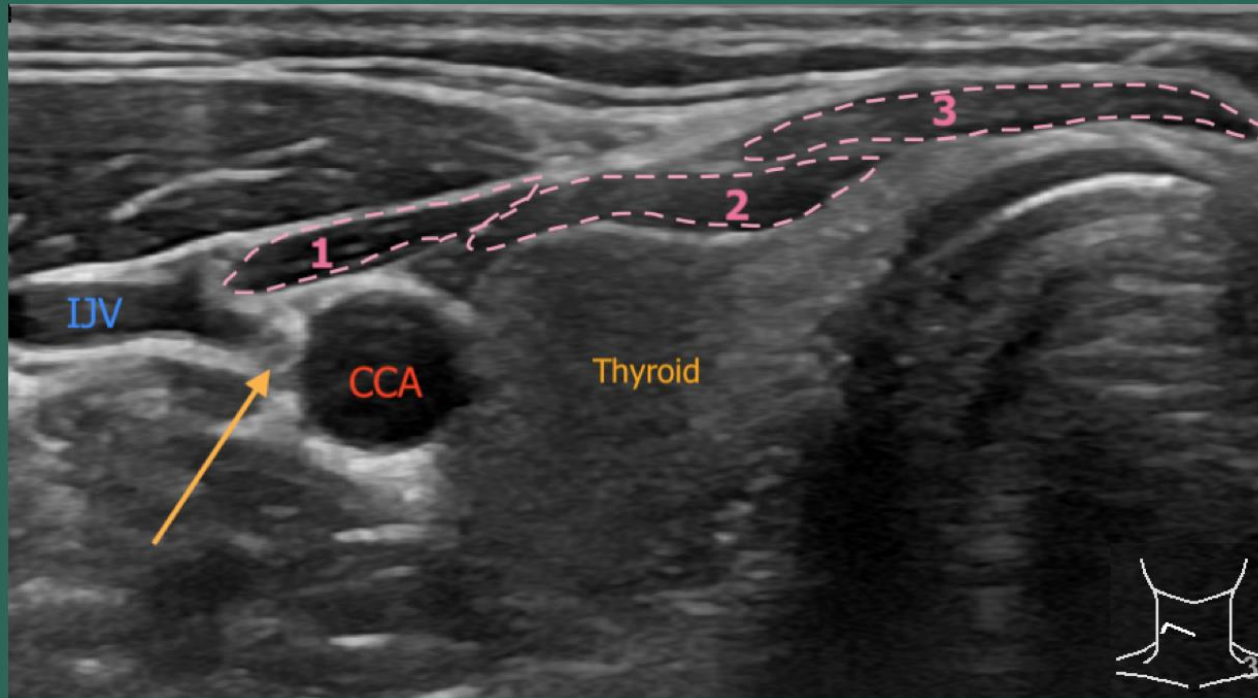
- Anterior border
  - sternocleidomastoid muscle
- Posterior border
  - trapezius muscle
- Floor (ant to post)
  - *Scalene, levator scapulae* and *splenius capitis* muscles
- Content
  - spinal accessory nerve (XI)
  - spinal accessory lymph node chain
  - pre-axillary brachial plexus
  - dorsal scapular nerve
  - fat



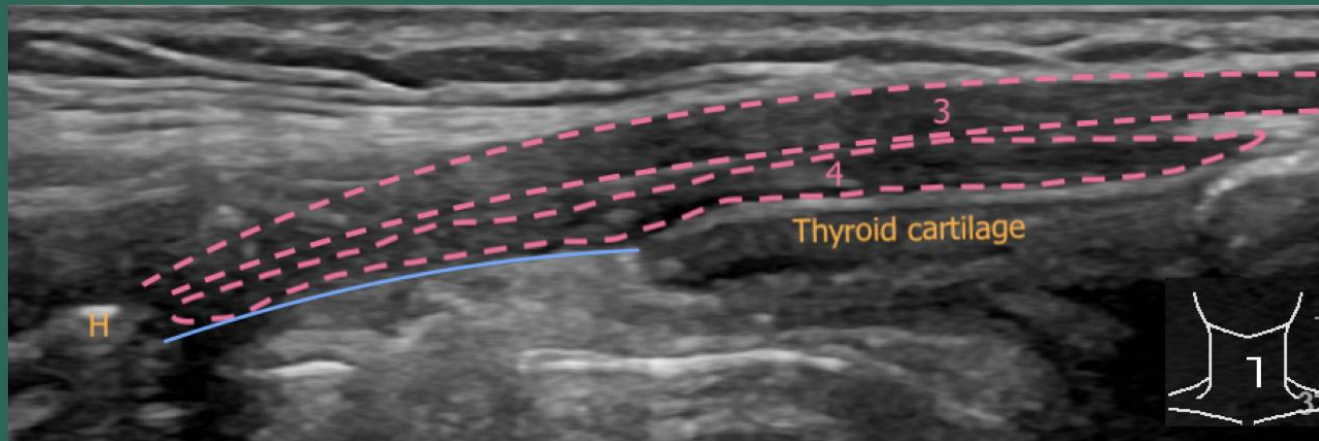
**References:** Catarina Baraças, ULS Matosinhos, PT 2018



## 7. Anterior Cervical (including thyroid)

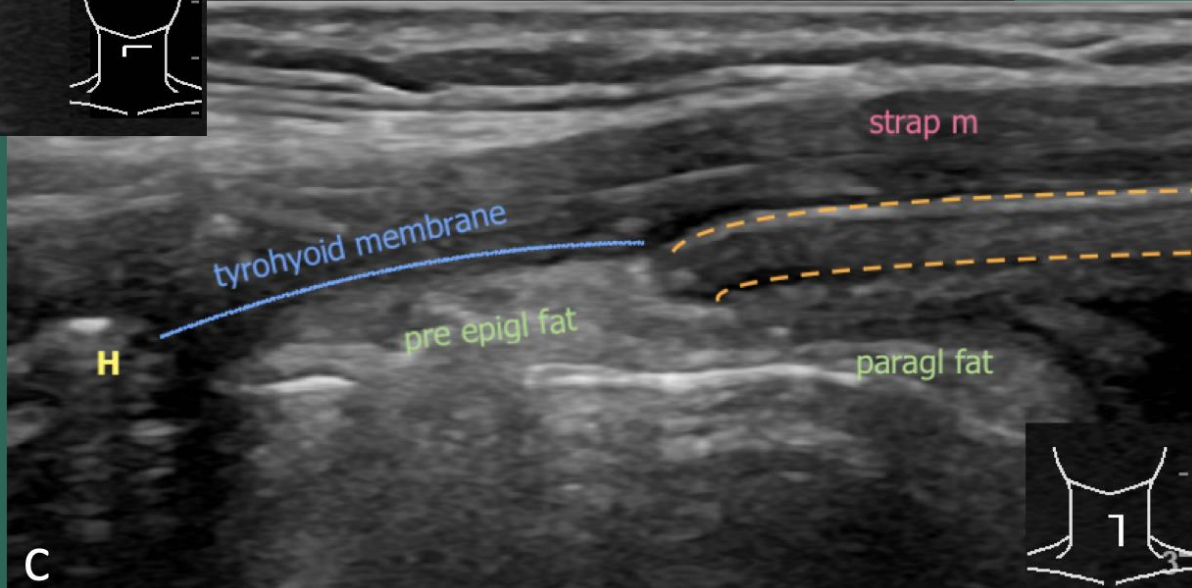
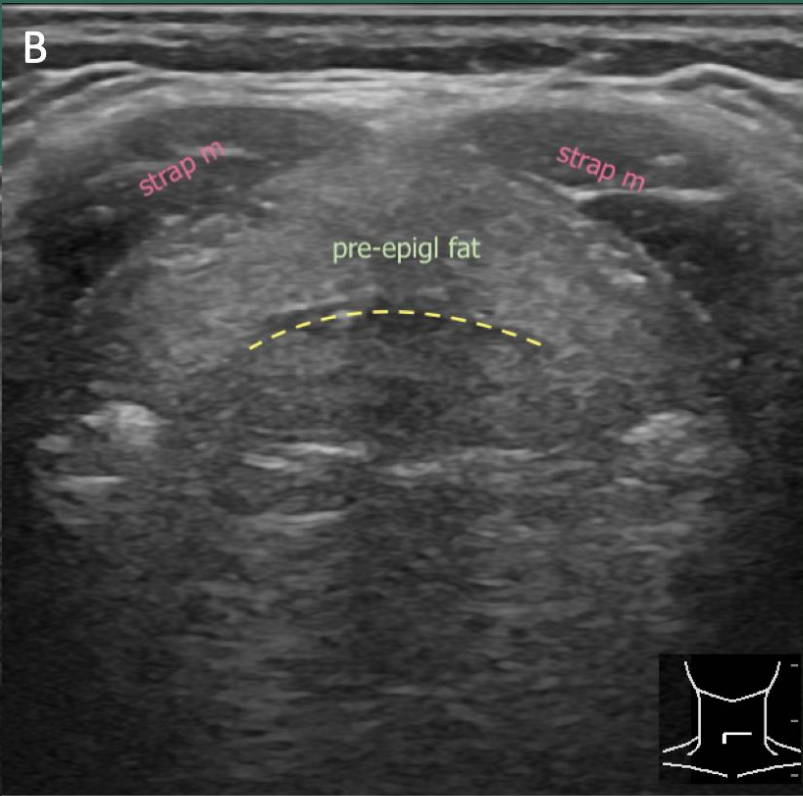
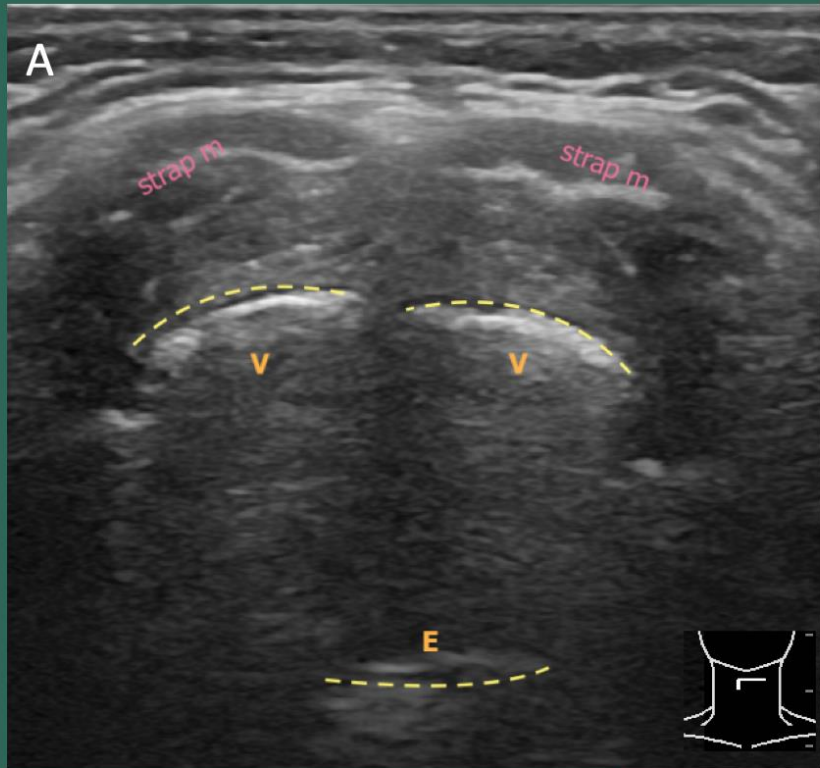


**TIP:** Strap muscles are important to localize thyroglossal duct cysts and anterior cervical lymph nodes



*References:* Department of Radiology,  
Hospital Pedro Hispano, ULS  
Matosinhos, Portugal 2018

# 7. Anterior Cervical



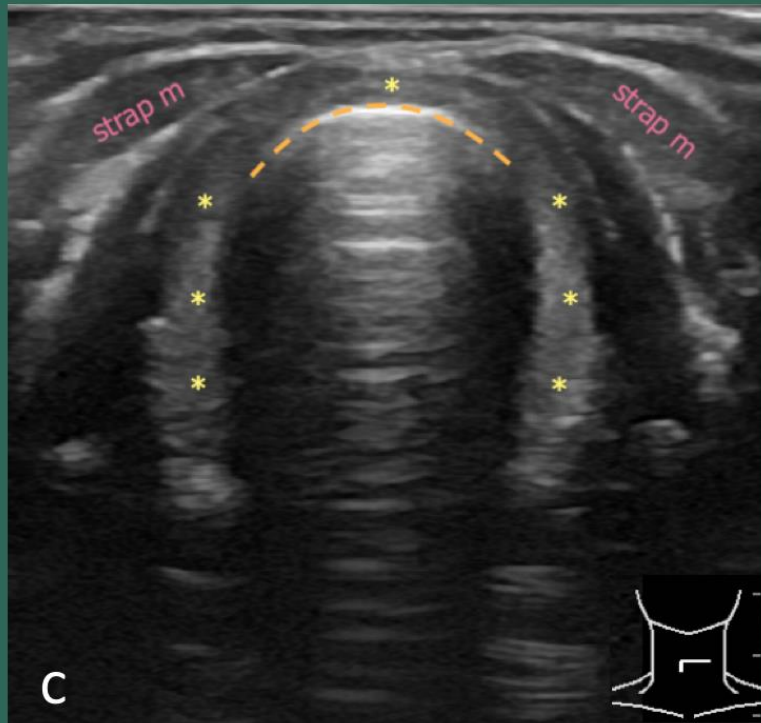
**TIP:** epiglottis and pre-epiglottic space are important laryngeal landmarks



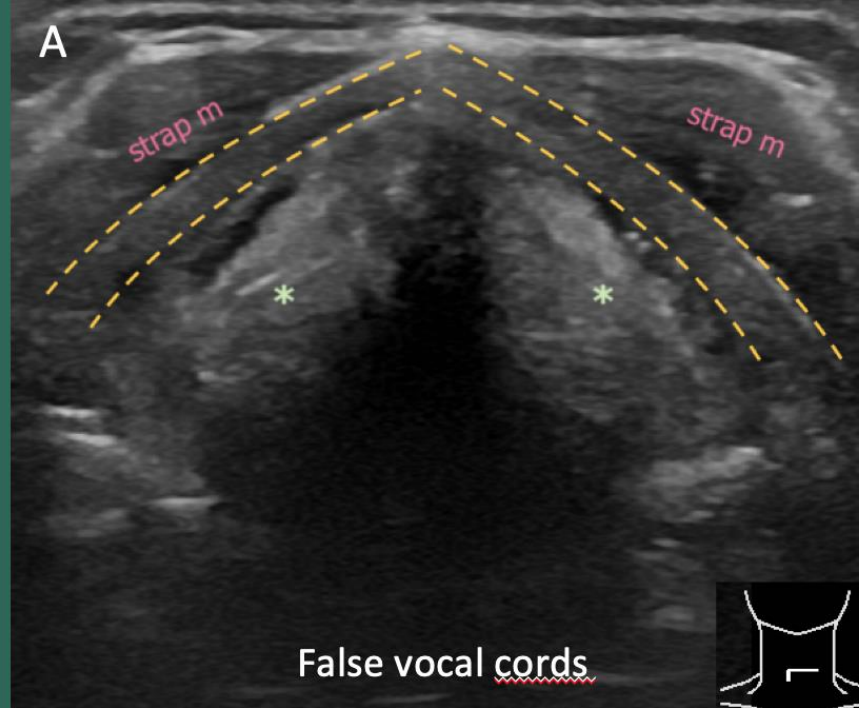


## 7. Anterior Cervical

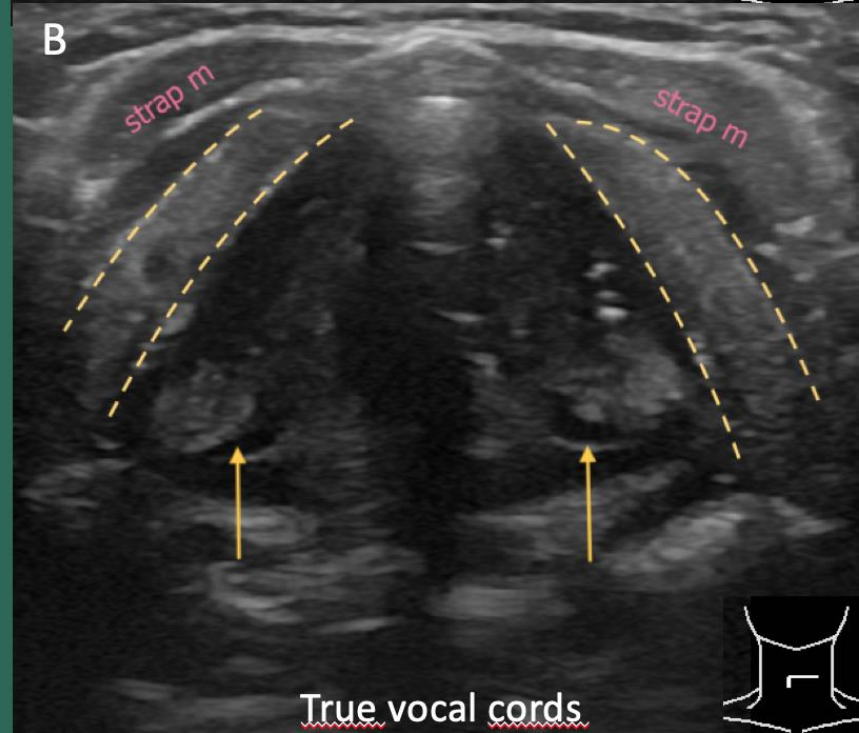
**TIP:** Cricoid cartilage differs from tracheal rings in thickness



**TRAP:** Level VI lymph nodes can mimic parathyroid adenomas



False vocal cords

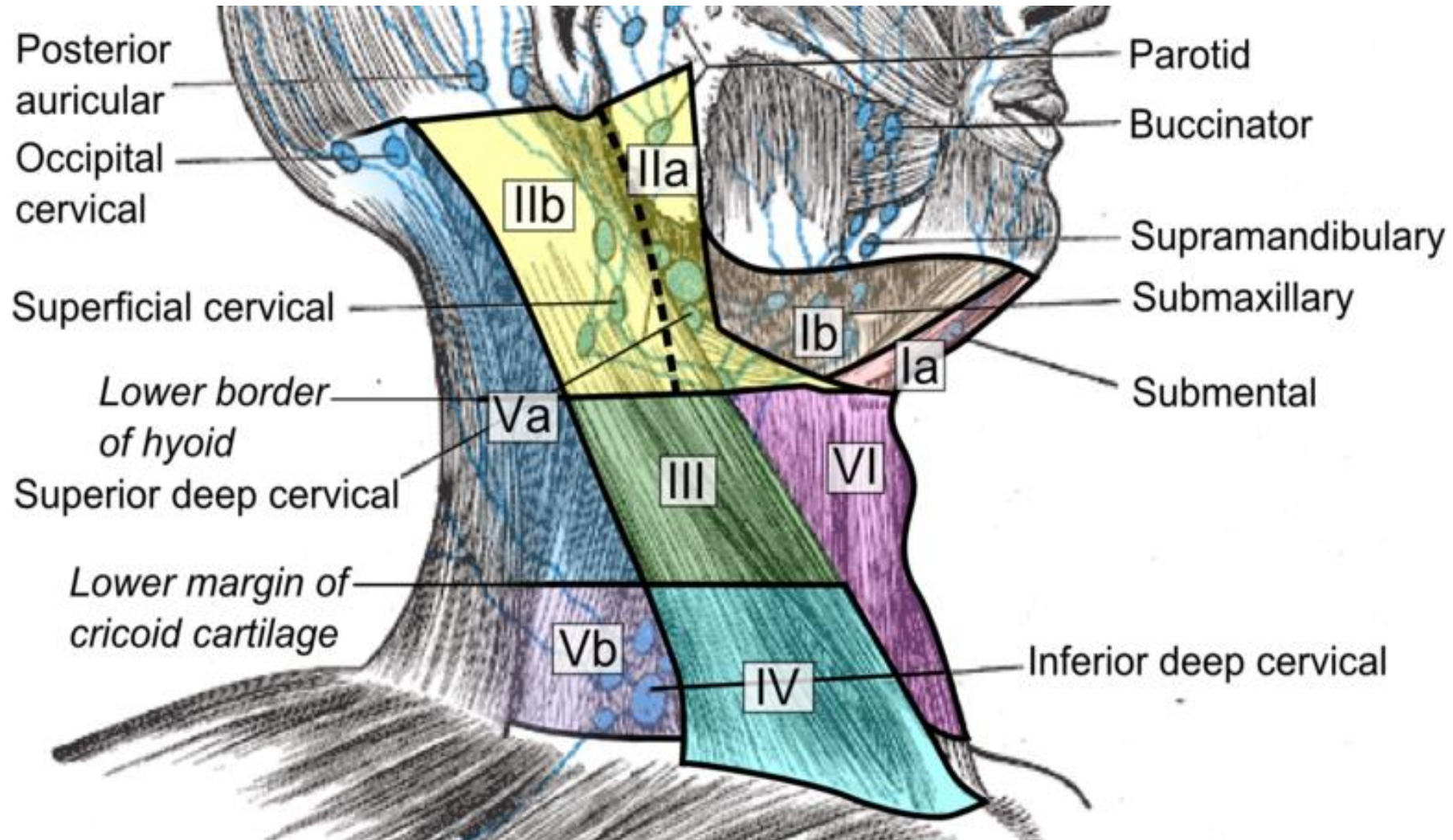


True vocal cords

*References:* department of Radiology, Hospital Pedro Hispano, ULS Matosinhos, Portugal 2018

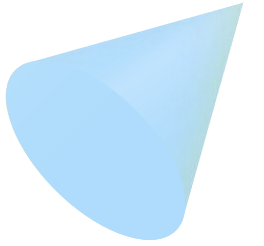


# LYMPH NODES DISTRIBUTION



**Reference:** [File:Cervical lymph nodes and levels.png - Wikipedia](#)

# TRAINING



## UNIVERSITY

- FNA/Core Biopsy MSC module
- MSc Research in Head and Neck Ultrasound.
- Short PGC in HN ultrasound.

## WORKSHOPS

- Swansea head and Neck workshop.
- BIR head and neck workshop
- BMUS Head and Neck Study Day.

## WEBINAR

- GE healthcare
- Canon Medical
- Samsung healthcare
- conferences

## IN-HOUSE

- Consultancy pathways (Some NHS Trust).



Upcoming: @UKSONO HN  
ultrasound CLUB (UKSUC)  *UKSONO*

# LET'S DINE WITH THE EXPERTS

## Faculty to include:

**Dr R M Evans**  
Consultant Radiologist & Associate Professor  
Swansea School of Medicine, Swansea University

**Dr L Berman**  
Consultant Radiologist  
Addenbrooke's [Hospital](#), Cambridge

**Dr N Drage**  
Consultant in Dental Radiology  
University Hospital of Wales, Cardiff

**Dr S Singh**  
Consultant Radiologist  
Royal Gwent Hospital, Newport

**Dr R Rhys**  
Consultant Radiologist  
Royal Glamorgan [Hospital, Llantrisant](#)

**Dr C Greenall**  
Dental & Maxillofacial Radiologist  
Morriston Hospital, Swansea

**Dr Steve Colley**  
Consultant Radiologist  
Queen Elizabeth Hospital, Birmingham

**Dr Tim Beals**  
Consultant Radiologist  
St Bart's Hospital, London

**Dr Andrew McQueen**  
Consultant Radiologist  
Freeman Hospital, Newcastle

**Dr Susan Javad**  
Consultant Radiologist  
University College London

**Dr Sarah La Porte**  
Consultant Radiologist  
Milton Keynes Hospital

**Mrs D Pivotte & Mrs M Davies**  
Superintendent Sonographer  
Singleton [Morriston Hospital](#)

**Mrs C Kirkpatrick**  
Superintendent Sonographer,  
Lincoln

## Course Fee

£490.00 to include two day course, a copy of the text book "Practical Head and Neck Ultrasound", refreshments, lunches, course dinner with wine on Tuesday 18<sup>th</sup> October

A discounted rate of £350.00 will apply to Sonographers.

## Accommodation

Accommodation has been arranged at the Marriot Hotel in Swansea at a special rate of £111 per night bed and breakfast per person. Please book accommodation via the link provided or contact Rhian Holland on [01792 634839](tel:01792634839) to obtain the discounted rate. [rhian.holland@marriott-hotels.co.uk](mailto:rhian.holland@marriott-hotels.co.uk)  
*This rate is for a limited time so please book early to avoid disappointment.*

## Location

Swansea is 3 hours by train from London and a 50 minute drive from Cardiff Airport. Bristol Airport is about 1 hour 45 minutes away and there are good public transport links to Swansea

For more information-  
[www.headandneckultrasound.co.uk](http://www.headandneckultrasound.co.uk)

## Course Sponsors:

*Canon,  
UK Medical  
Samsung  
Siemens  
GE Healthcare*

## *The "Swansea"*

### **Head & Neck Ultrasound Workshop Held At "The Marriott Hotel, Swansea"**

#### APPLICATION FORM



**18<sup>th</sup> & 19<sup>th</sup> October 2022  
To be held at**

***The Marriott Hotel,  
Swansea.***

Approval has been sought from the Royal College of Radiologist for 11 Category 1 CME Credits.

## Course Description

Ultrasound of the head and neck is now a highly developed field. High-resolution ultrasound lends itself to assessment and diagnosis in this area. Ultrasound can be used as the primary imaging modality for many conditions that present in the head and neck, in combination with ultrasound guided fine needle aspiration or core biopsy it becomes a highly specific diagnostic tool. Its use in "one-stop clinics" is increasing. This course is primarily aimed at Radiologists and Sonographers

This programme will consist of a series of formal lectures and "hands-on" teaching sessions using phantoms and models. The course will run over two days. The first day will consist of introduction to the use of Ultrasound in Head & Neck, Anatomy & Techniques.

An interactive workshop to allow "hands-on" teaching on Anatomy, will take place in the morning session. There will be "hands-on" session on biopsy techniques in the morning on the second day. The afternoon sessions will compose of lectures and live demonstrations.

Numbers will be restricted to enable effective "hands-on" teaching sessions, so early application is advised. (4 delegates per station)

For more information go to:-

[www.headandneckultrasound.co.uk](http://www.headandneckultrasound.co.uk)

**Tuesday 18th October 2022  
9.30 – 5.00pm**

**Anatomy – Sweeps of the Neck  
Lymph Nodes  
Hands-On Workshop Session  
Thyroid Nodules  
Salivary Glands**

Evening; Course Dinner

**Wednesday 19<sup>th</sup> October  
9.30am – 4.30pm**

**Core Biopsy – FNA  
Larynx  
Pitfalls & Pearls  
Hands-On Workshop Session  
Biopsy Techniques  
Head & Neck MDT**

[www.headandneckultrasound.co.uk](http://www.headandneckultrasound.co.uk)



# PRACTICE OF HEAD AND NECK ULTRASOUND

## BMUS RECOMMENDATION

- It is recommended that only those practitioners who are competent in full neck ultrasound assessment, e.g. the 7 sweep technique, should undertake head and neck/thyroid scanning.

Reference: [Neck Standards and Competencies 2021.pdf](#)  
([bmus.org](#))

## ROYAL COLLEGE OF RADIOLOGIST RECOMMENDATION

- Dependent on the service provided in local departments, there may be a role to distinguish levels of practice. Head and Neck scanning competencies could be organised into a tiered system; e.g. Levels I, II & III

Reference:

[https://www.rcr.ac.uk/system/files/publication/field\\_publication\\_files/bfcr173\\_ultrasound\\_training\\_med\\_surg.pdf](https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr173_ultrasound_training_med_surg.pdf)

# CAREER DEVELOPMENT IN HEAD AND NECK ULTRASOUND



[Reference: Career Development - Meaning, Importance, Steps & Example | MBA Skool](#)





## **CONCLUSION**

- Head and Neck ultrasound is an interesting subspecialty of general ultrasound with practitioners seen performing highly specialized exams in cases of thyroid nodule characterizations, cervical lymph node assessment, neck lumps evaluation, salivary gland pathologies etc.
- Ultrasound FNA biopsy has been traditionally undertaken by radiologist, but due to increasing demand, availability and portability of ultrasound and a national shortage of Radiologist, this has resulted in other healthcare practitioners increasingly undertaken this procedure (BMUS poster, 2017)

**THANK YOU**

