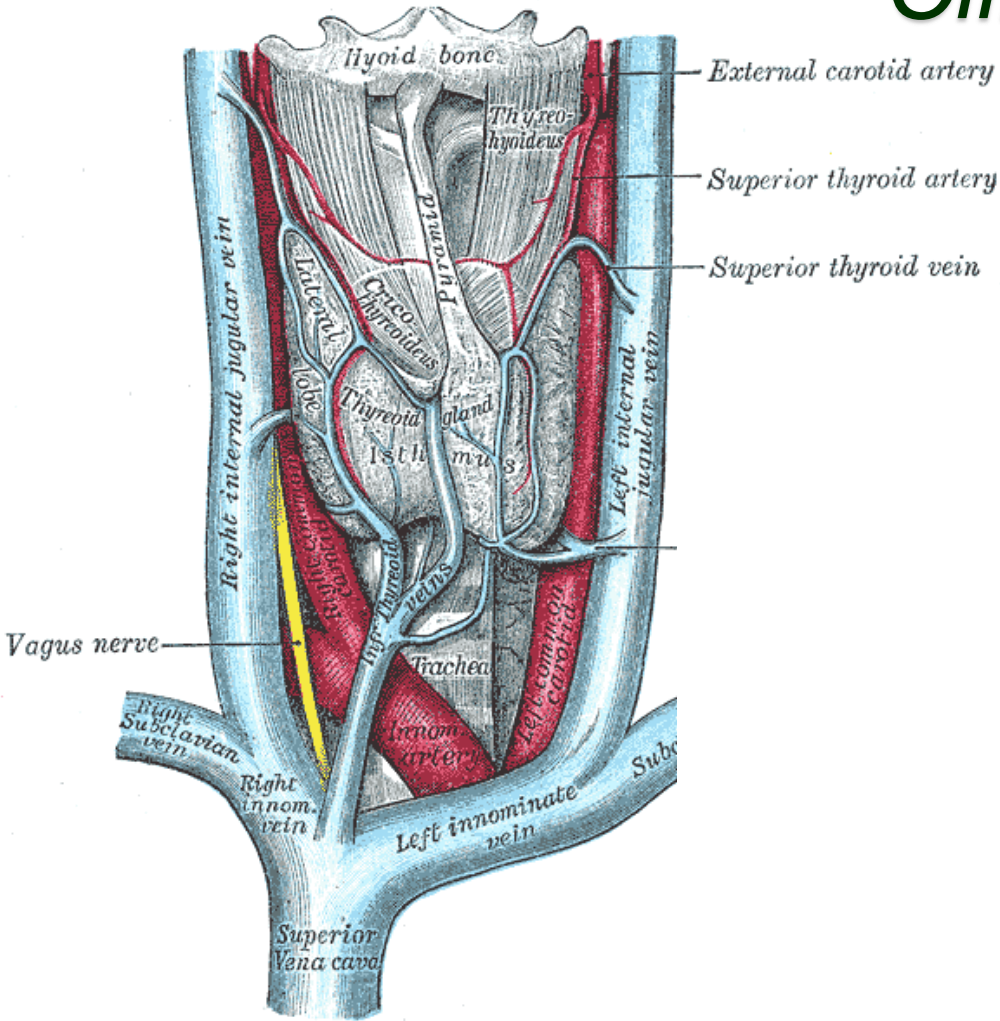
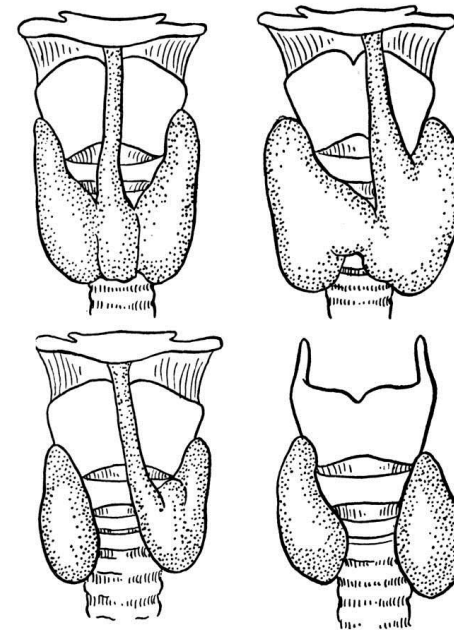
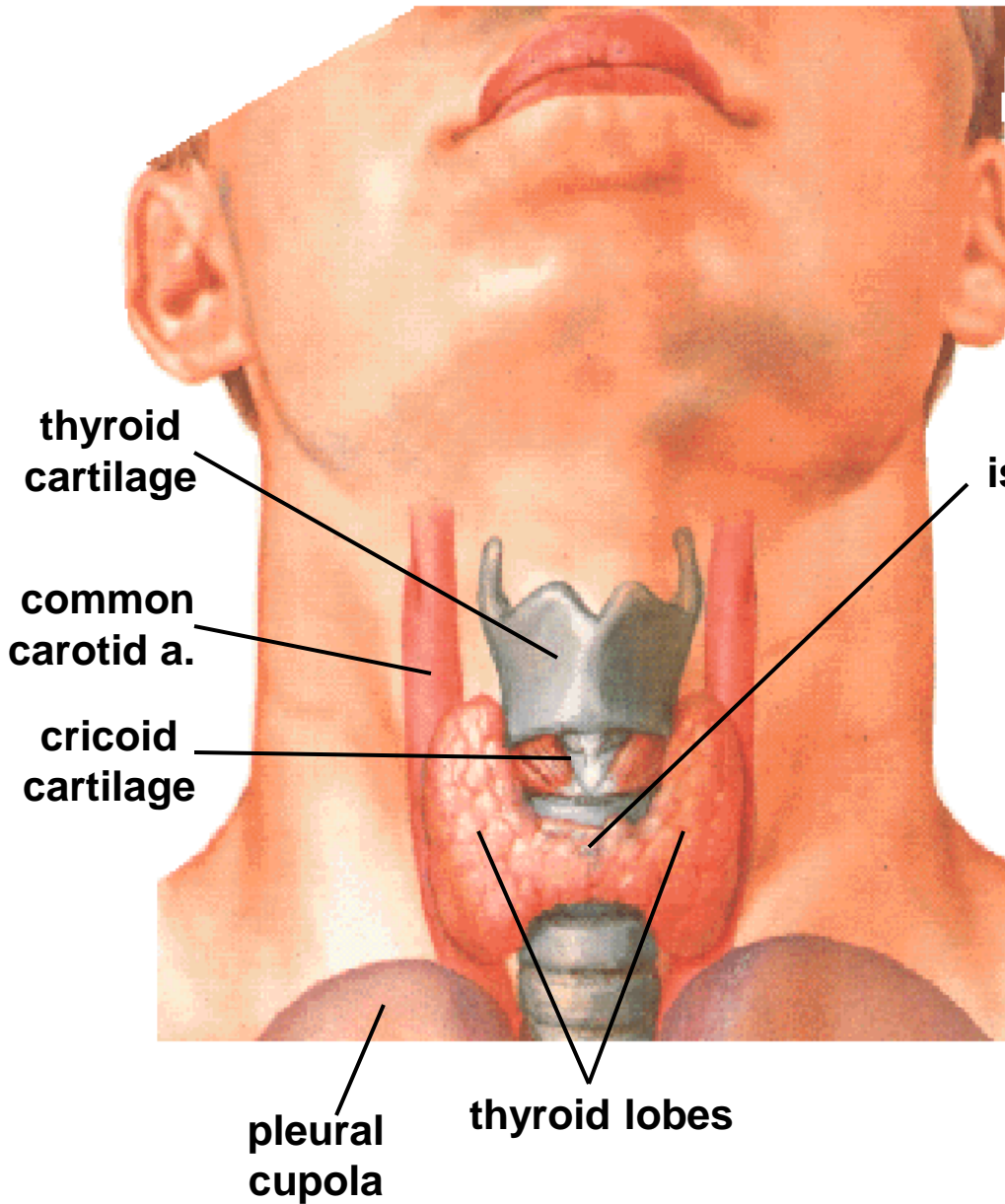


Clinical Anatomy of the Thyroid Gland



Anatomical Overview

- Right & left lobes connected by an isthmus
- Occasional pyramidal lobe
- Levator glandulae thyroideae
- Slightly larger in women; may enlarge during menstruation & pregnancy
- Extends from oblique line on isthmus thyroid cartilage down to 4th or 5th tracheal ring
- Attaches to cricoid cartilage via suspensory ligament



Case Presentation

A 32-year-old woman presents with a swelling on the anterior part of her neck. She also reports that her breathing is sometimes affected by the swelling. On examination, a single, firm, rounded mass can be felt on the left side of the laryngotracheal region. It moves up and down with swallowing. Ultrasound reveals a solid nodule in the left lobe of her thyroid gland. A needle biopsy subsequently indicates that malignant changes have taken place in the cells.

Preliminary Diagnosis:

Tumor of the left lobe of the thyroid

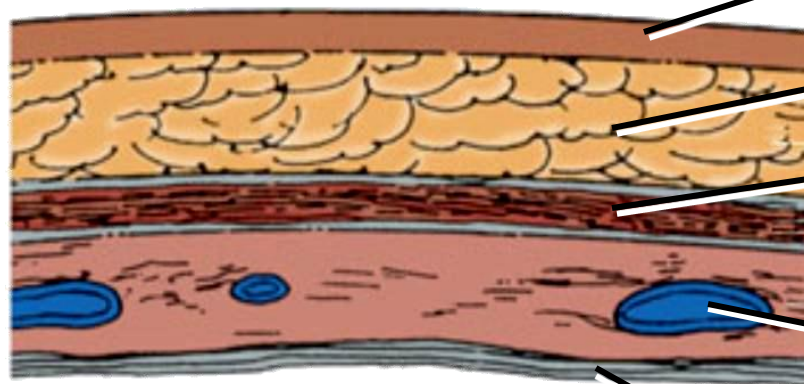
Questions

- 1. Why does the mass move up and down on swallowing?**
2. What can explain the difficulty breathing?
3. What structures would be endangered by subtotal or total thyroidectomy?
4. Why is the nature of the patient's voice of interest postoperatively?

Fascia & Spaces

superficial fascia

Skandalakis' Surgical Anatomy 2004



skin

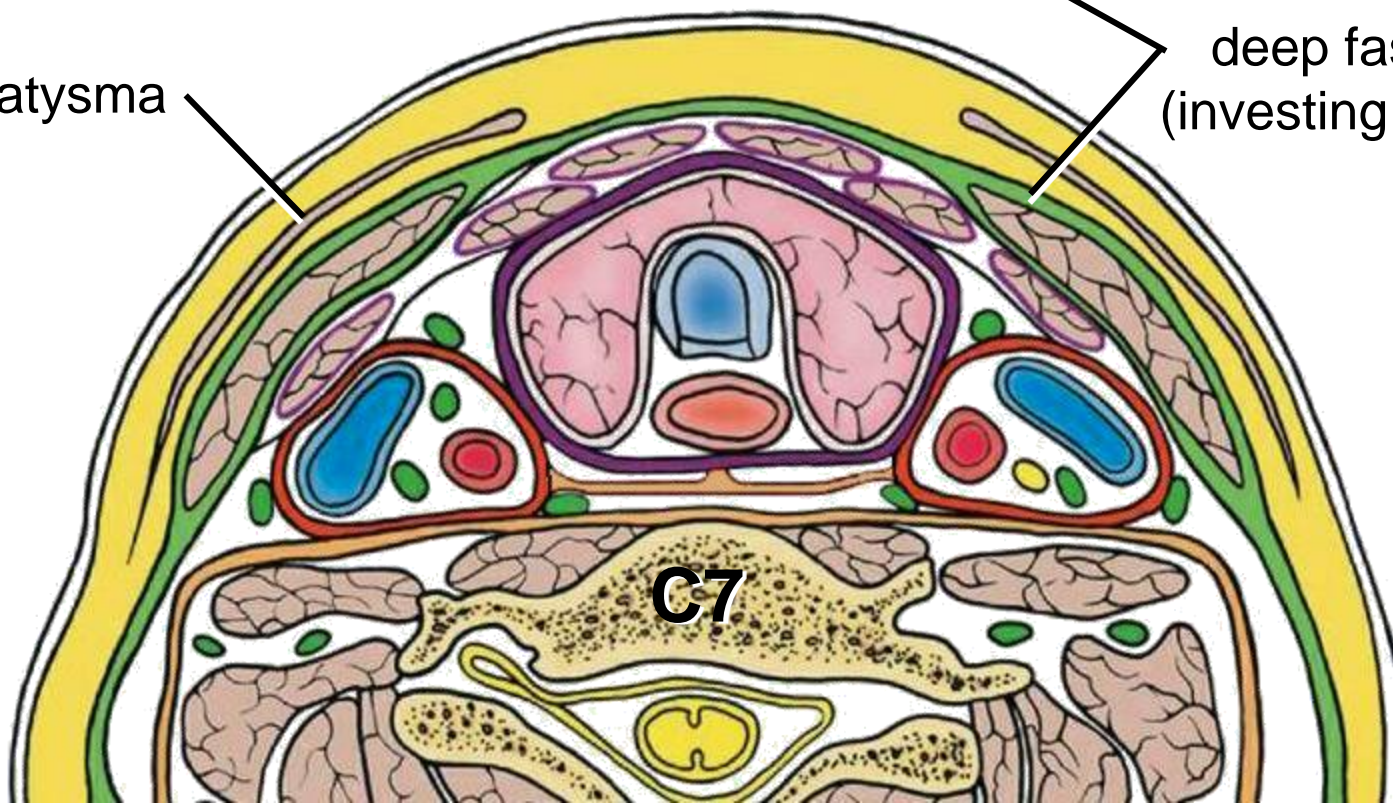
fat

platysma

veins (ant. & ext. jug.) and cutaneous nn.

platysma

deep fascia (investing layer)



C7

Fascia & Spaces

Deep Fascia

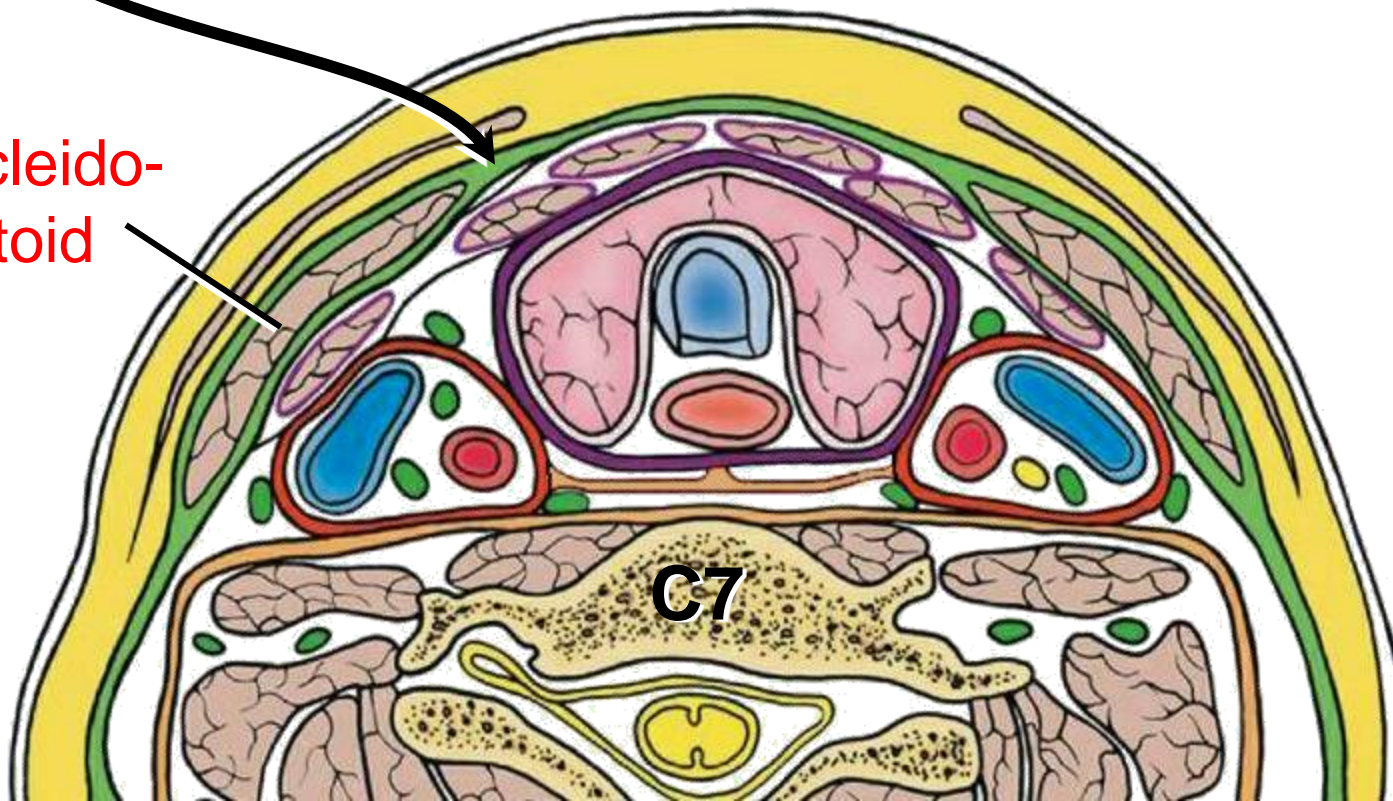
1. investing fascia

2. pretracheal fascia

3. prevertebral fascia

4. carotid sheath

sternocleido-
mastoid

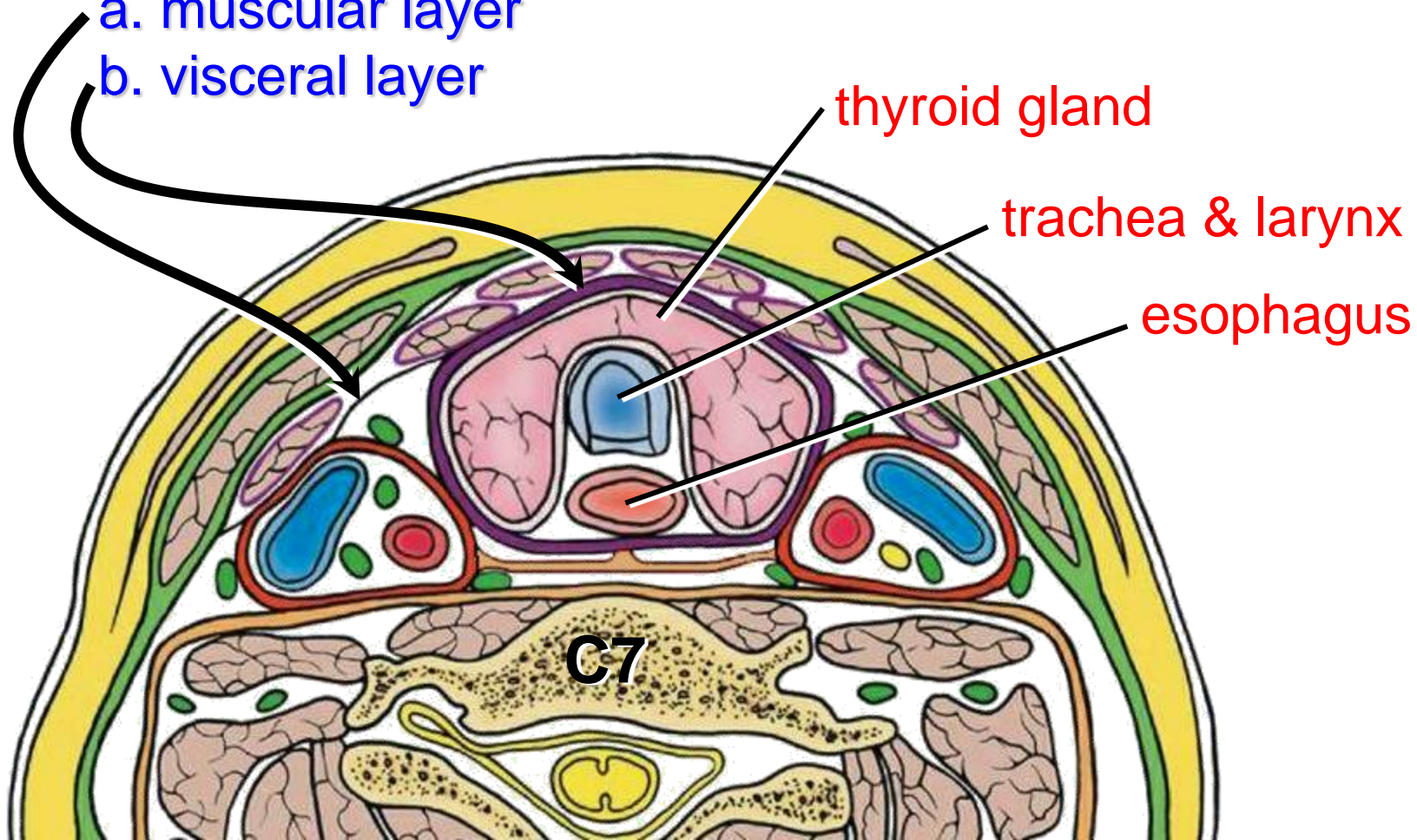


C7

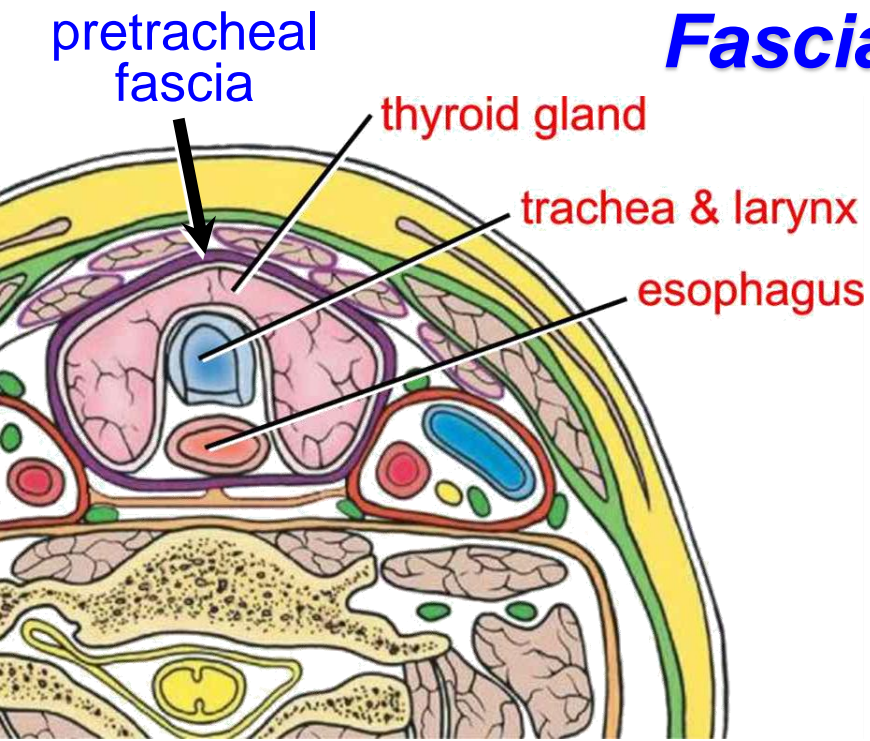
Fascia & Spaces

Deep Fascia

1. investing fascia
2. pretracheal fascia
 - a. muscular layer
 - b. visceral layer
3. prevertebral fascia
4. carotid sheath



Fascia & Spaces



Moore et al.
2010

suspensory ligament of Berry

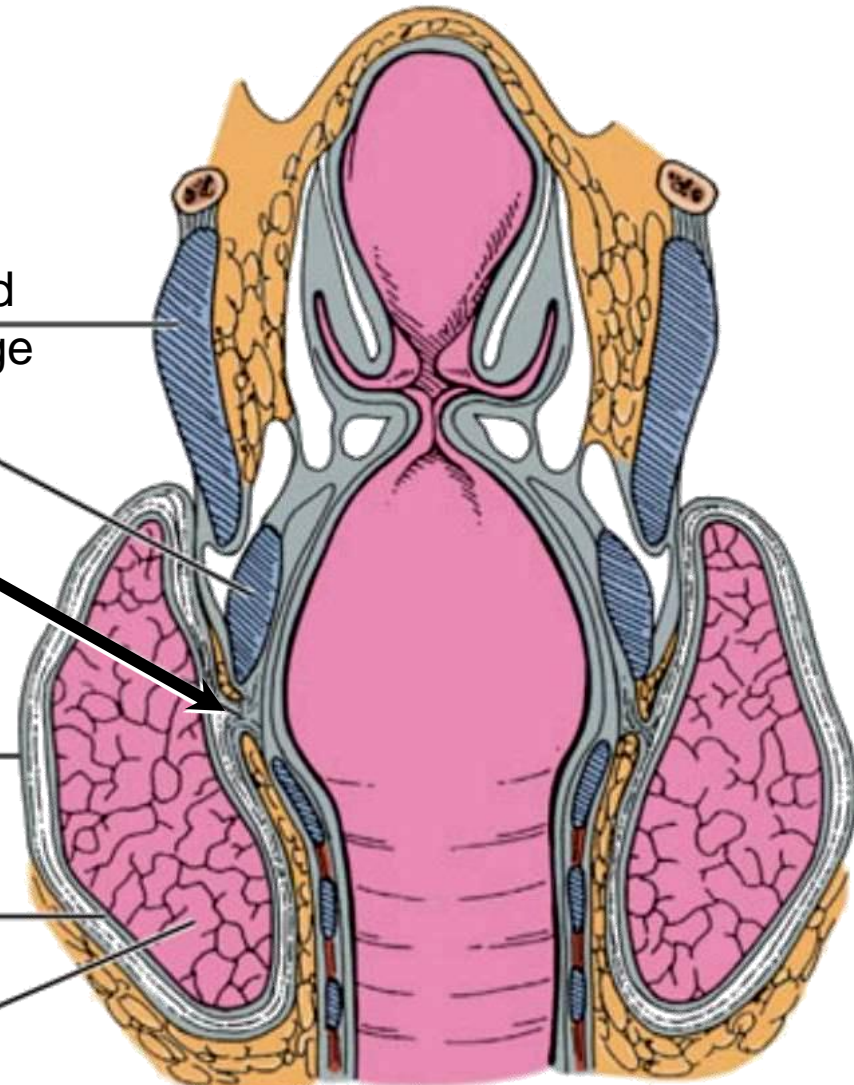
visceral layer of pretracheal
fascia (false capsule)

true capsule

thyroid gland

thyroid
cartilage

cricoid
cartilage

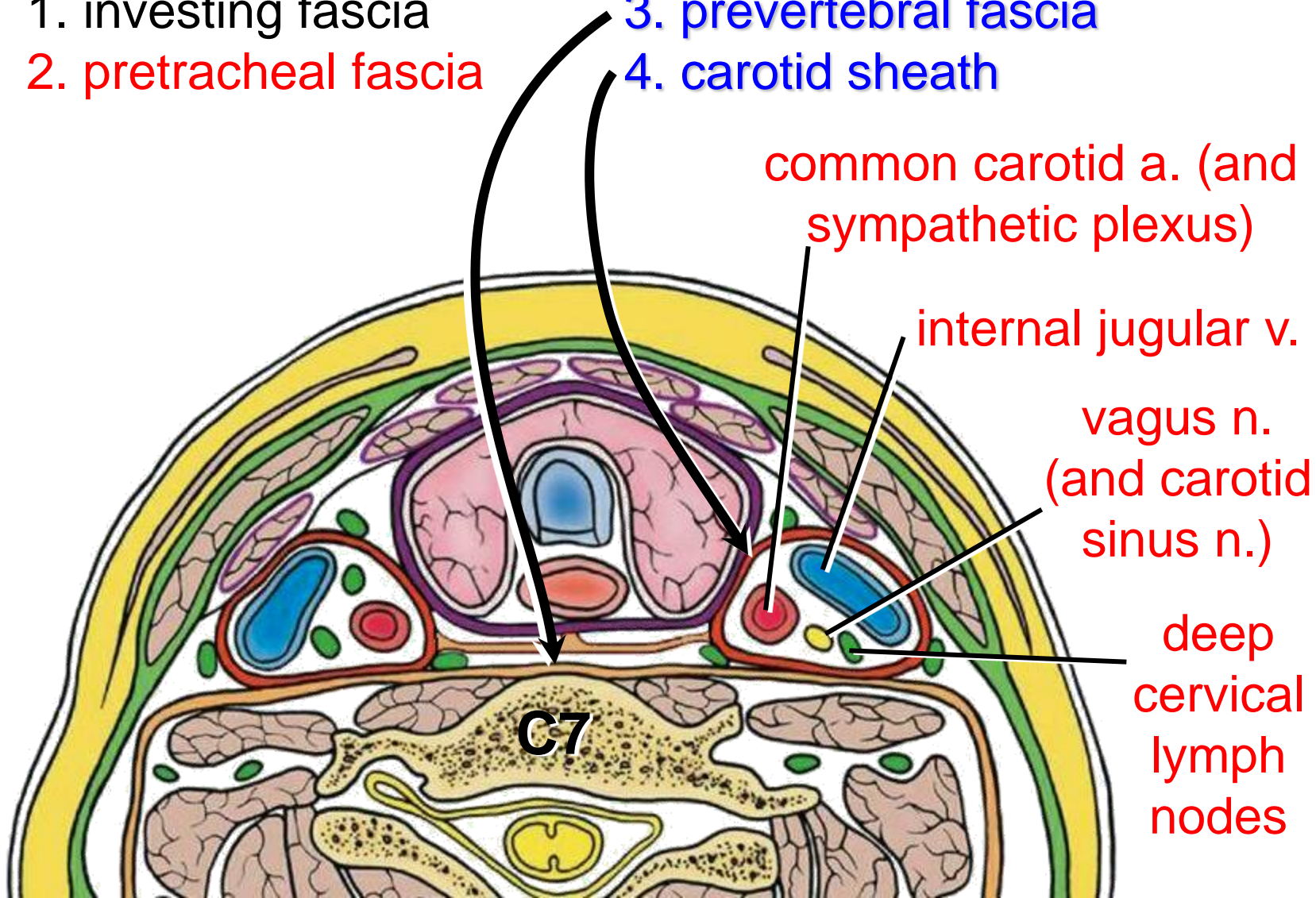


Fascia & Spaces

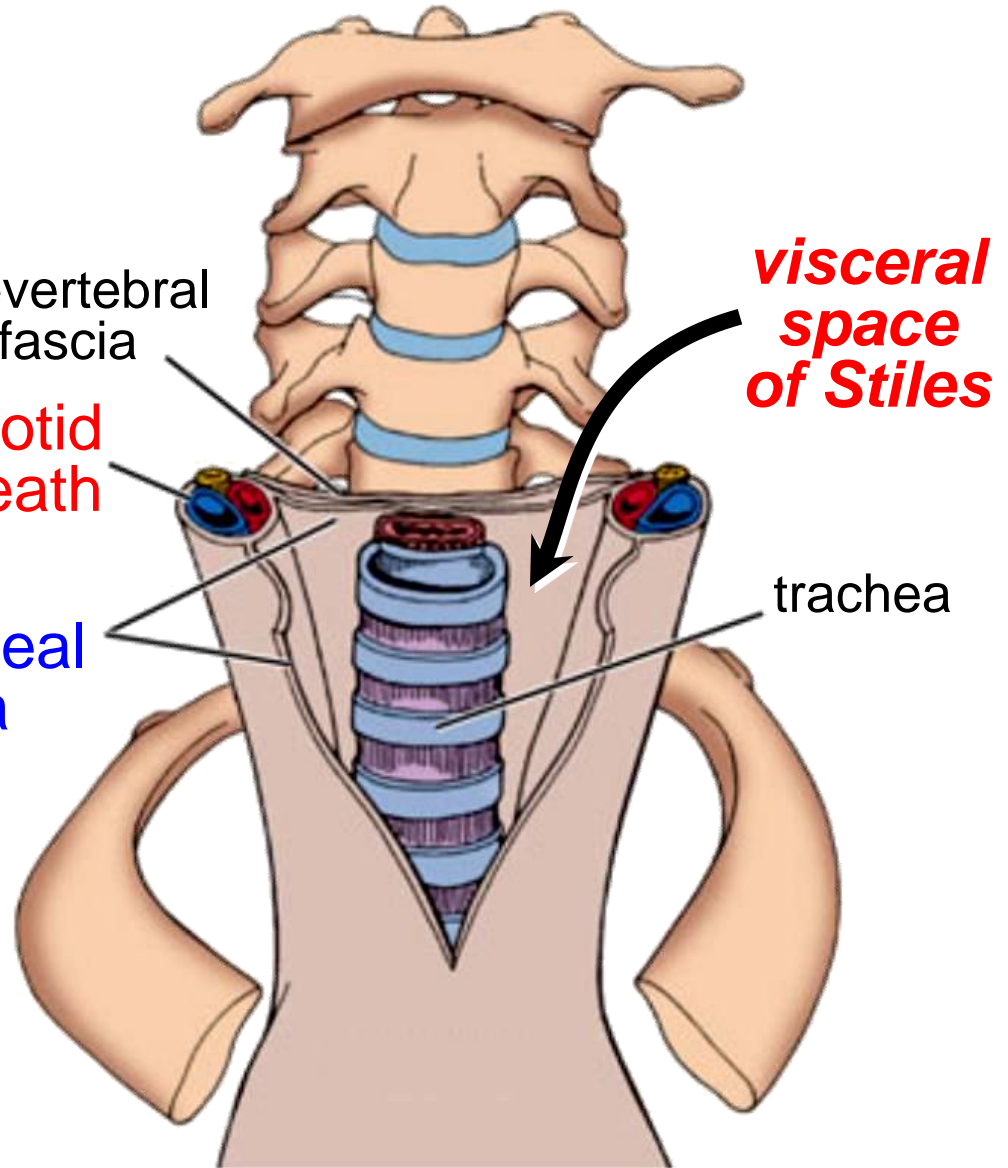
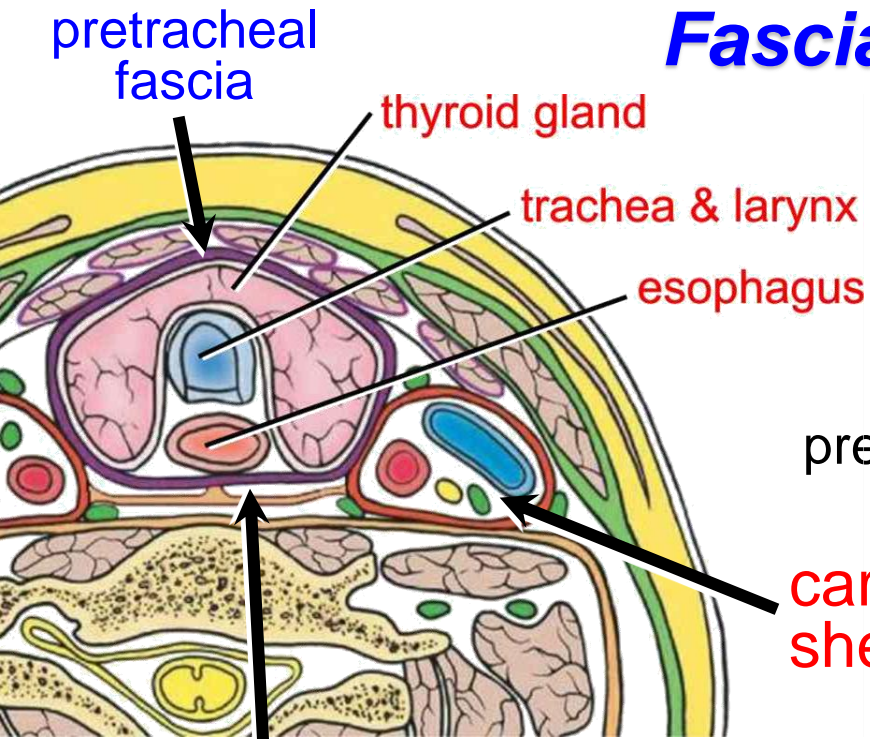
Deep Fascia

1. investing fascia
2. pretracheal fascia

3. prevertebral fascia
4. carotid sheath



Fascia & Spaces



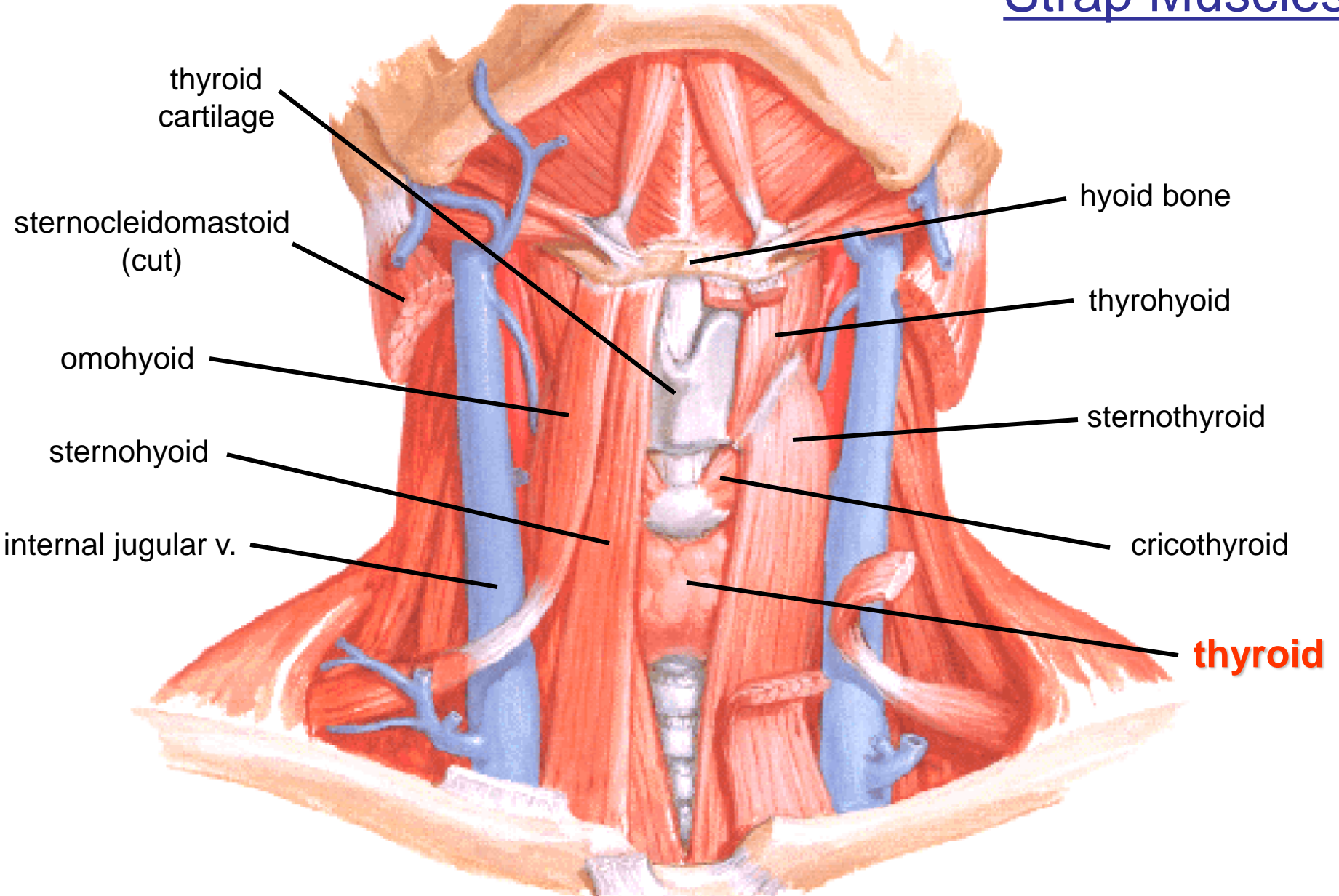
Moore et al.
2010

Skandalakis' Surgical
Anatomy 2004

not discussed today:

- suprasternal space of Burns
- "Danger space" of Grodinsky & Holyoke

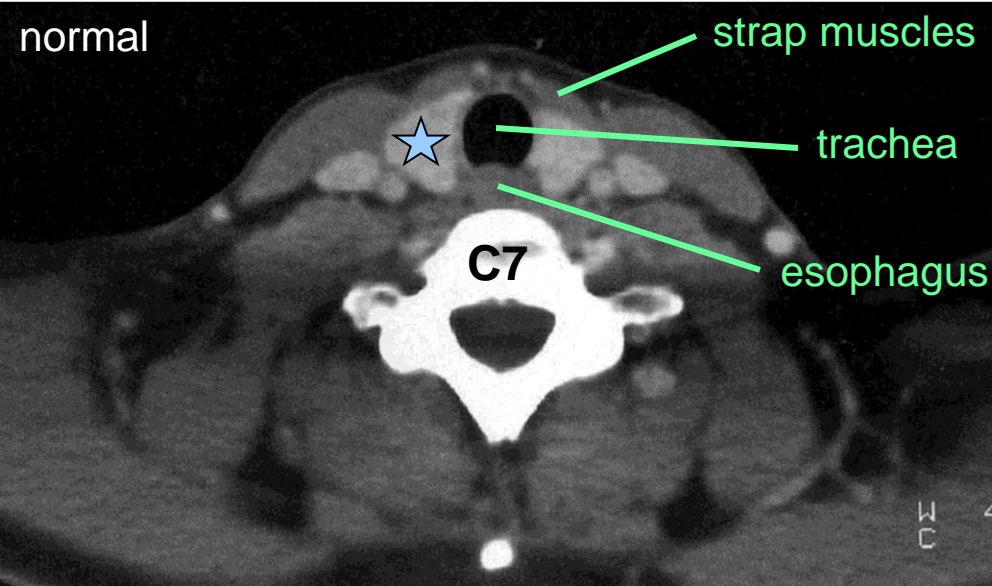
Strap Muscles



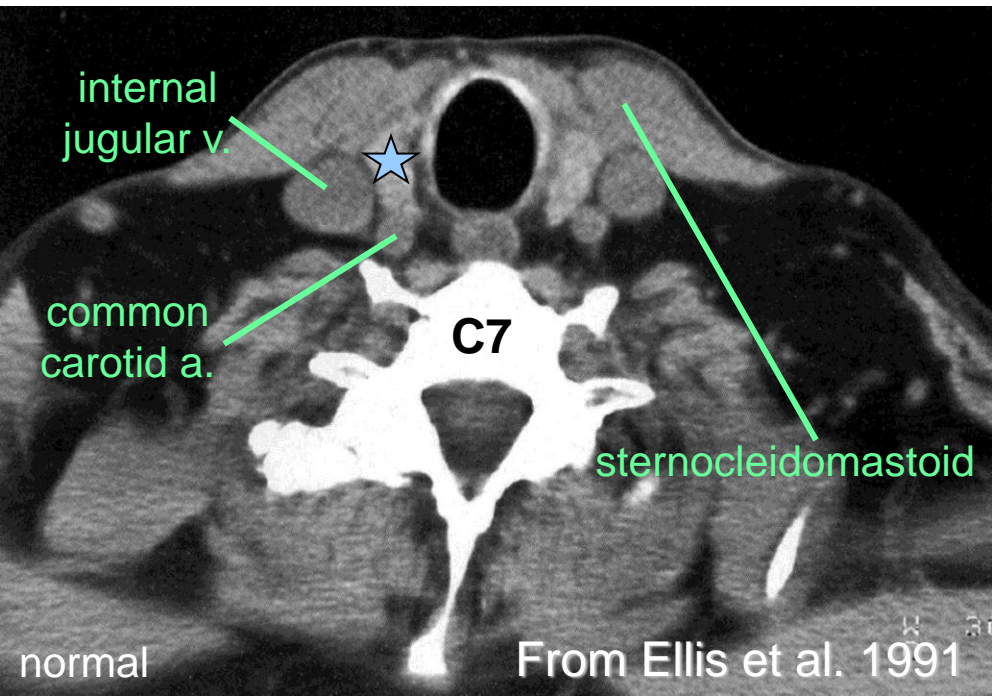
Attachment of sternothyroid to oblique line on thyroid cartilage prevents superior expansion of thyroid

Questions

1. Why does the mass move up and down on swallowing?
- 2. What can explain the difficulty breathing?**
3. What structures would be endangered by subtotal or total thyroidectomy?
4. Why is the nature of the patient's voice of interest postoperatively?

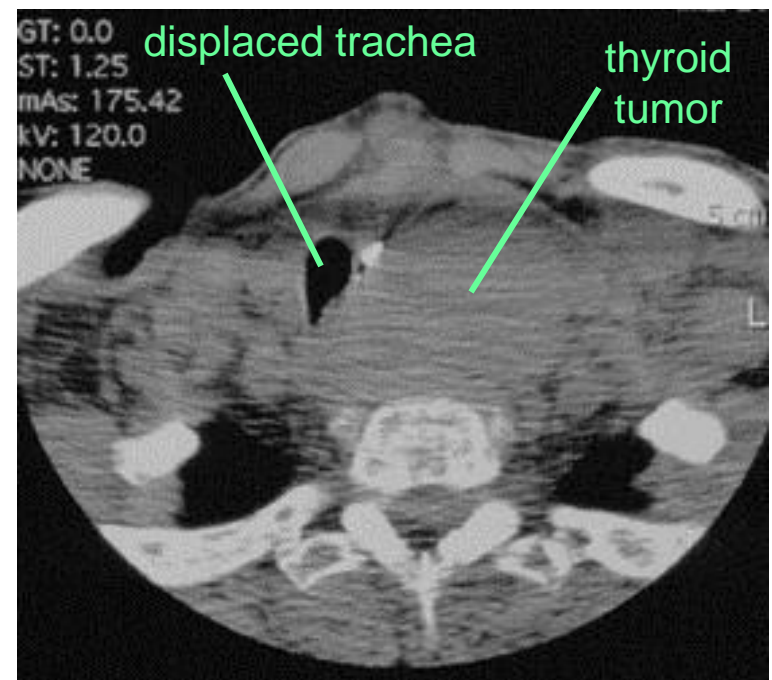


Thyroid (★)



Thyroid CT

Compression and displacement of trachea by thyroid tumor



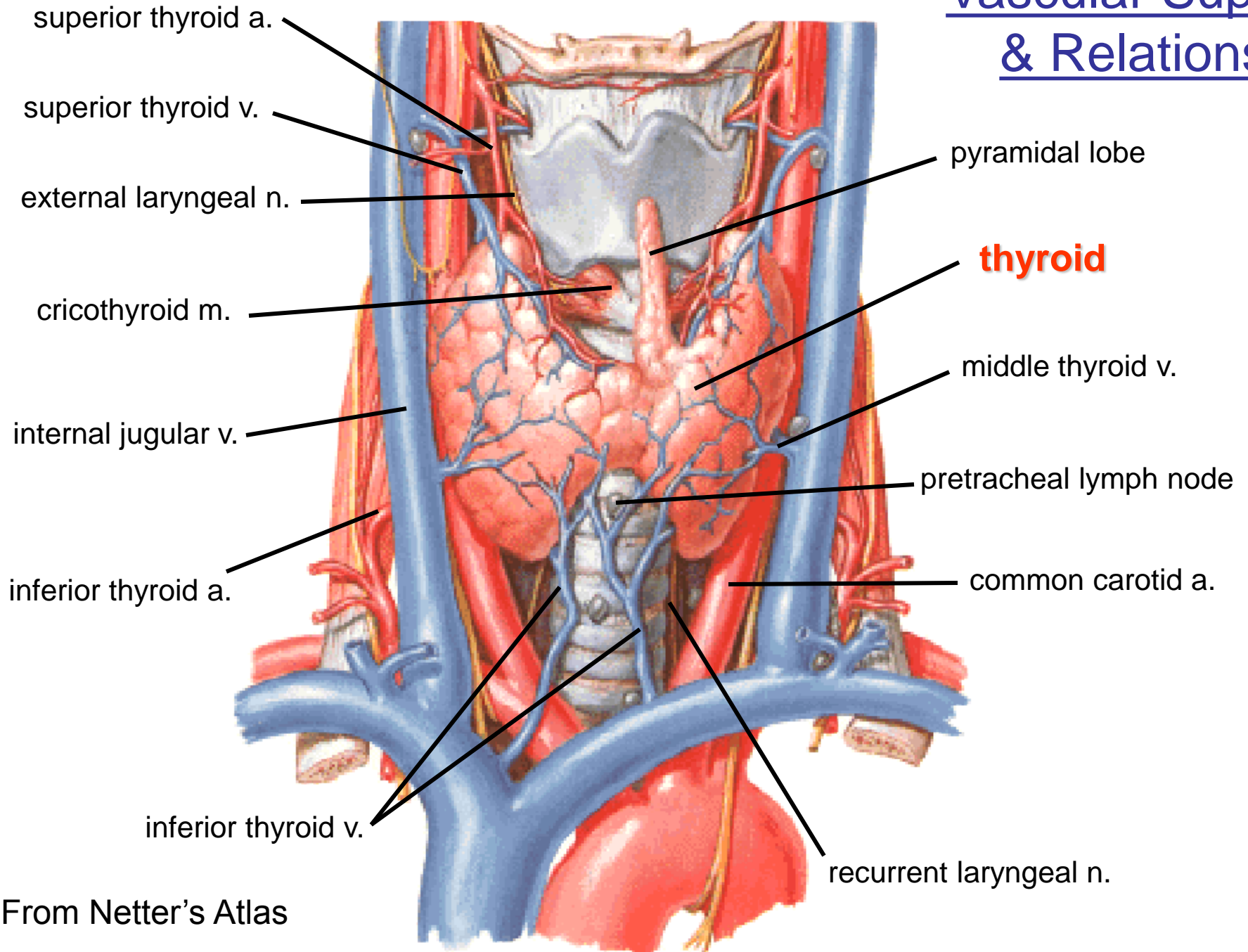
From web reference 1

Questions

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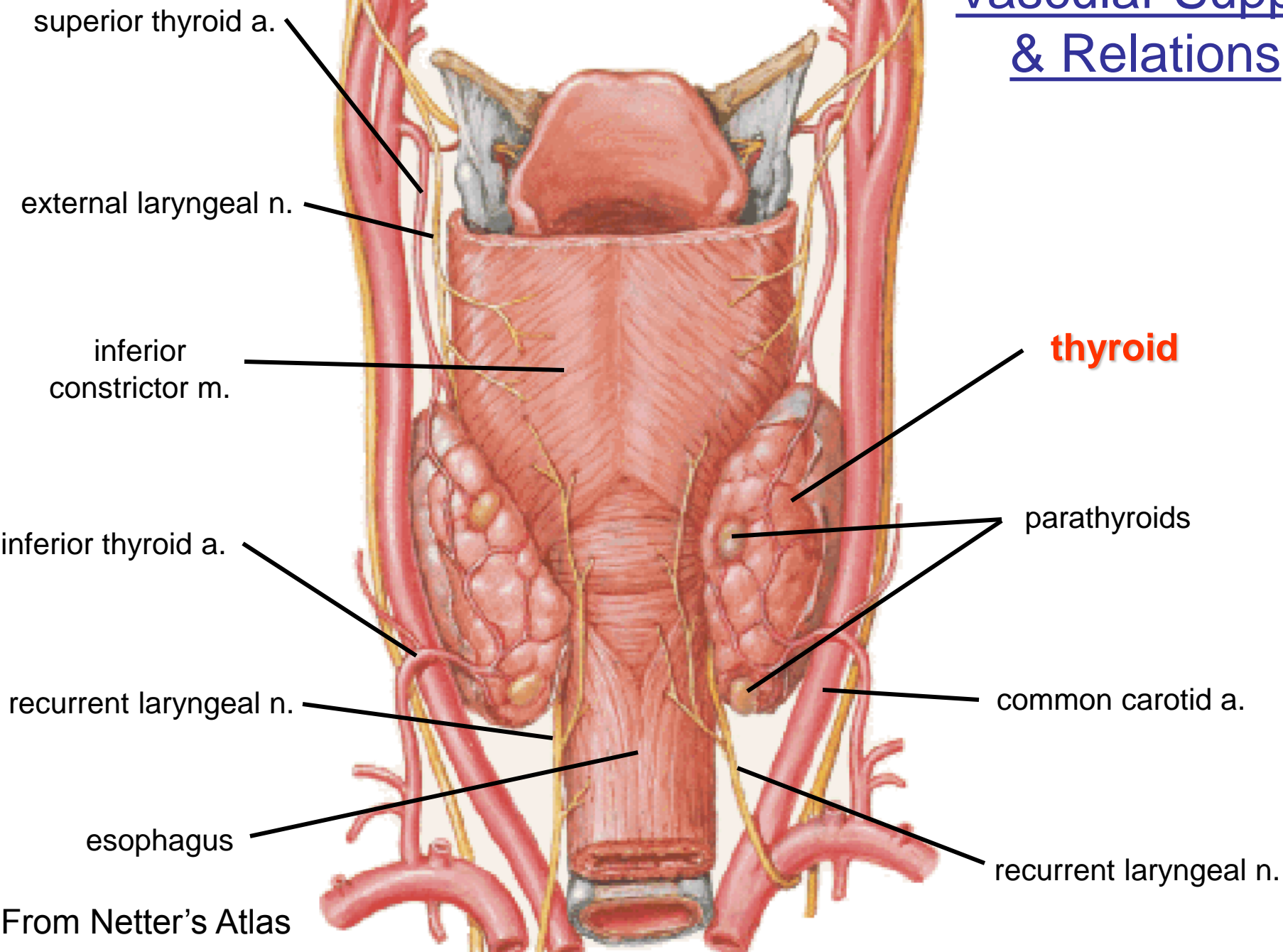
Anterior View

Vascular Supply & Relations



Posterior View

Vascular Supply & Relations



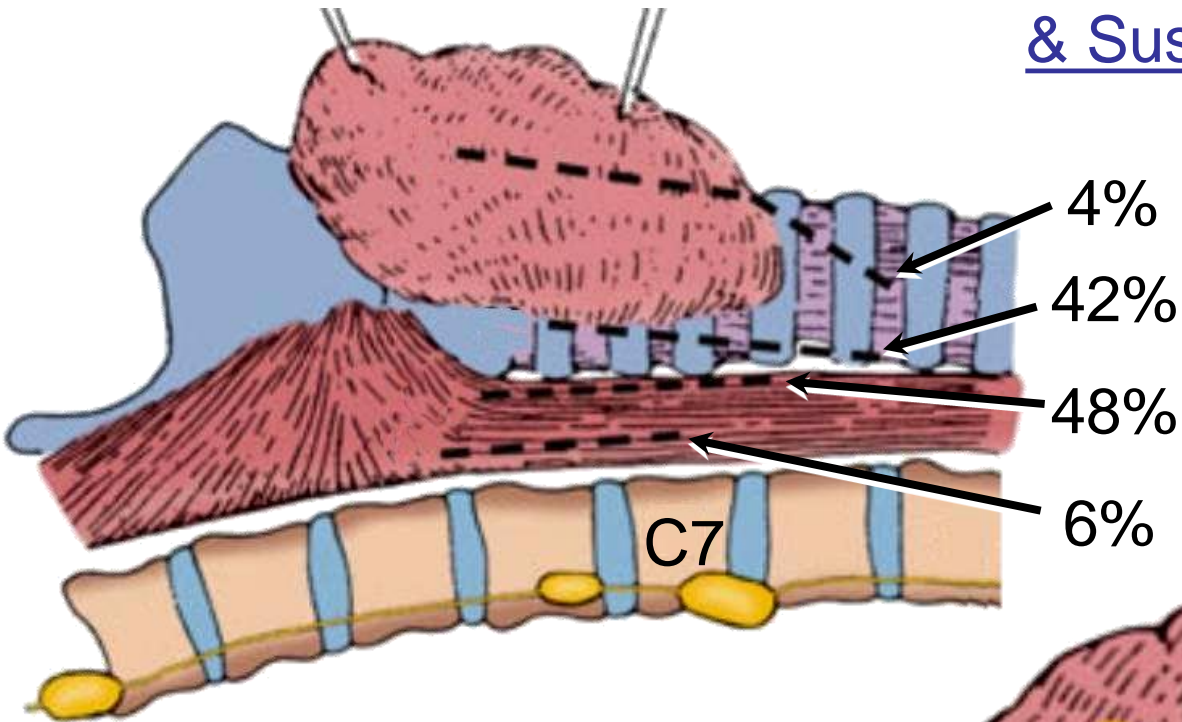
From Netter's Atlas

Questions

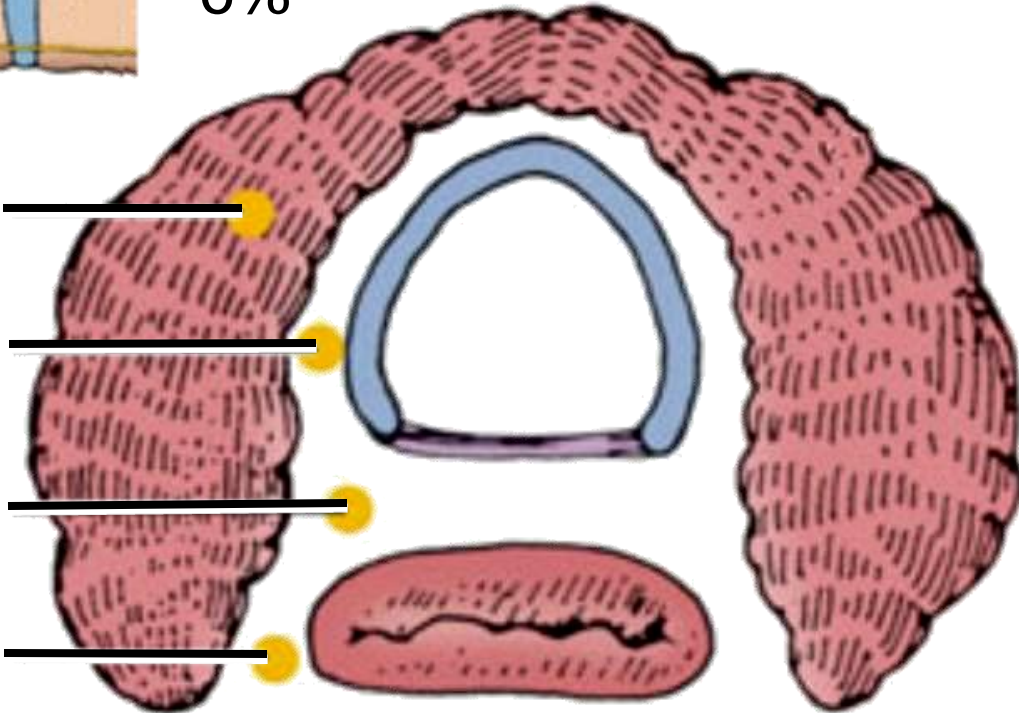
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Recurrent Laryngeal N. & Suspensory Lig. of Berry

variation in recurrent laryngeal nerve position (n = 204)

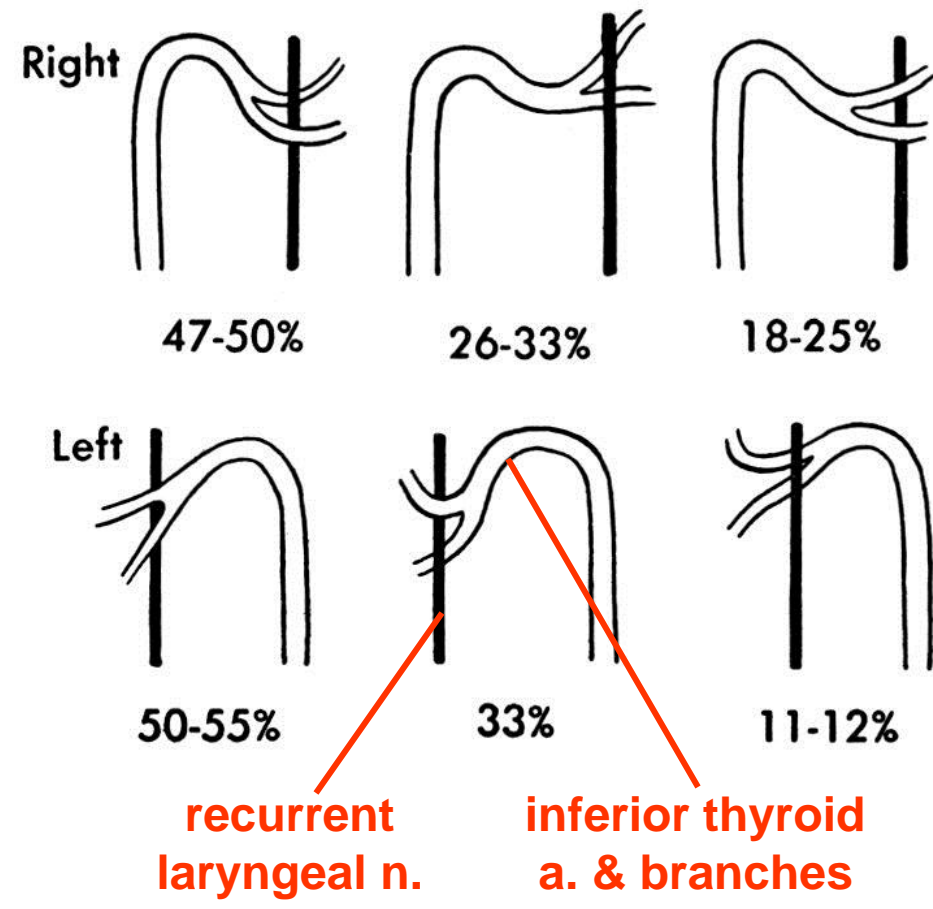
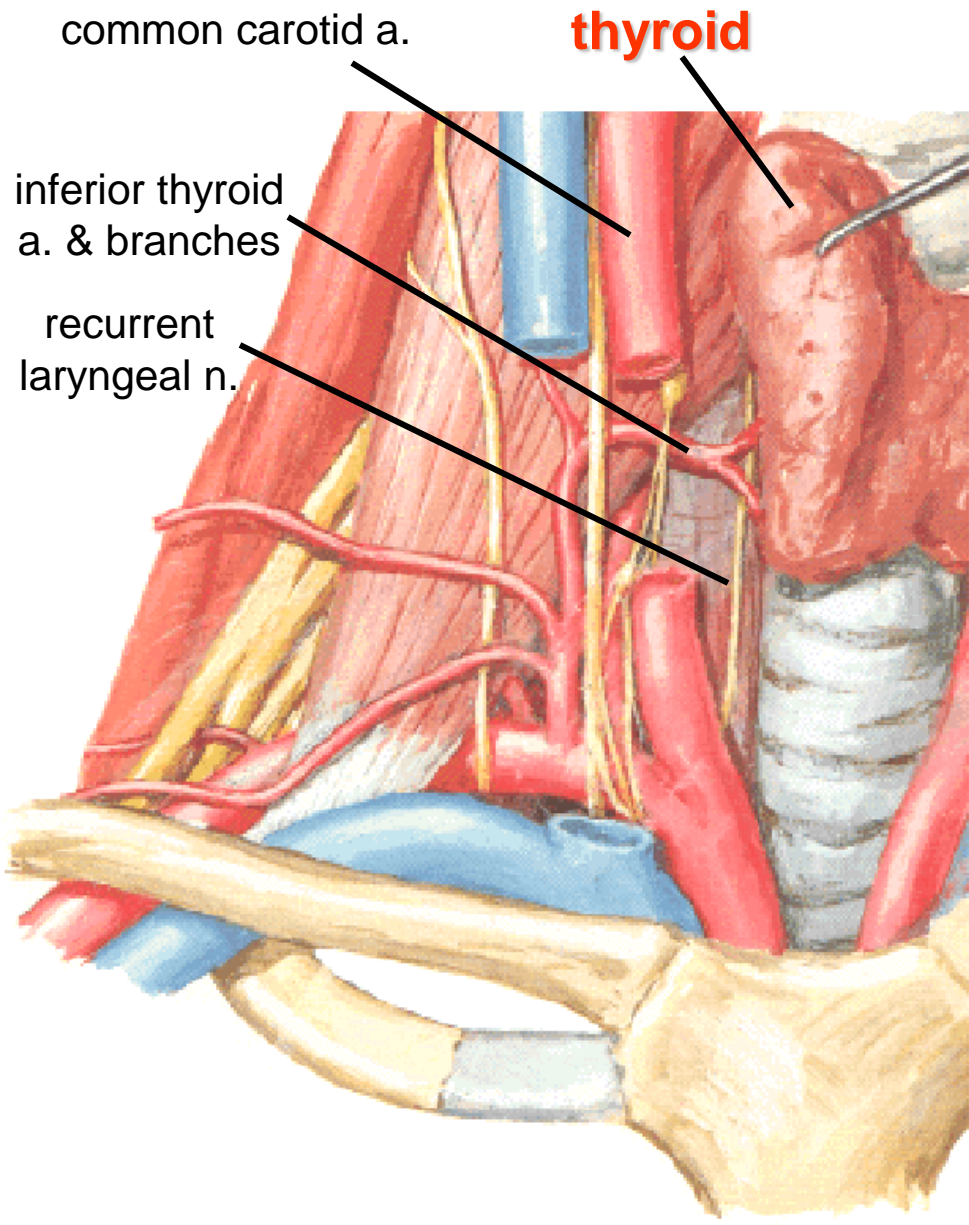


- 4% intrathyroid
- 42% paratracheal
- 48% tracheoesoph. groove
- 6% paraesophageal



Recurrent Laryngeal N. & Suspensory Lig. of Berry

Variation in relationship of recurrent laryngeal n. to inferior thyroid a.

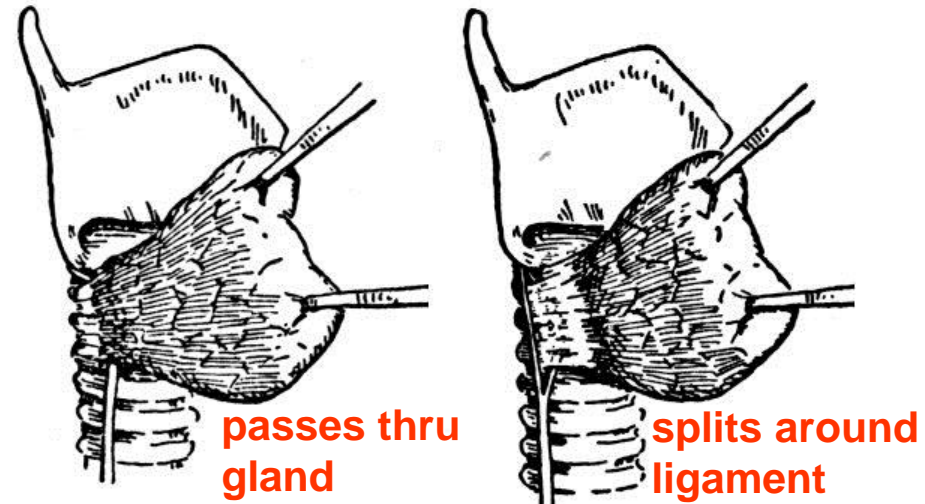
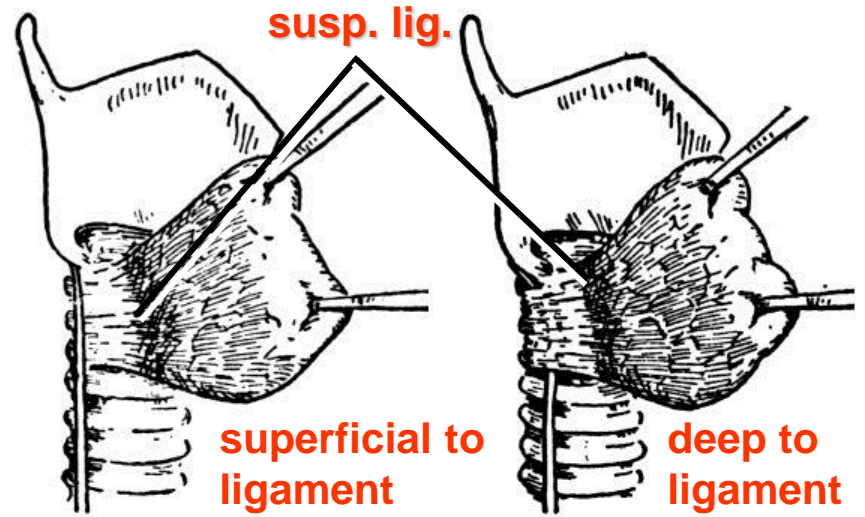
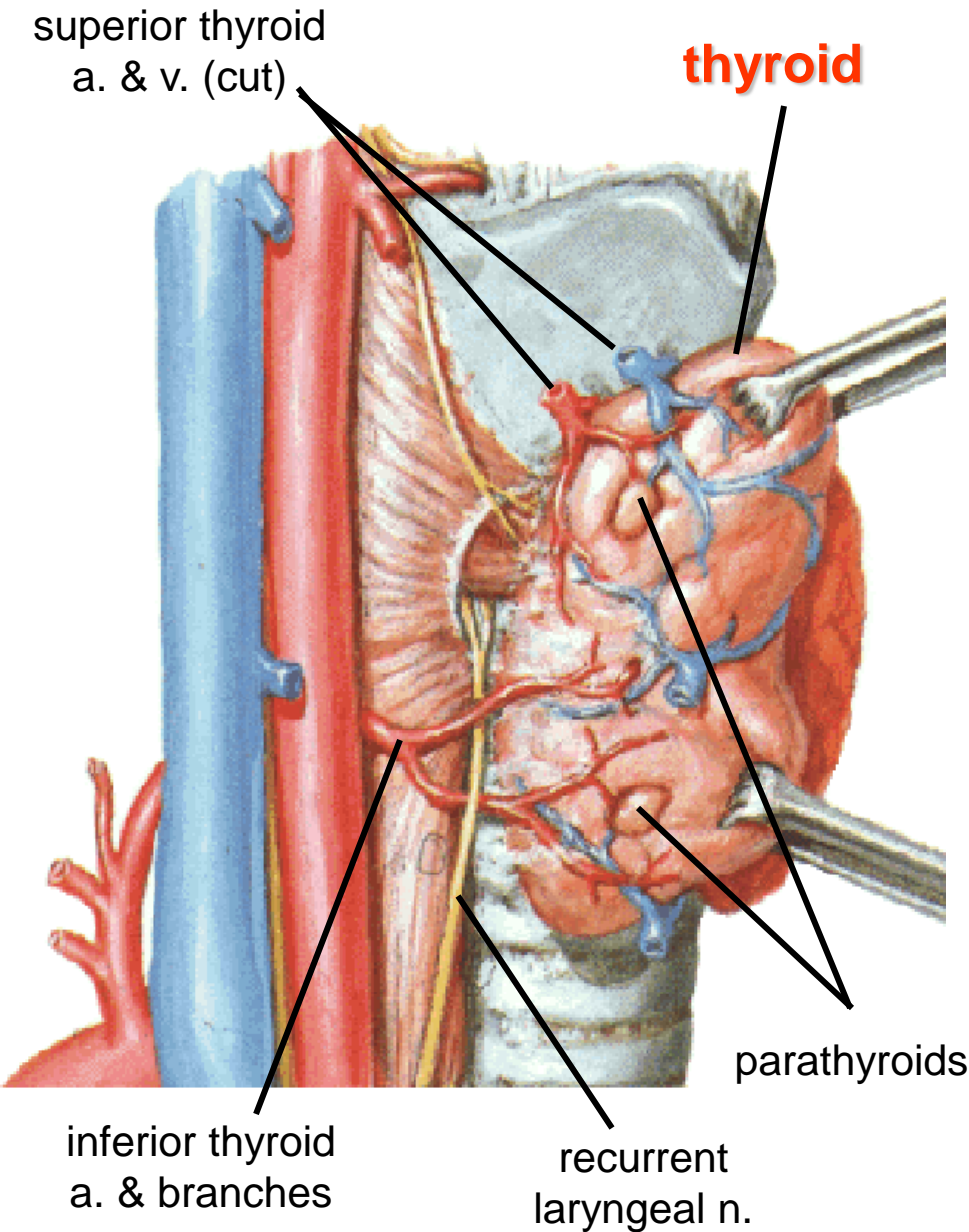


From Netter's Atlas

(from Hollinshead 1968)

Recurrent Laryngeal N. & Suspensory Lig. of Berry

Variation in relationship of recurrent laryngeal n. to suspensory lig.

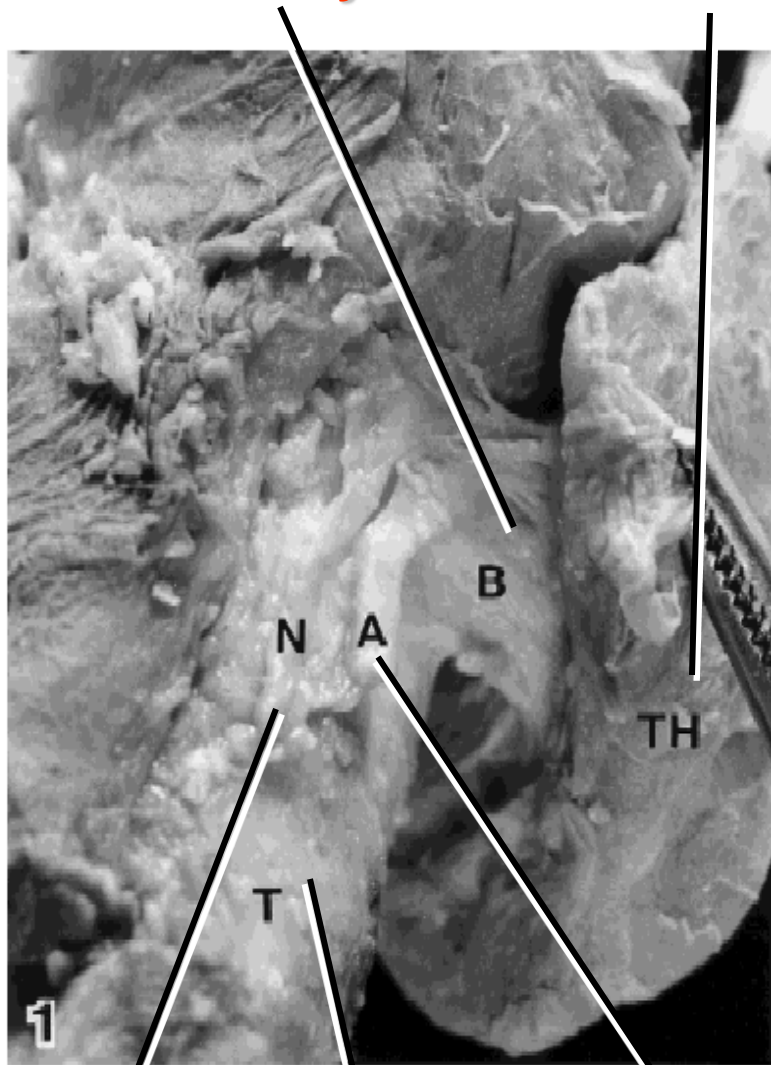


(from Hollinshead 1968)

From Netter's Atlas

suspensory ligament of Berry

thyroid



recurrent laryngeal n.

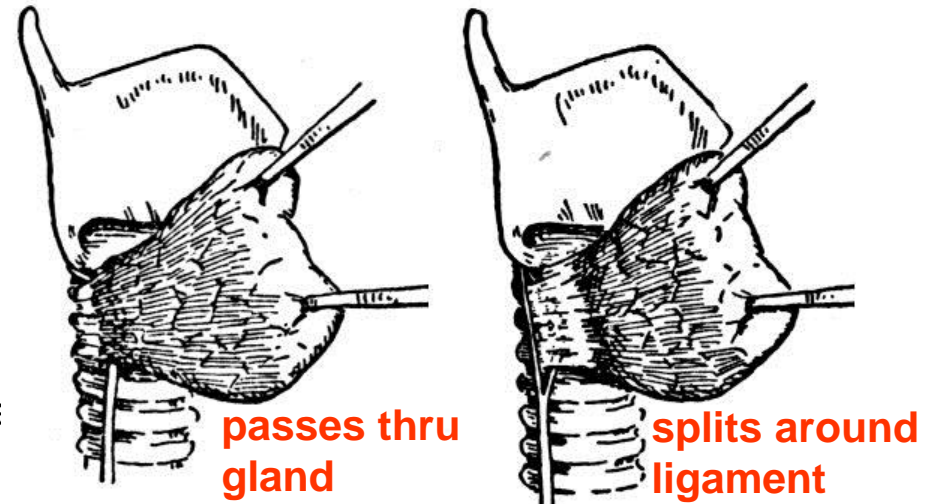
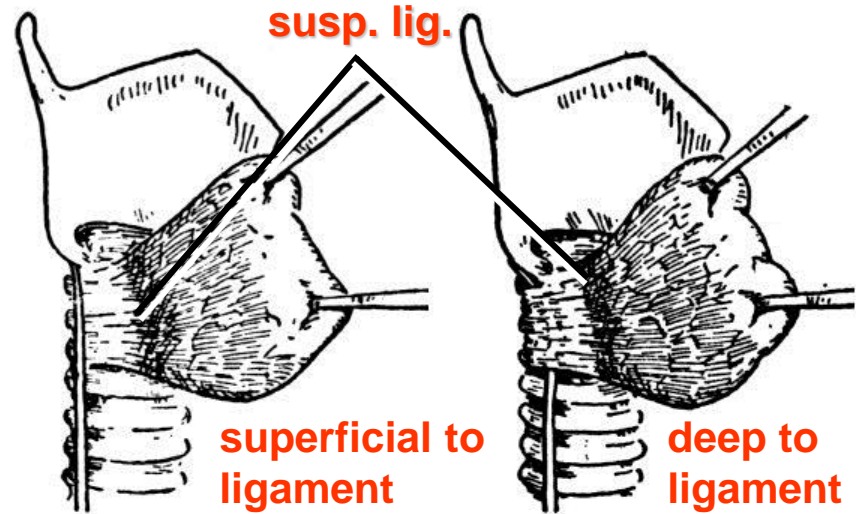
trachea

inferior thyroid a

From Sasou et al. 1998

Recurrent Laryngeal N. & Suspensory Lig. of Berry

Variation in relationship of recurrent laryngeal n. to suspensory lig.

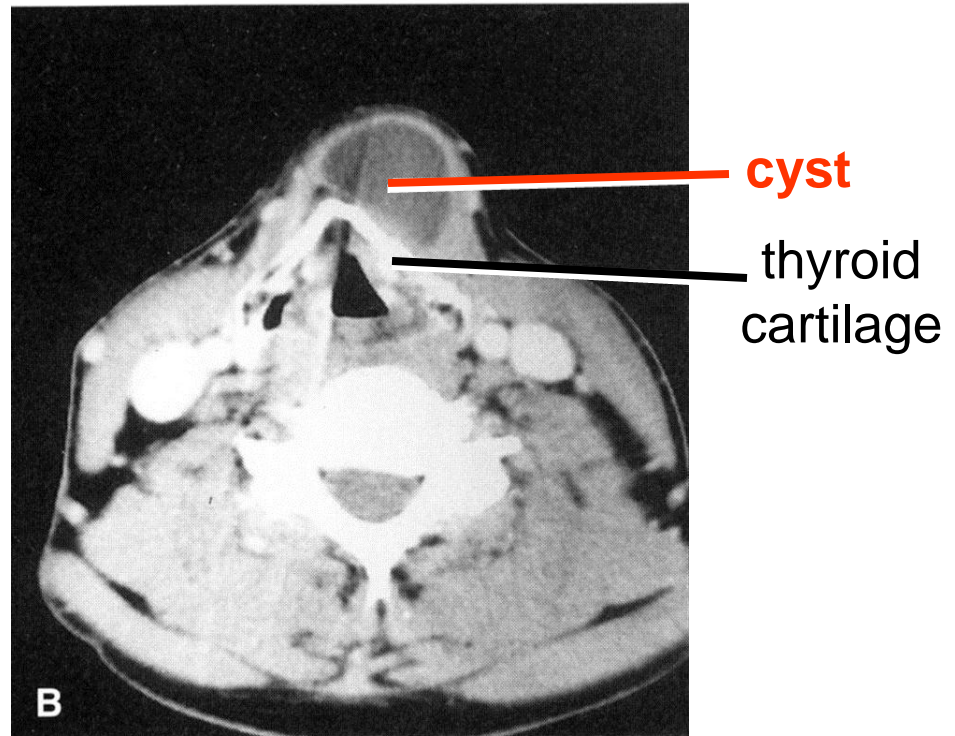


(from Hollinshead 1968)

Case Presentation

A 43-year-old male presents with a swelling in the front of his neck. He first noticed it 9 months ago and it has steadily grown. The lump lies near the midline and moves on swallowing. On palpation, it is firm and lays anterior to the thyroid cartilage. The mass is smooth, non-pulsatile, and non-fluctuant. The dorsum of the tongue was inspected but no thyroid tissue was observed. Ultrasound showed the mass to be cystic and separate from the thyroid gland.

*Preliminary
Diagnosis:*
Thyroglossal Cyst

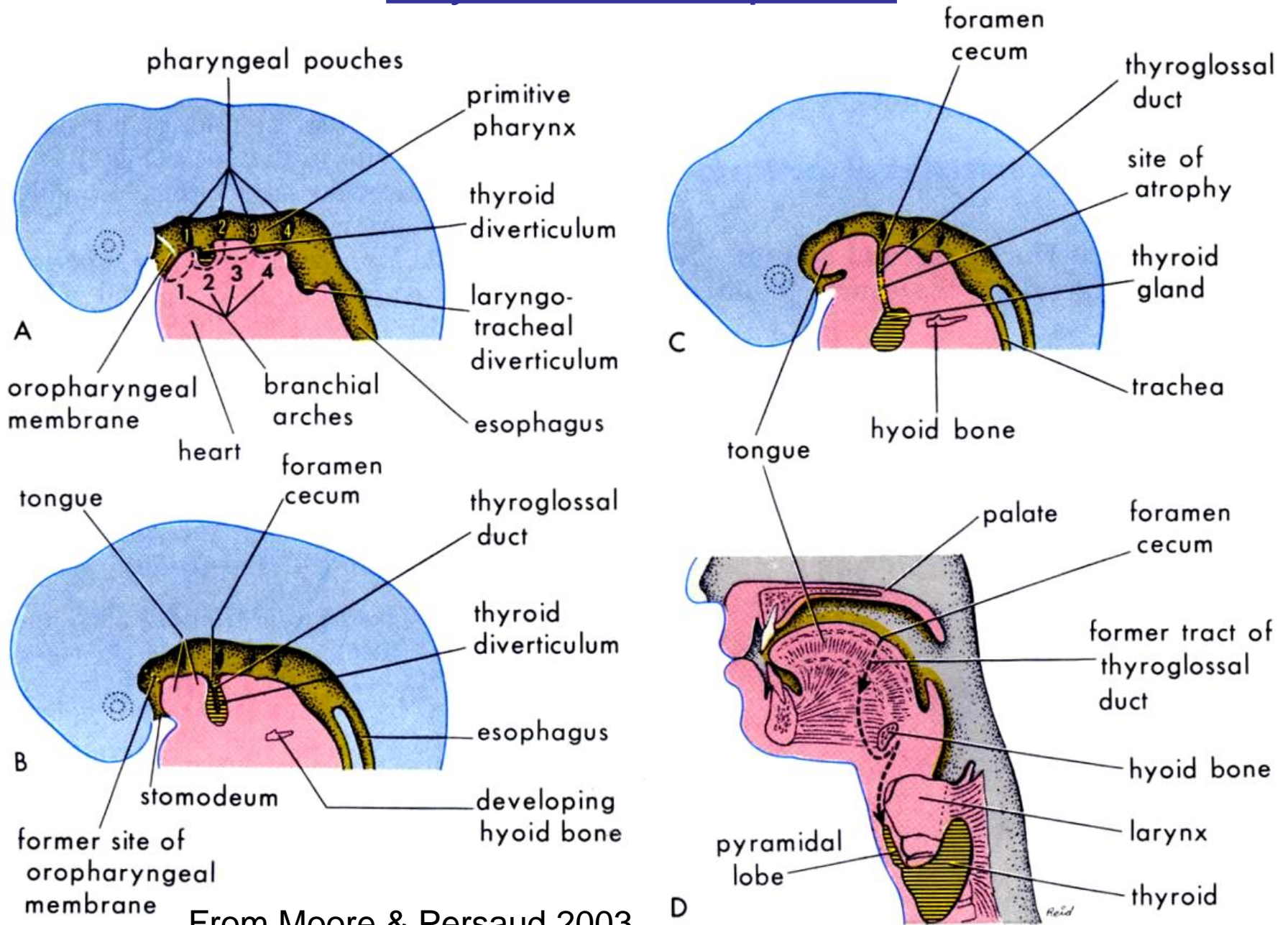


From Moore & Persaud 2003

Questions

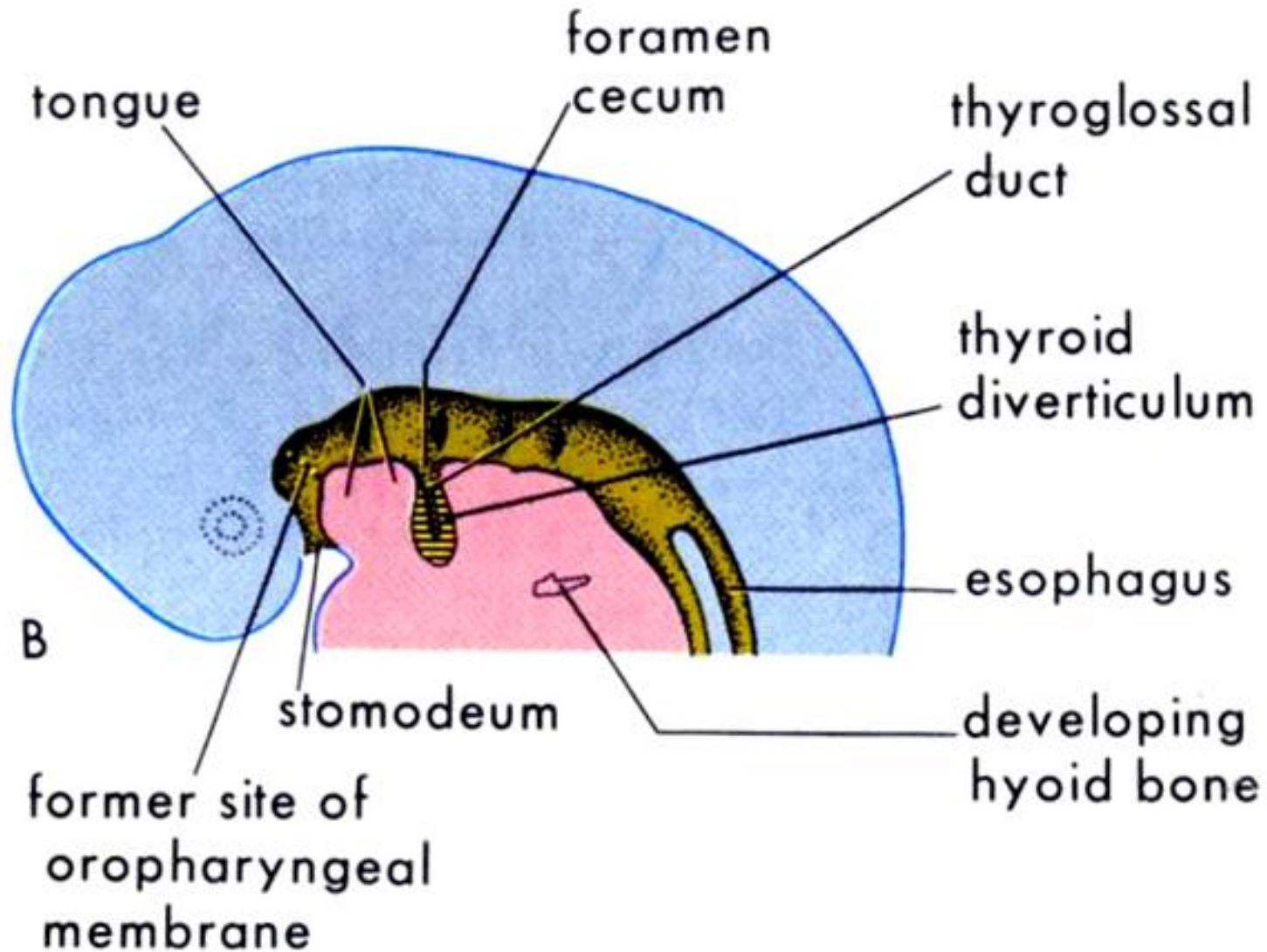
- 1. What is the embryonic derivation of a thyroglossal cyst?**
2. Why did the mass move upwards on swallowing?
3. Why did the surgeon look for thyroid tissue on the tongue?

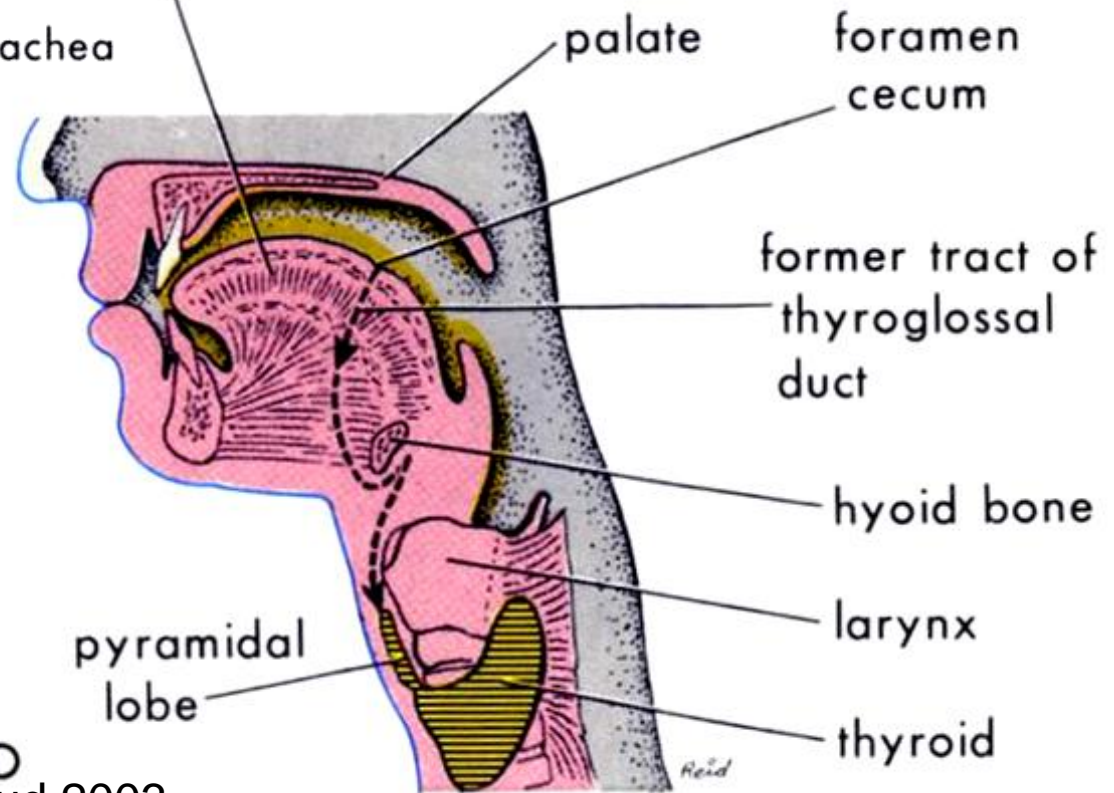
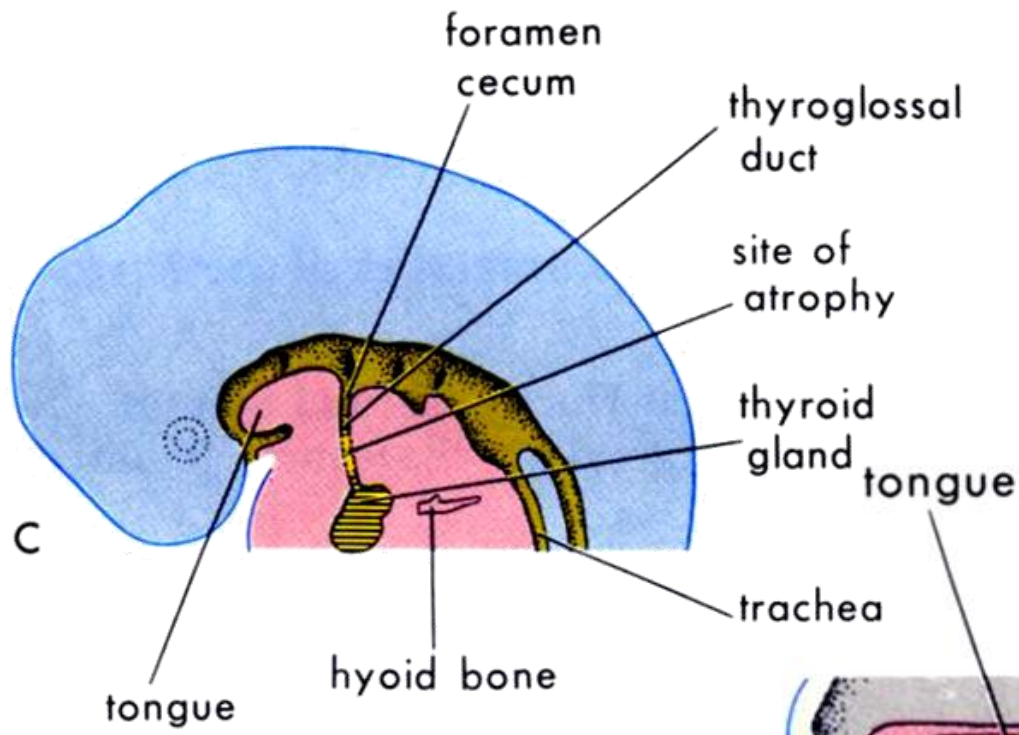
Thyroid Development



From Moore & Persaud 2003

Thyroid Development



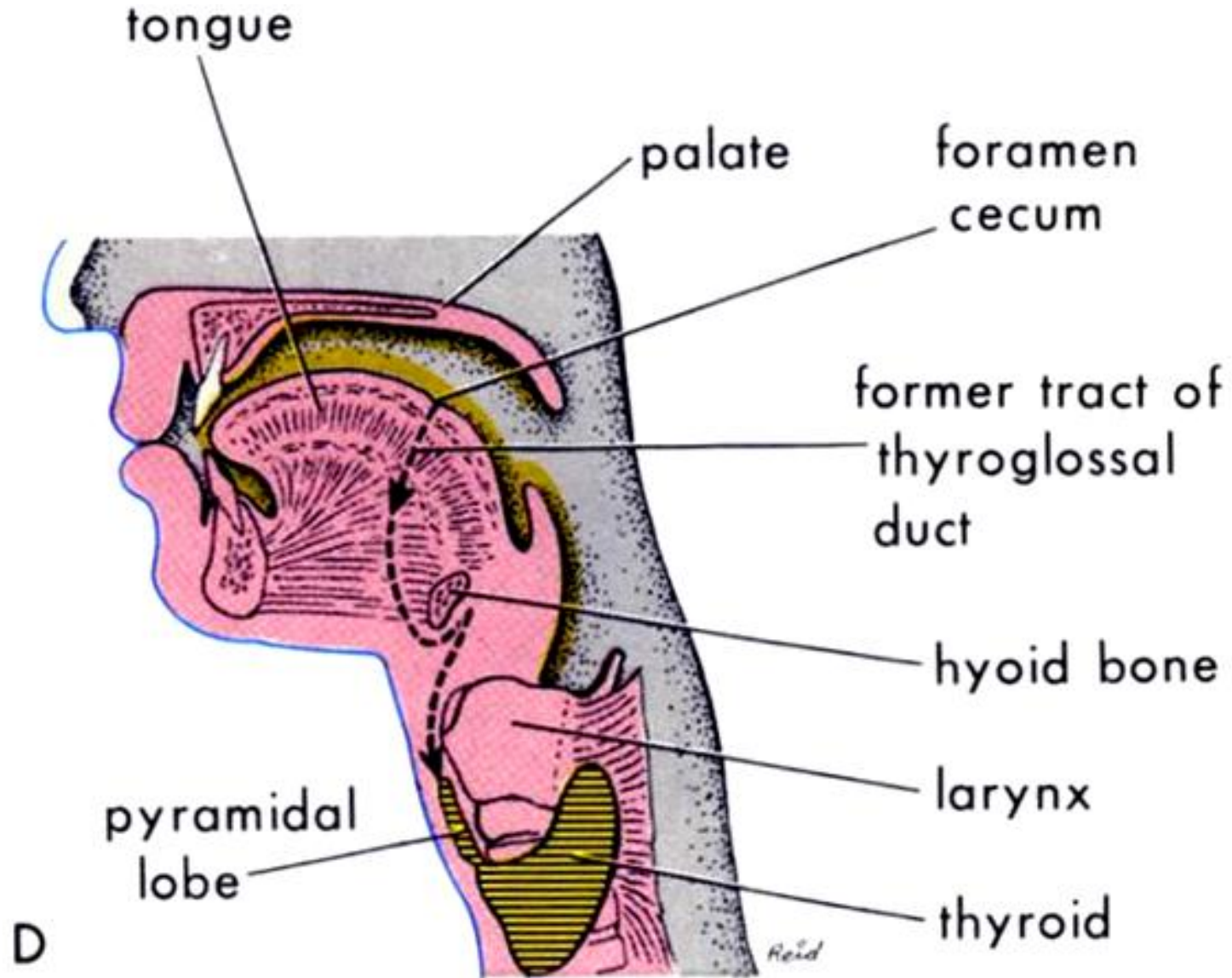


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From Moore & Persaud 2003

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Thyroid Development

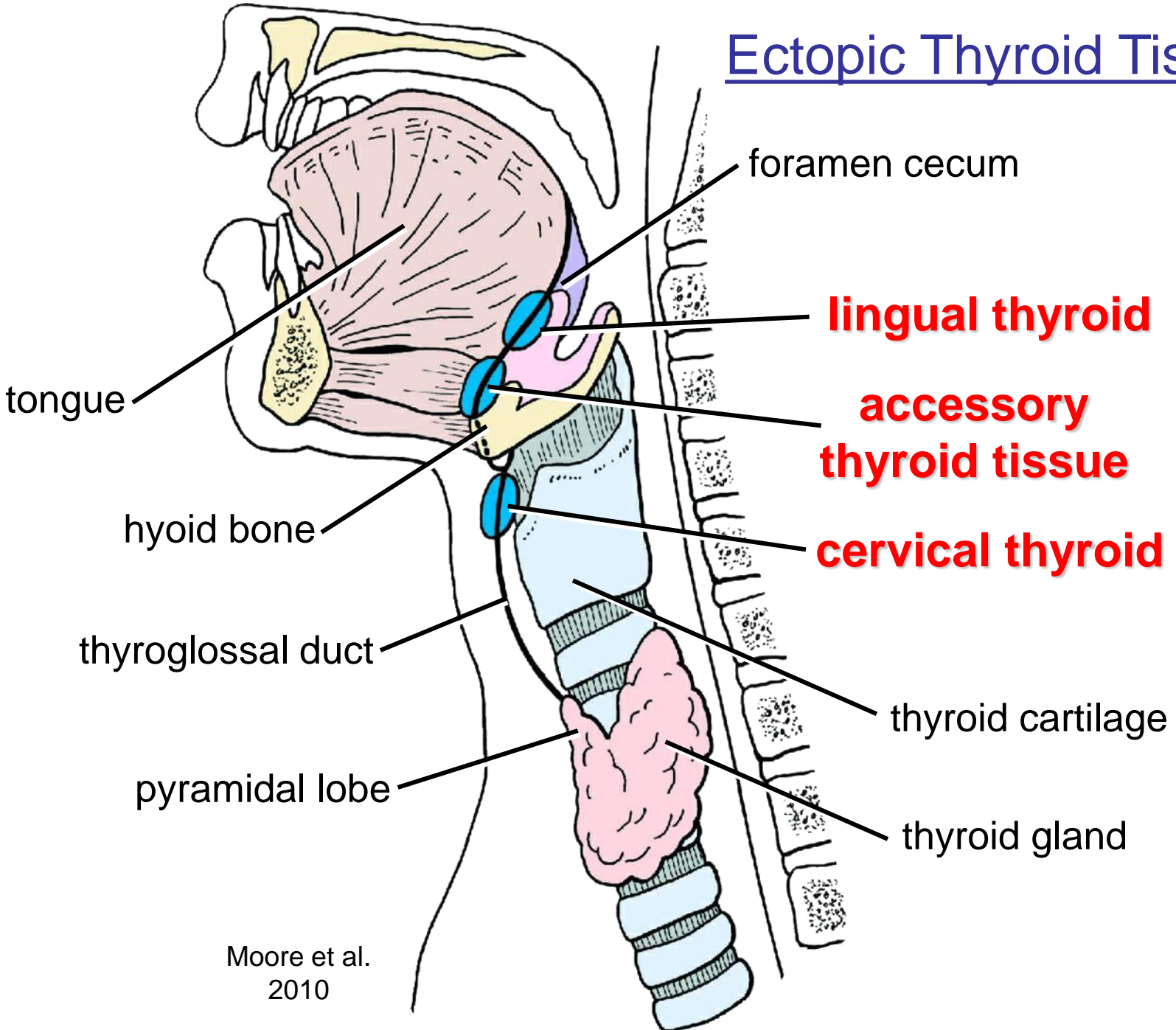


From Moore & Persaud 2003

Questions

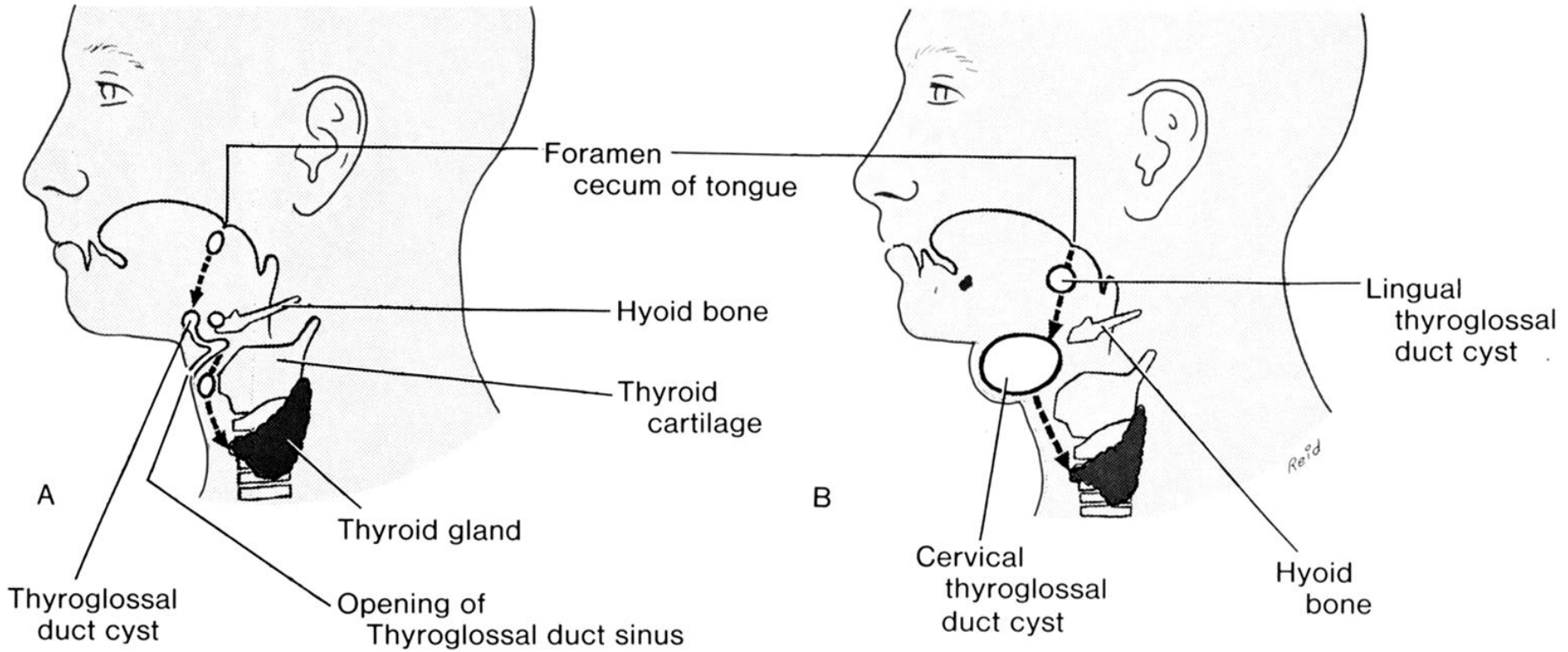
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Ectopic Thyroid Tissue



Moore et al.
2010

Possible Locations of Thyroglossal Duct Cysts



From Moore & Persaud 2003

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- Younes, N. A., and D. H. Badran. 2002. The cricothyroid space: a guide for successful thyroidectomy. *Asian Journal of Surgery* 25(3):226–231.

Web

1. Thyroid tumor: <http://www.auntminnie.com/ScottWilliamsMD2/nucmed/Tumor/Thallium/Thallium.htm>
2. Gray's *Anatomy of the Human Body*: <http://www.bartleby.com/107/>