

IMAGING IN PEDIATRIC HEAD AND NECK INFECTIONS

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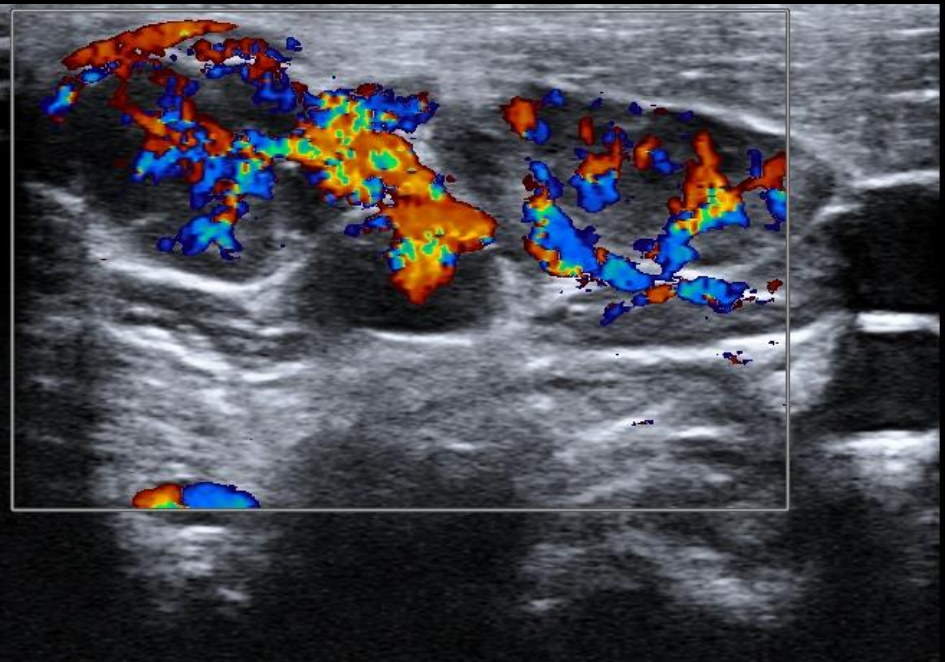
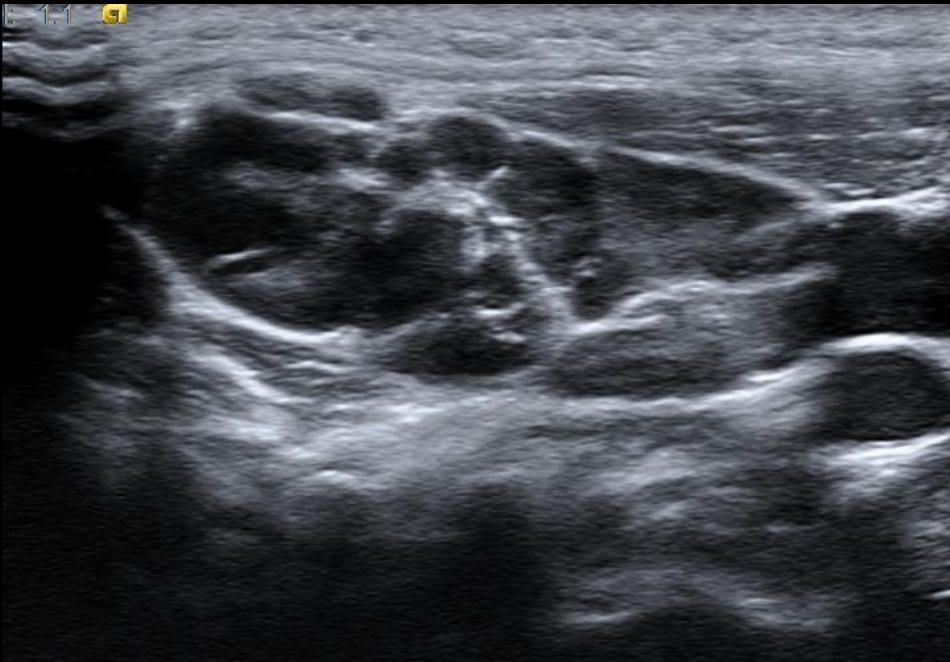
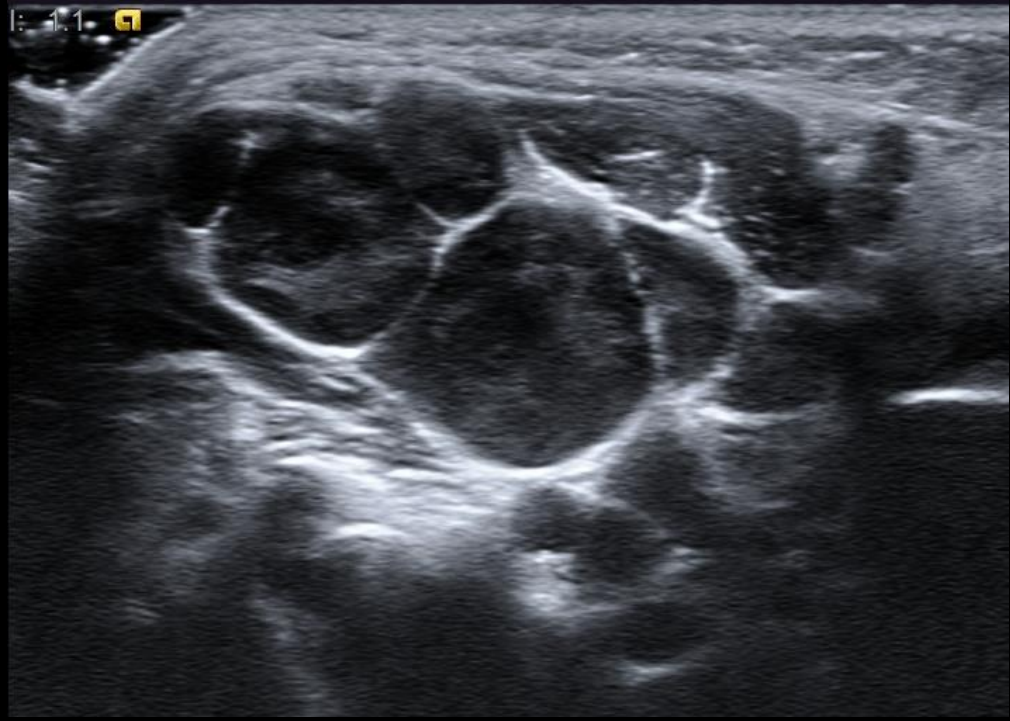
Objectives

- Illustrate common and uncommon pediatric infectious process
 - Relevant anatomy/embryology
 - Preferred imaging techniques:
 - Role of Ultrasound
 - MRI?
 - Appropriate terminology
 - Tips and tricks

Lymphadenitis

- Most common cause of neck mass in children
- Inflammation of the lymph nodes due to an infectious process
- Often results from viral upper respiratory tract infections

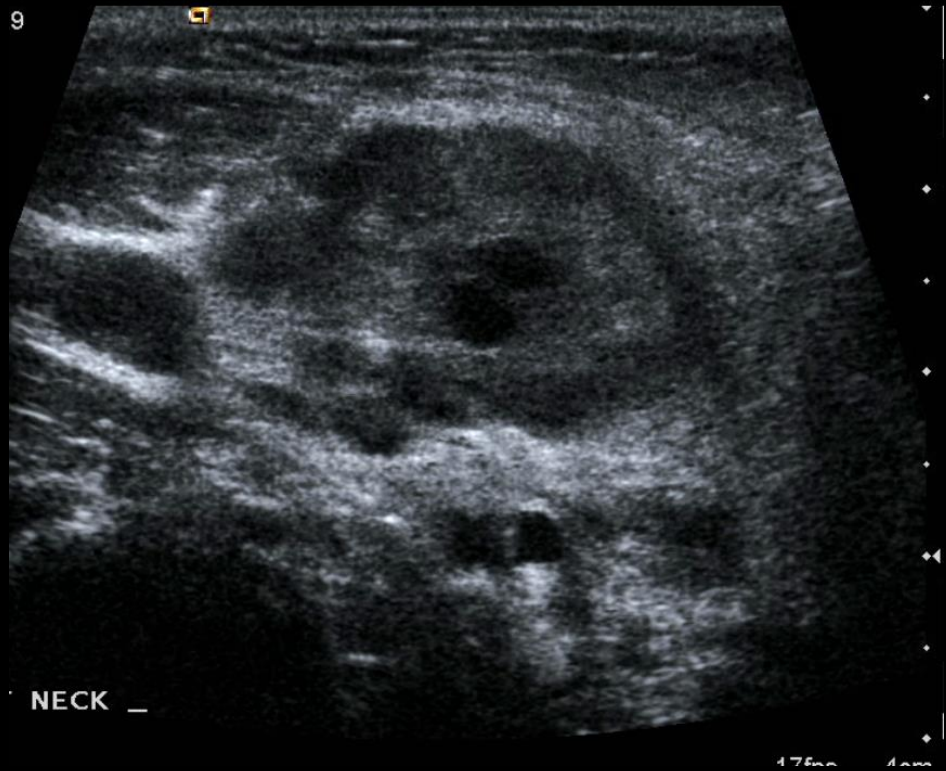
Lymphadenitis



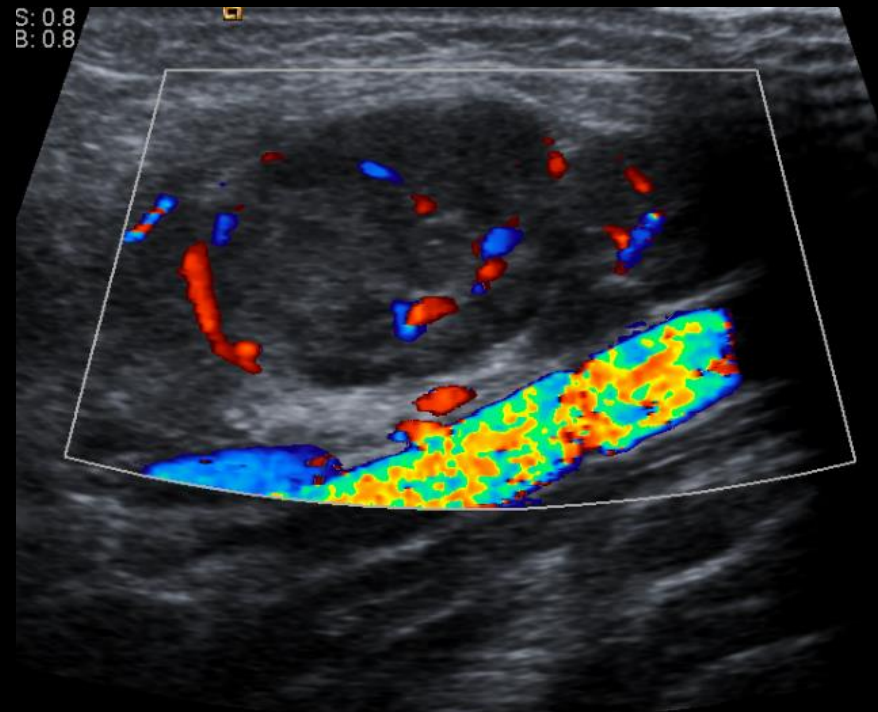
Suppurative lymphadenitis

- Usually results from bacterial infections
- Cellulitis and abscess formation are the most common complications
- Vascular complications
 - Internal jugular vein thrombophlebitis (Lemierre's syndrome)
 - Mycotic aneurysms

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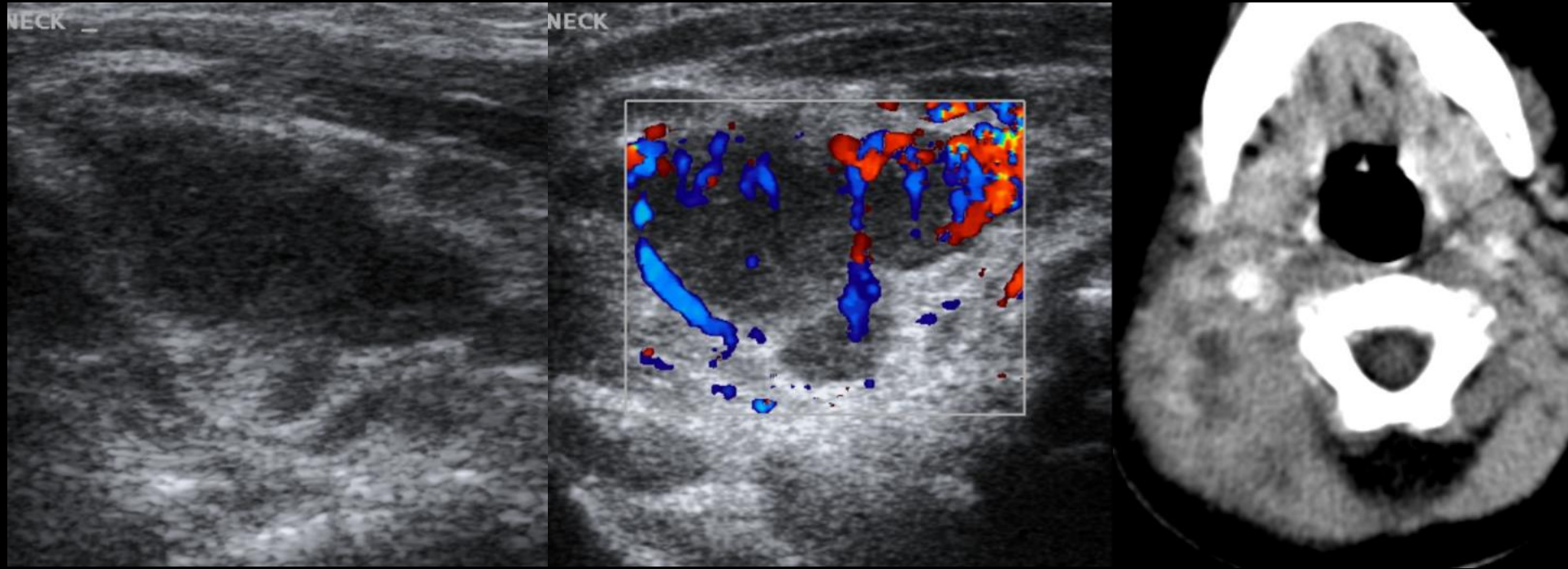


Suppurative
lymphadenopathy

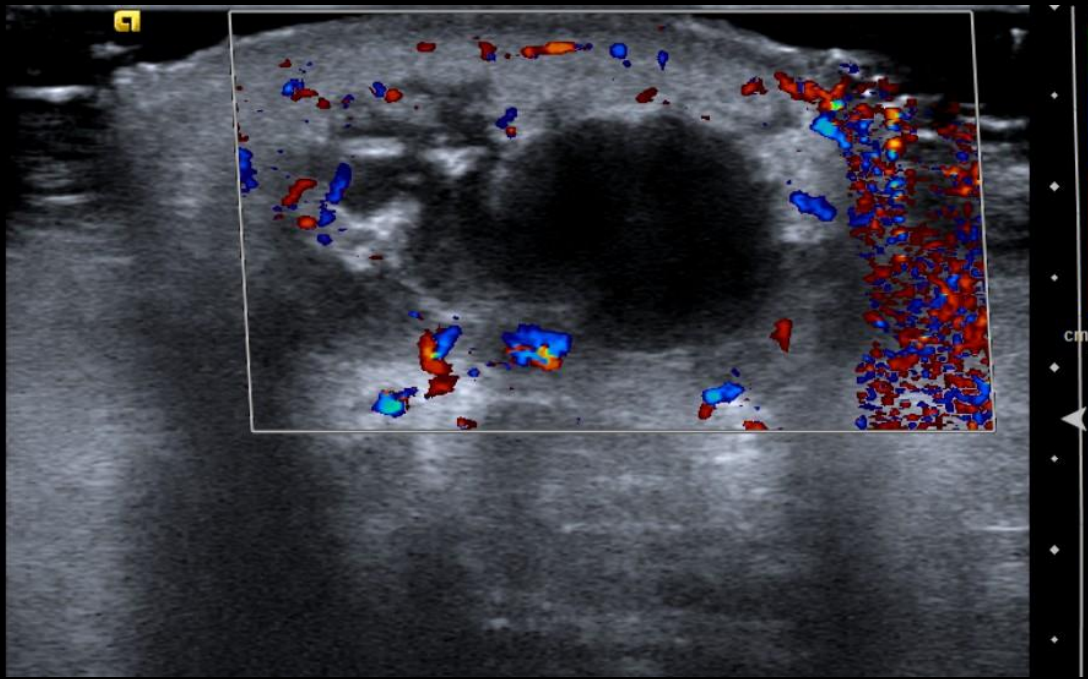


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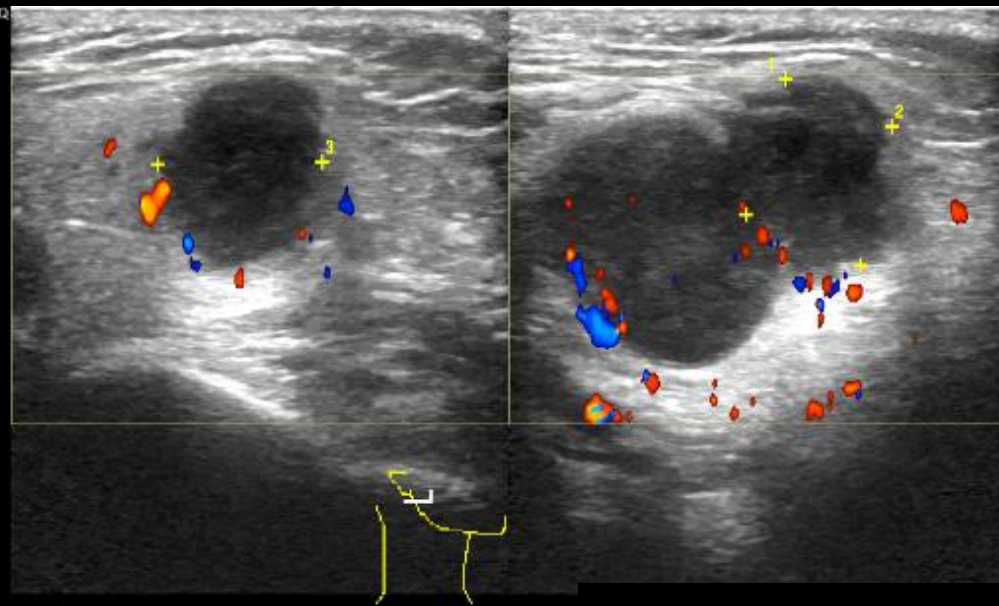
Suppurative lymphadenitis: abscess



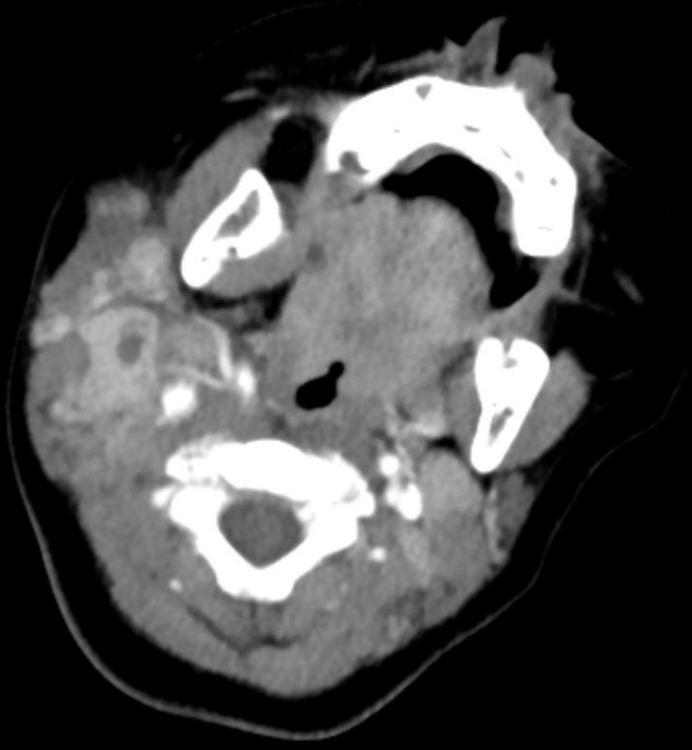


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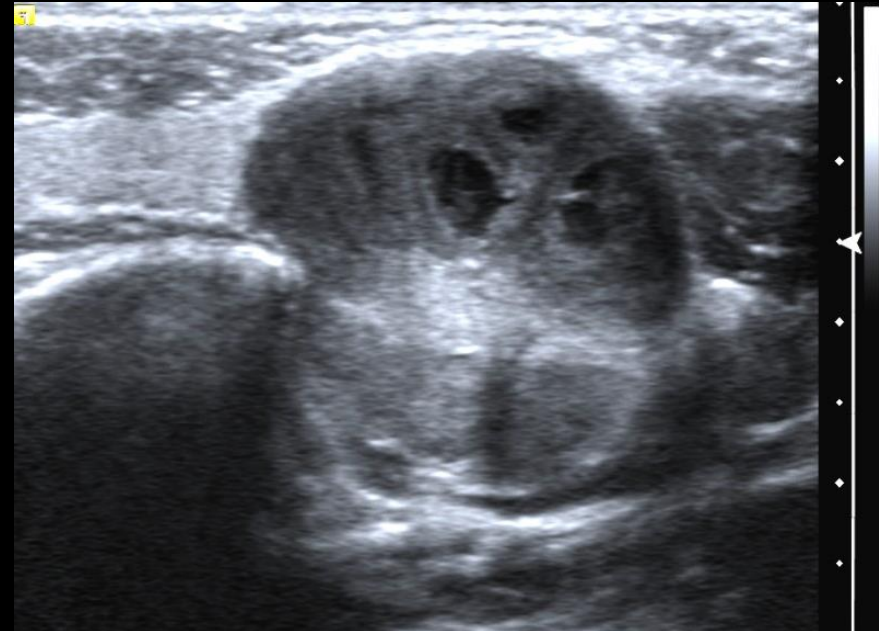
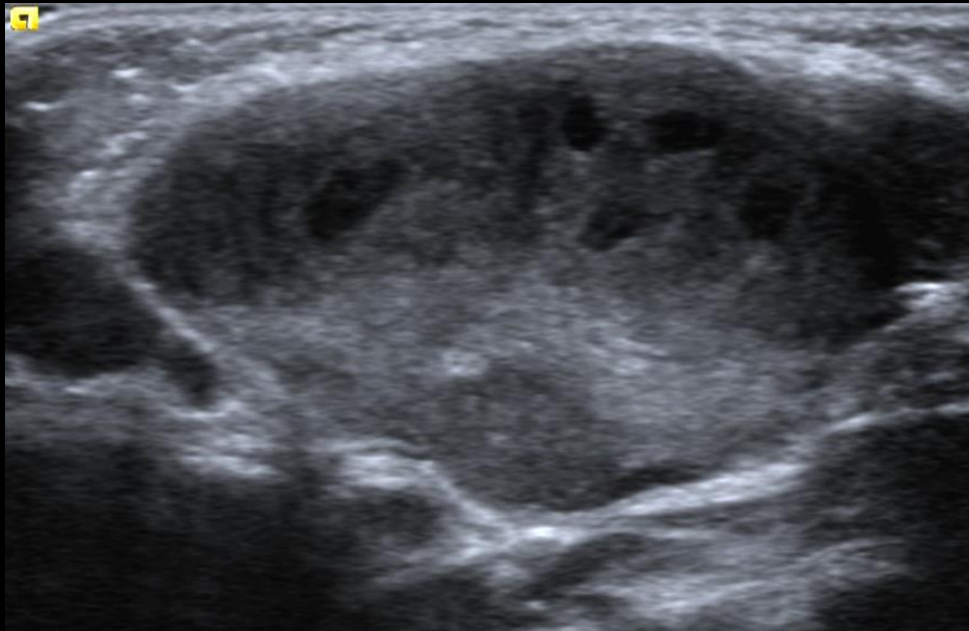


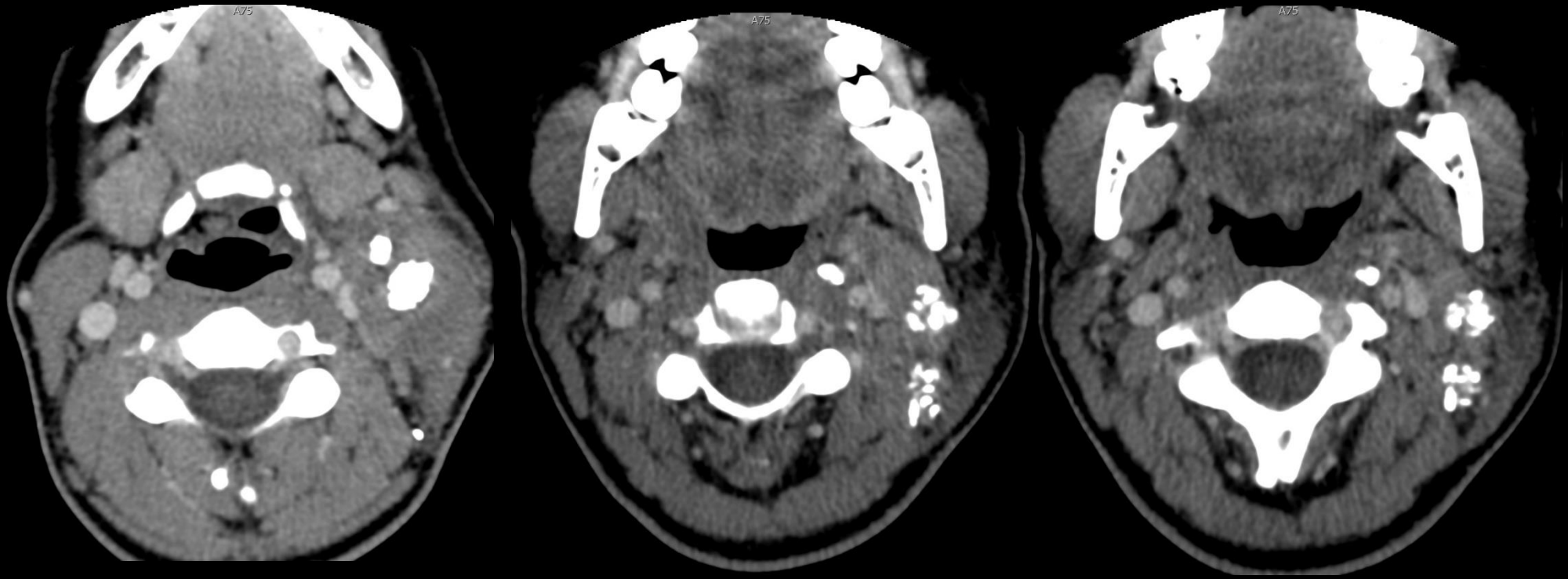
Atypical
mycobacterial
infection





Cat Scratch Disease





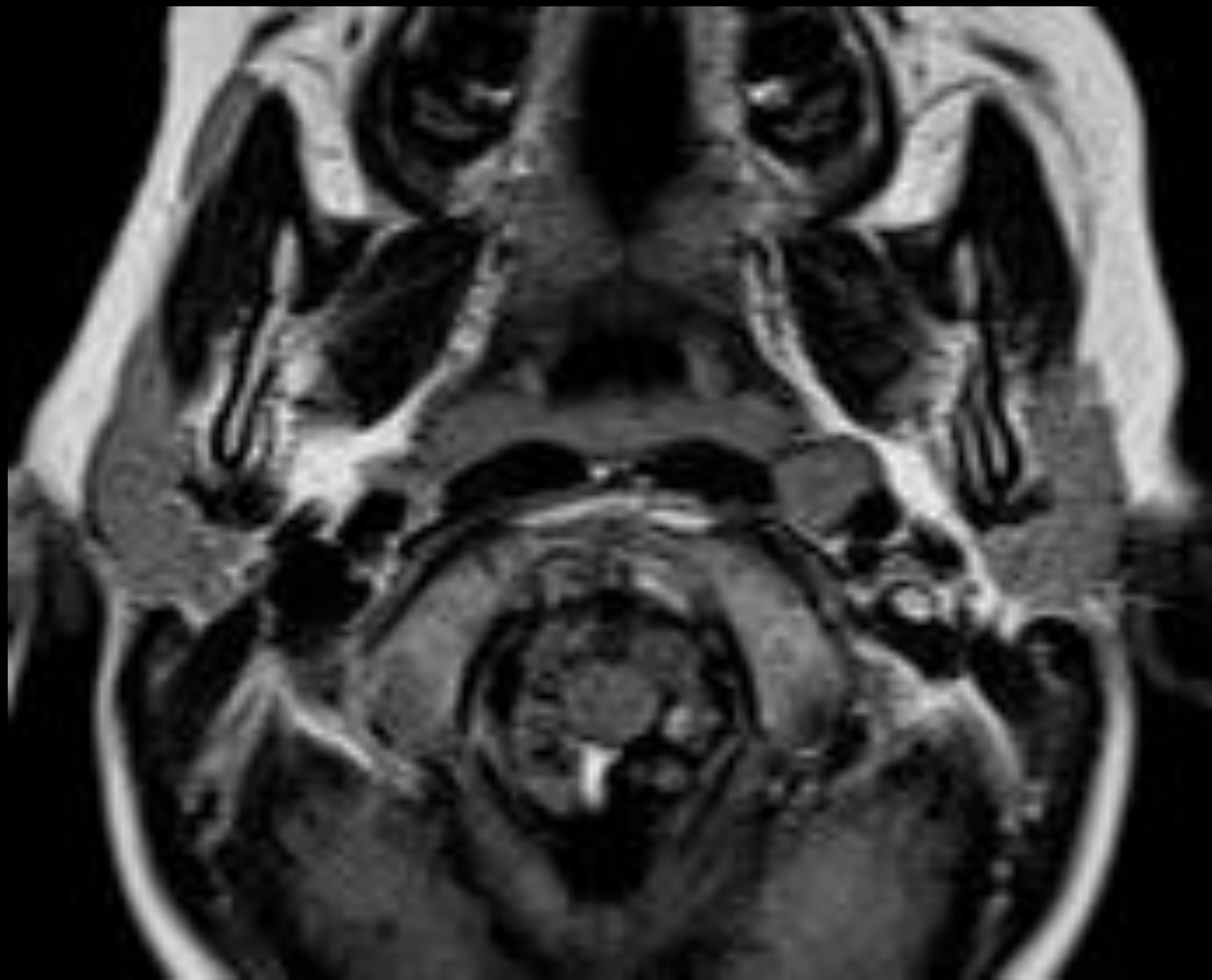
Calcified lymphadenopathy: Cat Scratch Disease

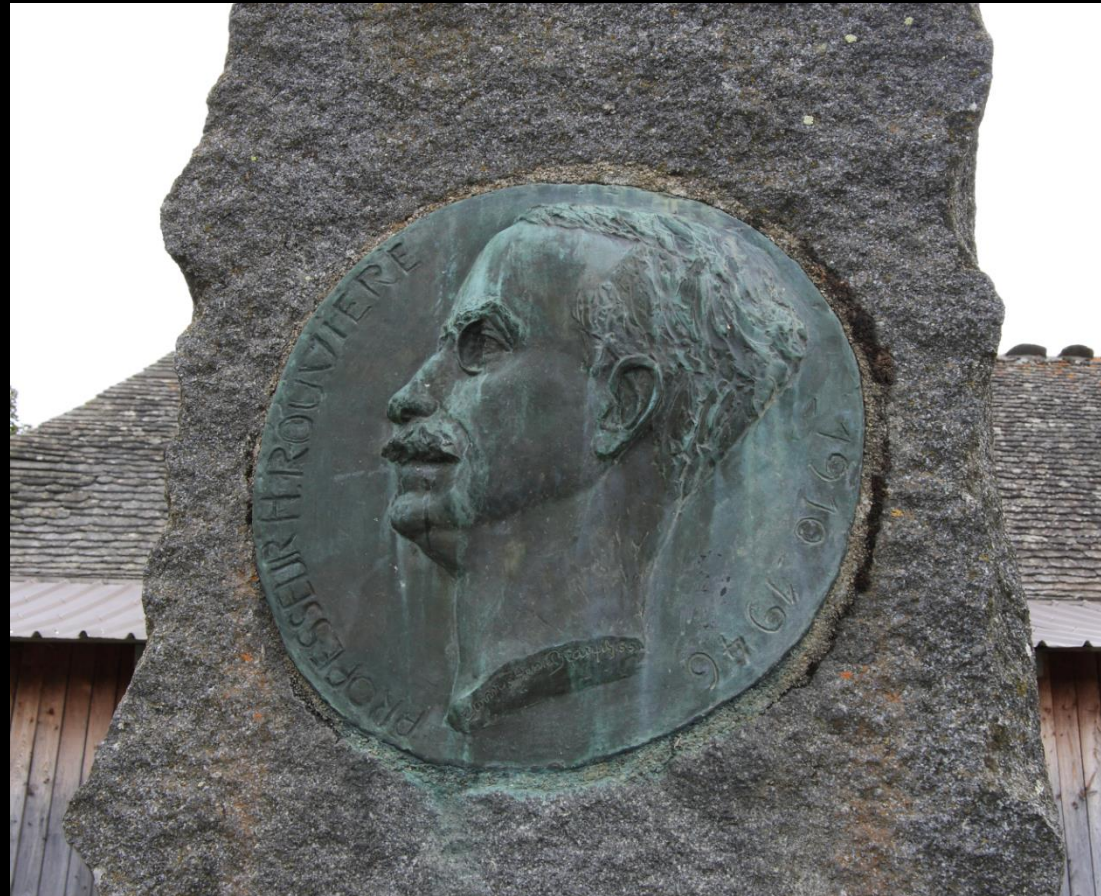
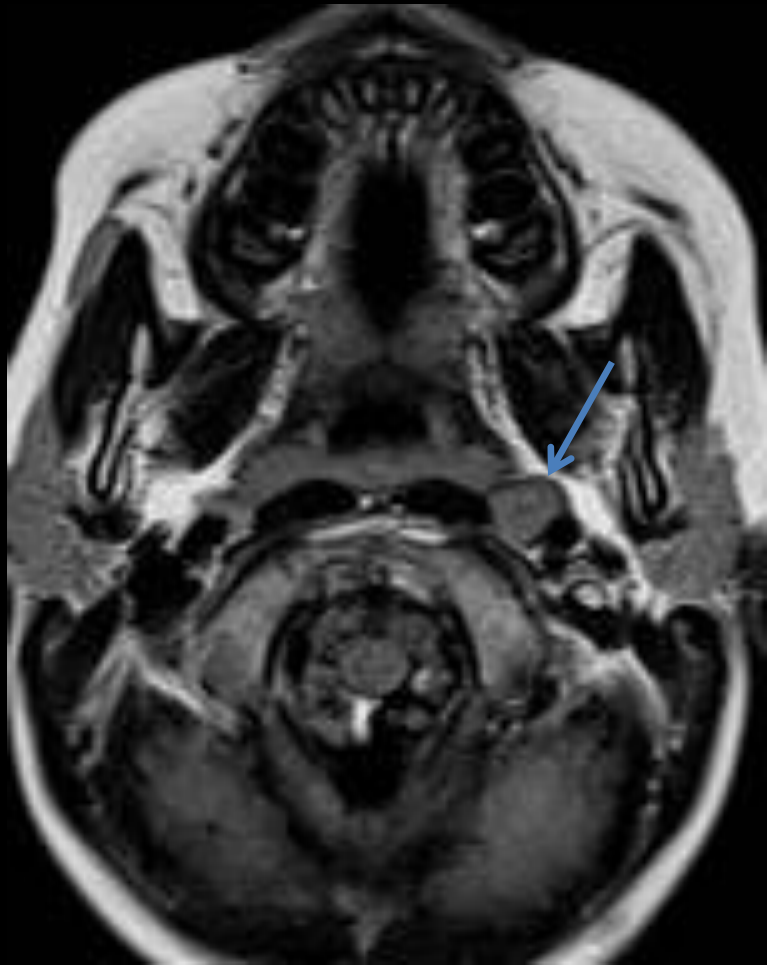
Deep Neck Infections

Tonsillar/peritonsillar/parapharyngeal/retropharyngeal
/prevertebral

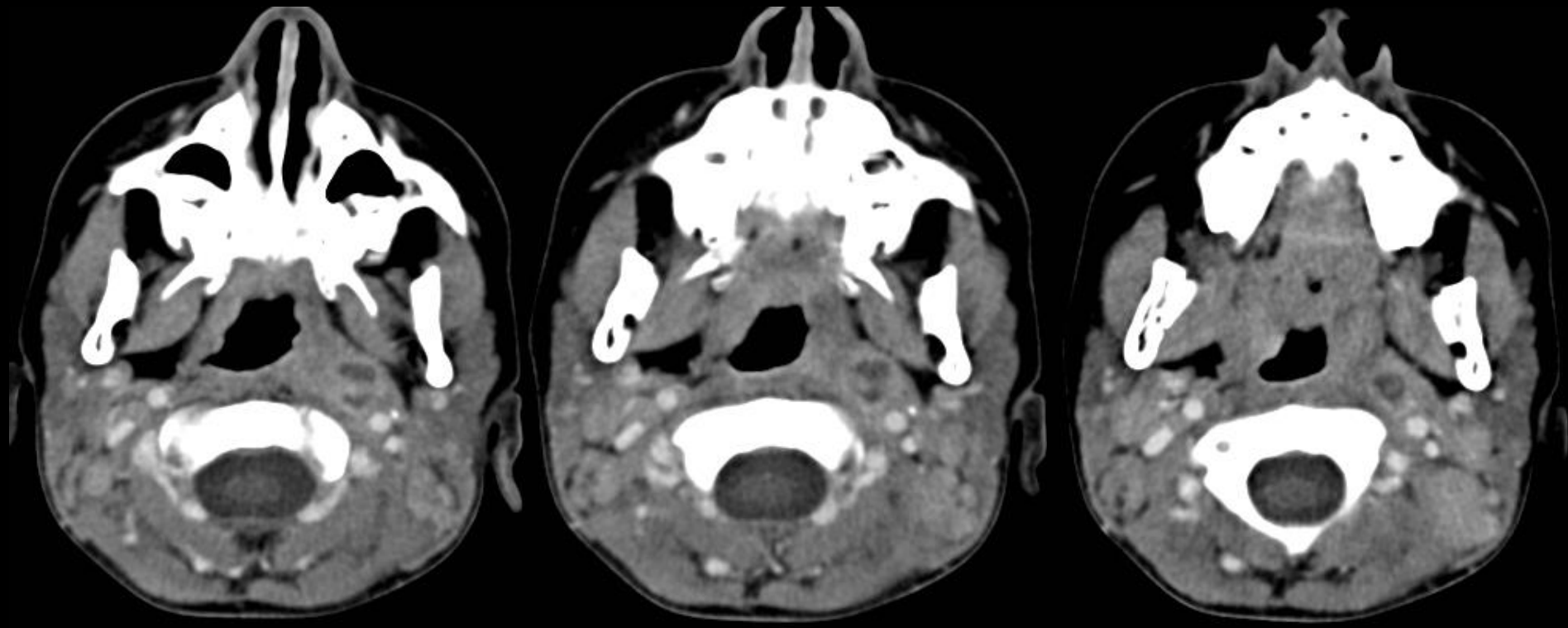
Deep Neck Infections

- Look for retropharyngeal and parapharyngeal infections/abscesses
- Significant potential mortality and morbidity
- Potential sources of infection
 - Sinonasal tract
 - Throat
 - Tonsil
 - Middle ear
 - Teeth
 - Trauma
- Contrast-enhanced CT/MRI : Investigation of choice

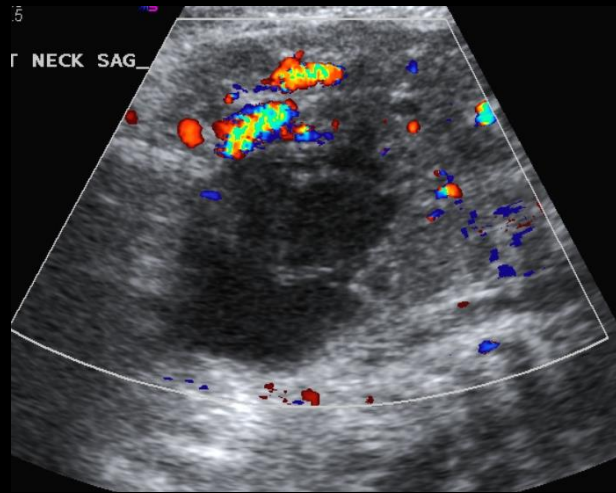
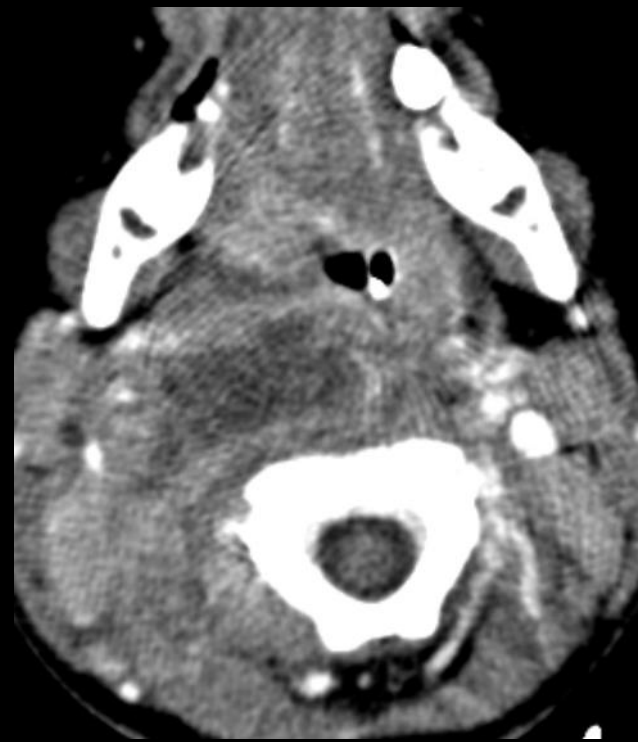


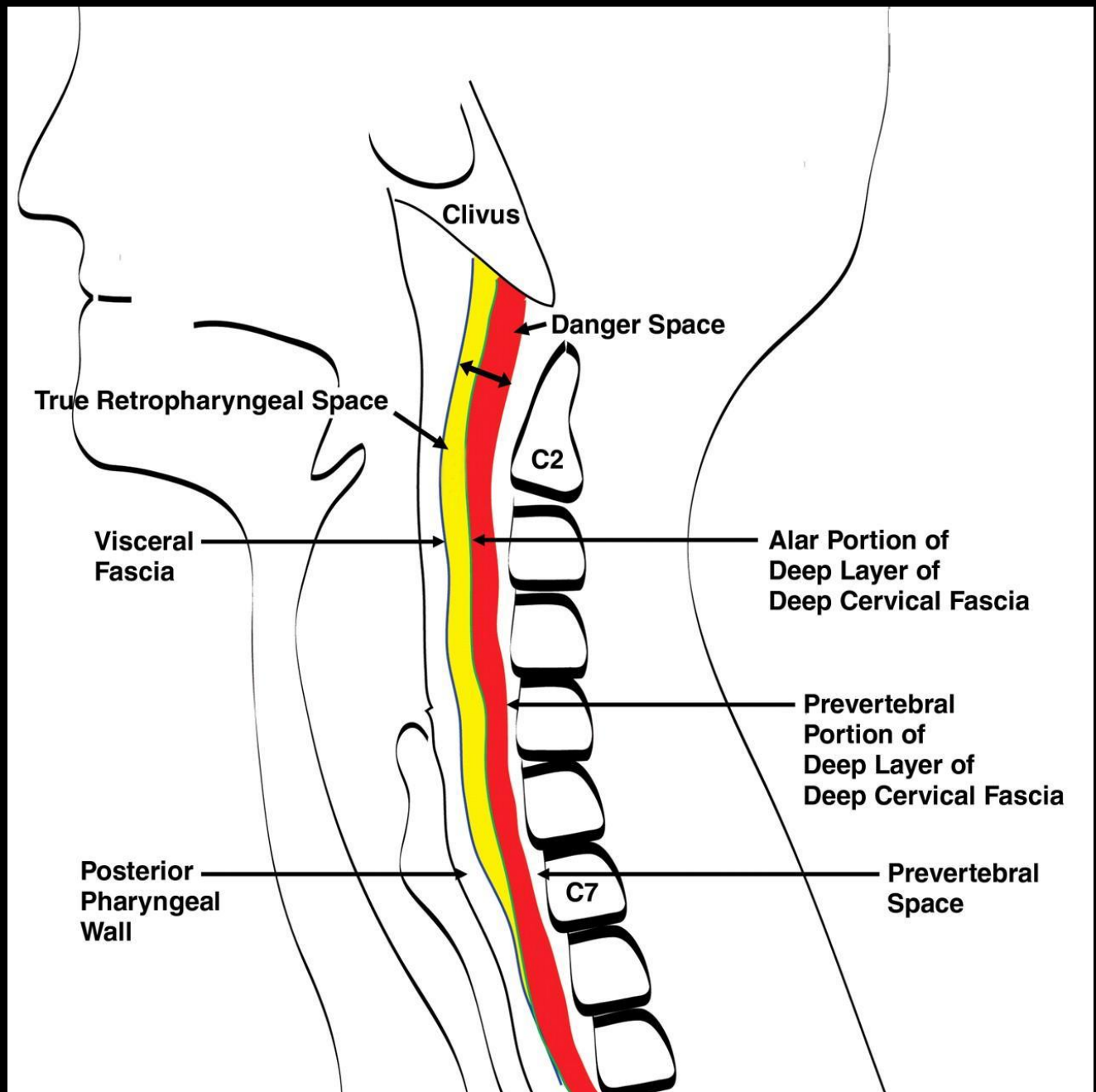


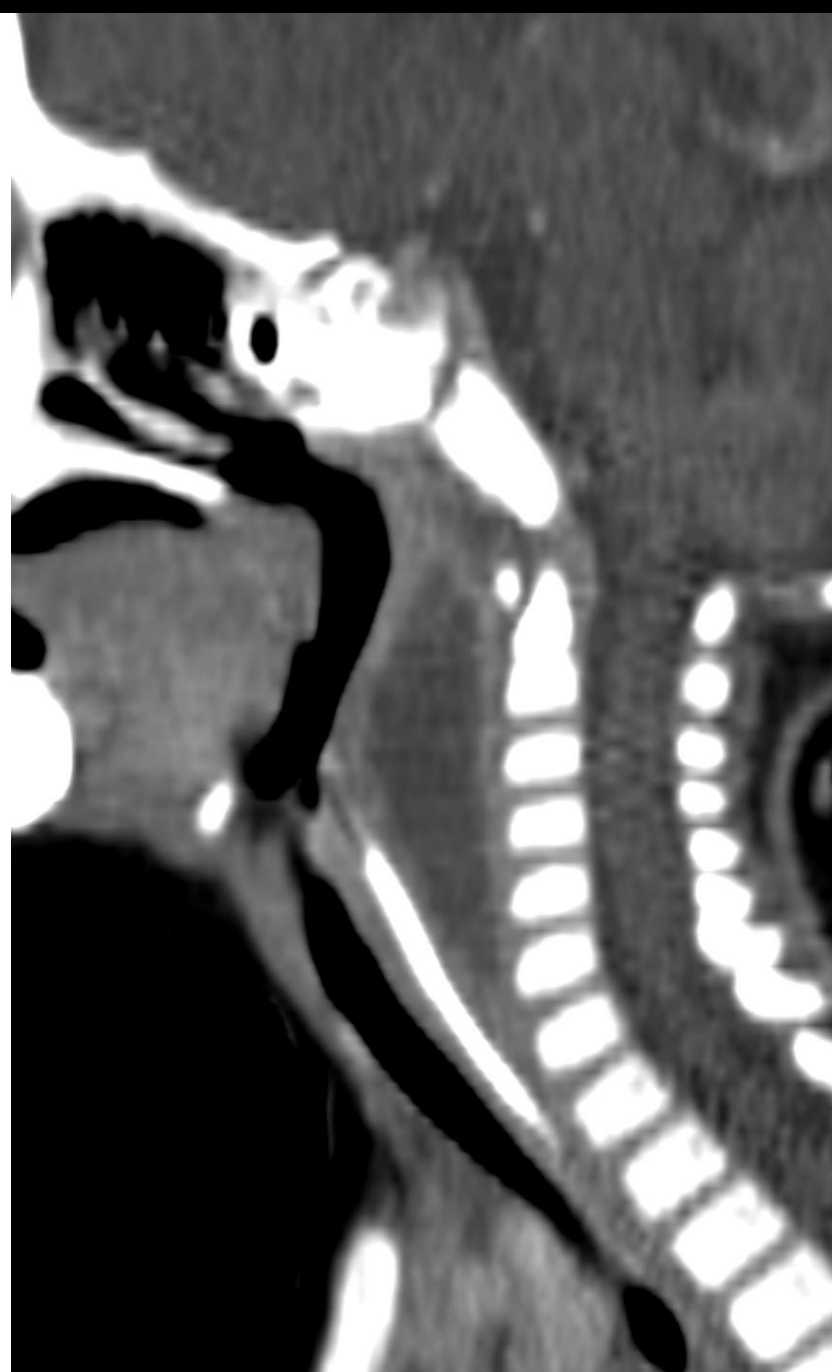
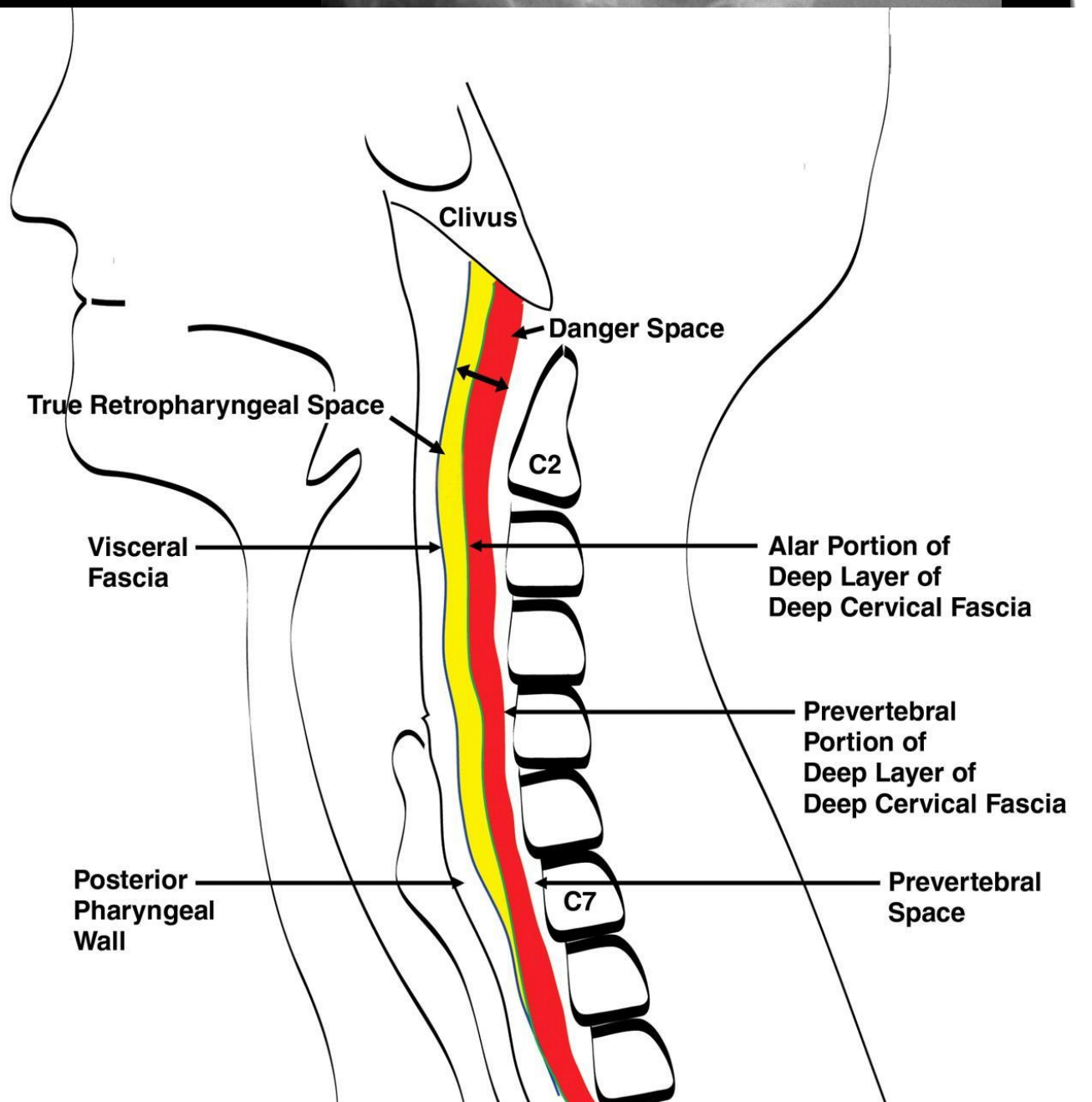
Node of Rouvière: Named after French anatomist Henri Rouvière

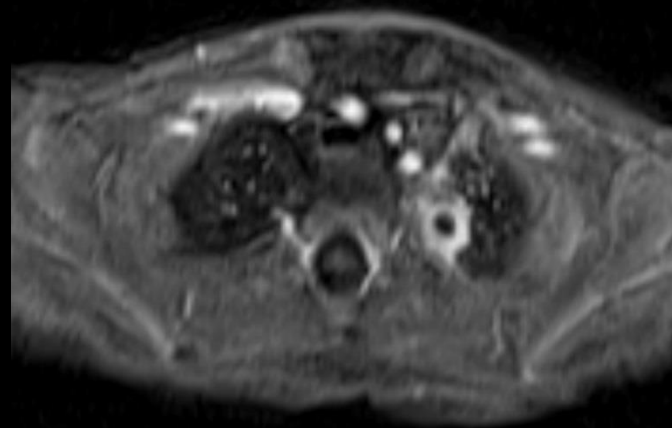
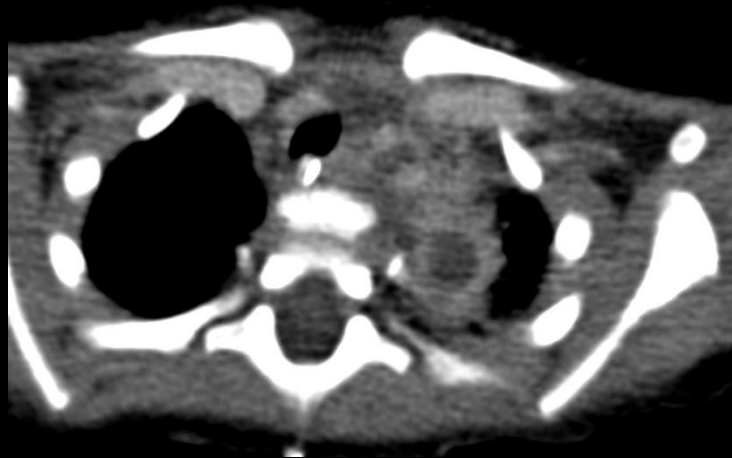


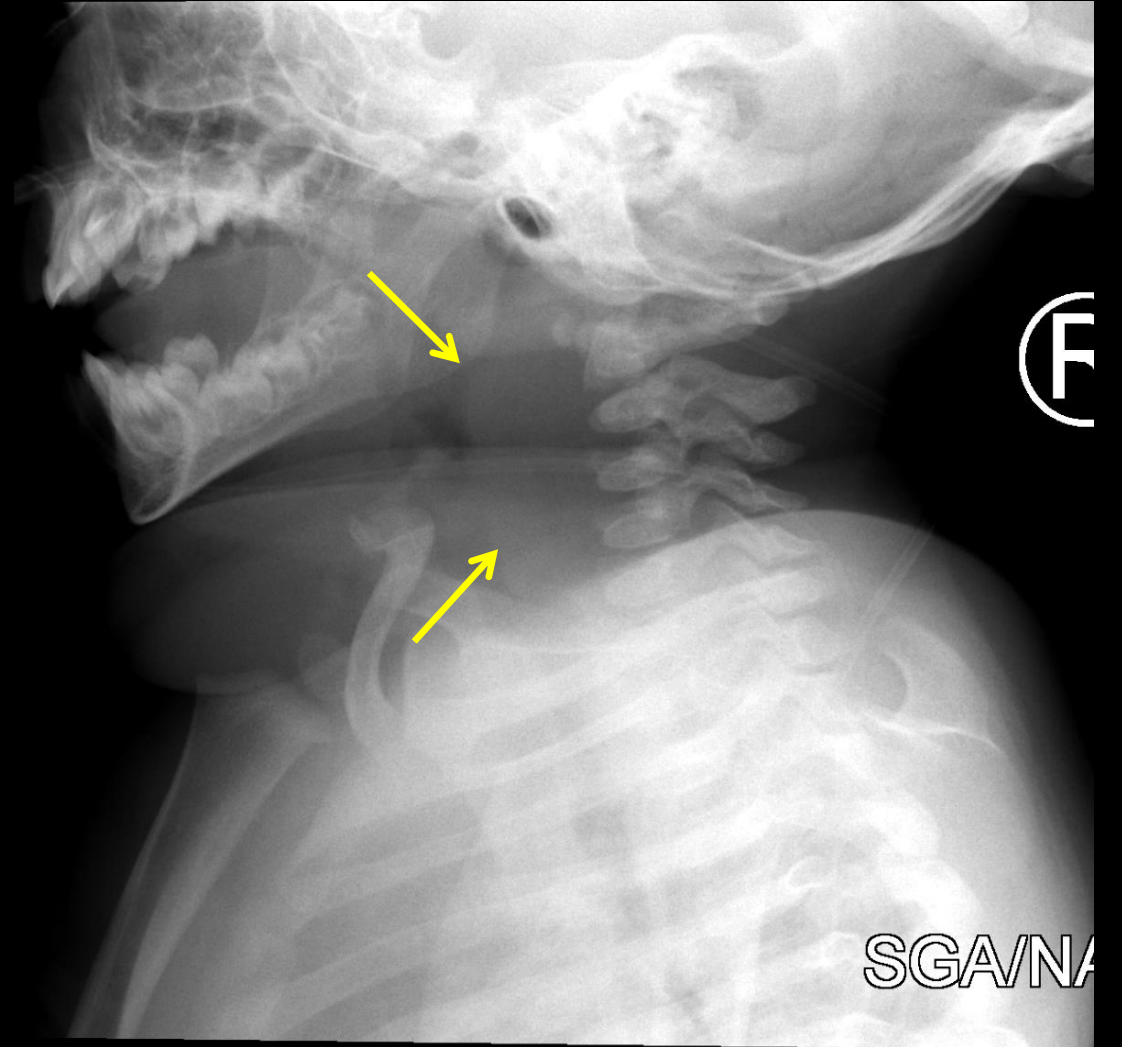
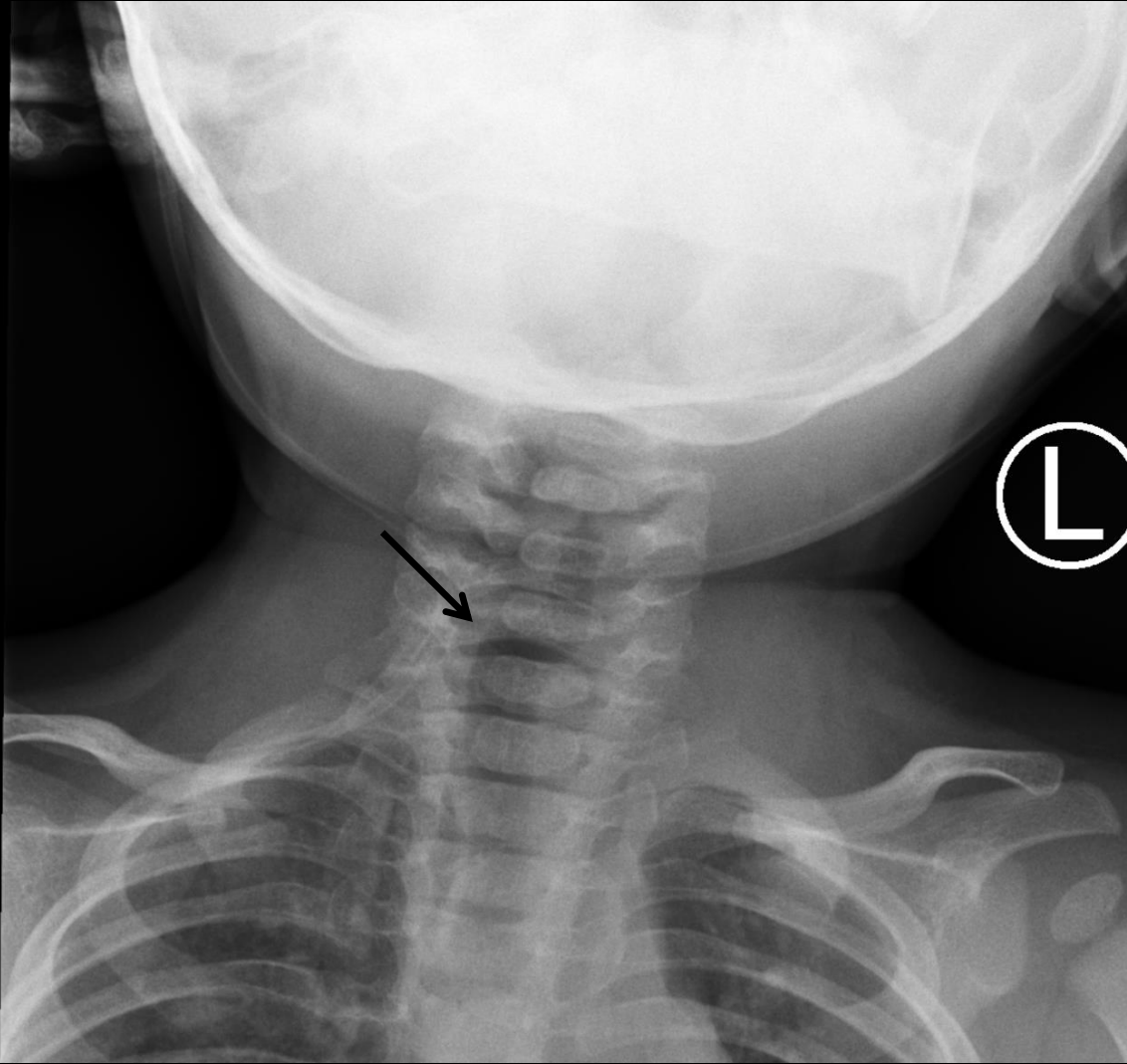
Suppurative Lateral Retropharyngeal Lymphadenitis



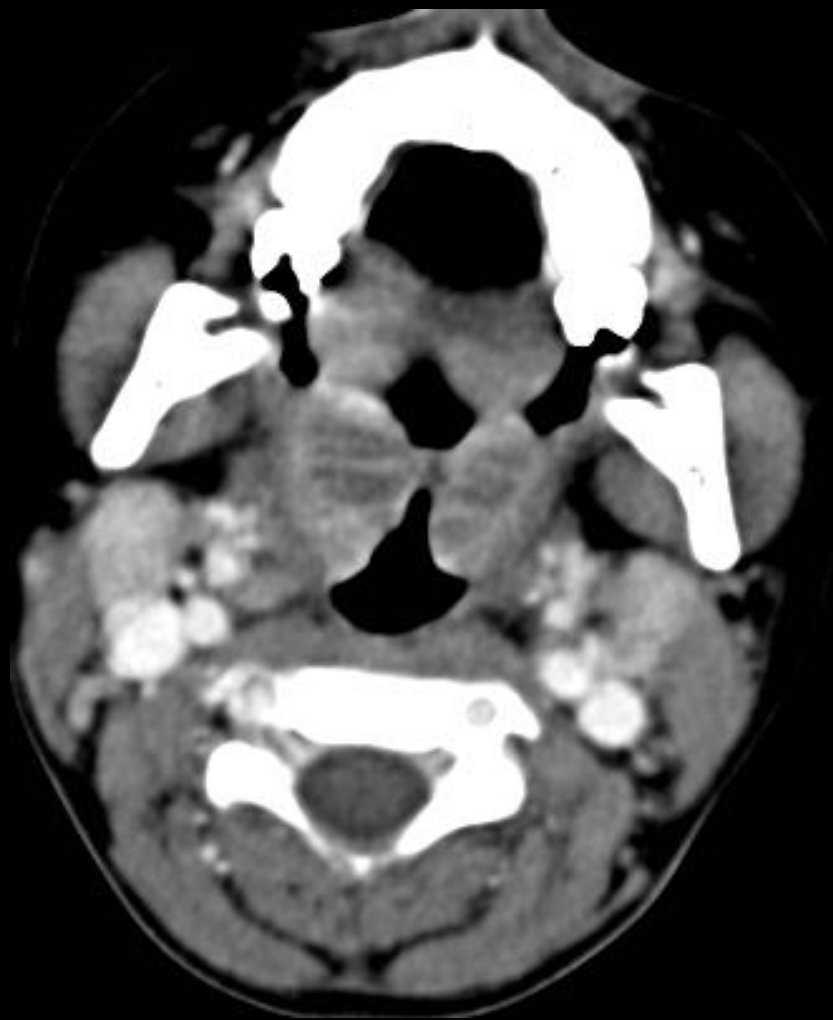




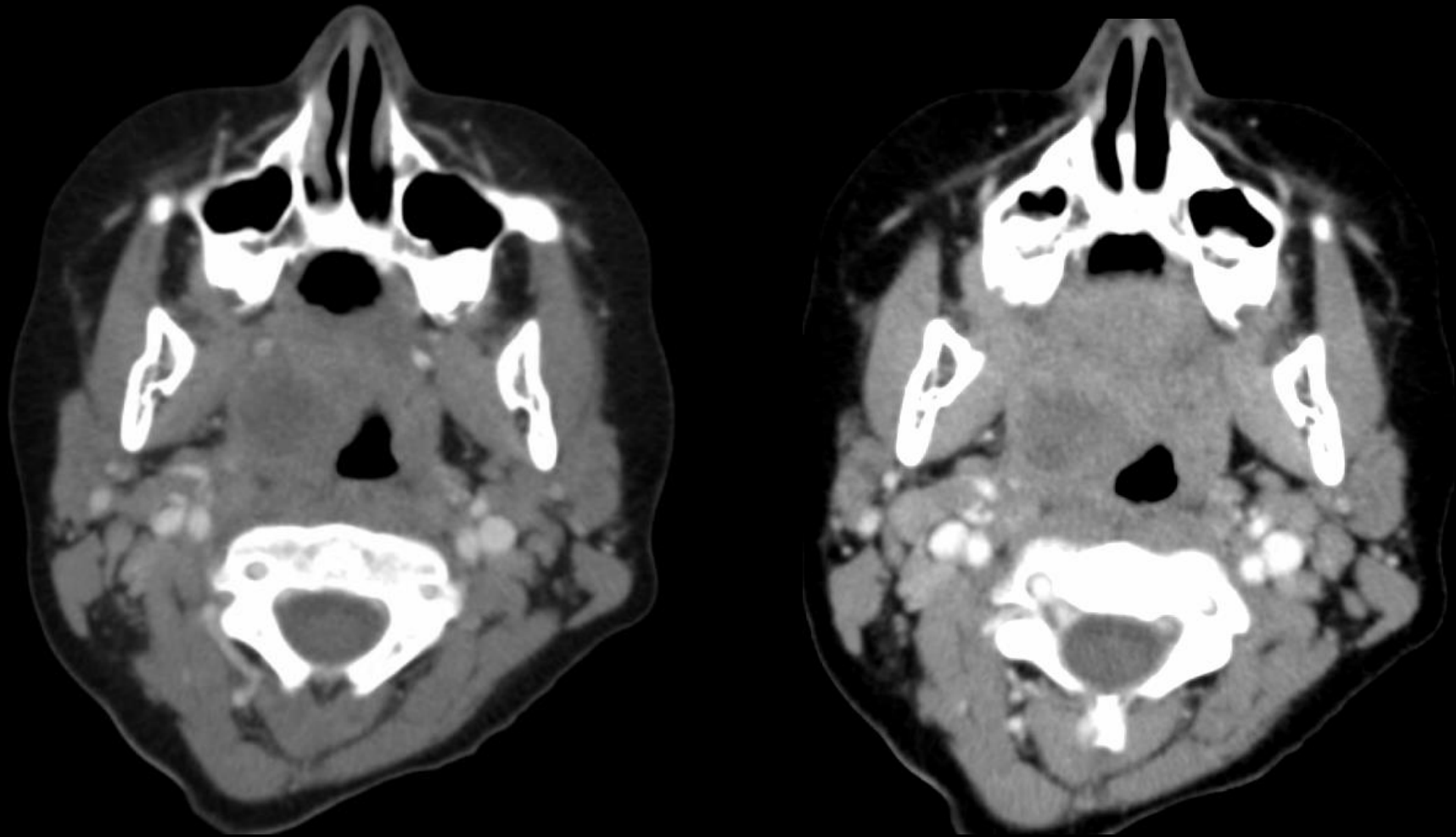




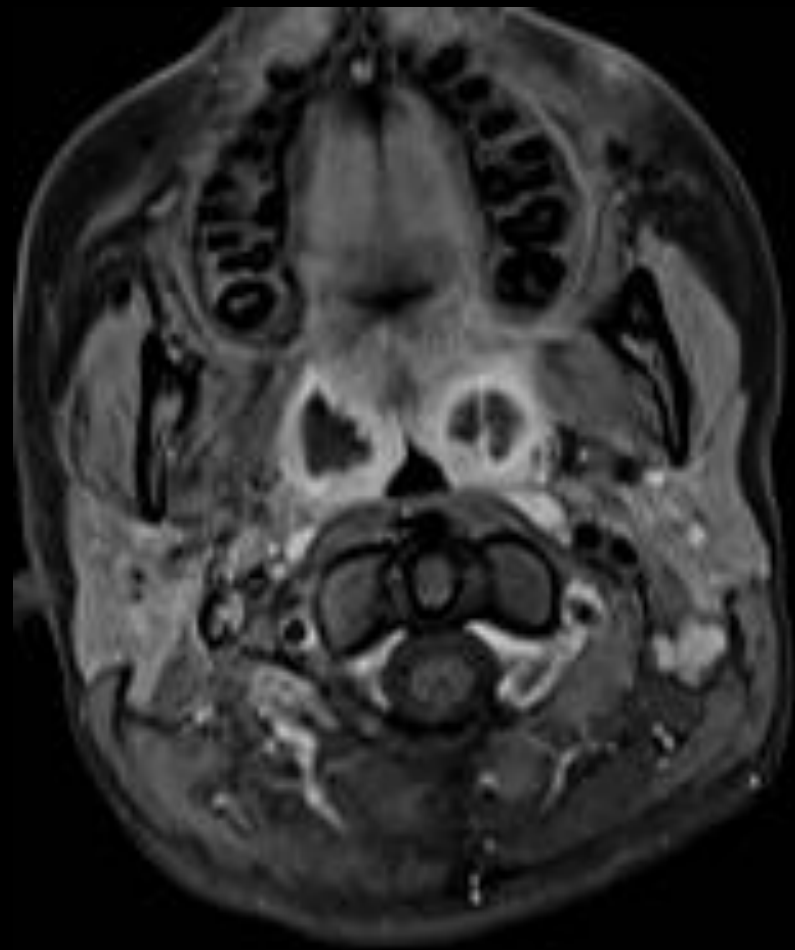




Tonsillitis



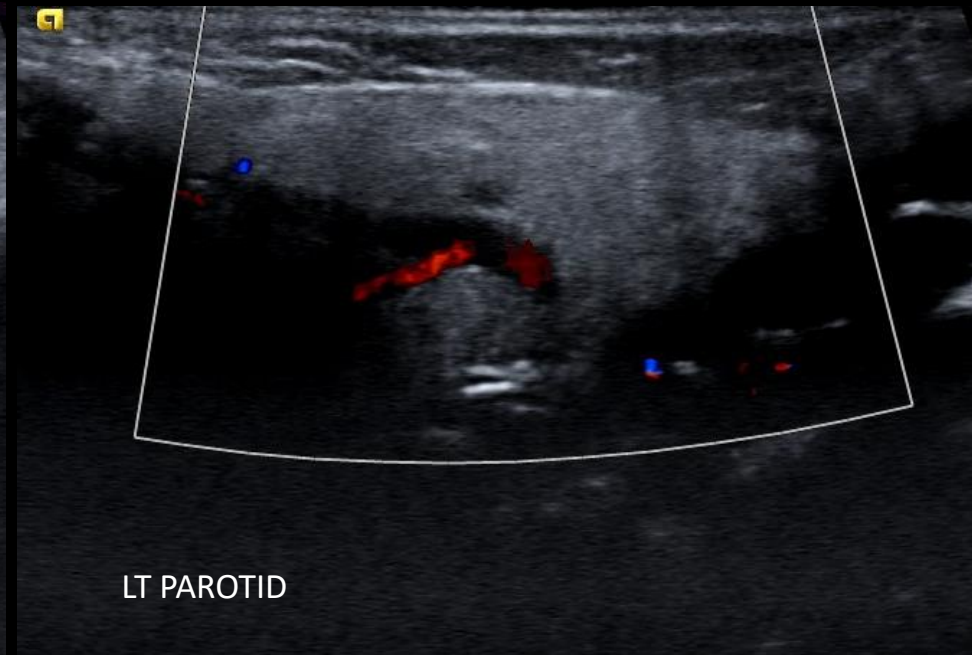
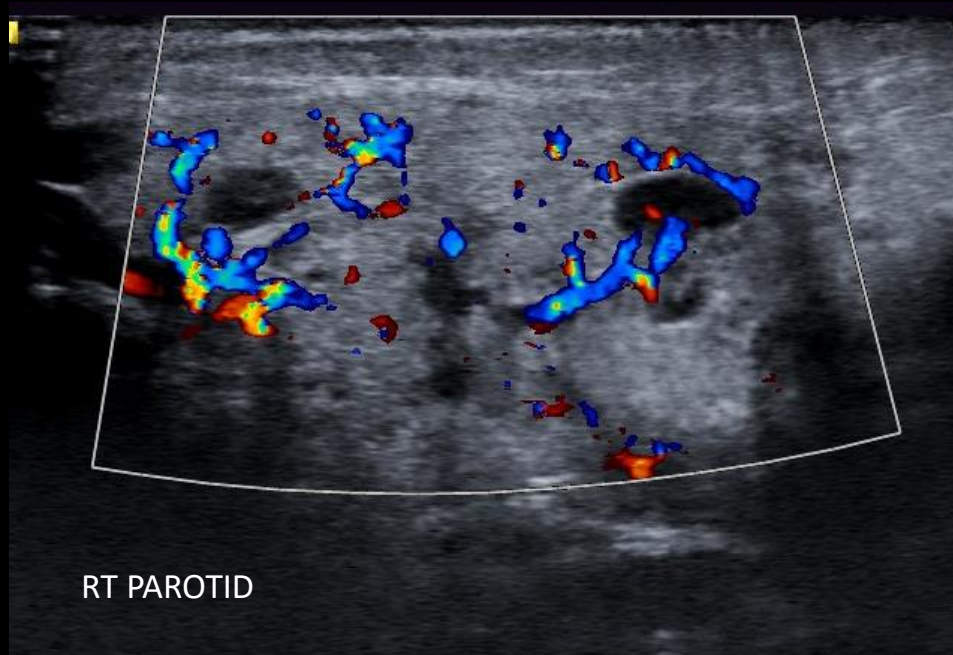
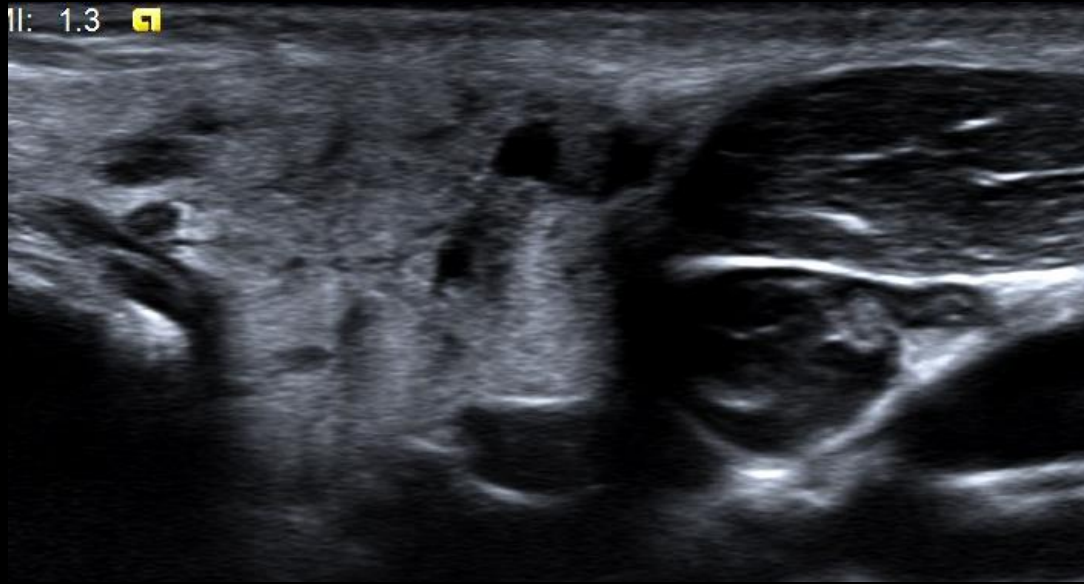
Tonsillitis: Early abscess

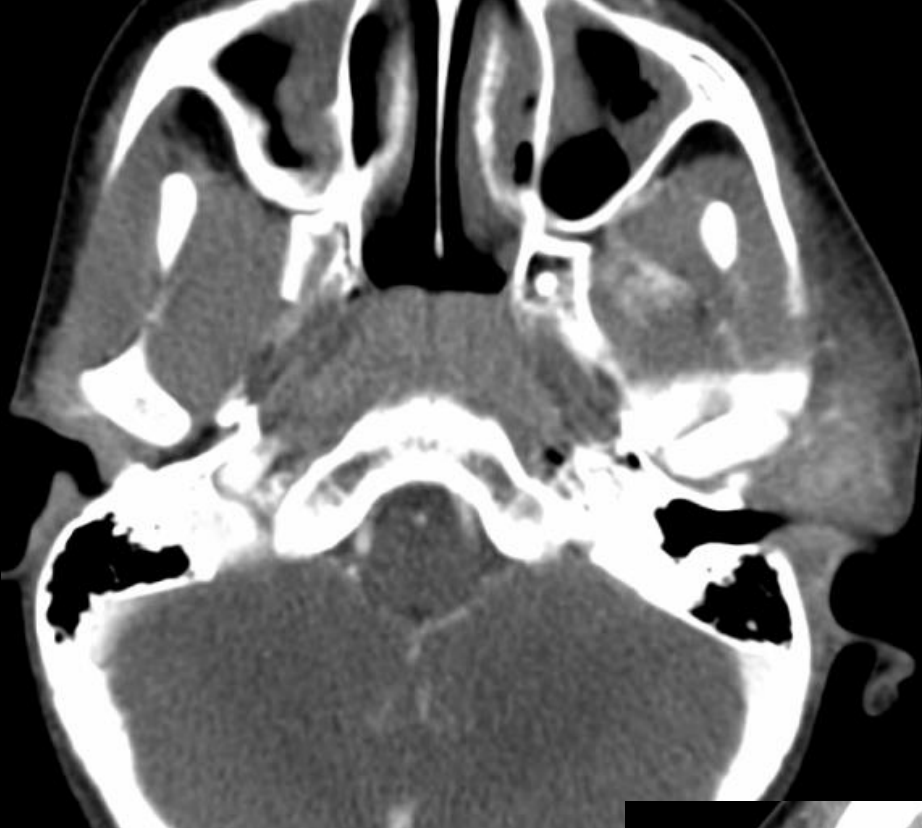


Tonsillar/Peritonsillar
abscess

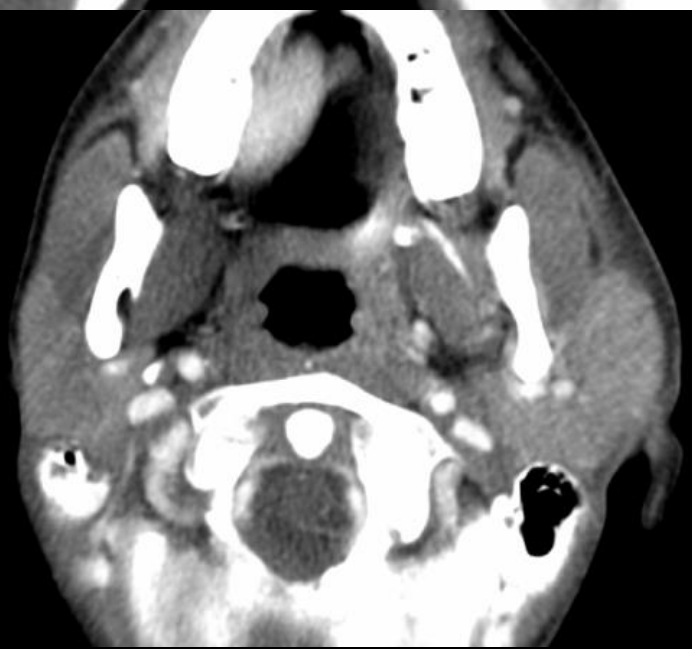
Other infectious processes

Acute Sialadenitis





Acute Sialadenitis



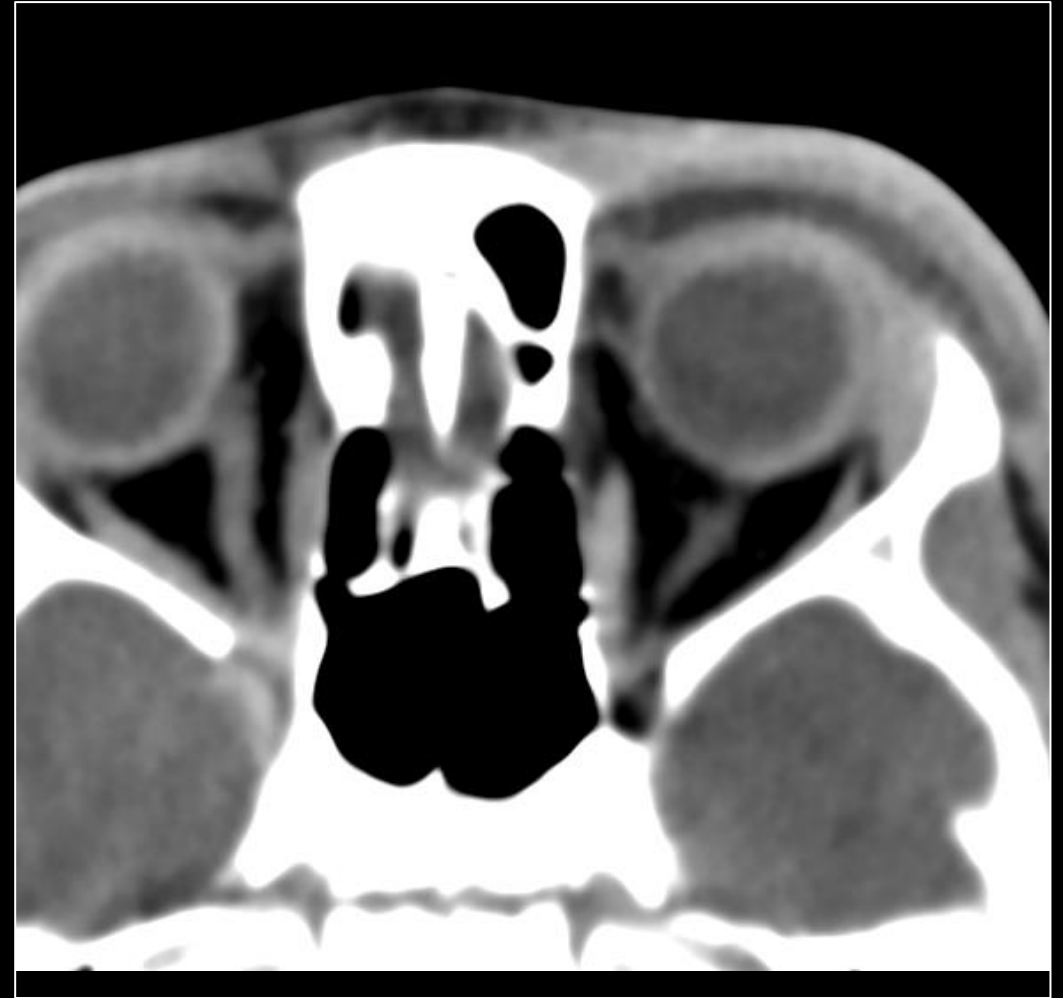


Pleomorphic adenoma in an 18 year old



Orbital Infections

Periorbital/Orbital cellulitis:



Left periorbital cellulitis

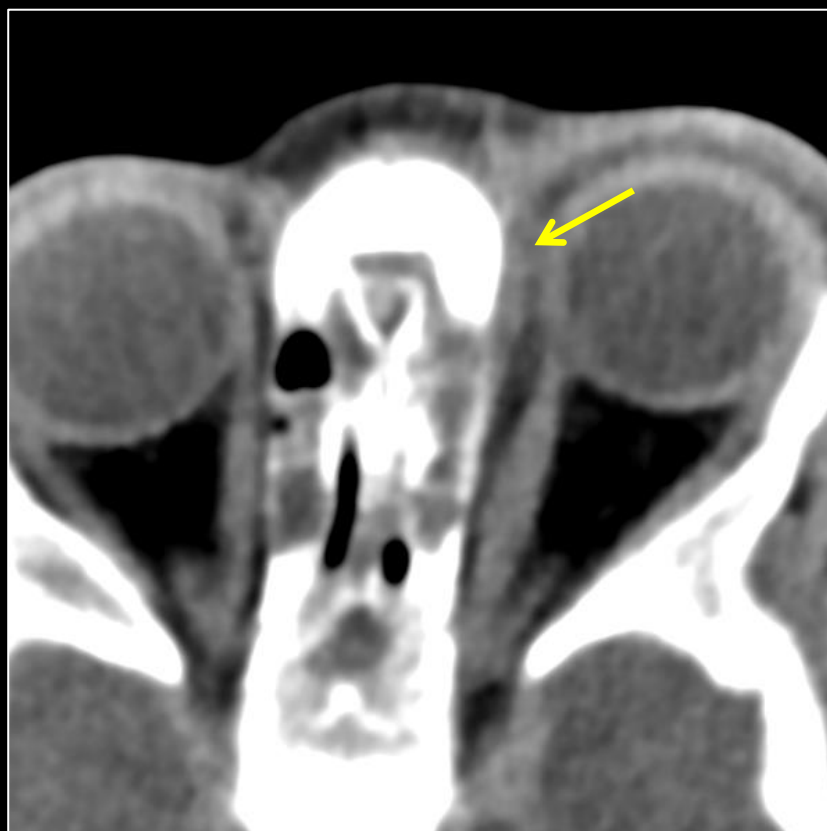
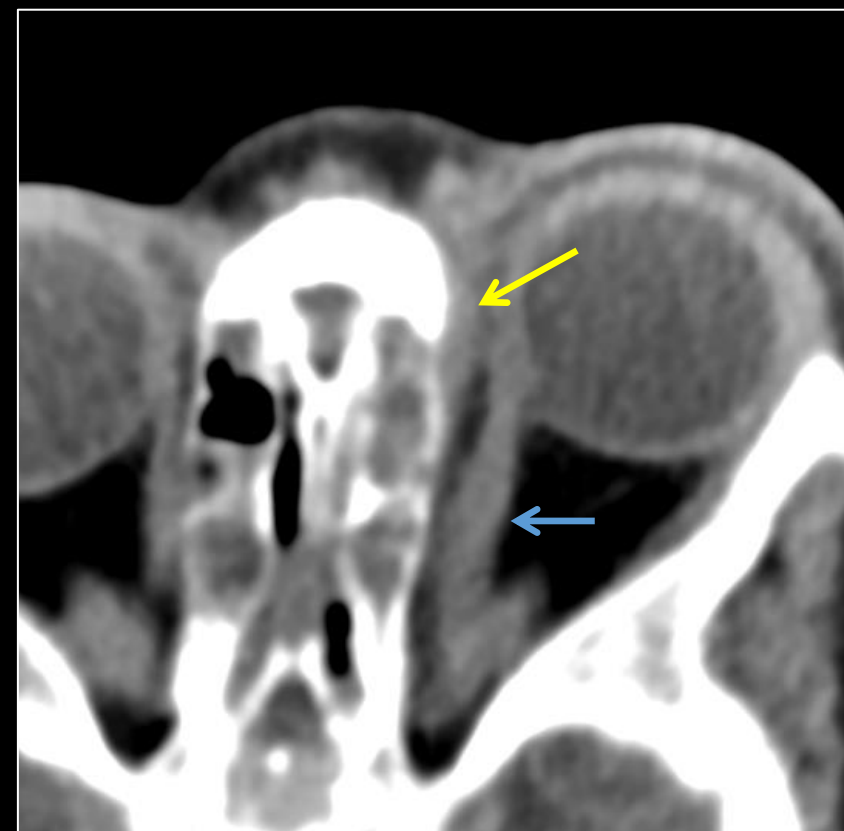
Orbital Infections

Orbital Cellulitis:

Pre-septal

Post-septal

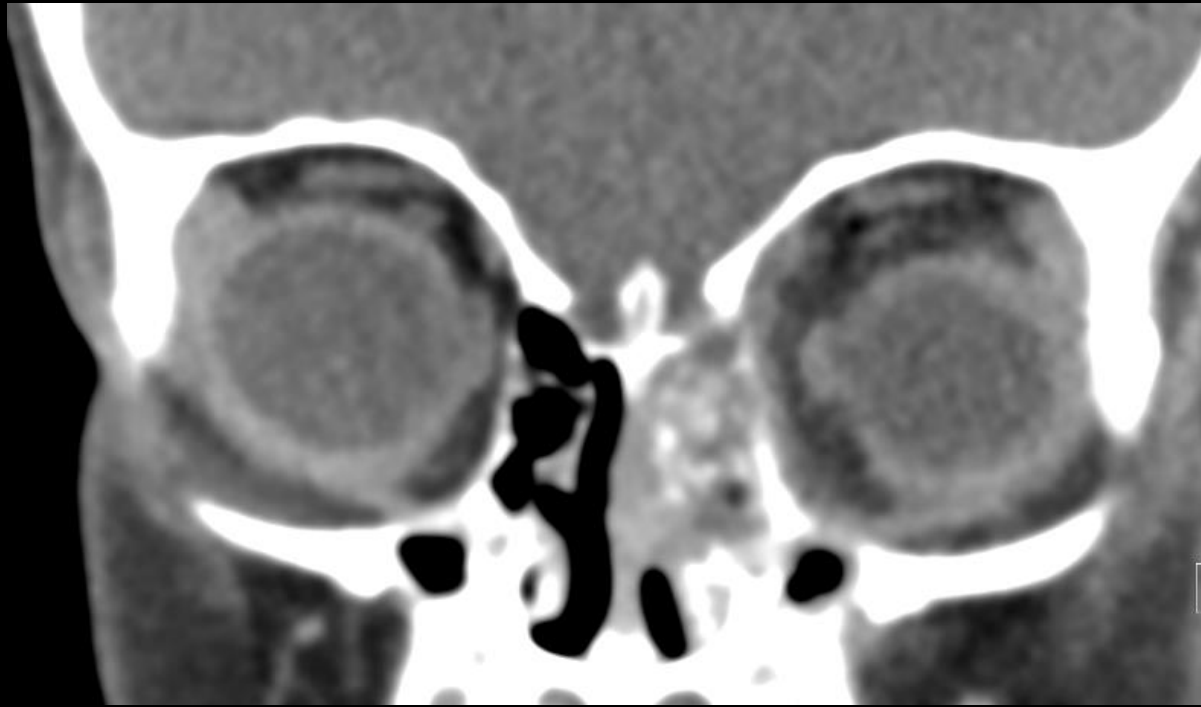
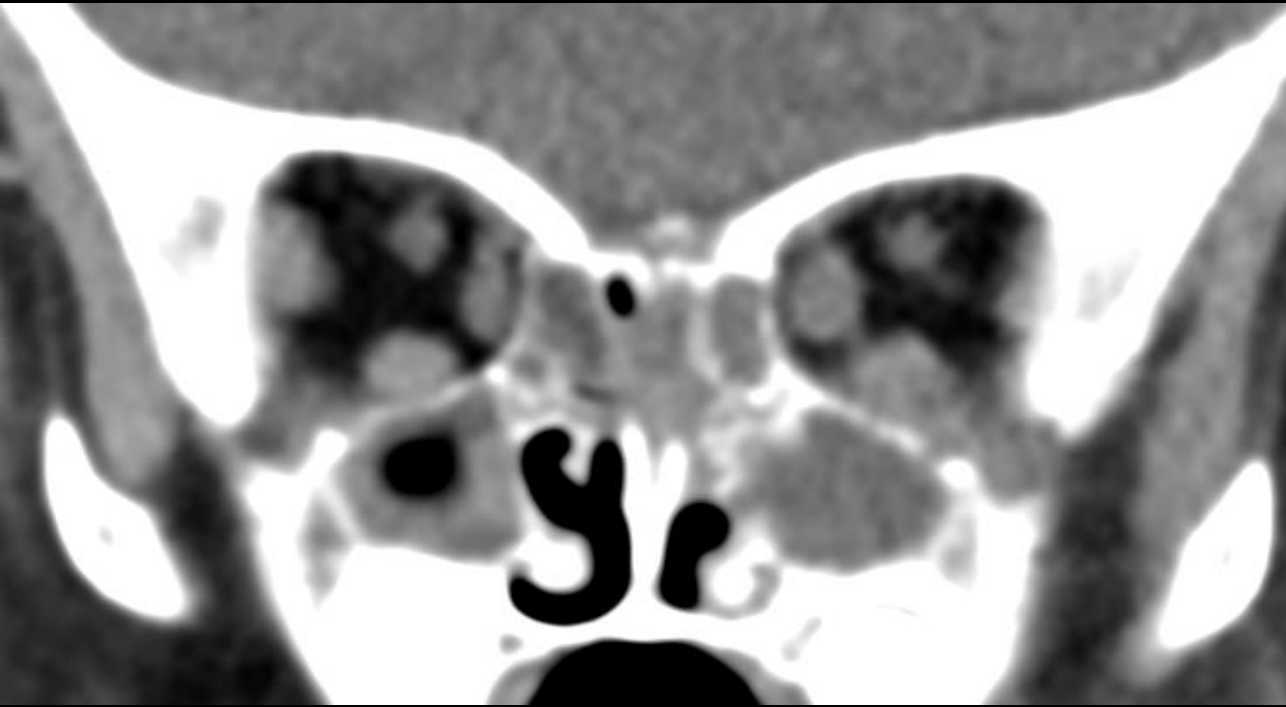
- Intraconal: extraocular muscles and intermuscular membrane
- Extraconal
- Subperiosteal

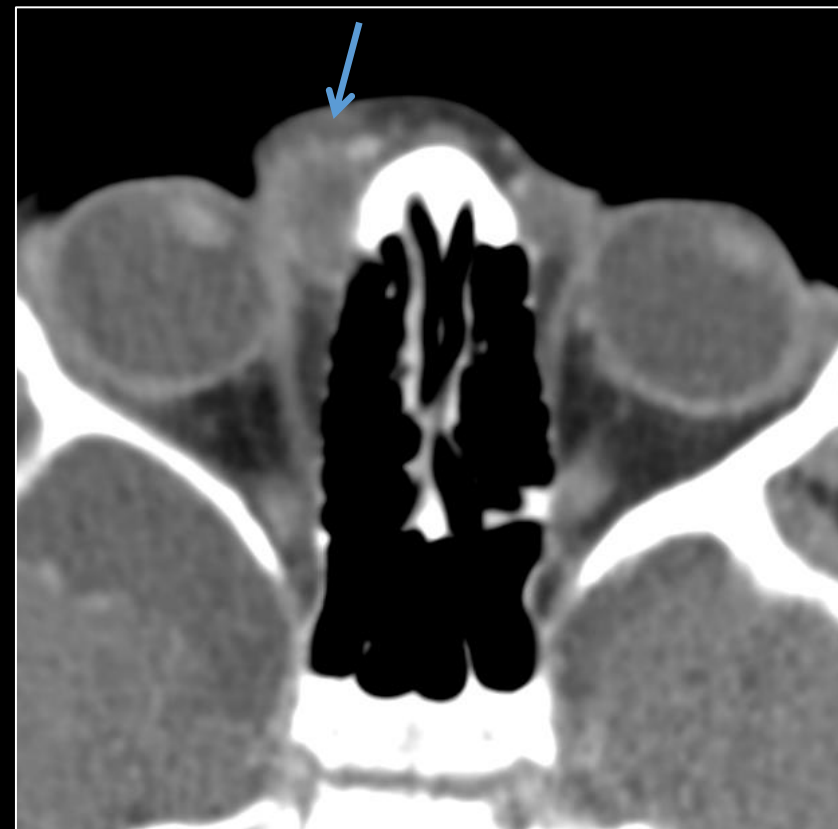
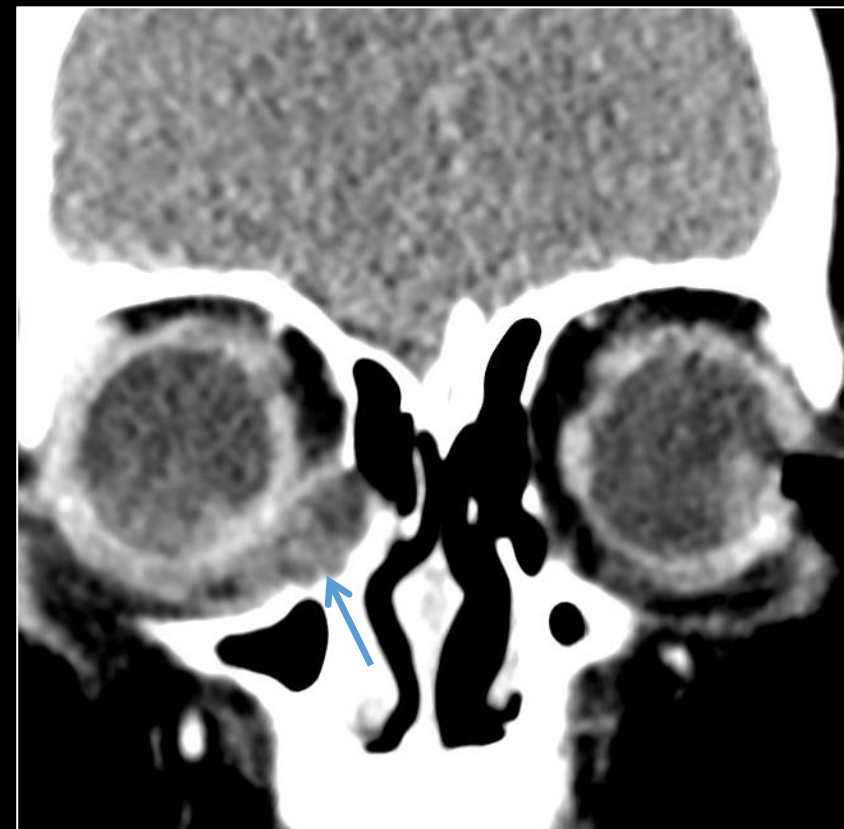


Orbital cellulitis

Subperiosteal abscess

Enlarged and inflamed left medial rectus





Orbital cellulitis

Subperiosteal abscess

Enlarged and inflamed left medial rectus

Orbital Infections: Dacryocystitis

Dacryocystitis refers to inflammation and dilatation of the lacrimal sac, which is located along the medial (internal) canthus

Dacryocystitis is secondary to obstruction of the nasolacrimal duct, which may be related to ductal stenosis

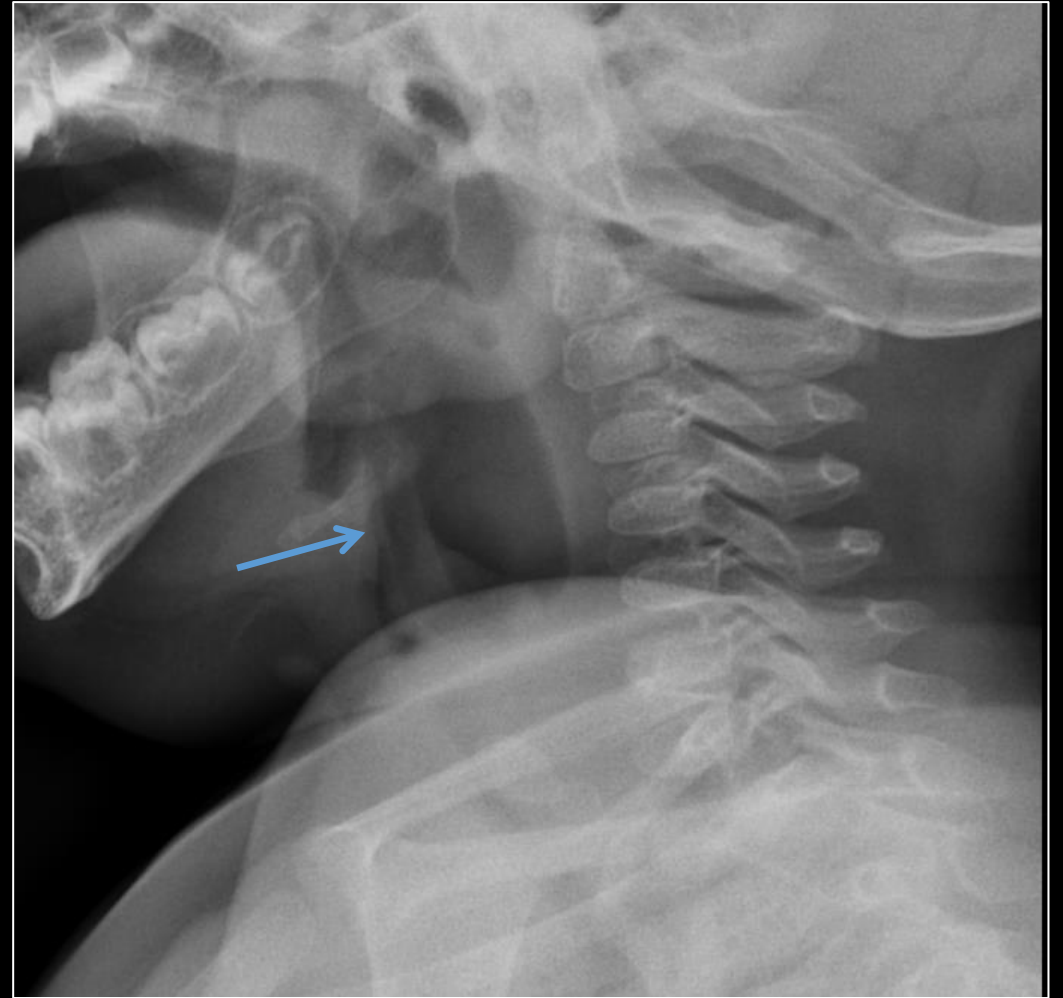
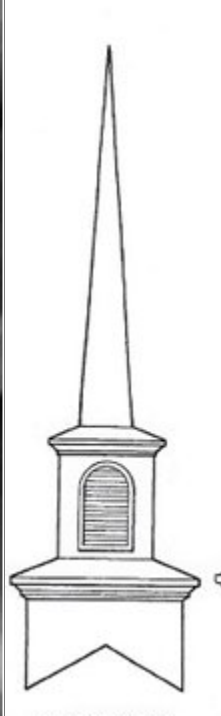
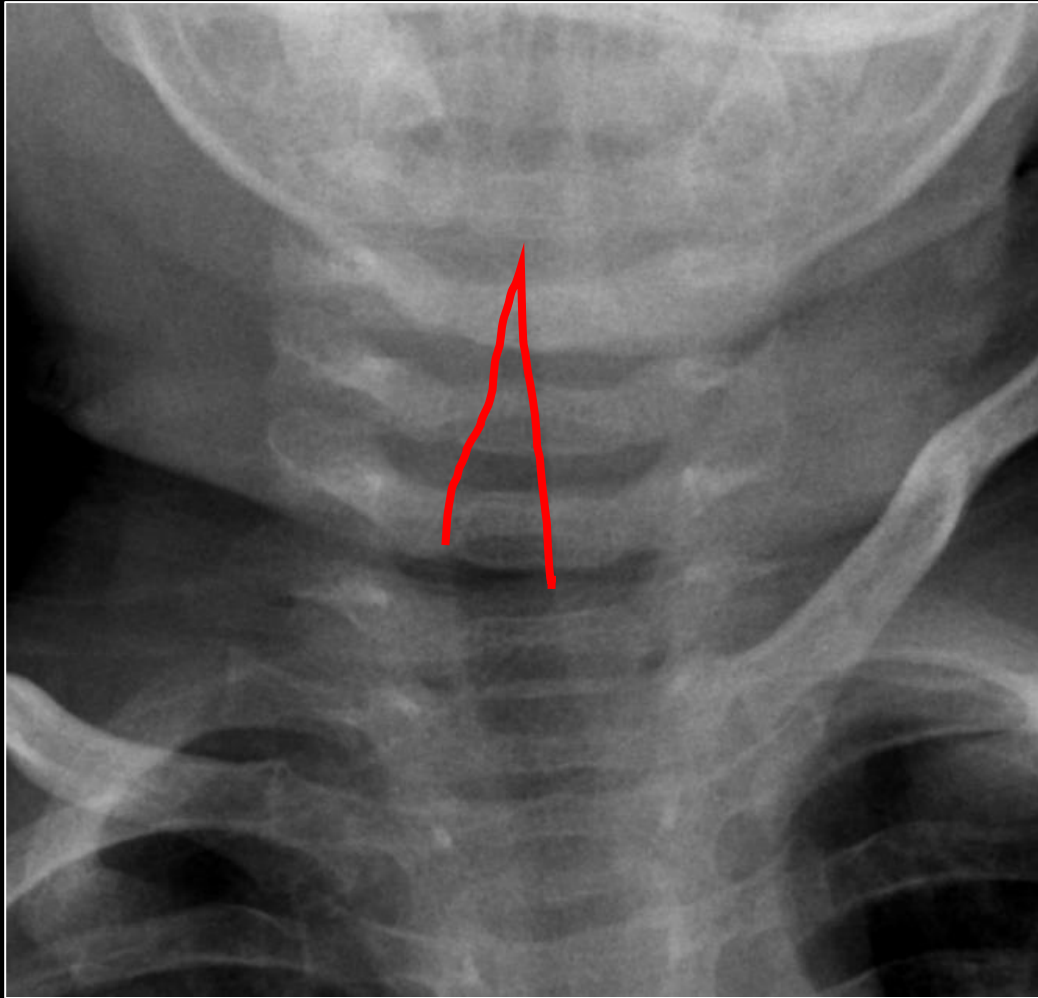
Laryngotracheobronchitis (croup)

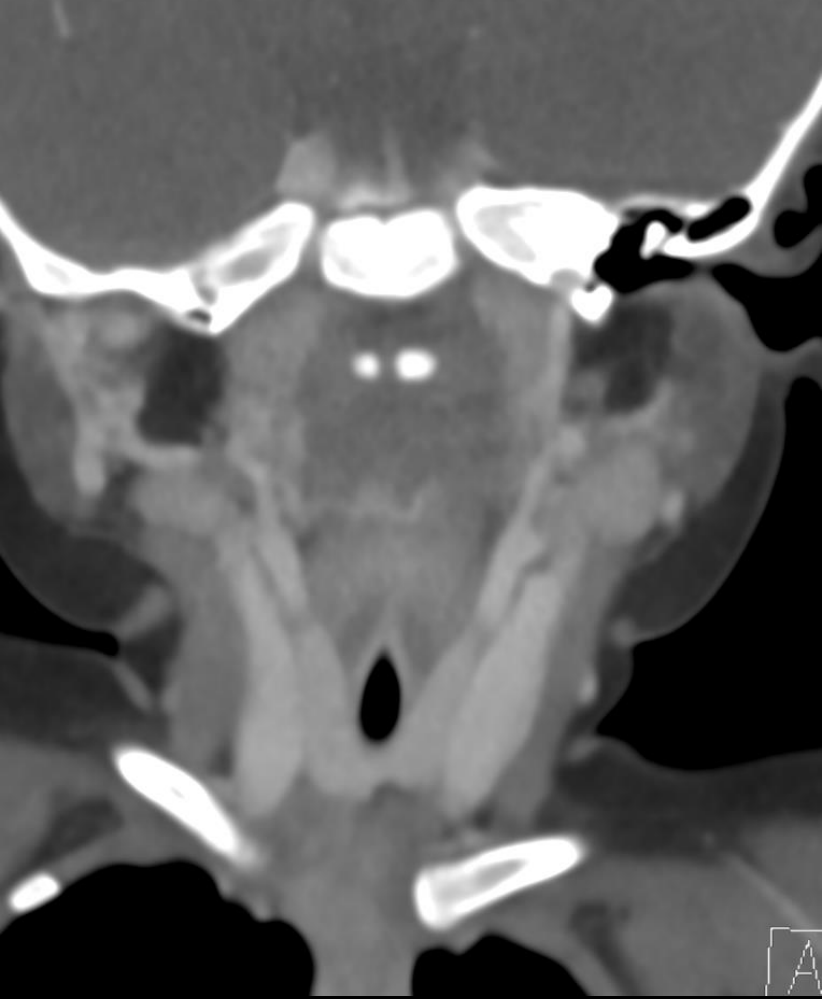
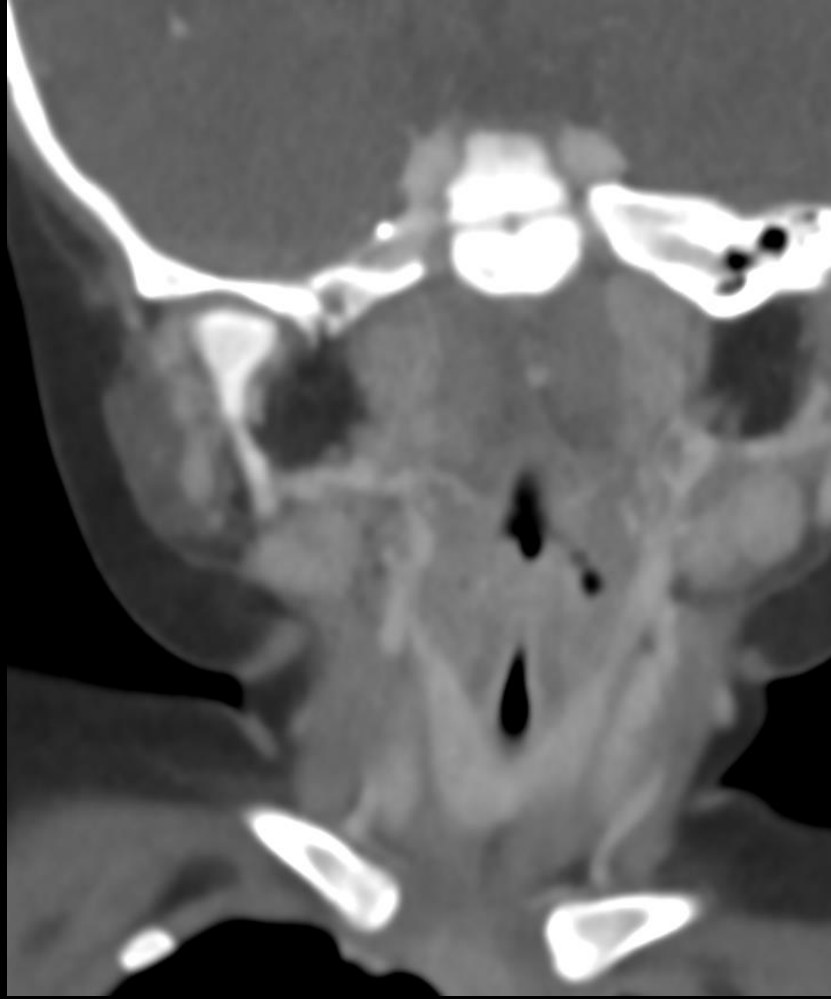
Imaging to determine whether another cause of inspiratory stridor is present that may require emergent intervention

– epiglottitis or foreign body ingestion

Frontal radiograph: Symmetric straightening of the normally convex appearance of the “shoulders”, aka “steeple sign.”

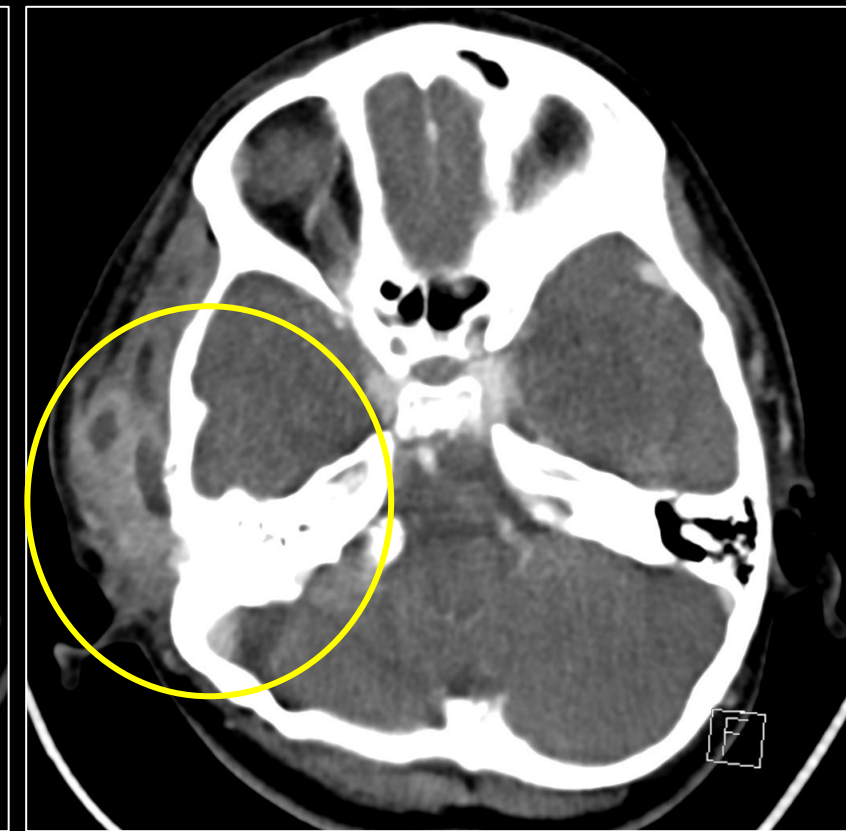
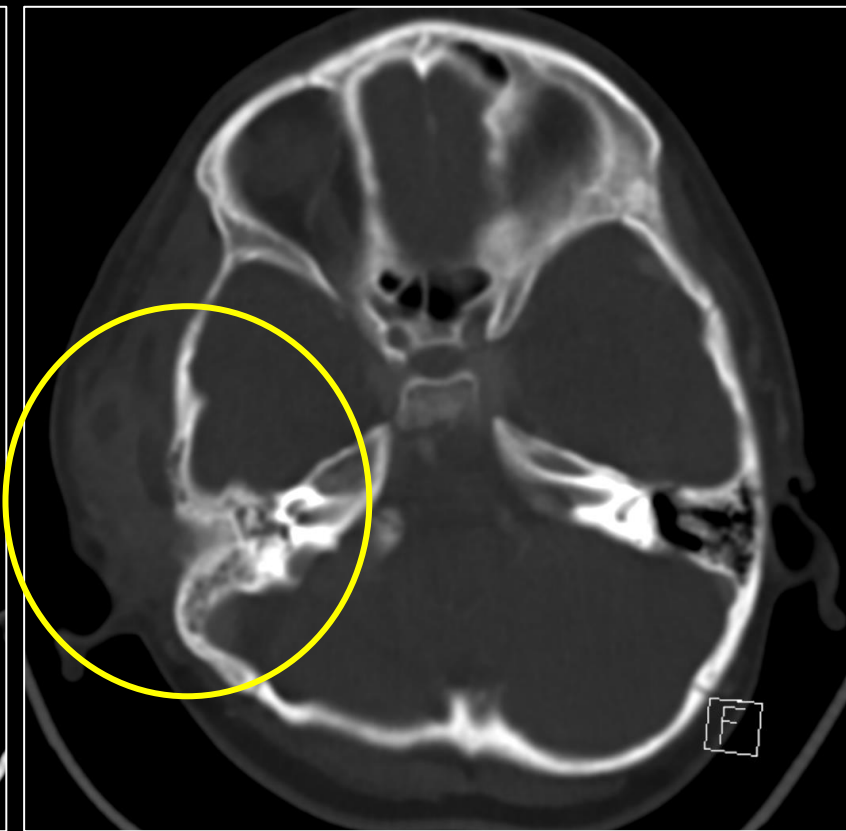
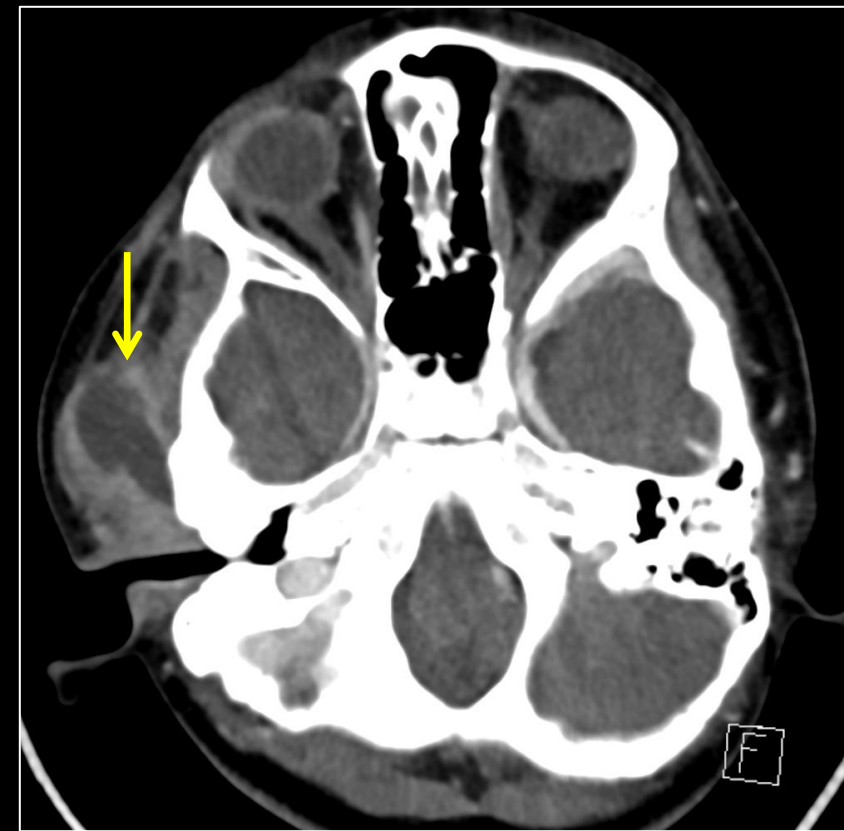
Lateral radiograph: Narrowing of the subglottic airway with distention of the hypopharynx

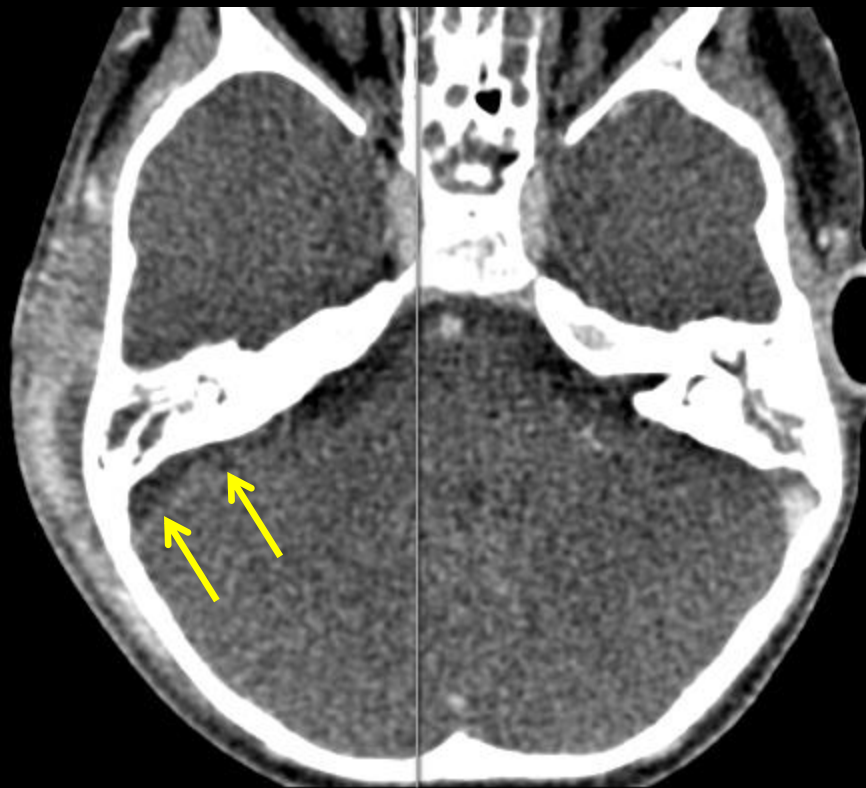
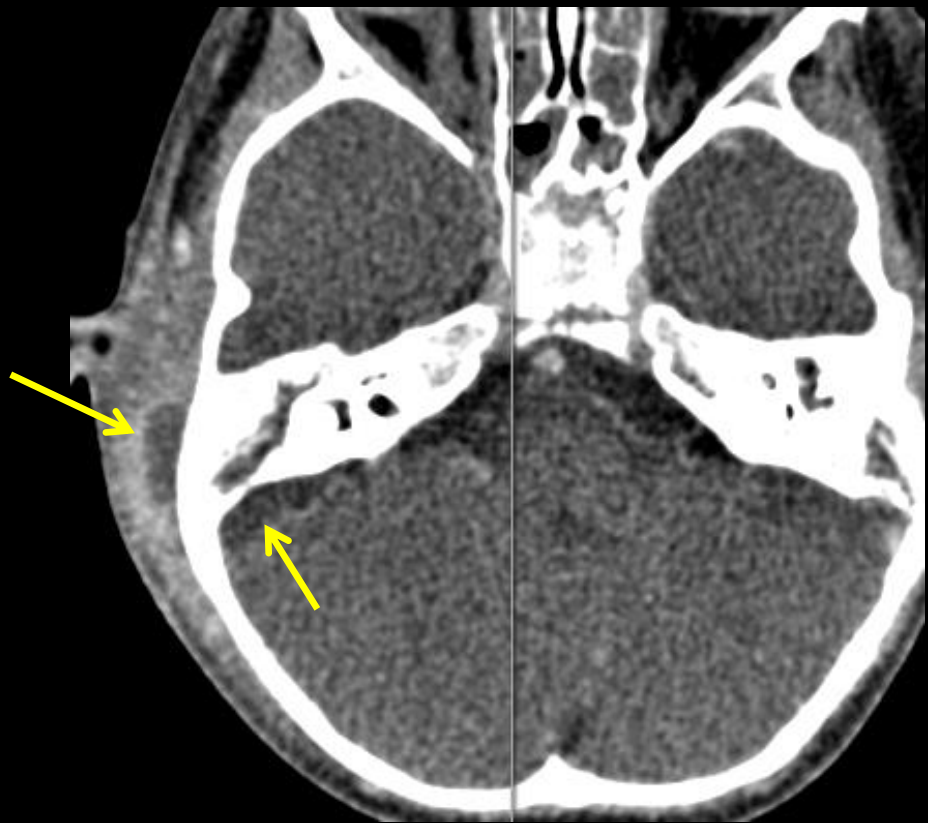


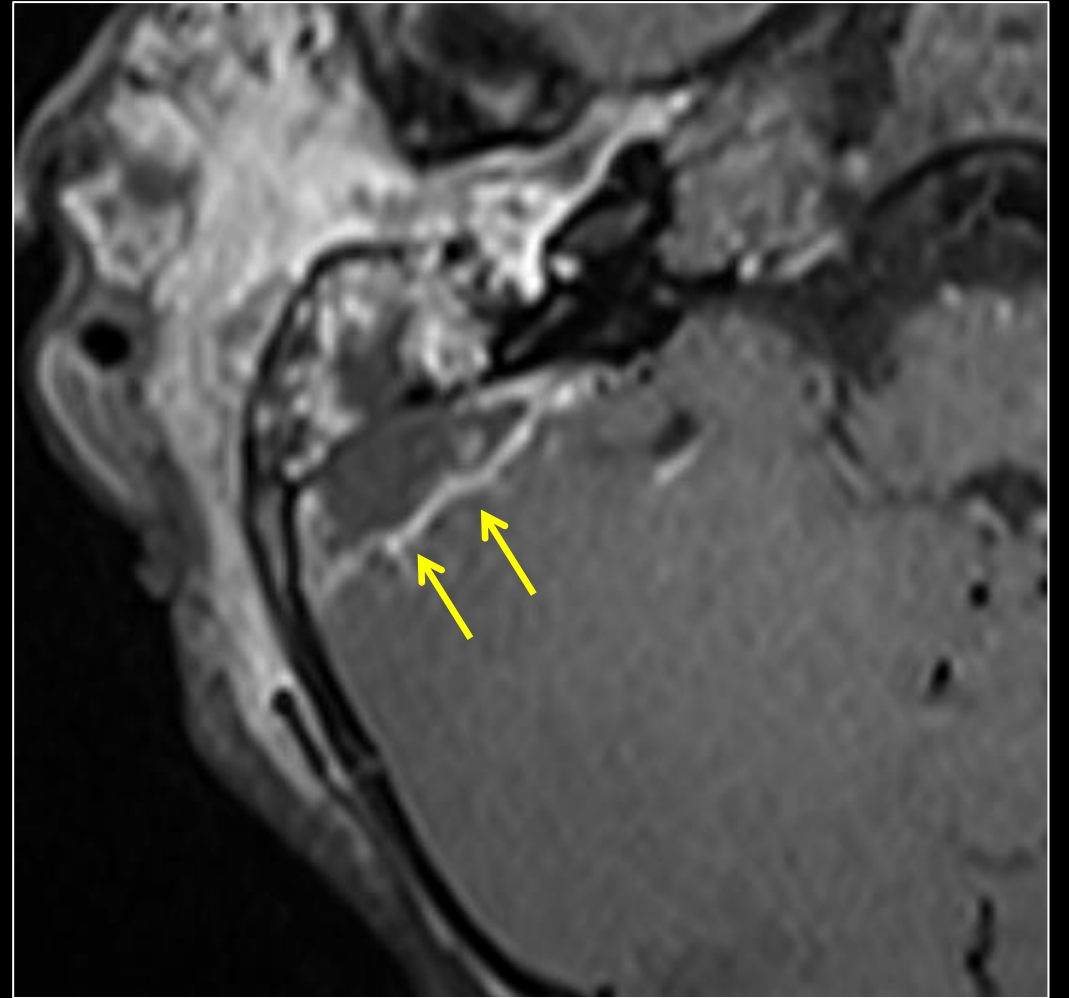
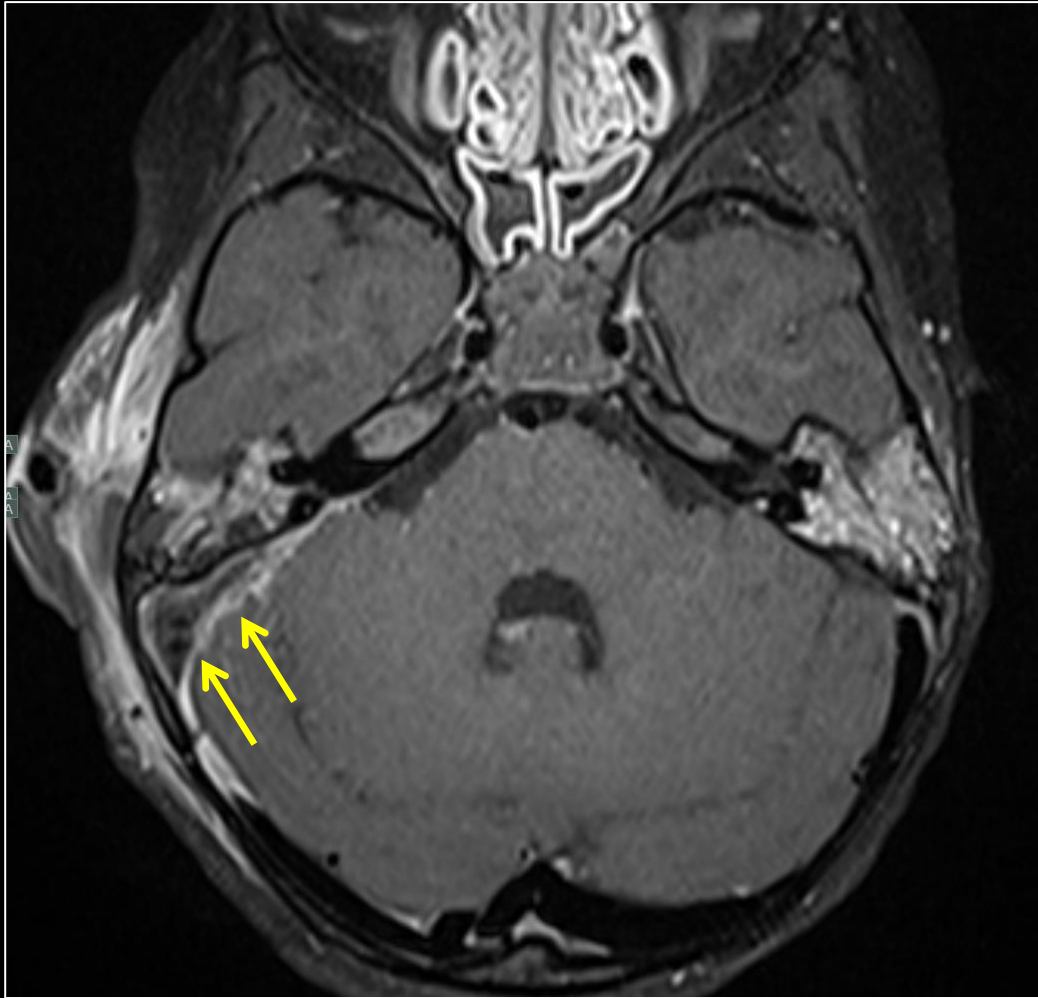


Mastoiditis

Acute mastoiditis results from obstruction of the mastoid antrum. Children with this condition have prolonged symptoms of otitis media with retroauricular pain, erythema, and swelling. CT demonstrates middle ear fluid and opacification of the mastoid air cells, without osseous resorption. Like serous otitis media, acute mastoiditis usually resolves with antibiotic treatment







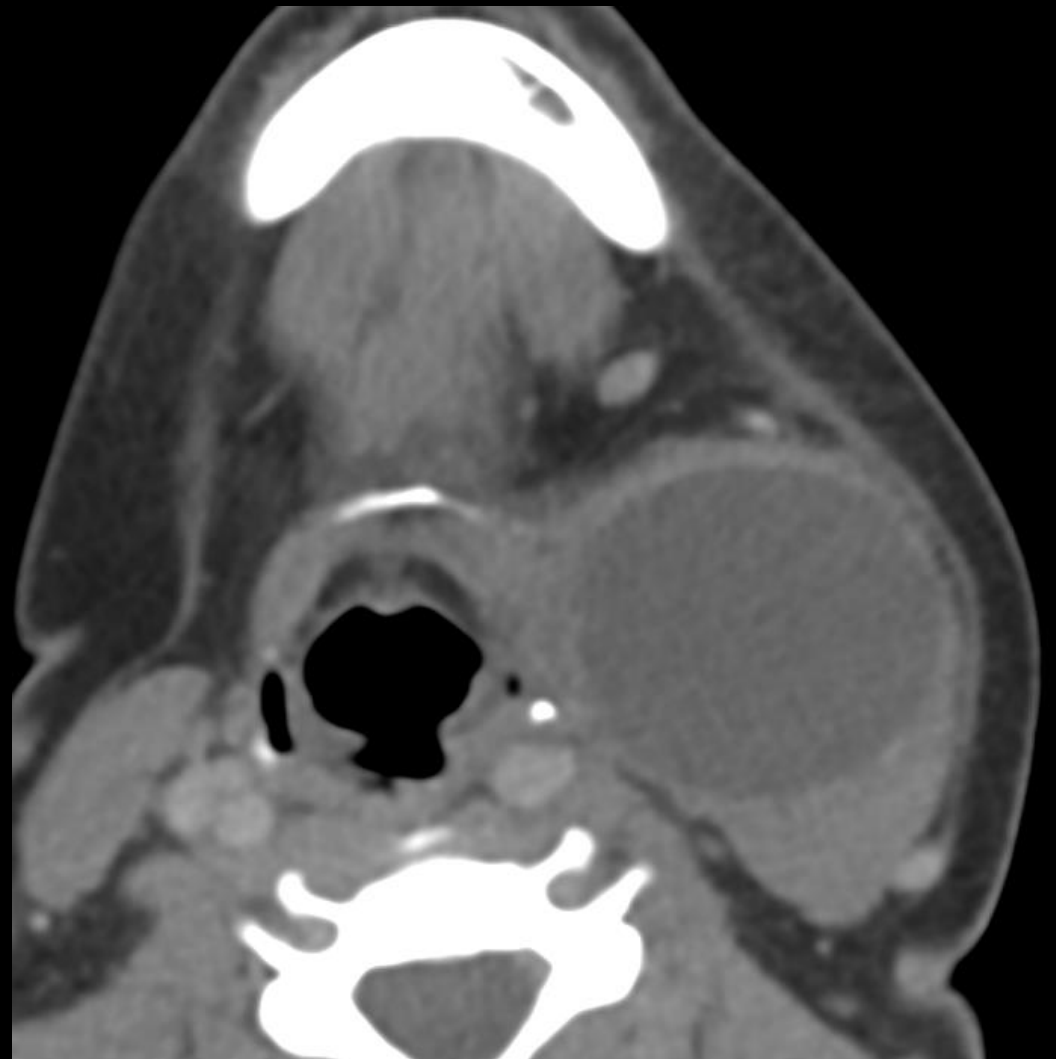
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Infected branchial cleft cyst

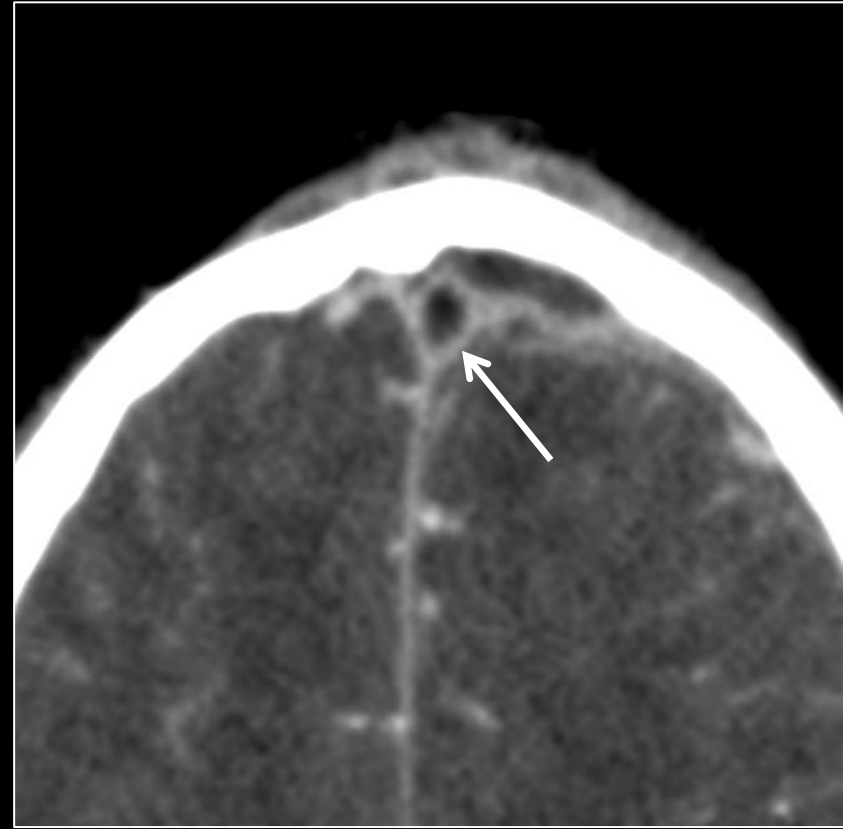
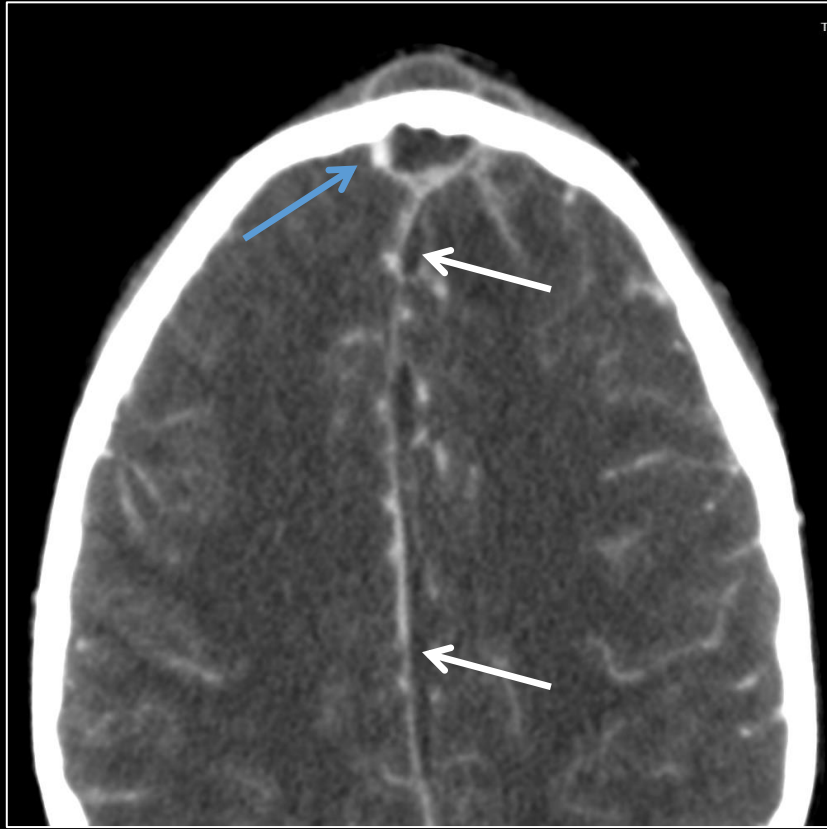
First branchial cleft is seen in relation to the pinna and EAC

Second branchial cleft cyst is seen along the anterior and medial aspect of the sternomastoid muscle

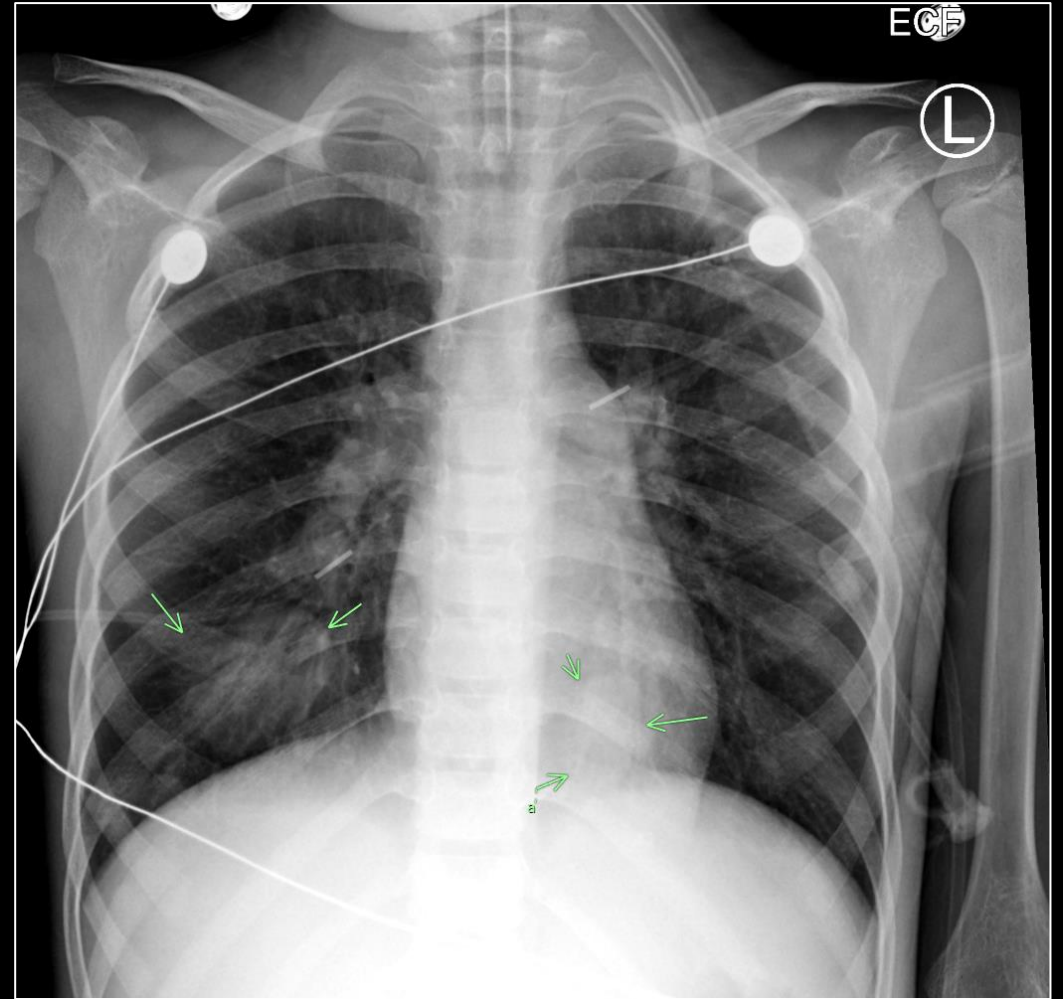
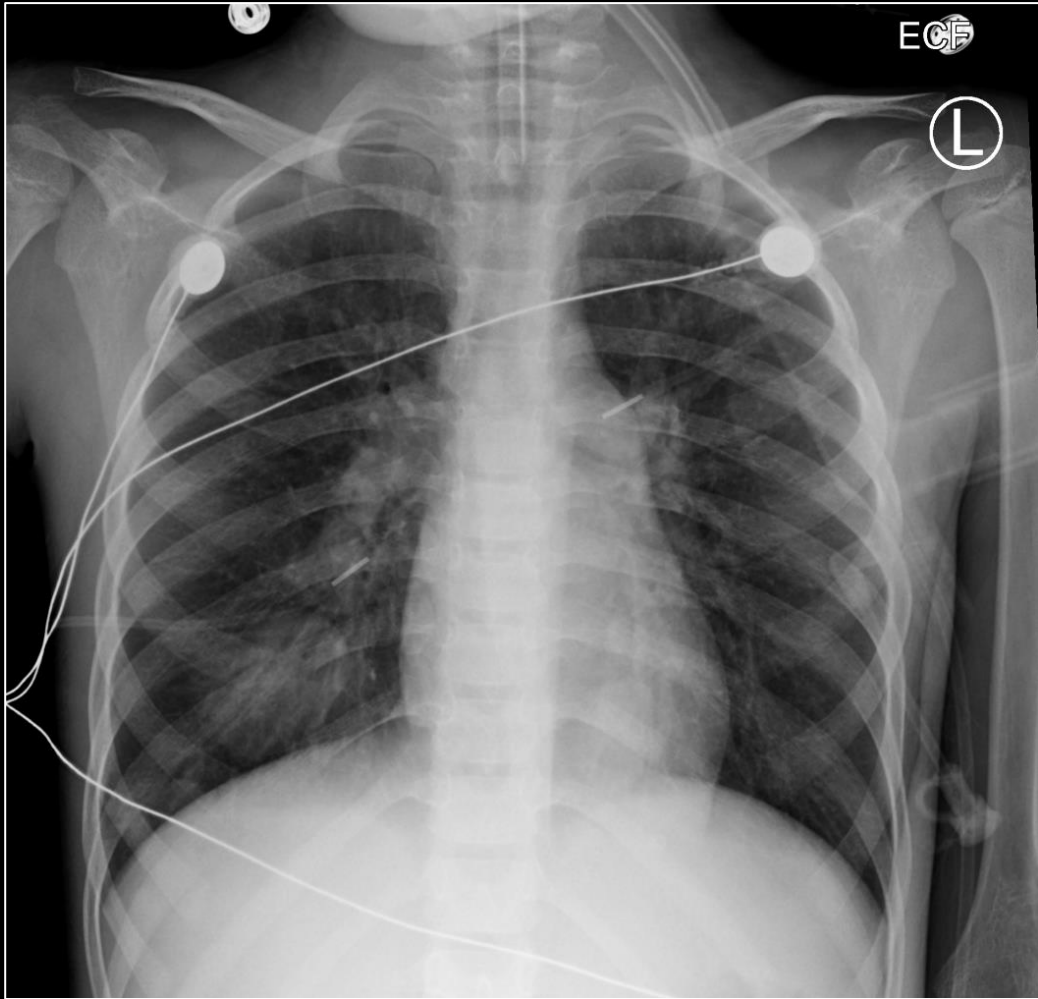
3rd/4th branchial cleft cyst is often left sided, closely approximates the left lobe of thyroid or extends inferiorly to the level of the thymus



Complicated Sinusitis



Scalp Soft tissue swelling and abscess
Epidural abscess
Subdural abscess
Leptomeningeal enhancement
Sinus venous thrombosis



Thank
you!