

Embryology

In a cross section of the embryo in the area of the head and neck

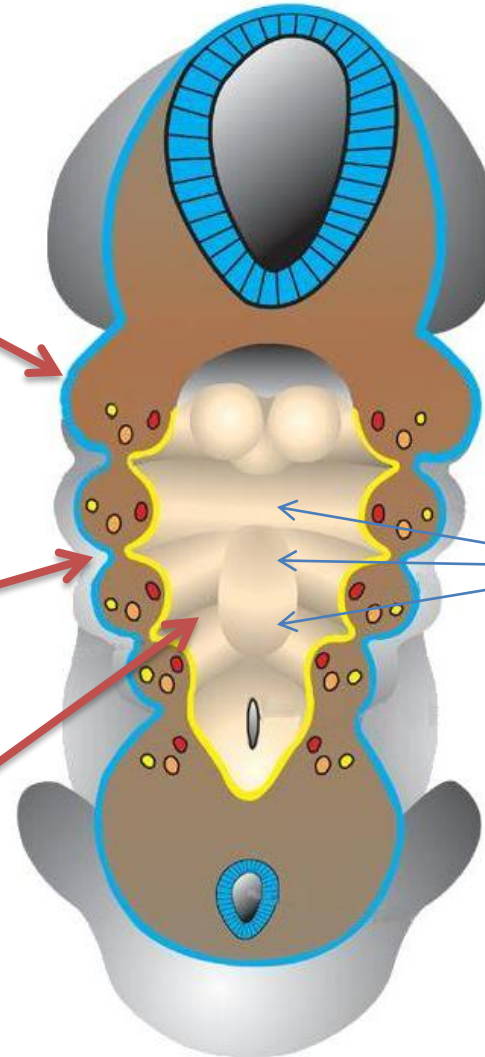
The following can be noticed

THE PHARYNGEAL ARCHES

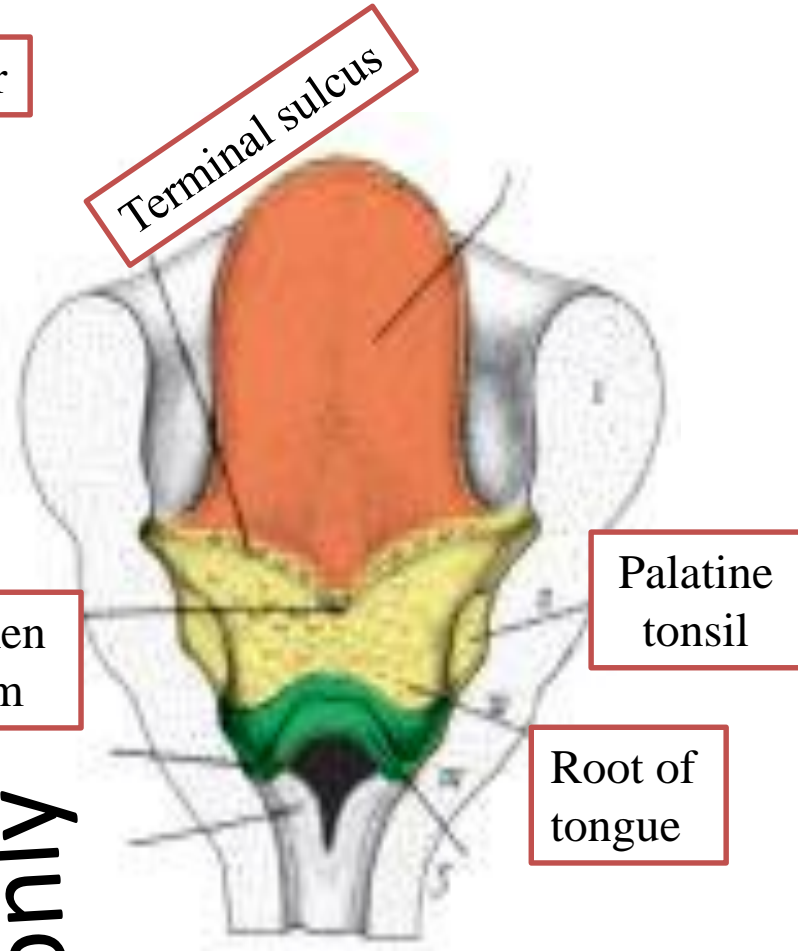
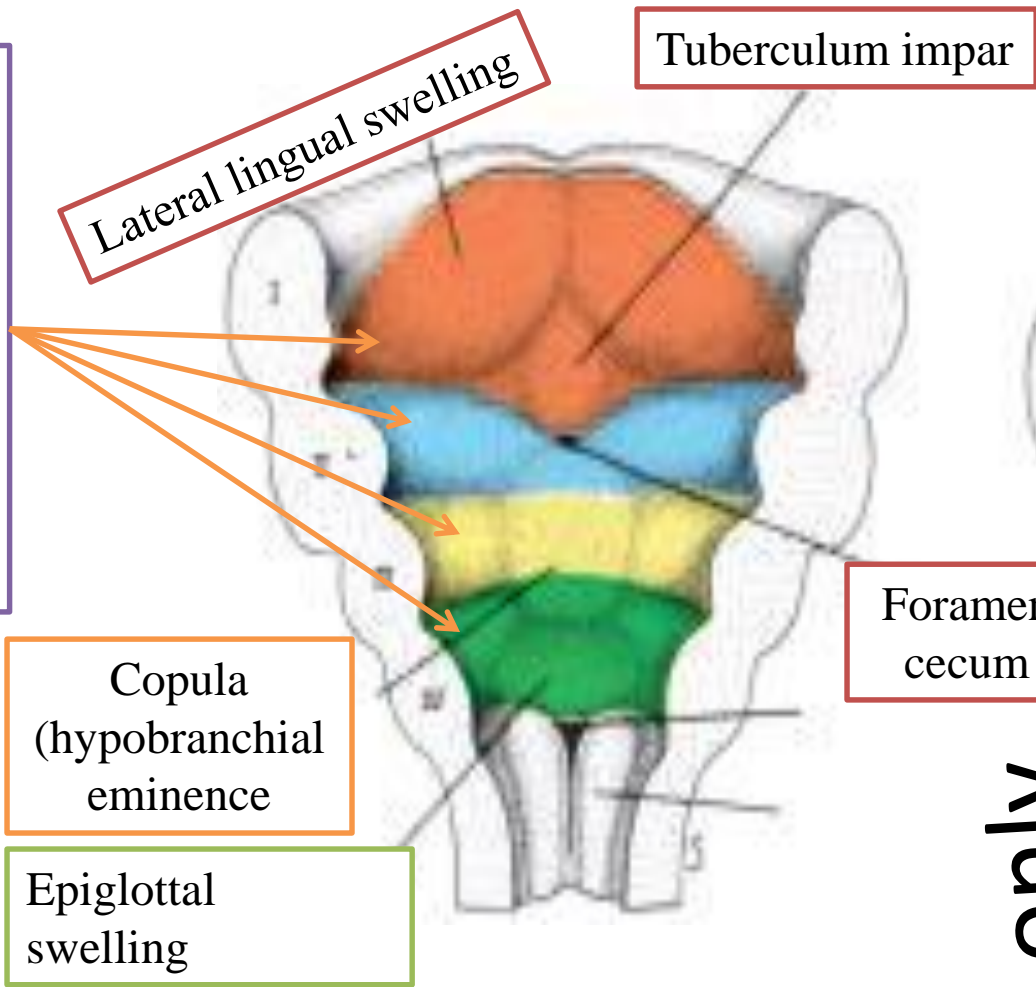
THE PHARYNGEAL ARCHES
are separated
by deep clefts known as
**PHARYNGEAL
CLEFTS**

with development of the arches and clefts,
a number of outpocketings,

**The pharyngeal
pouches appear**



in the floor of the pharynx

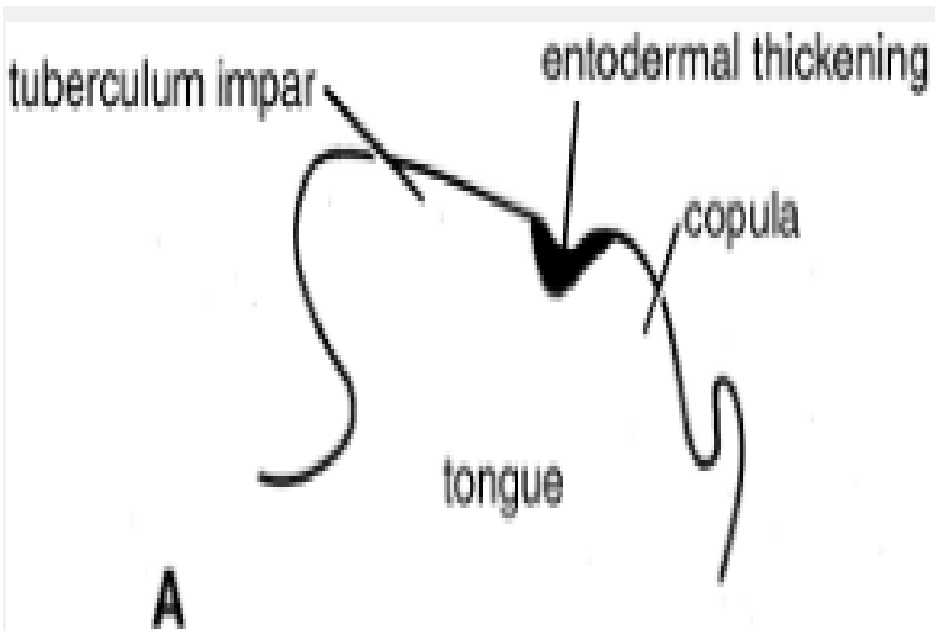
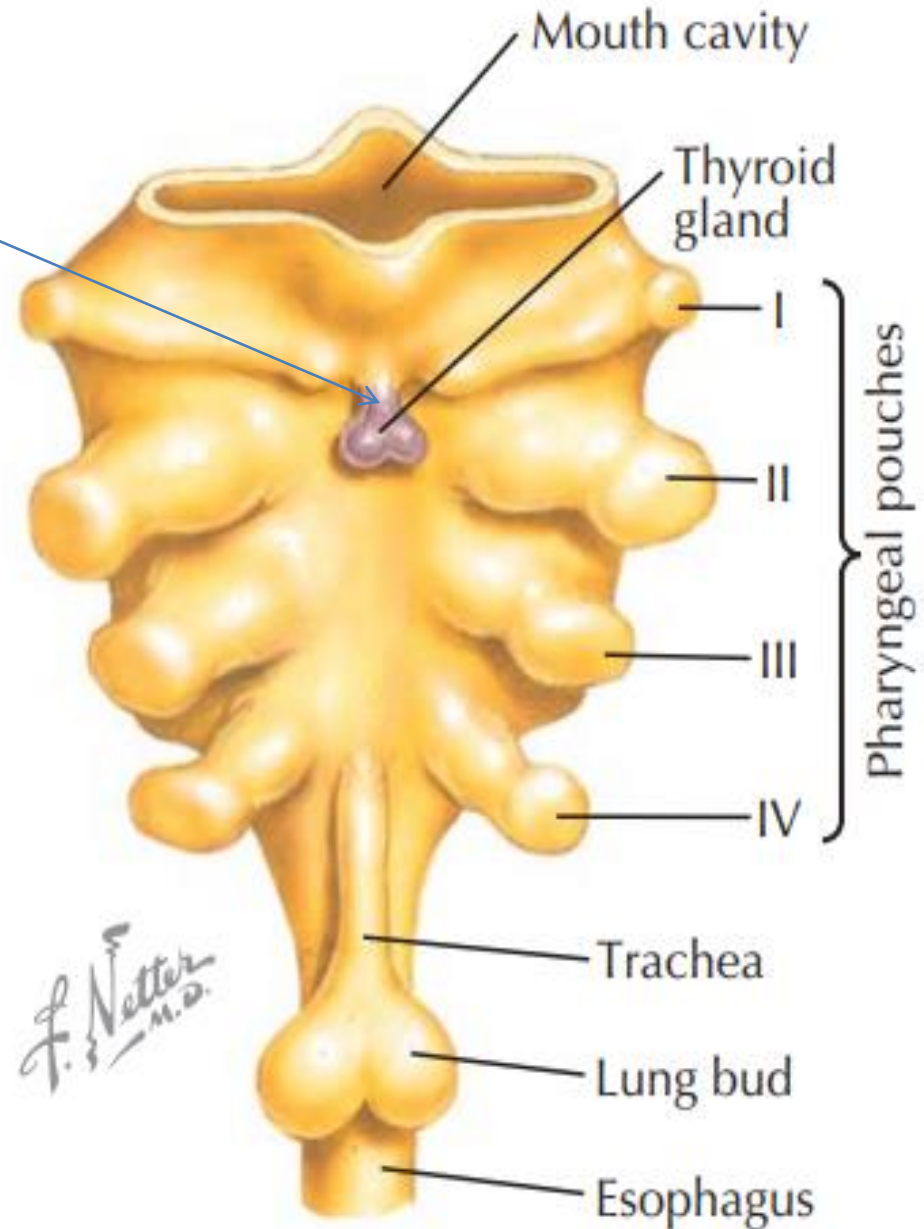


Read only

Thyroid Gland

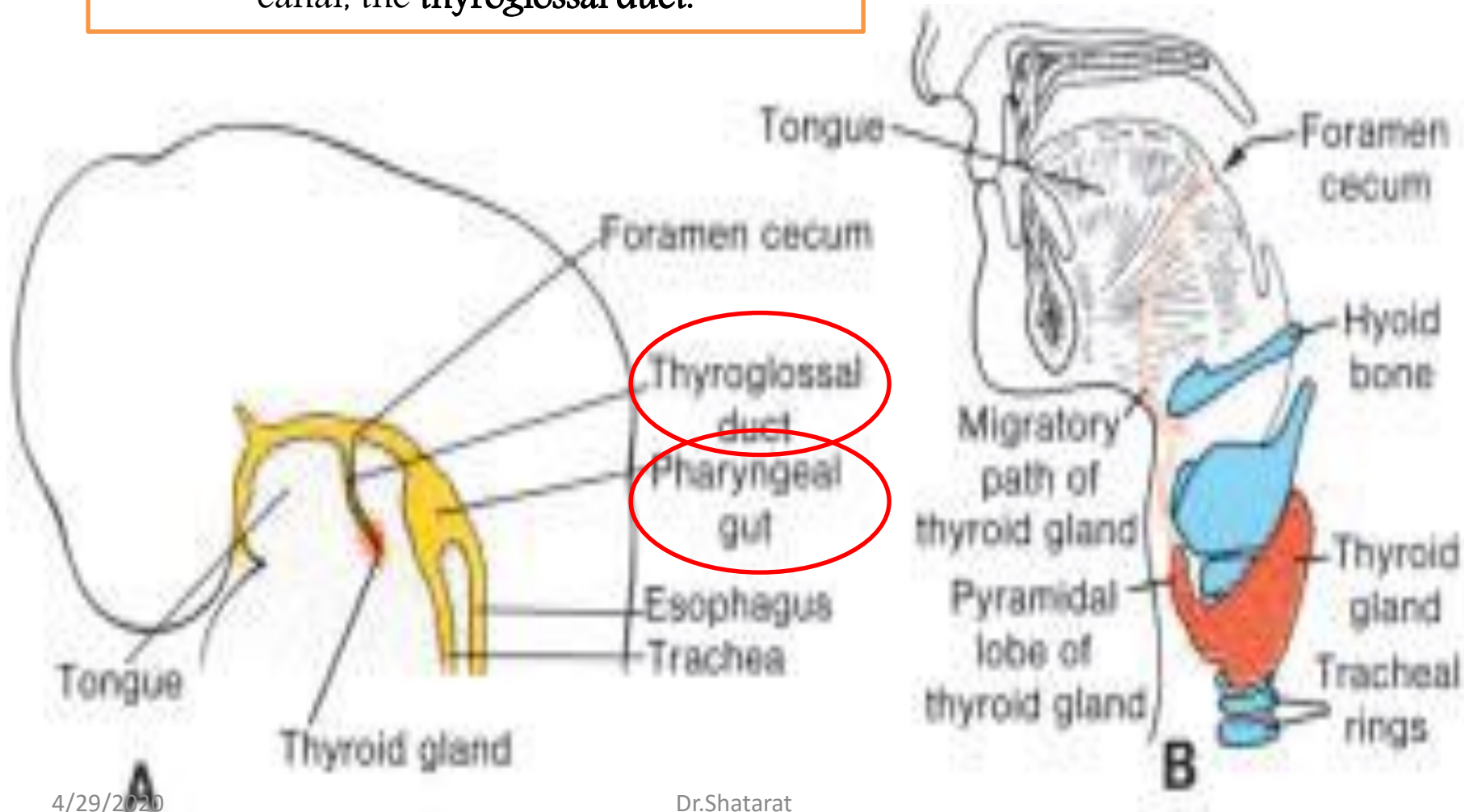
1-begins to develop during the third week **as an endodermal thickening** in the floor of the pharynx

between the **tuberculum impar** and **the copula** at a point later indicated by the **foramen cecum**

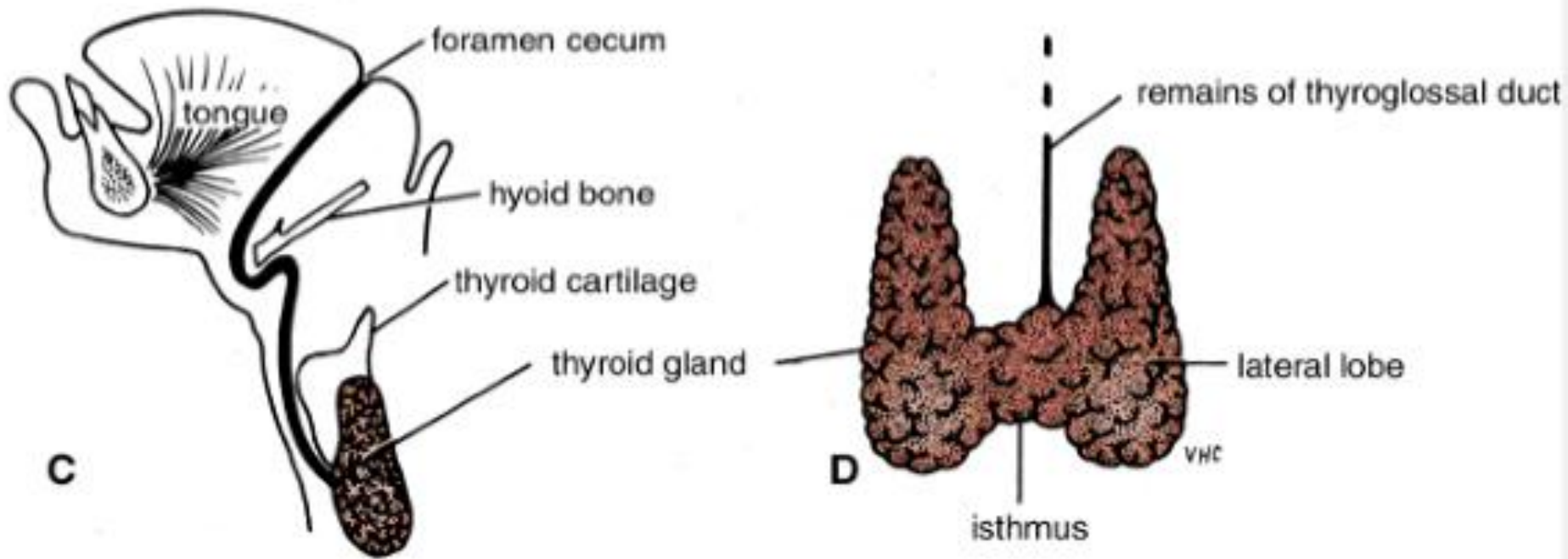


2- It descends in front of the pharyngeal gut as a bilobed diverticulum

3- During this migration, the thyroid remains connected to the tongue by a narrow canal, the **thyroglossal duct**.



4-As development continues, the duct elongates, and its distal end becomes bilobed. Soon, the duct becomes a solid cord of cells, and as a result of epithelial proliferation, the bilobed terminal swellings expand to form the thyroid gland

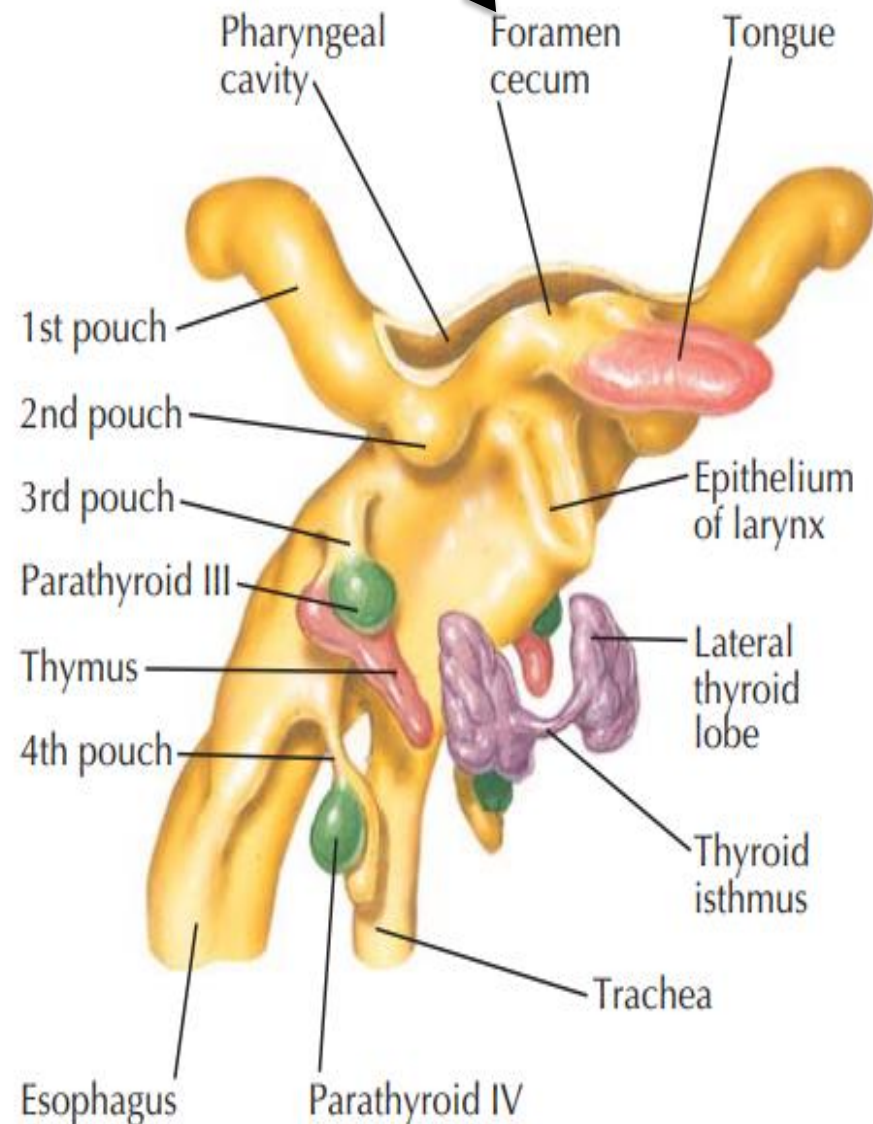


5-The thyroid gland now migrates inferiorly in the neck and passes either anterior to, posterior to, or through the developing body of the hyoid bone.

6-By the seventh week, it reaches its final position in relation to the larynx and trachea. Meanwhile, the solid cord connecting the thyroid gland to the tongue fragments and disappears.

7-The site of origin of the thyroglossal duct on the tongue remains as a pit called **the foramen cecum**.

8-The thyroid gland may now be divided into a small median isthmus and two large lateral lobes



as we mentioned before, most glands have two different origins

Second origin of the thyroid gland



9-The ultimobranchial bodies (from the fifth pharyngeal pouch) and **neural crest cells** are believed to be incorporated into the thyroid gland, where they form **the parafollicular cells**, which produce calcitonin.

Congenital Anomalies of the Thyroid Gland

1-Agenesis of the Thyroid

Failure of development of the thyroid gland may occur and is the commonest cause of **cretinism**

2-Incomplete Descent of the Thyroid

The descent of the thyroid may be arrested at any point

between the base of the tongue and the trachea

Lingual thyroid is the most common form of incomplete

descent The mass of tissue



Aberrant thyroid tissue may be found anywhere along the path of descent of the thyroid gland. It is commonly found in the base of the tongue, just behind the foramen cecum, and is subject to the same diseases as the thyroid gland itself.

caution!!!
A mass in the posterior midline might be the only thyroid in the patient's body

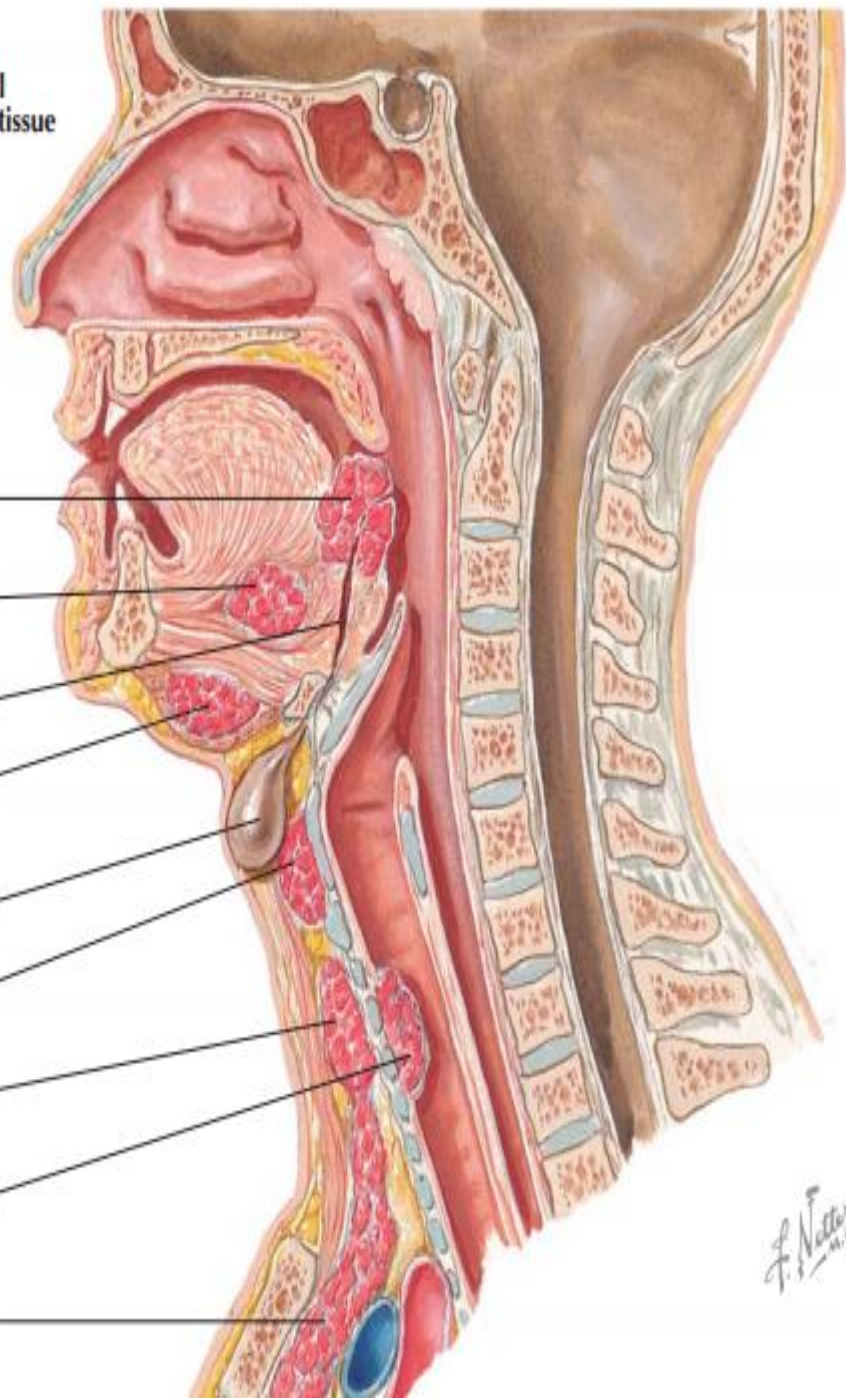


Thyroglossal Duct and Thyroid Abnormalities

Aberrant and normal locations of thyroid tissue

- Lingual
- Intralingual
- Thyroglossal tract
- Sublingual
- Thyroglossal cyst
- Prelaryngeal
- Normal
- Intratracheal
- Substernal

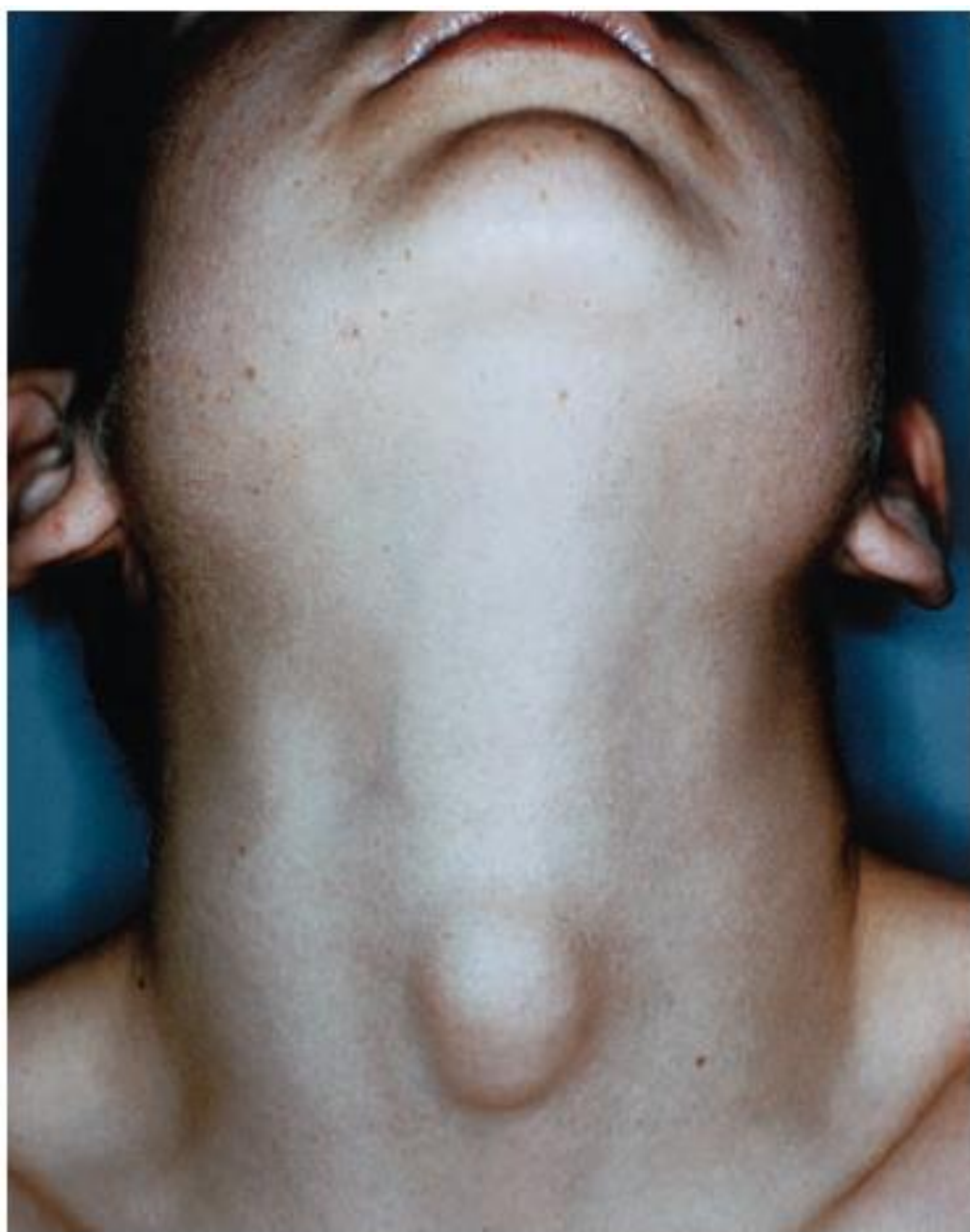
Dr. Shatarat



F. Natter
M.D.

3-Persistent Thyroglossal Duct

Conditions related to a persistence of the thyroglossal duct usually appear in childhood, in adolescence, or in young adulthood



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A thyroglossal cyst.

Thyroglossal Duct and Thyroid Abnormalities

A thyroglossal cyst may lie at any point along the migratory pathway of the thyroid gland but is always near or in

the midline of the neck

by its name, it is a cystic remnant of the thyroglossal duct, Although approximately

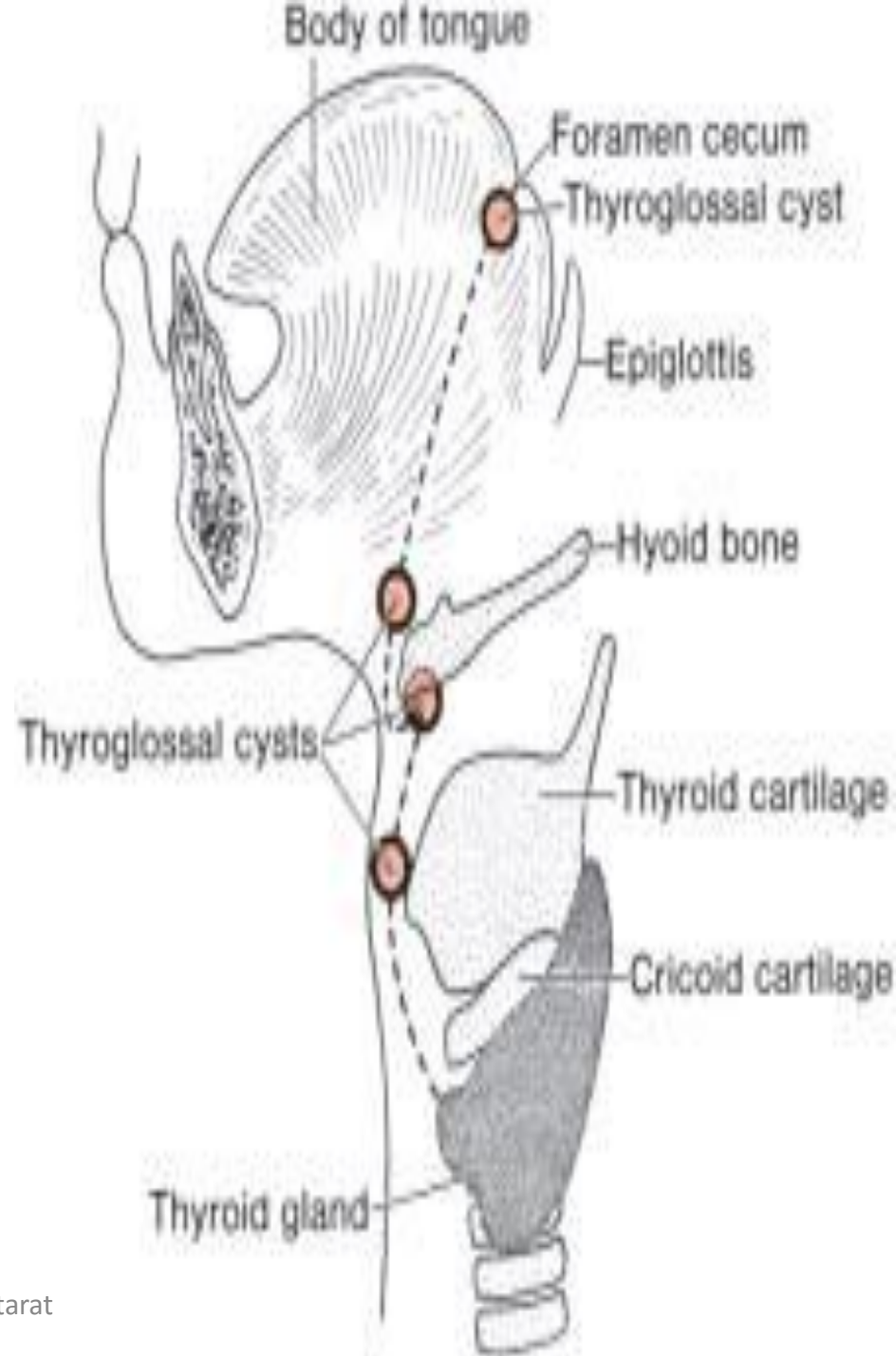
50% of these cysts are close to or just inferior to the body of the hyoid bone they may also ***be found at the base of the tongue***

or close ***to the thyroid cartilage.***

Sometimes a ***thyroglossal cyst is connected to***

the outside by a fistulous canal, a thyroglossal fistula. Such a fistula usually

arises secondarily after rupture of a cyst but may be present at birth.



Thyroglossal cyst.
These cysts, which are remnants of the thyroglossal duct, may be anywhere along the migration pathway of the thyroid gland. They are commonly found behind the arch of the hyoid bone. An important diagnostic characteristic is their **midline location.**

4/29/2020



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lateral

cervical
cyst

Branchial Fistulas



Branchial fistulas occur when the second pharyngeal arch fails to grow caudally over the third and fourth arches, leaving remnants of the second, third, and fourth clefts in contact with the surface by a narrow canal.

Such a fistula, found on the lateral aspect of the neck directly anterior to the sternocleidomastoid muscle, usually provides drainage for a lateral cervical cyst. *These cysts, remnants of the cervical sinus, are most often just below the angle of the jaw*

Frequently a lateral cervical cyst is not visible at birth but becomes evident as it enlarges during childhood.

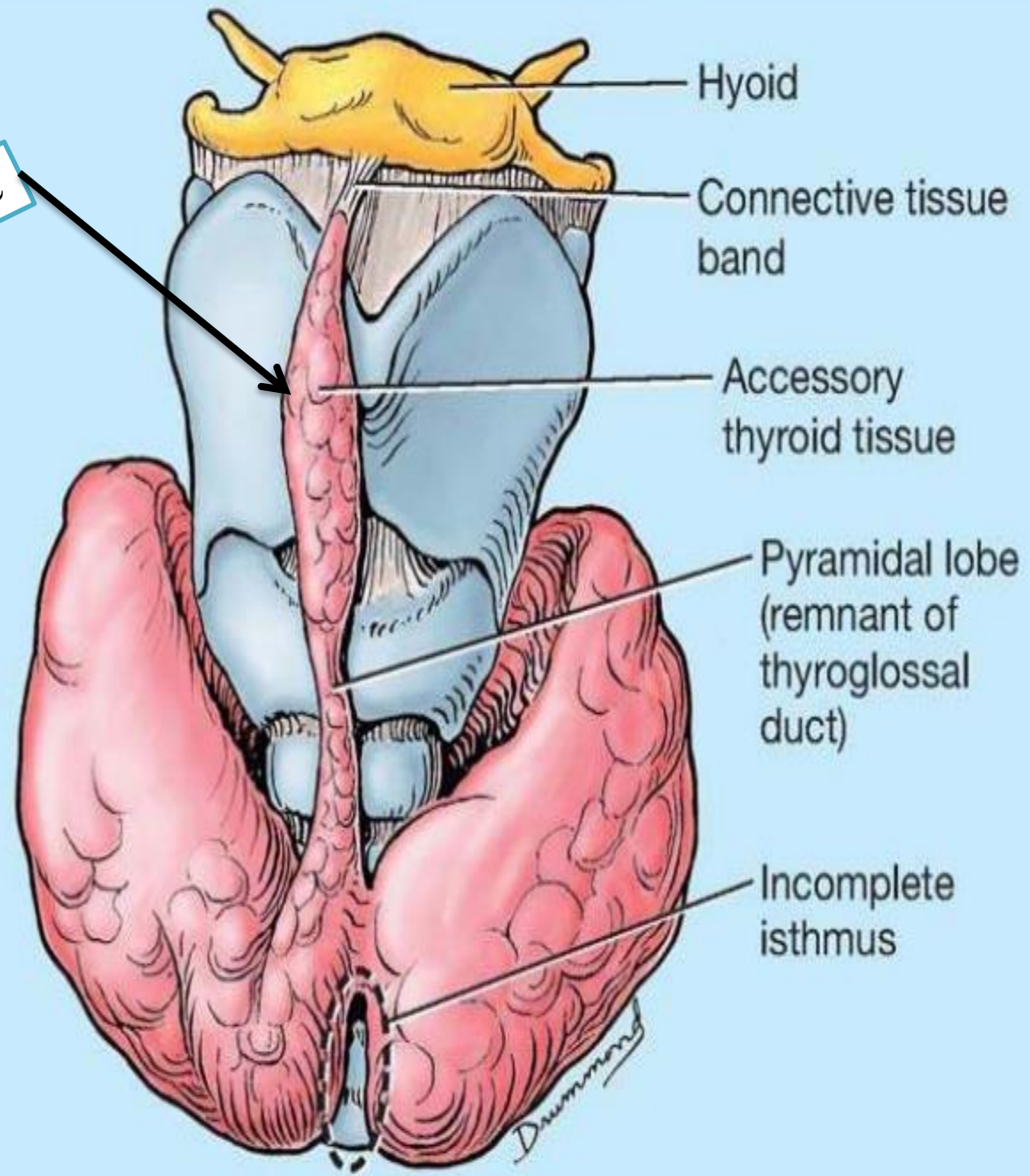
Patient with a lateral cervical cyst. These cysts are always on the **lateral** side of the neck in front of the sternocleidomastoid muscle. They commonly lie under the angle of the mandible and do not enlarge until later in life.

4/29/2020

Dr. Shafiqat

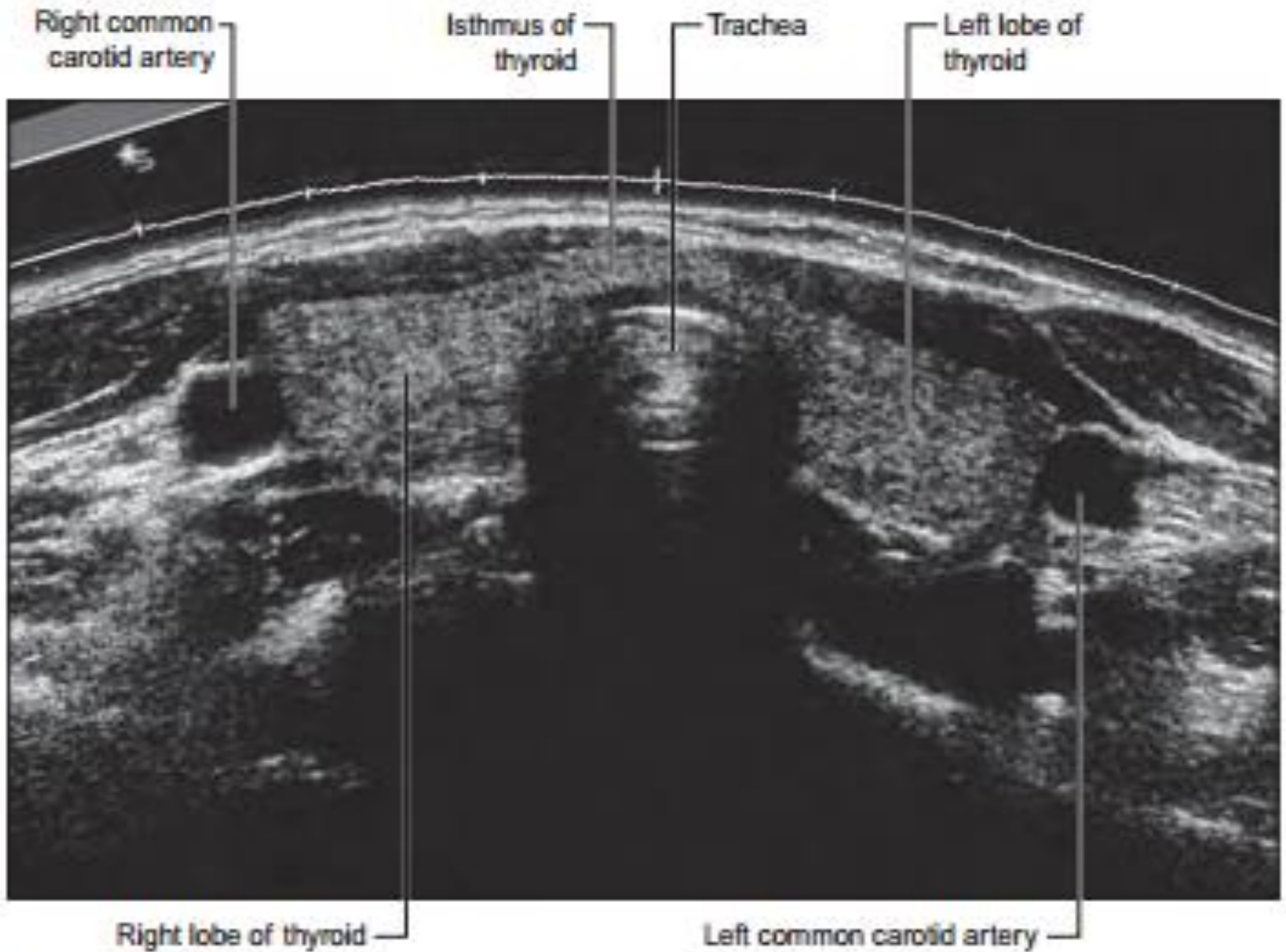
4-Thyroglossal Sinus (Fistula)
Occasionally, a thyroglossal cyst ruptures spontaneously, producing a sinus). Usually, this is a result of an infection of a cyst. All remnants of the thyroglossal duct should be removed surgically

5-Accessory Thyroid Tissue



Anterior view

Radiology



4/29/2020
Fig. 28.20 Thyroid sonogram.

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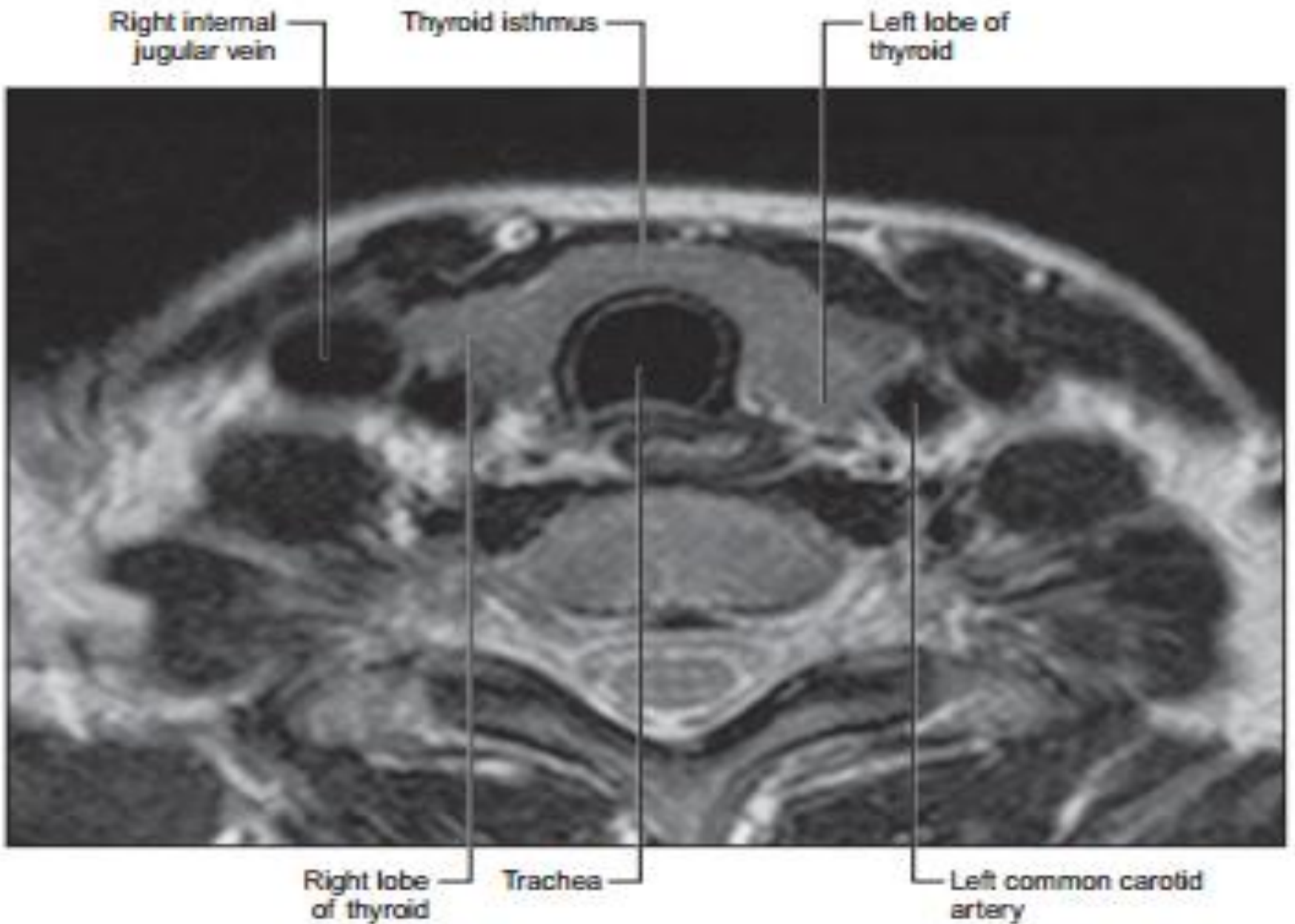


Fig. 28.21 T₂-weighted MRI at the level of the thyroid isthmus: compare with Fig. 28.20.

4/29/2020

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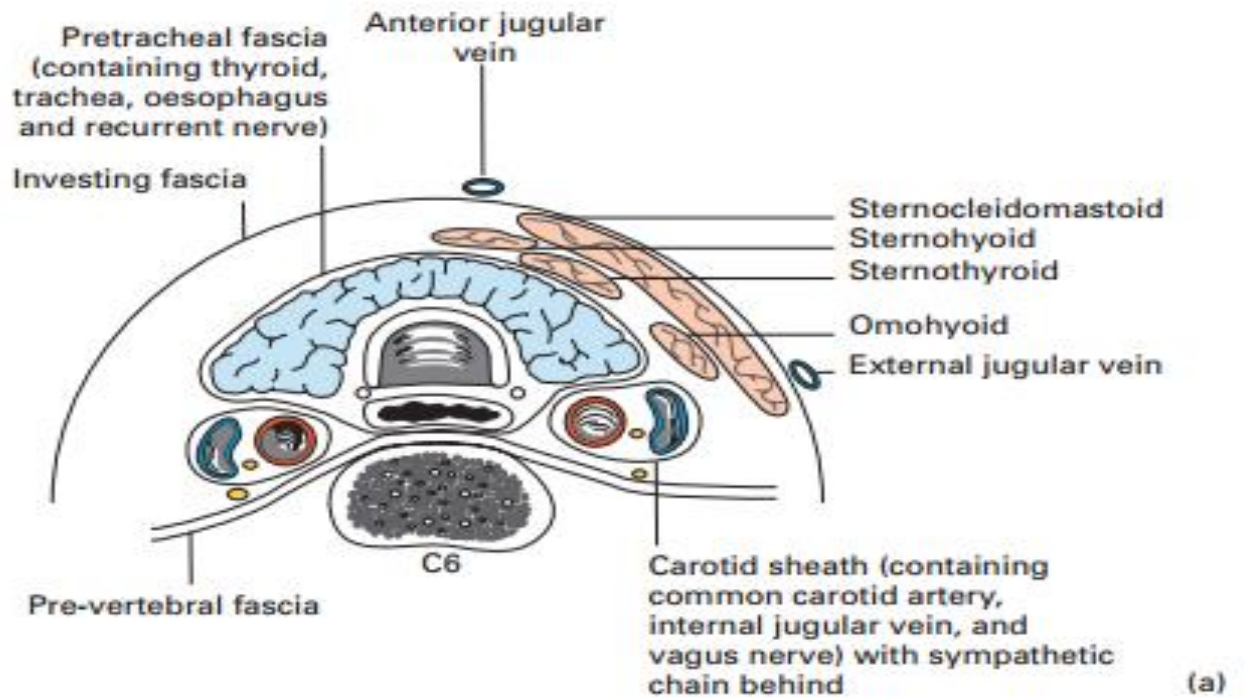
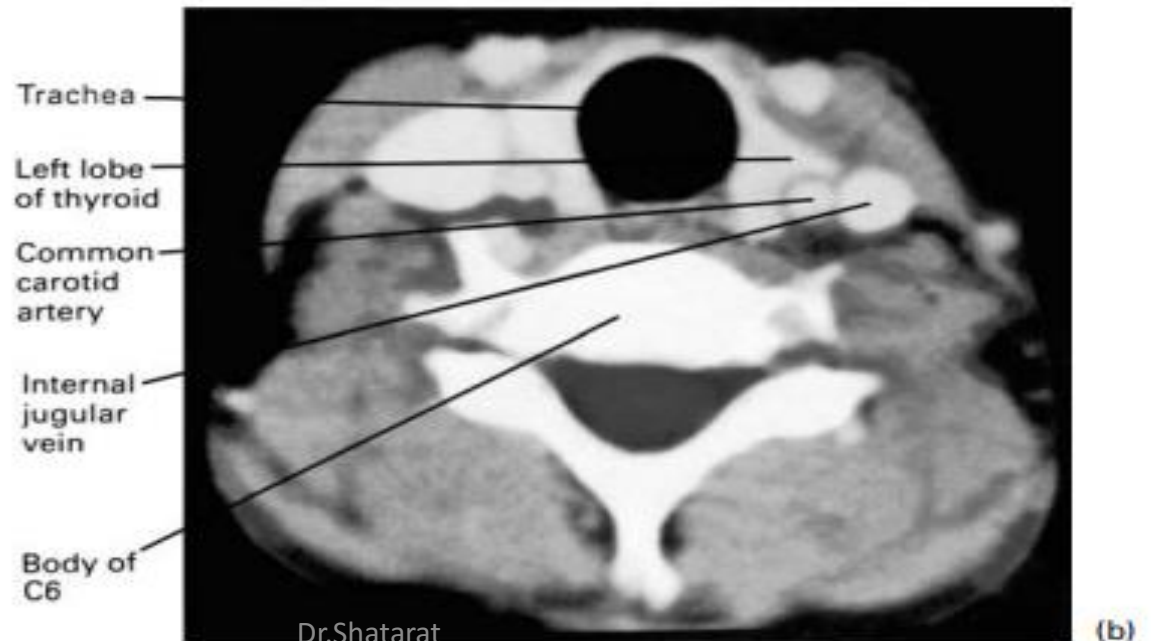


Fig. 188 (a) Transverse section of the neck through C6—showing the fascial planes and also the contents of the pretracheal fascia (or 'visceral compartment of the neck'). (b) CT scan through the C6 level; compare this with the diagram.



Metastatic disease to the thyroid is common; it likely relates to its rich blood supply of approximately 560 mL/100 g tissue/min (a flow rate per gram of tissue that is second only to the adrenal glands)

The End