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Cystic Lesions of the Aerodigestive Tract: Anatomic Relationships and Differential Diagnosis

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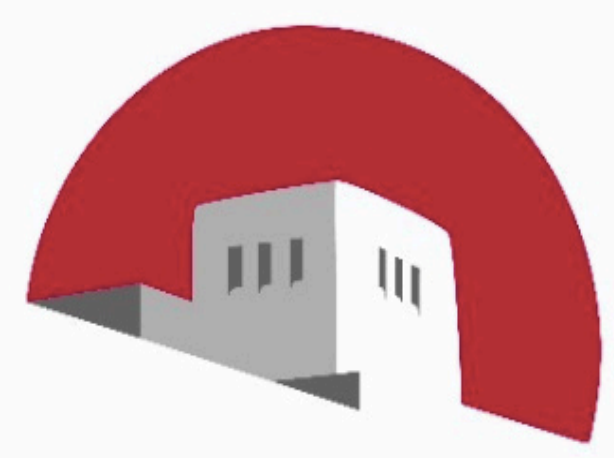
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Cystic Lesions of the Aerodigestive Tract: Anatomic Relationships and Differential Diagnosis



THE UNIVERSITY of
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PURPOSE

This educational exhibit will discuss an anatomically based differential diagnosis for cystic lesions of the aerodigestive tract and present an algorithmic, anatomic-based diagnostic approach for these cysts.

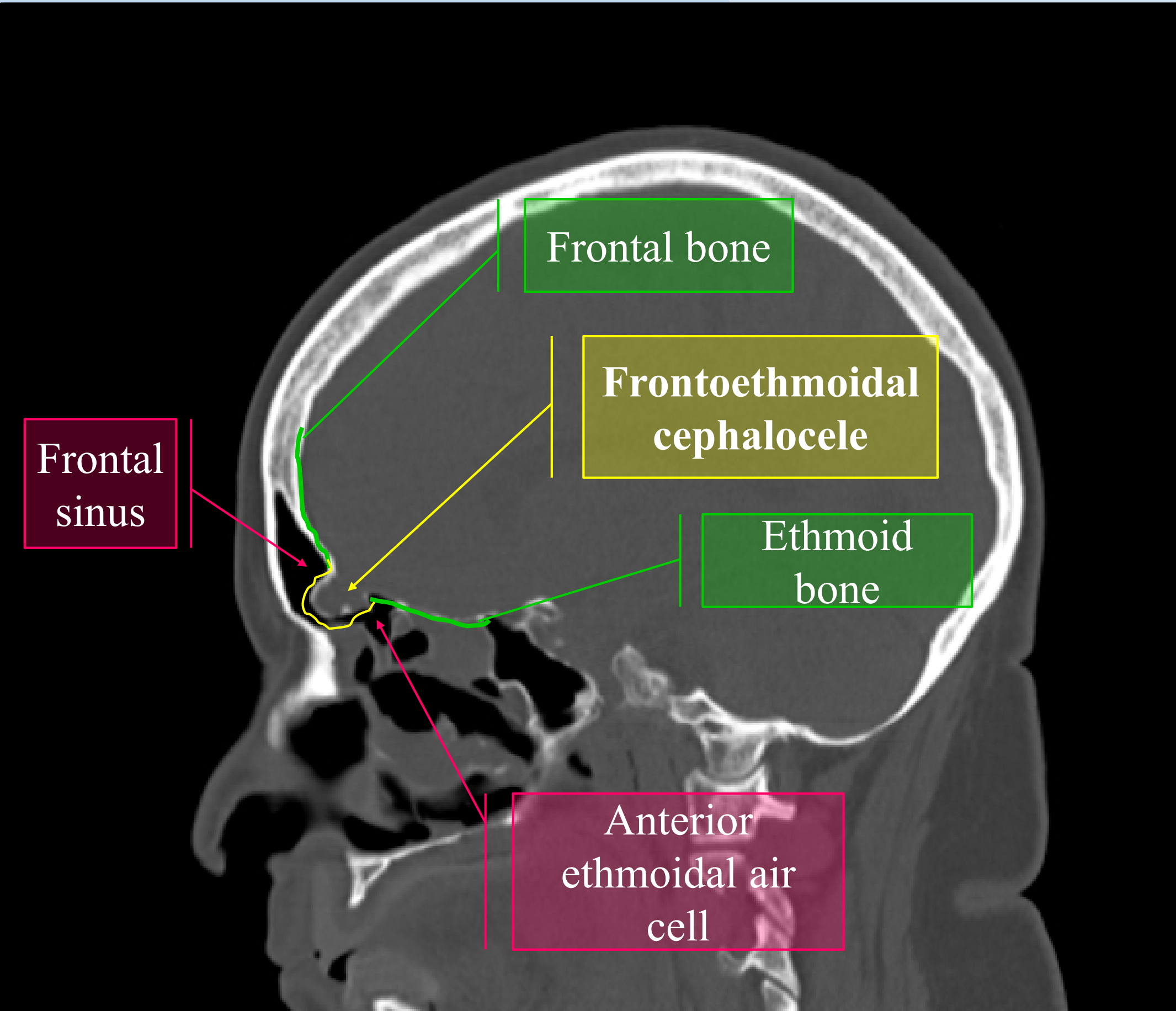
APPROACH/METHODS

Cystic lesions of the aerodigestive tract are common findings at MRI and CT neck imaging. The spectrum of aerodigestive tract cystic lesions is broad and their clinical significance is widely varied. Differentiation of these lesions based on anatomic relationships can be helpful in guiding management. Representative images were acquired from PACS and labeled to highlight anatomic relationships to aid in accurate diagnosis.

FINDINGS/DISCUSSION

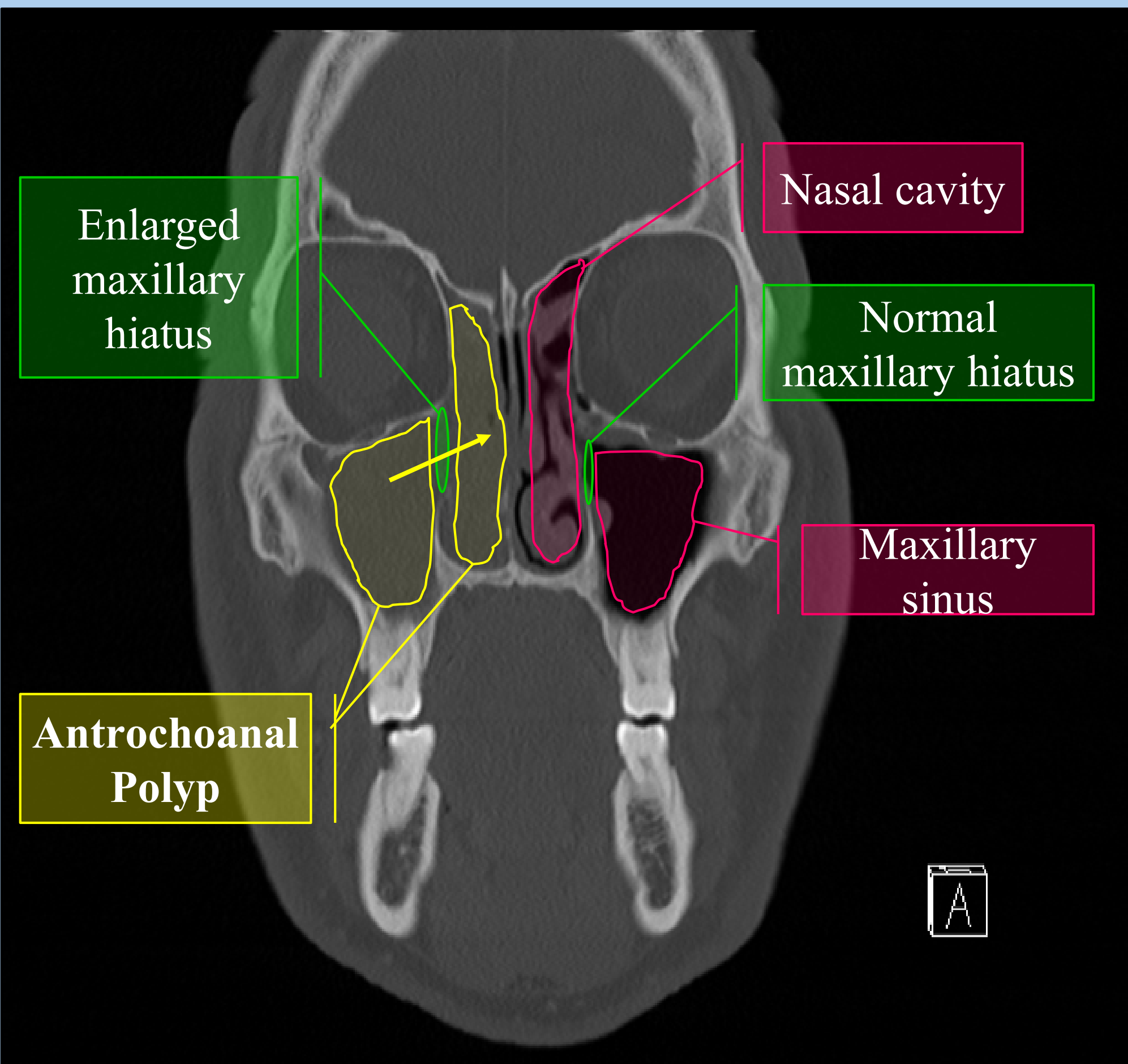
Cystic lesions will be discussed from cranial to caudal, labelled 1-10:

1. NASOPHARYNGEAL SKULL BASE CEPHALOCELE



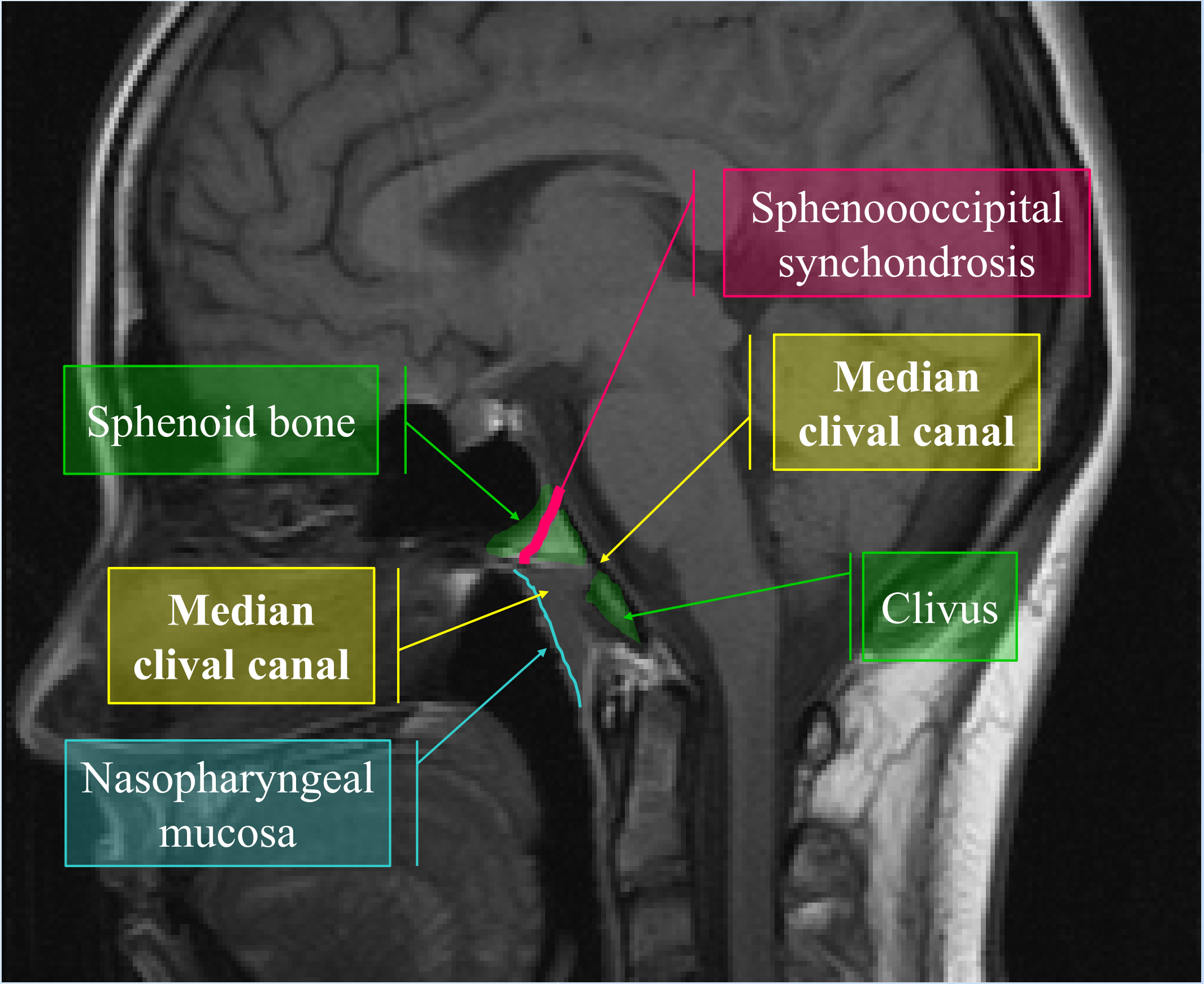
- Multiple types; defect in skull base containing CSF and/or brain.
- Types include: frontoethmoidal (seen above), transethmoid, sphenothmoid, sphenonasopharyngeal (**most common**), and basioccipital-nasopharyngeal.
- Recurrent meningitis may occur with basioccipital-nasopharyngeal cephalocele.
- CSF and/or brain filled skull base lesion with surrounding bone classifying this as a benign “**do not touch**” lesion which **should** be communicated to any involved ENT surgeons.

2. ANTROCHOANAL POLYP



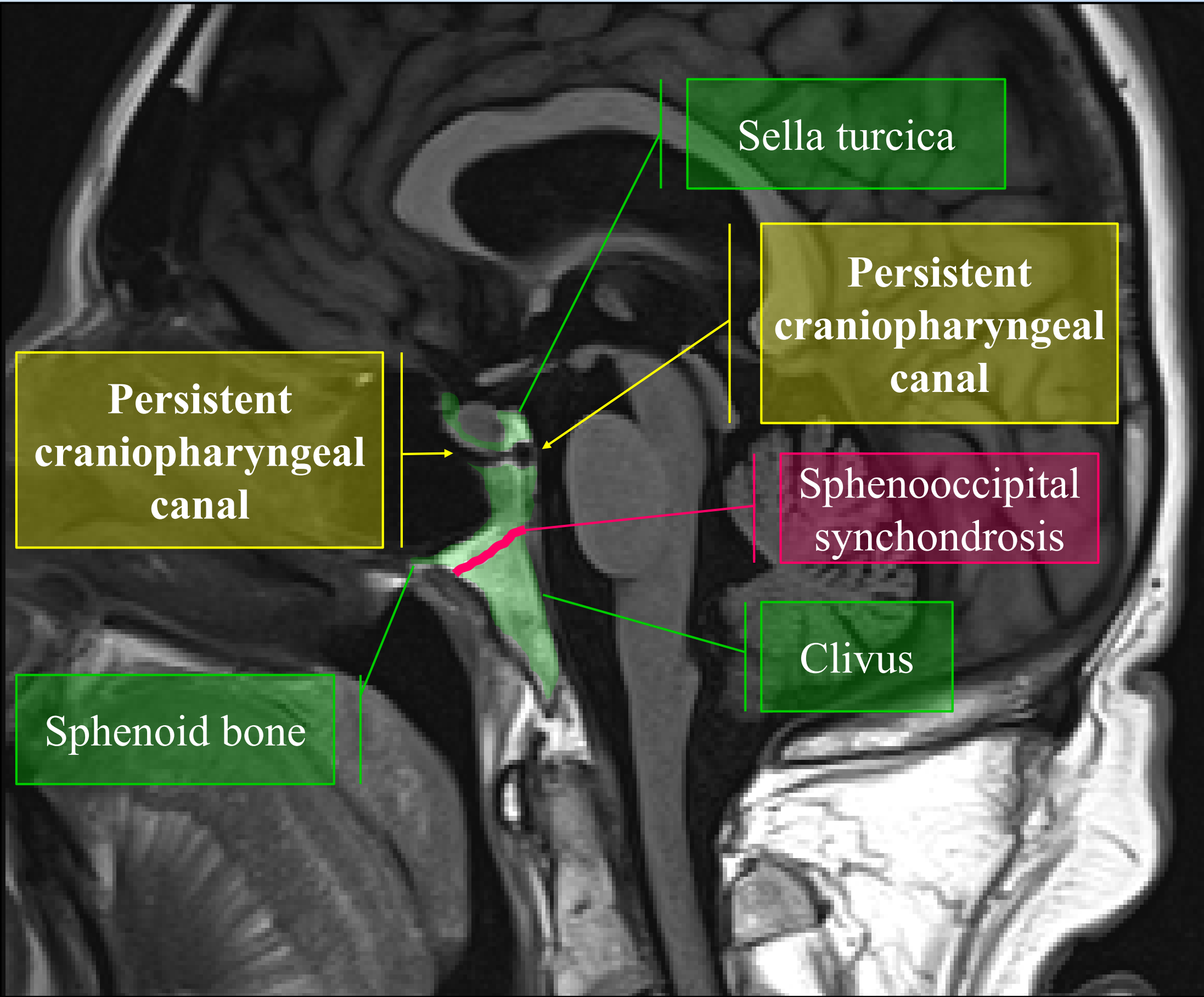
- Mass extending from the maxillary antrum into the nasal cavity via an enlarged maxillary hiatus or accessory ostium. May extend into the nasopharyngeal airway.
- Post-obstructive inflammatory disease may occur, more common when exiting via the natural maxillary hiatus.
- Characteristic cystic expansion of the maxillary sinus and hiatus, not to be confused with sinonasal carcinoma.

3. MEDIAN CLIVAL CANAL



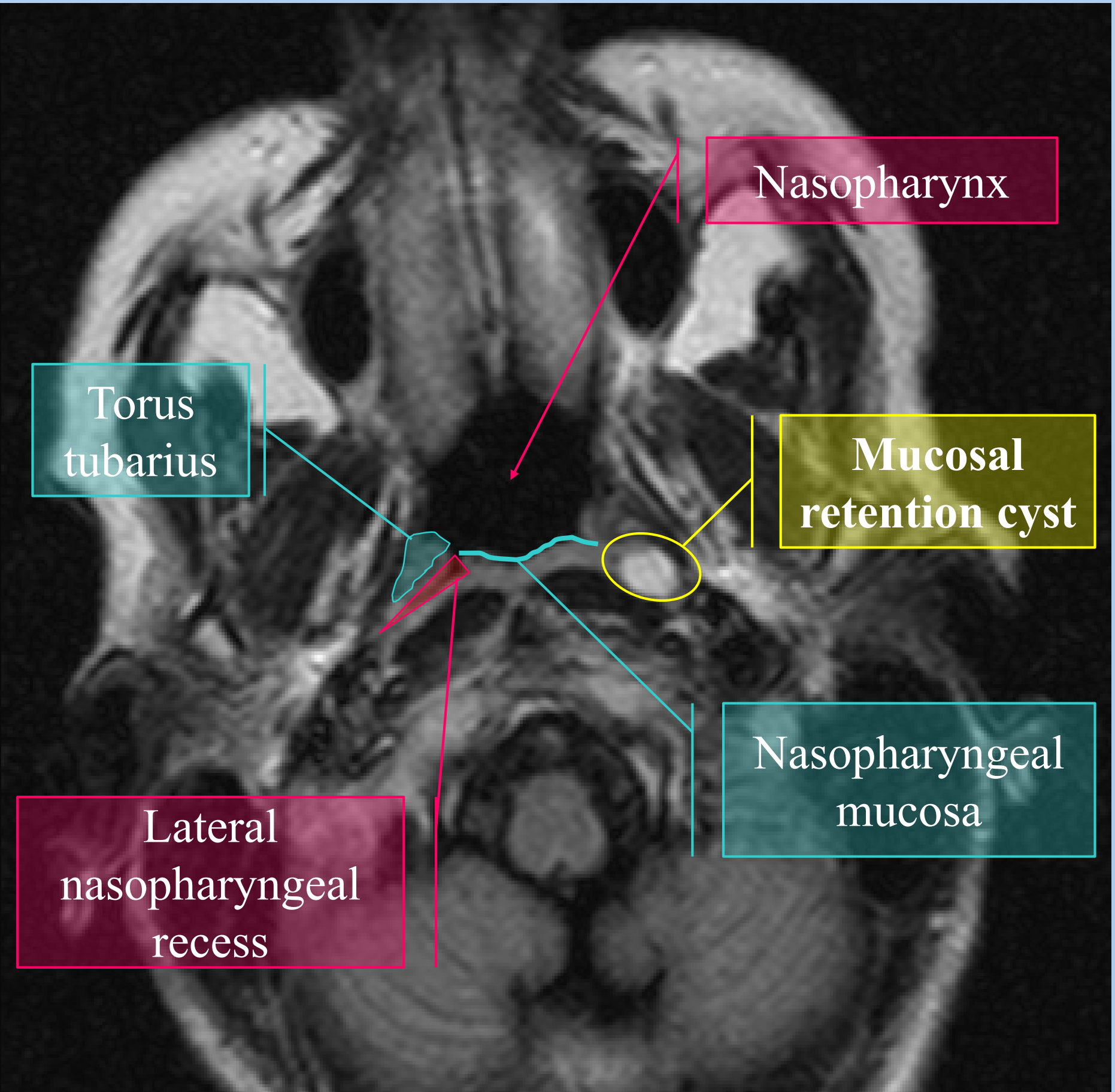
- Channel extending from the intracranial surface of the clivus to the nasopharyngeal surface, **posterior** to the sphenoooccipital synchondrosis.
- Case reports of rare recurrent meningitis.

4. PERSISTENT CRANIOPHARYNGEAL CANAL



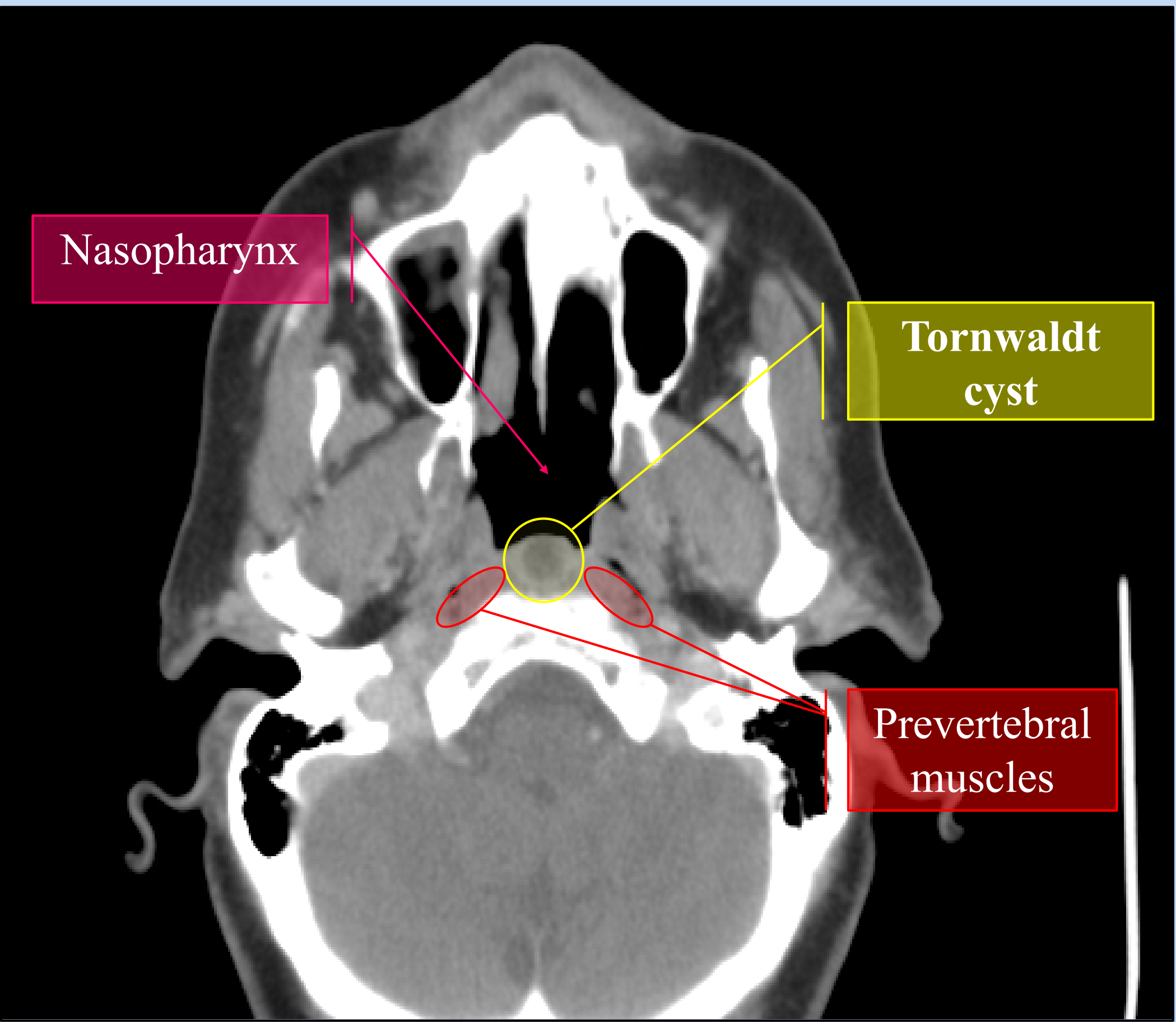
- Channel extending from the floor of the sella turcia to the nasopharyngeal surface, **anterior** to the sphenoooccipital synchondrosis.
- May have associated pituitary abnormality if large.

5. RETENTION CYST OF THE MUCOSA



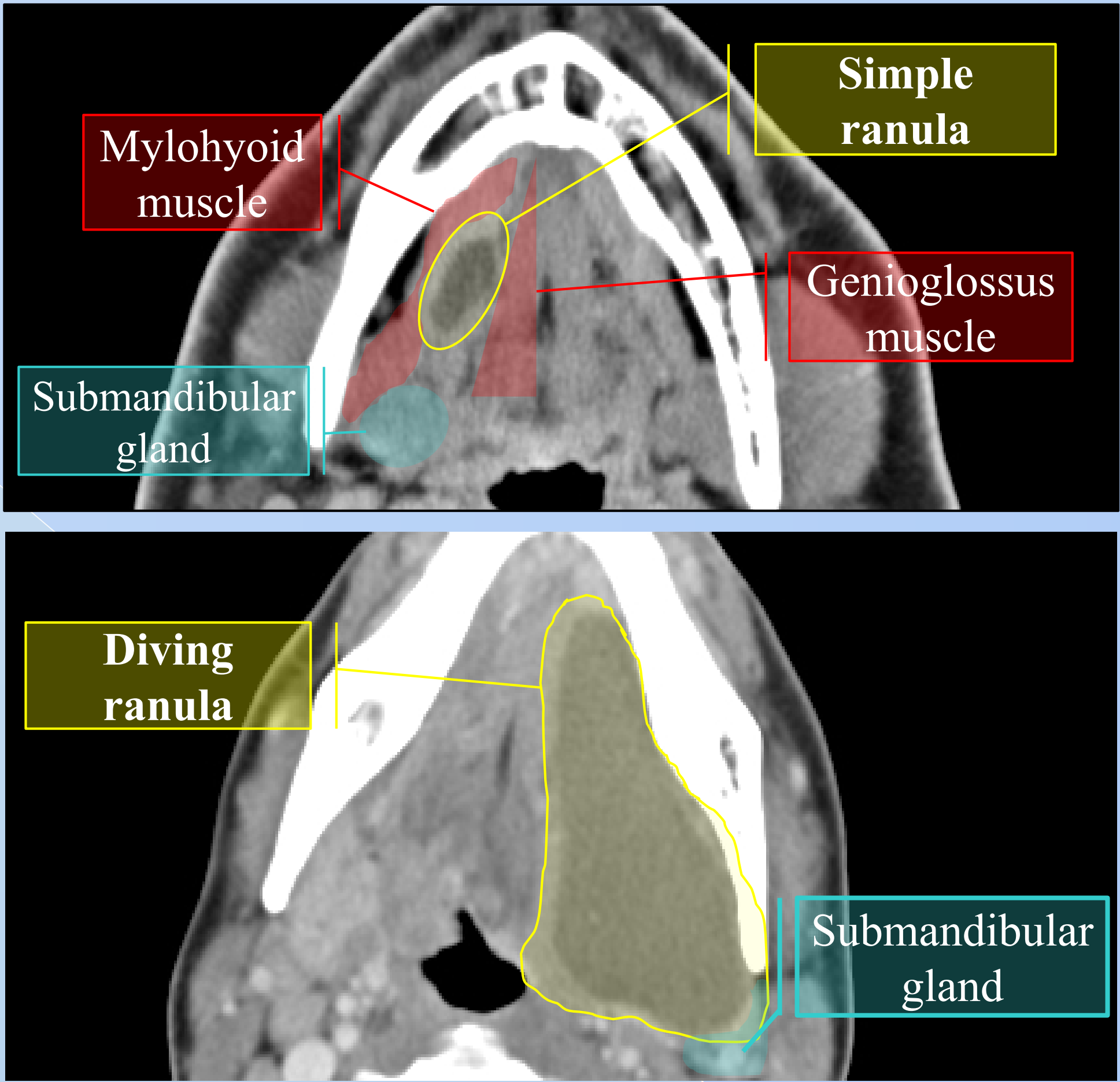
- Cyst of the pharyngeal mucosal space. Most common at the lateral nasopharyngeal recess, but can occur anywhere along the nasopharyngeal surface.
- Larger cysts may obstruct the Eustachian tube or result in dysphagia.
- Characteristic location and cystic features differentiate this as a benign and incidental lesion.

6. TORNWALDT CYST



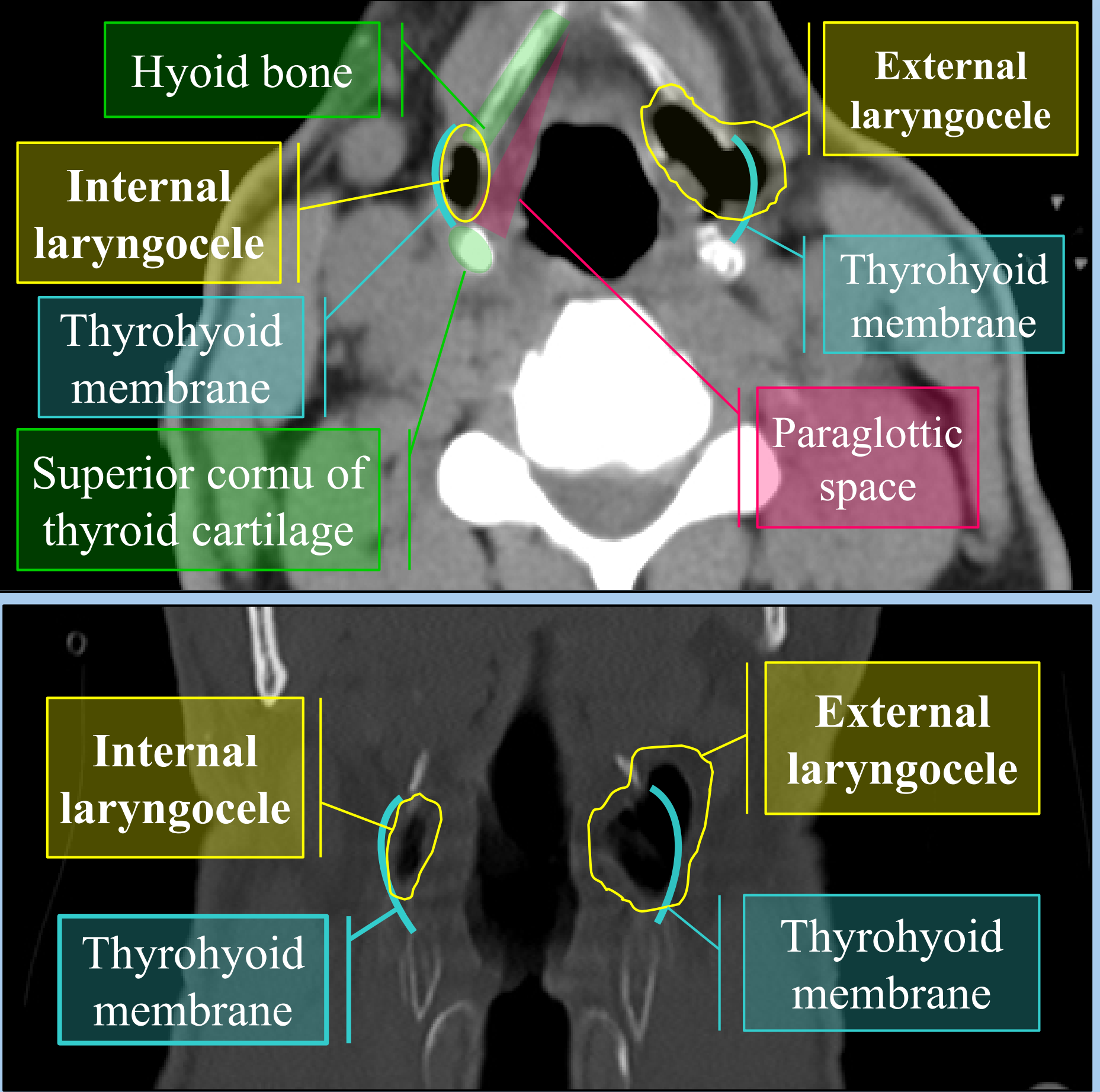
- Midline pharyngeal mucosal space cyst at the posterior nasopharyngeal wall along the pharyngeal raphe between the prevertebral muscles (longus capitis pictured).
- Rarely chronically infected.
- Not to be confused with nasopharyngeal carcinoma, which should not be cystic.

7. RANULA



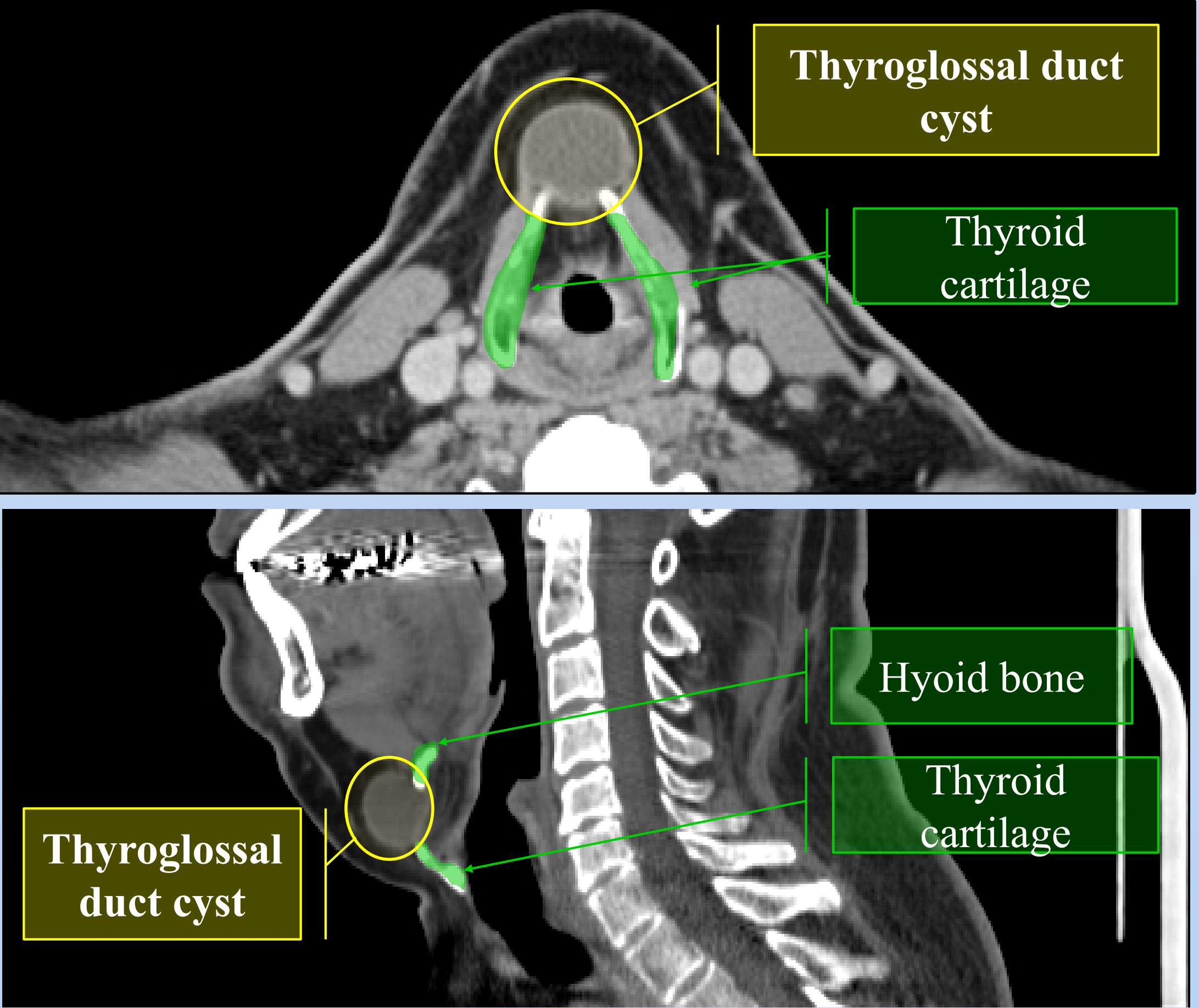
- *Simple*: Cyst lateral to genioglossal muscle, and lateral to the mylohyoid muscle, within the sublingual space.
- *Diving*: Extends through a defect in the mylohyoid into the submandibular space.
- Can become superinfected.
- Cystic lesion not to be confused with tongue base or floor of mouth carcinoma.

8. LARYNGOCELE



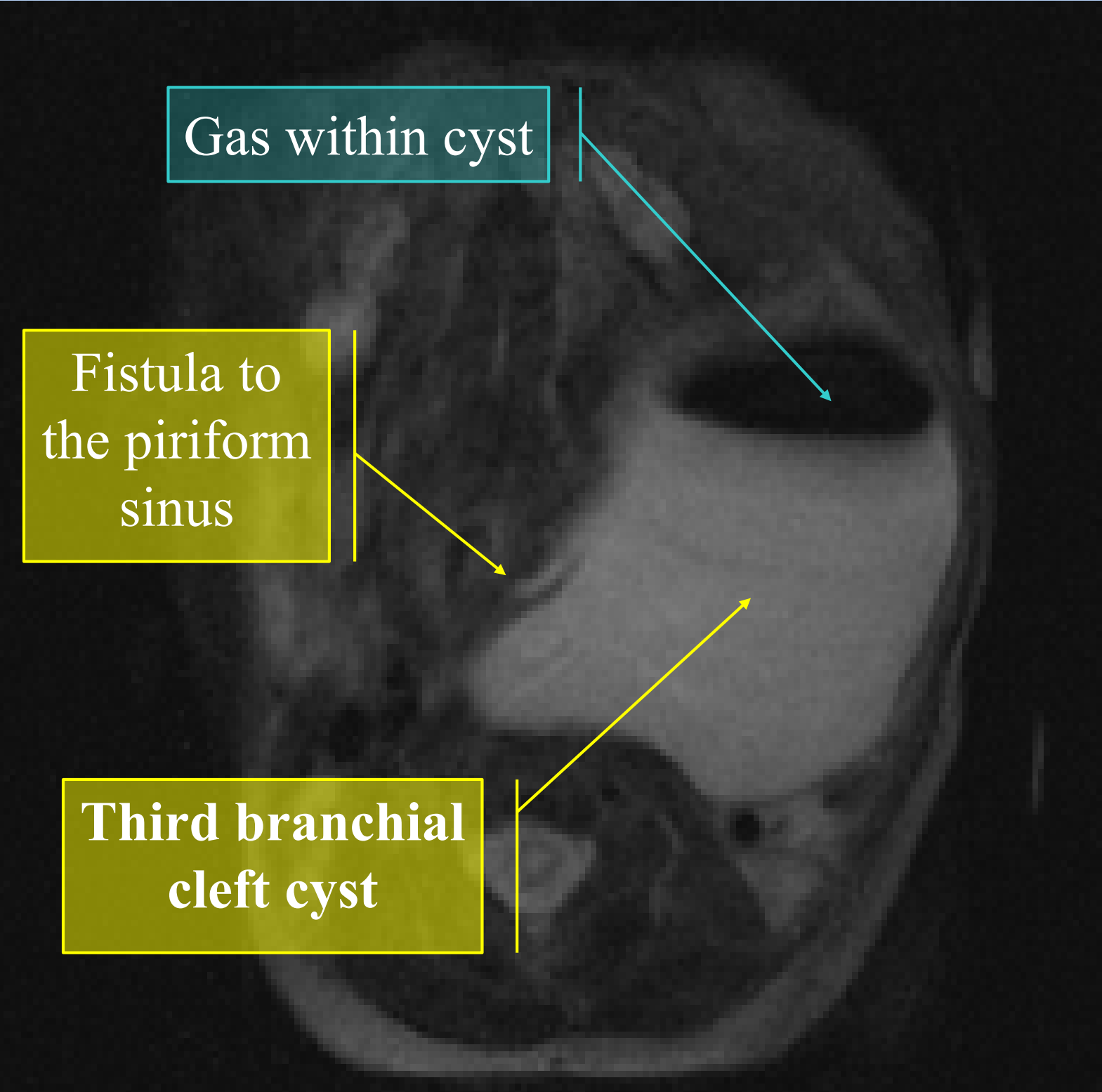
- *Internal*: Dilated air or fluid filled laryngeal saccule located within the paraglottic space.
- *External*: Extends through thyrohyoid membrane into the inferior submandibular space.
- Presence should prompt a search for a para- or supraglottic carcinoma, as there may result in a **secondary**: laryngocele.
- May be superinfected as a pyolaryngocele.

9. THYROGLOSSAL DUCT CYST



- Midline suprahyoid or midline/paramidline infrahyoid cyst. Approximately 25% suprahyoid, 50% at the hyoid, and 25% infrahyoid.
- 1% with associated thyroid cancer, 85% of which are papillary carcinoma.
- May swell with upper respiratory infection or become infected.

10. BRANCHIAL CLEFT CYST



- *Third cleft*: Cyst at upper posterior cervical space or lower anterior neck; fistula will exit from the piriform sinus and course superior to the superior laryngeal nerve and inferior to the glossopharyngeal nerve.
- *Fourth cleft*: Usually a sinus tract from the apex of the piriform sinus to the superior left thyroid gland.
- Congenital cystic lesions with tract to the piriform sinus; may contain gas secondary to connection with airway.

SUMMARY/TAKE HOME POINTS

A broad spectrum of pathologies can result in cysts in the aerodigestive tract, some of which have clinical ramifications. An anatomic-based algorithm may permit a diagnosis and guide treatment.

SIGNIFICANT CYSTIC LESIONS:

- Skull base cephalocele: report to ENT service; **do not biopsy!**
- Laryngocele: identification should prompt search for possible **para- or supraglottic carcinoma** as the cause.
- Thyroglossal duct cyst: 1% association with **thyroid carcinoma**.

DO NOT TOUCH LESIONS (NO FURTHER EVALUATION):

- Tornwaldt cyst
- Antrochoanal polyp
- Retention cyst
- Median clival canal
- Persistent craniopharyngeal canal
- Ranula
- Branchial cleft cyst

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