

Pediatric Head and Neck Lesions

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Objectives

- Illustrate common and uncommon pediatric neck masses
 - Relevant anatomy/embryology
 - Preferred imaging techniques:
 - Role of Ultrasound
 - MRI?
 - Appropriate terminology
 - Management strategies
- Describe a few mimics and rare lesions

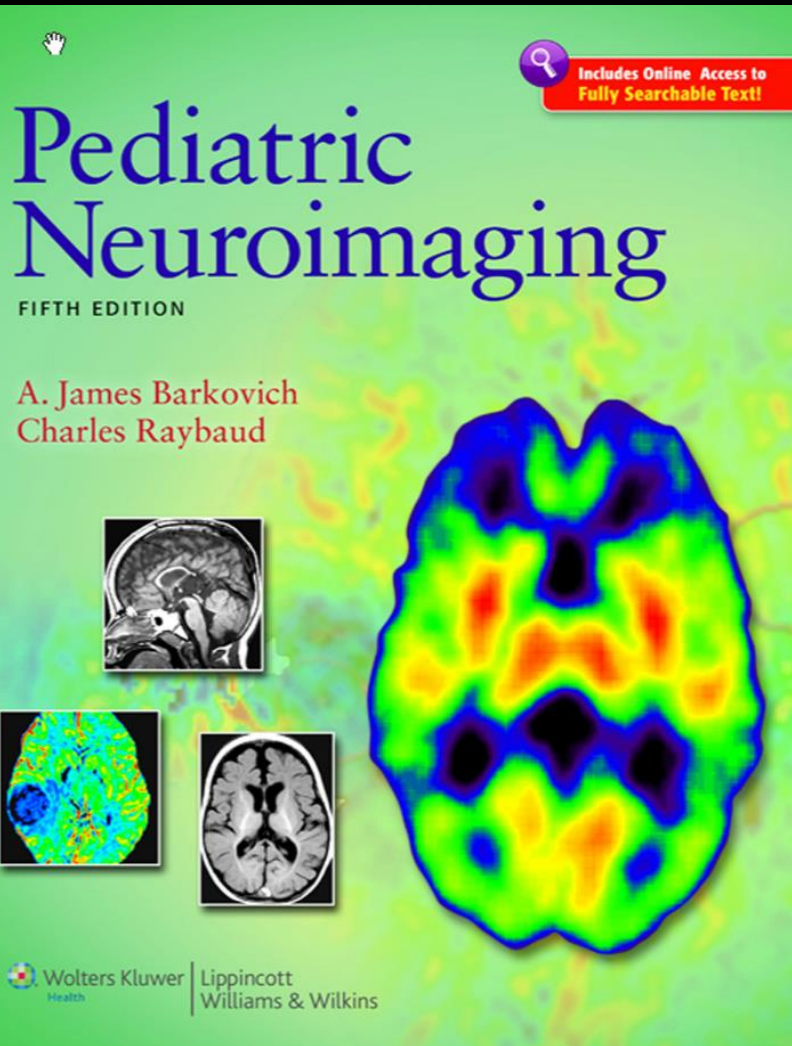


TABLE 7-14 Most Common Pediatric Neck Masses

Congenital masses (40%)

- Thyroglossal duct cysts
- Lymphangiomas
- Branchial cleft anomalies
- Dermoid tumor
- Tracheal stenosis
- Teratomas
- Lingual thyroid gland

Benign Tumors/Tumor Like Conditions (19%)

- Fibromatosis coli
- Aggressive fibromatosis
- Cervicothoracic lipoblastomatosis (702)
- Plexiform neurofibroma
- Juvenile laryngotracheal papillomatosis

Neoplasms (18%)

- Lymphoma
- Soft tissue sarcoma (especially rhabdomyosarcoma)
- Neuroblastoma
- Carcinoma (especially thyroid)

Inflammatory Masses (12%)

- Cervical adenitis
- Sialadenitis
- Retropharyngeal abscess
- Inflammatory myofibroblastic tumor (plasma cell granuloma, inflammatory pseudotumor) (703)

Vascular Masses (10%)

- Jugular vein varices
- Hemangiomas
- Cervical carotid artery aneurysms

Adapted from Vazquez et al. (701).

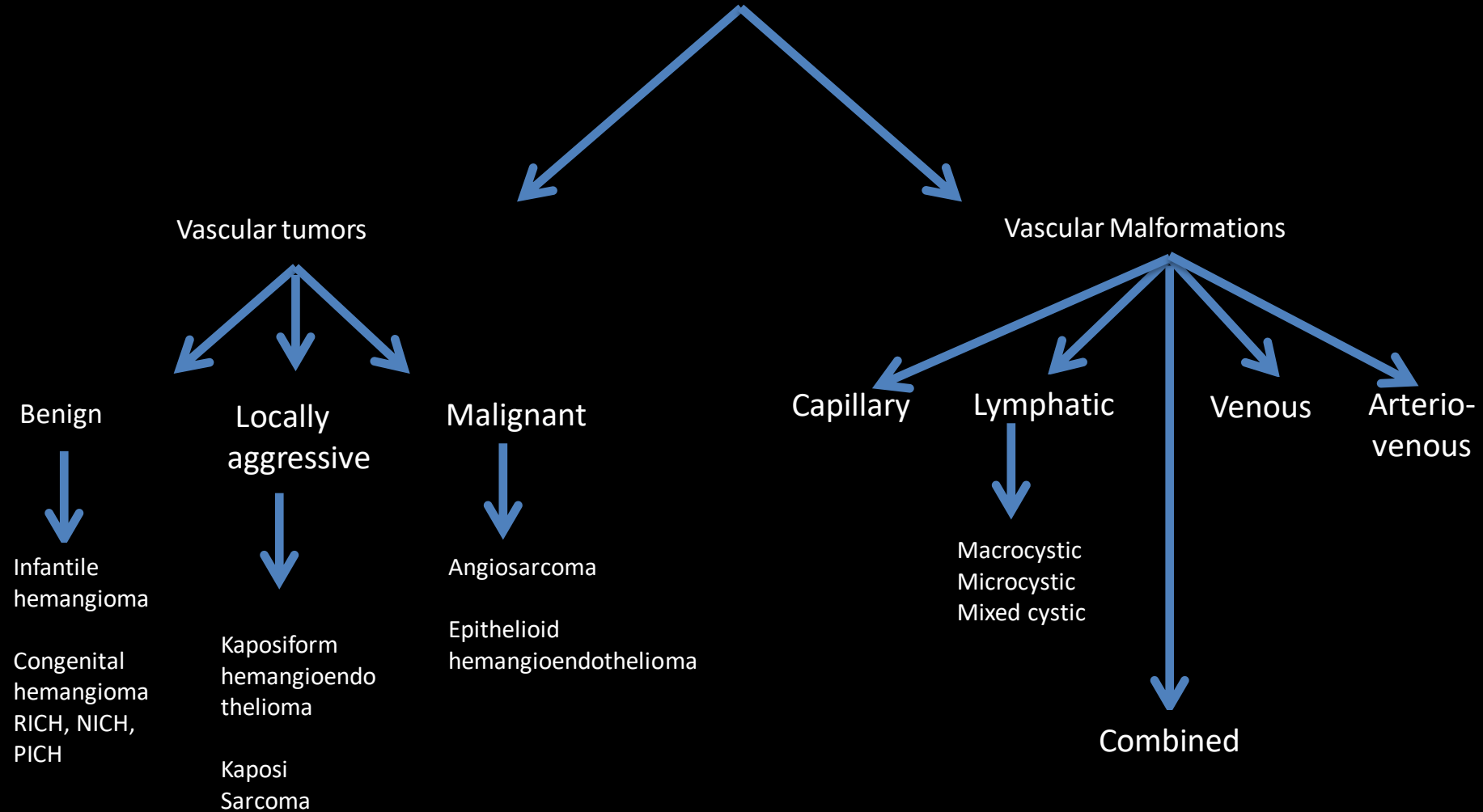
Pediatric Neck Masses: What Do We Really Know?

- Vast majority are benign lesions
- Ultrasound is the initial (*often key*) modality of choice
- Age of presentation could give valuable diagnostic clues
- Two major groups: Nodal vs Extranodal

Vascular anomalies

- Historical Perspectives:
 - Virchow in the 19th century classified them as cavernous and racemose angiomas
 - Mullicken and Glowacki in 1982 classified vascular anomalies based on endothelial characteristics

Vascular anomalies

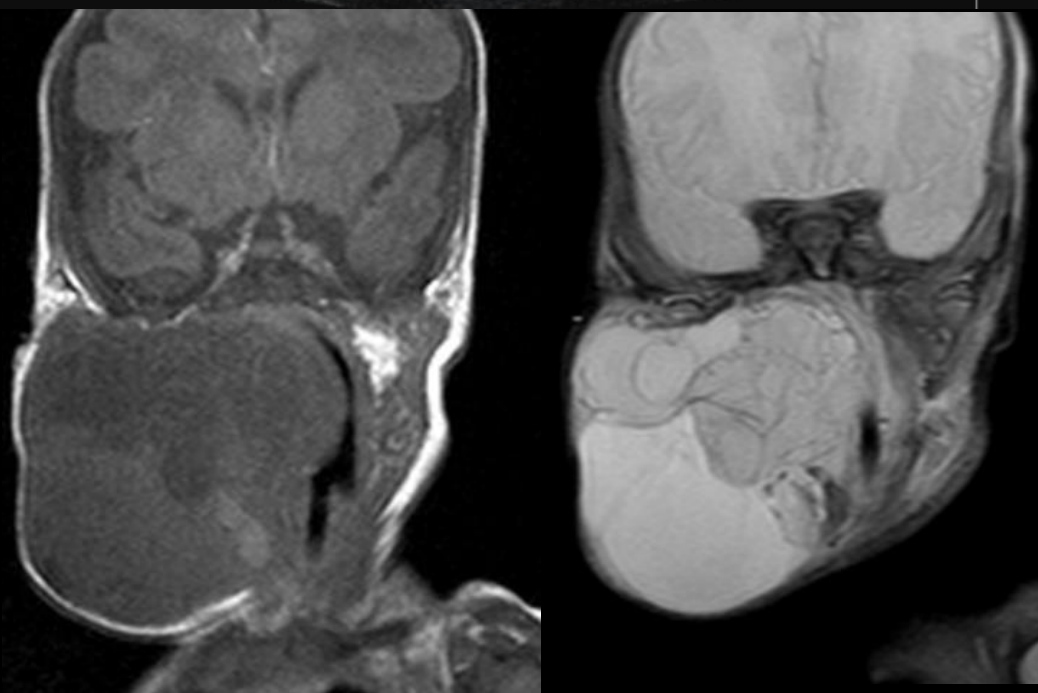


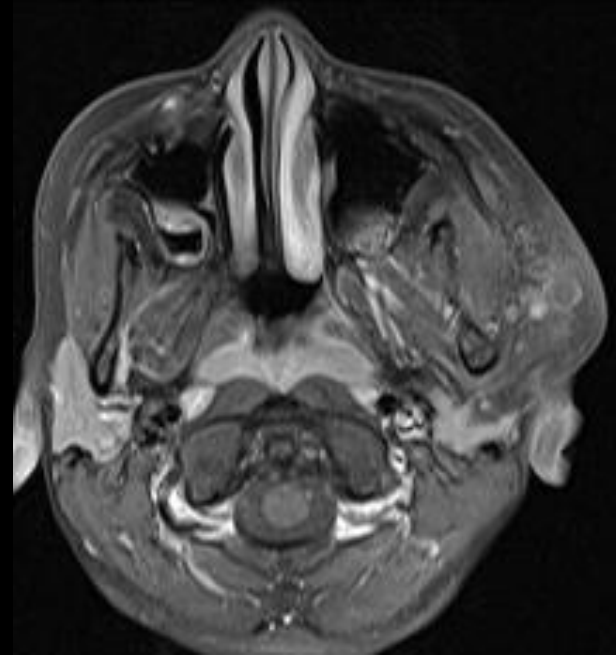
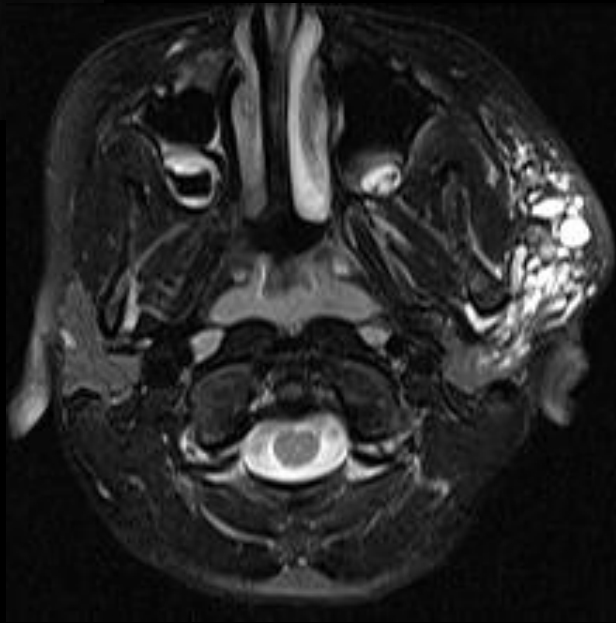
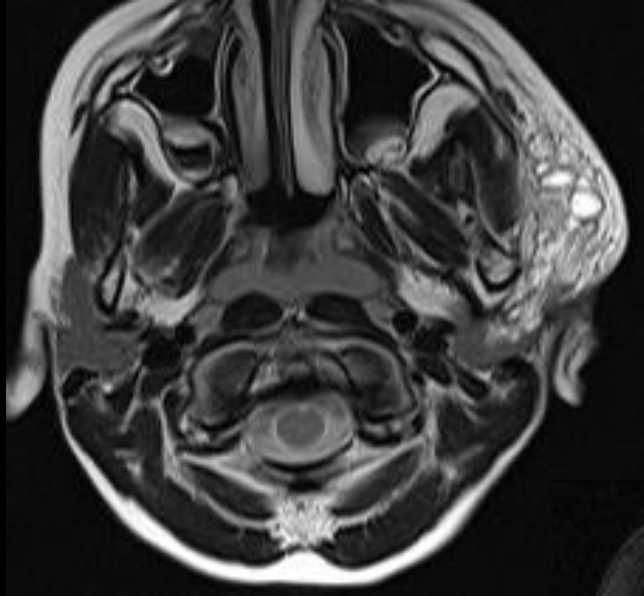
Vascular Malformations and Hemangiomas

	Hemangioma (infantile)	Vascular Malformation
Endothelial turnover	High (Stain for GLUT-1)	Normal
Presence at Birth	No	Yes
Course	Appear at 6 -8 wks Proliferate for 1-2 yrs Involutates	Grow in proportion with the person throughout life
Imaging	Solid lesions High vessel density Rapid and intense enhancement and washout of contrast	LM: Transpatial Multilocular cystic lesions with vascularity in the walls and septations VM: Compressible Collection of vascular channels Phleboliths

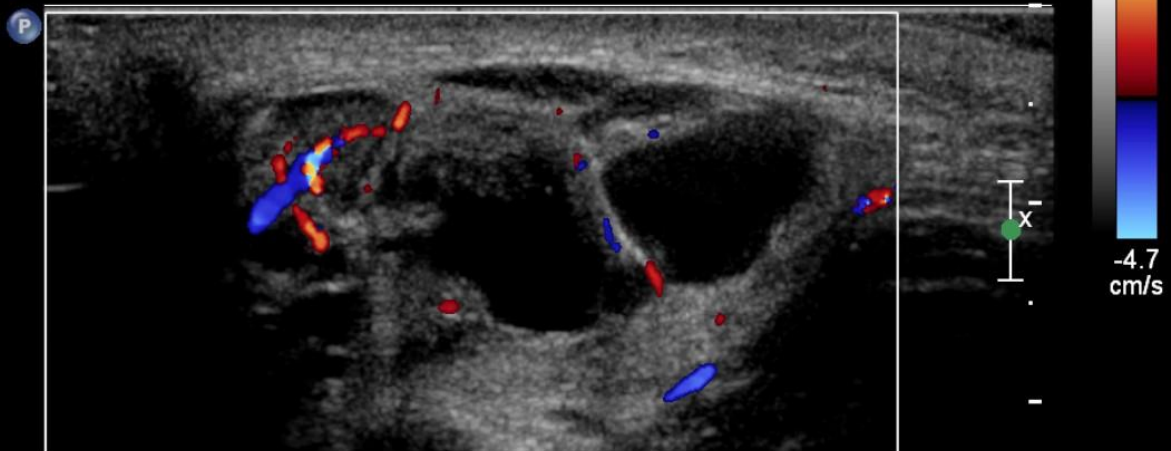
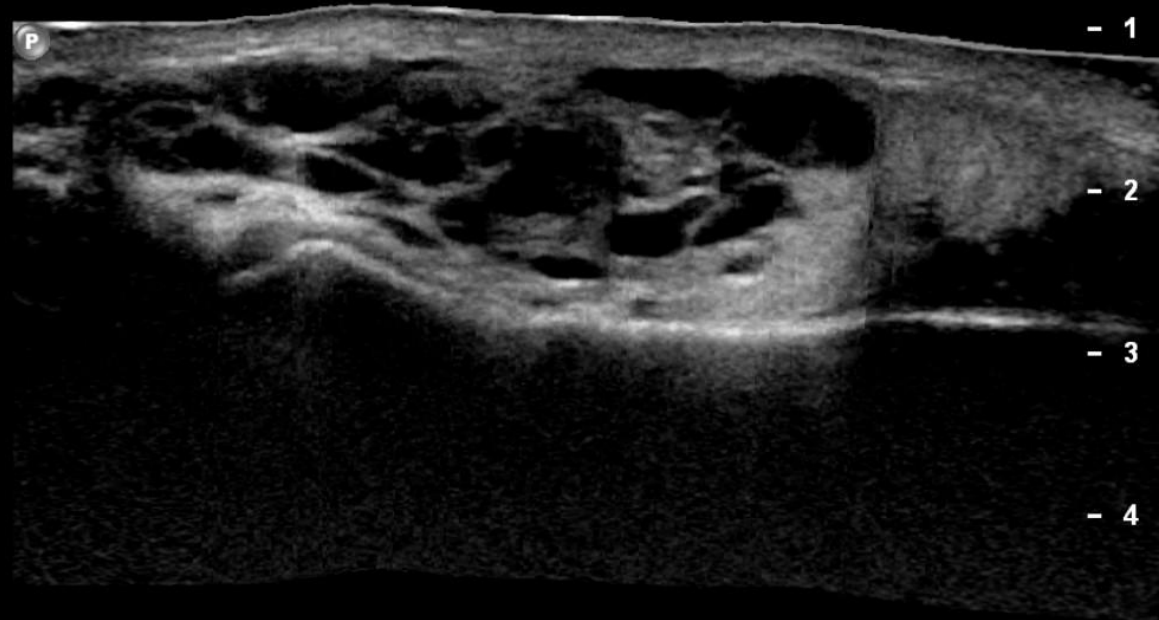


LM



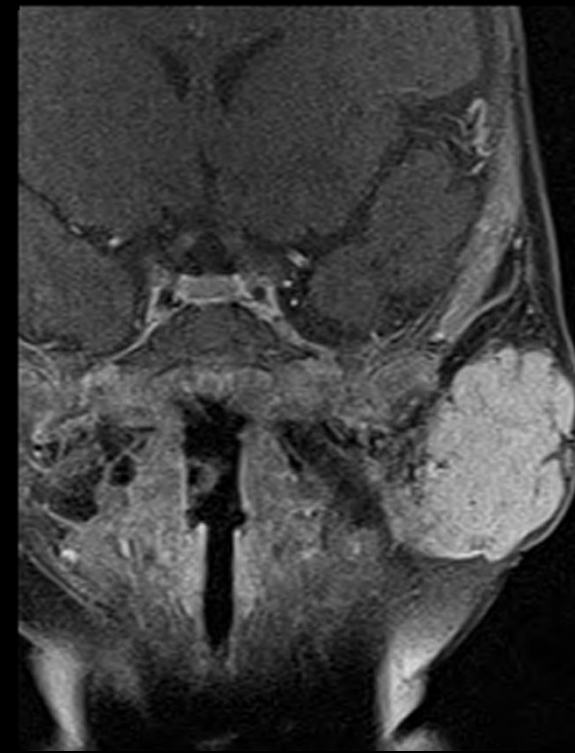
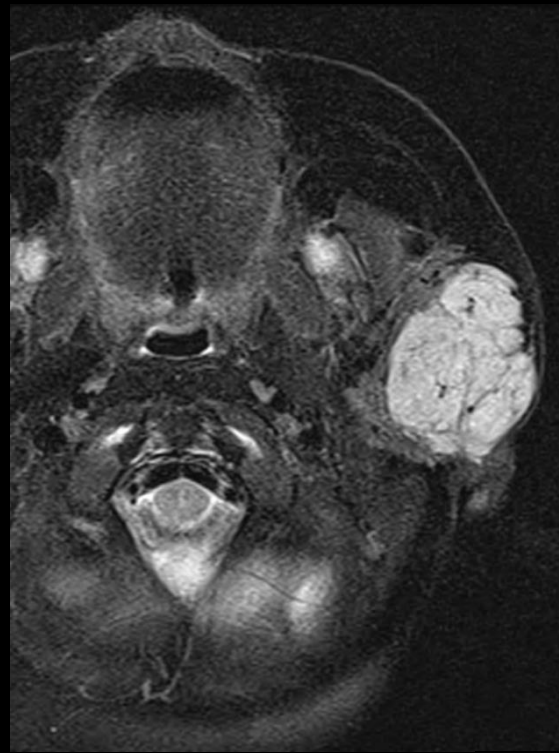


Lymphatic malformation

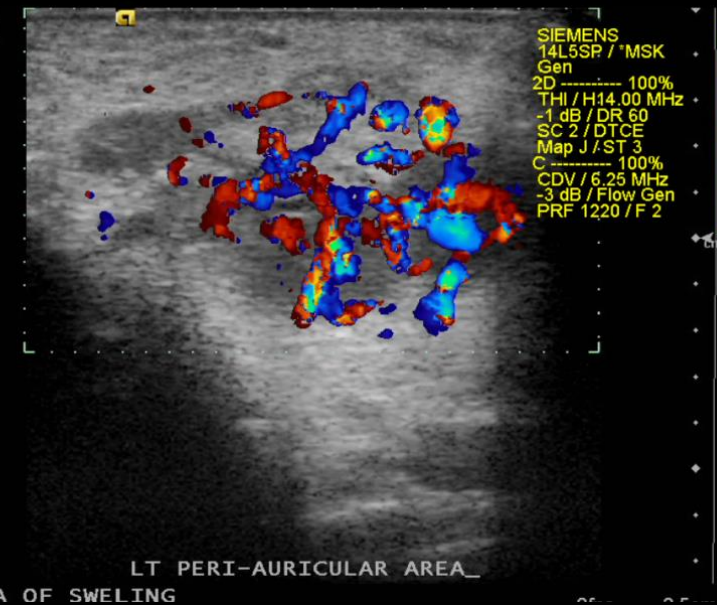


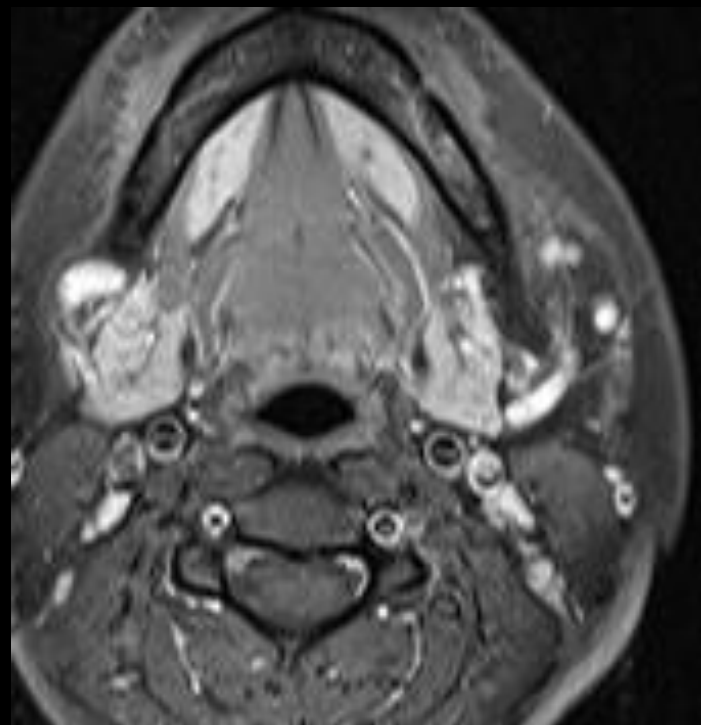
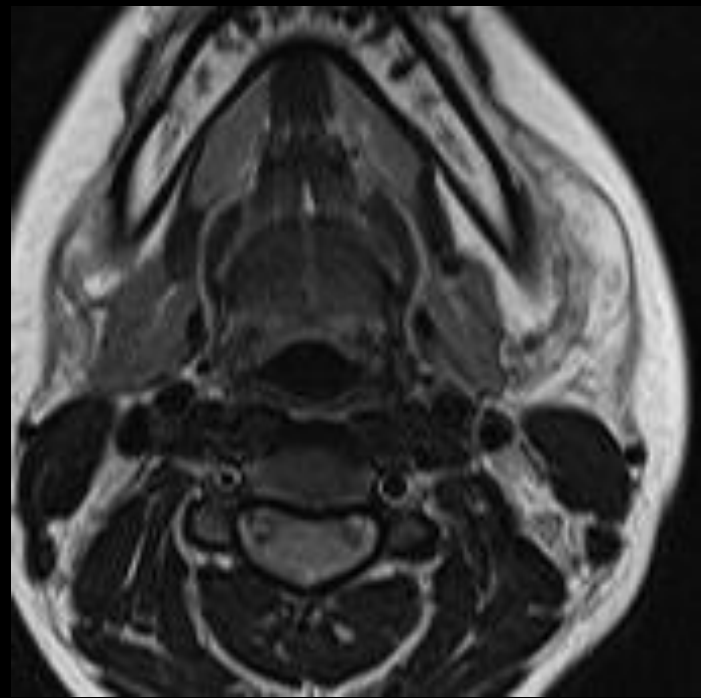
Lymphatic venous
Malformation

Infantile hemangioma

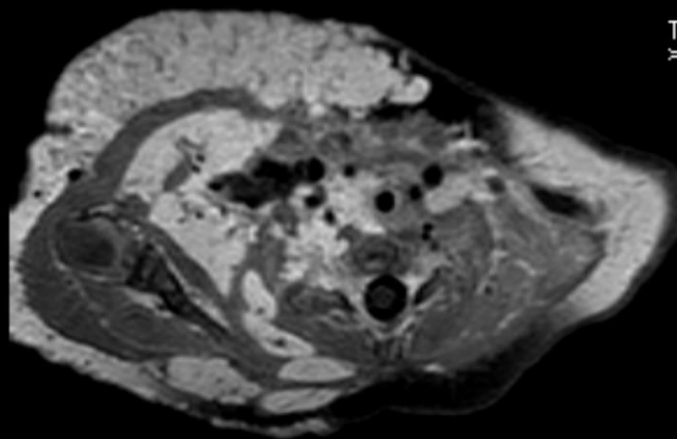
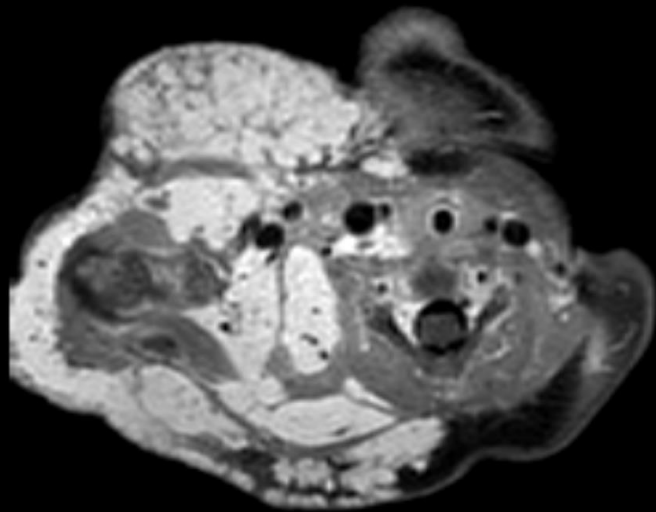
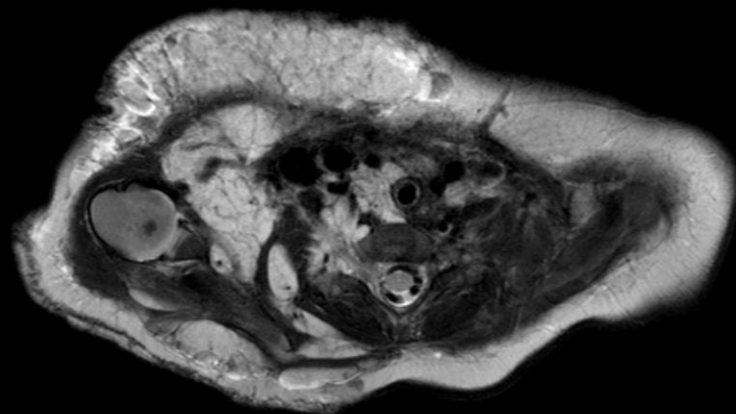
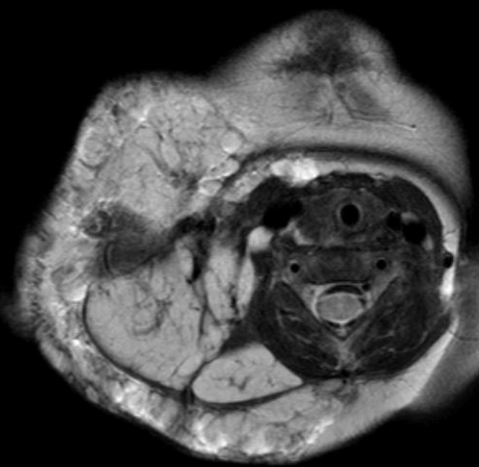


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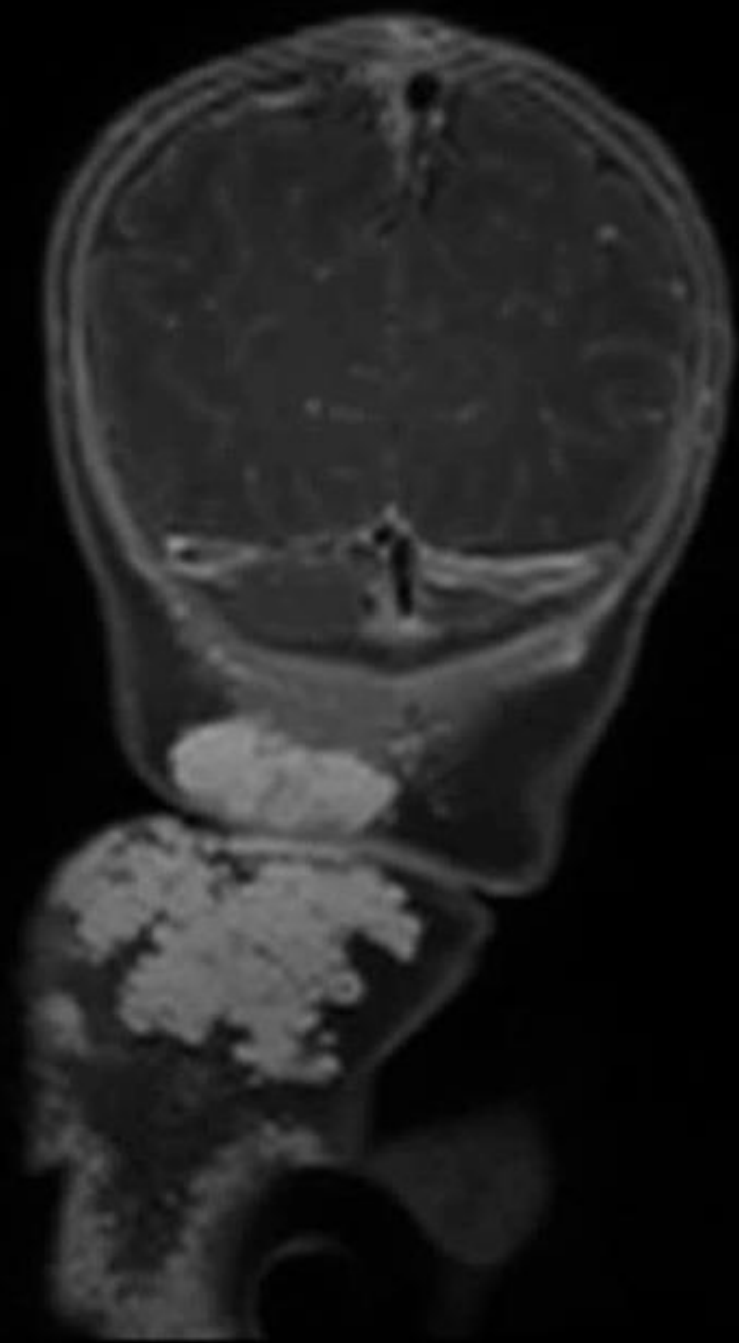




Involuting Infantile
Hemangioma

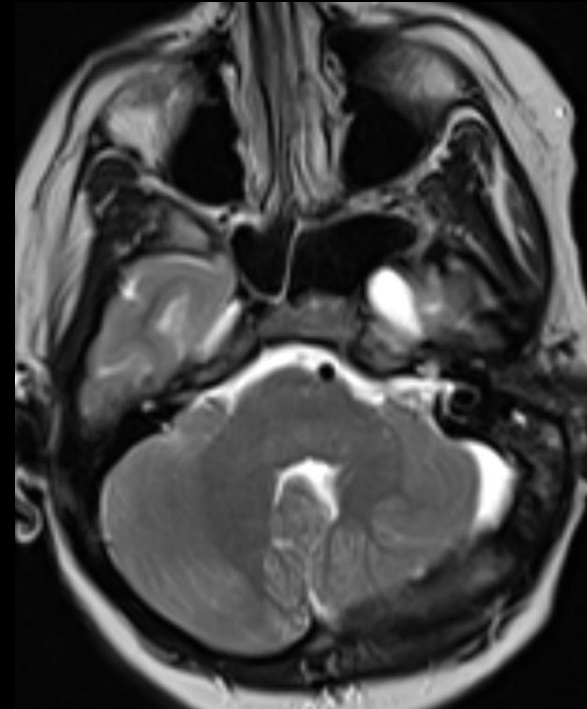
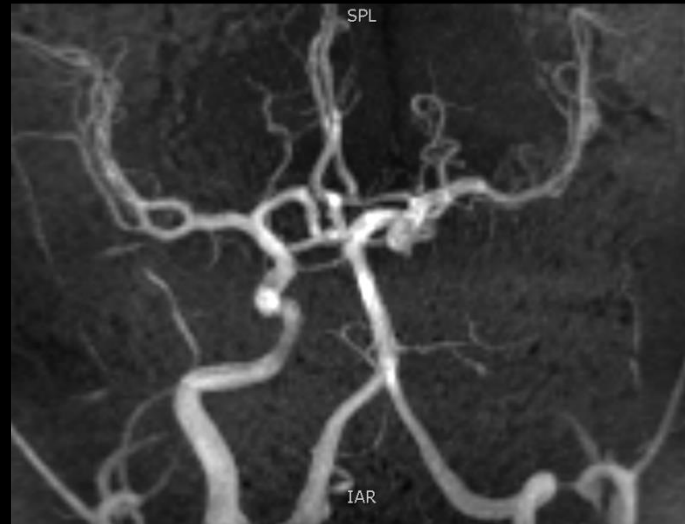
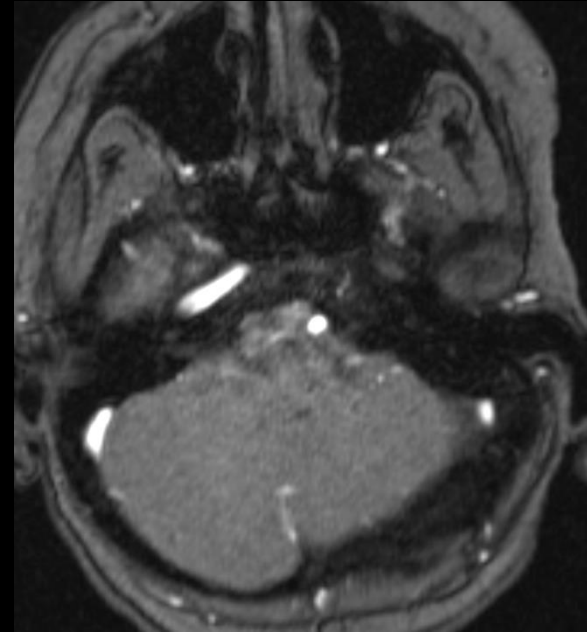
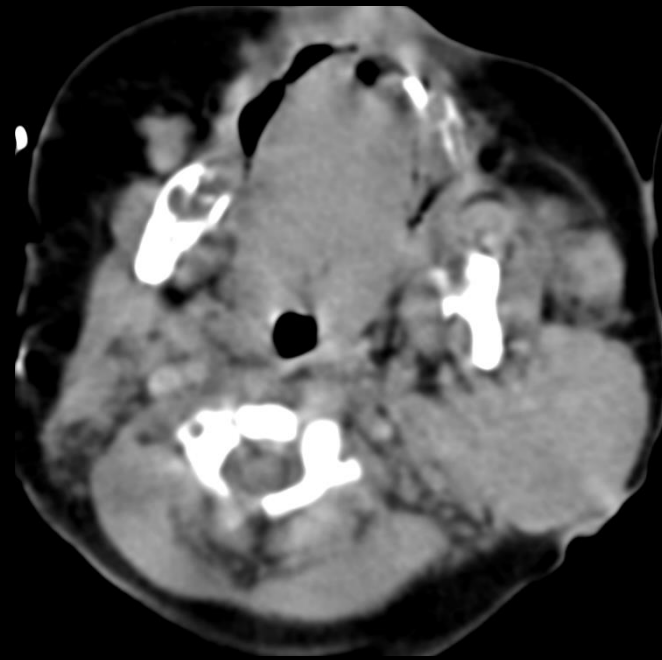


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PHACES Syndrome

- Posterior fossa
- Hemangiomas
- Arterial
- Cardiac
- Eye
- Sternal Clefts

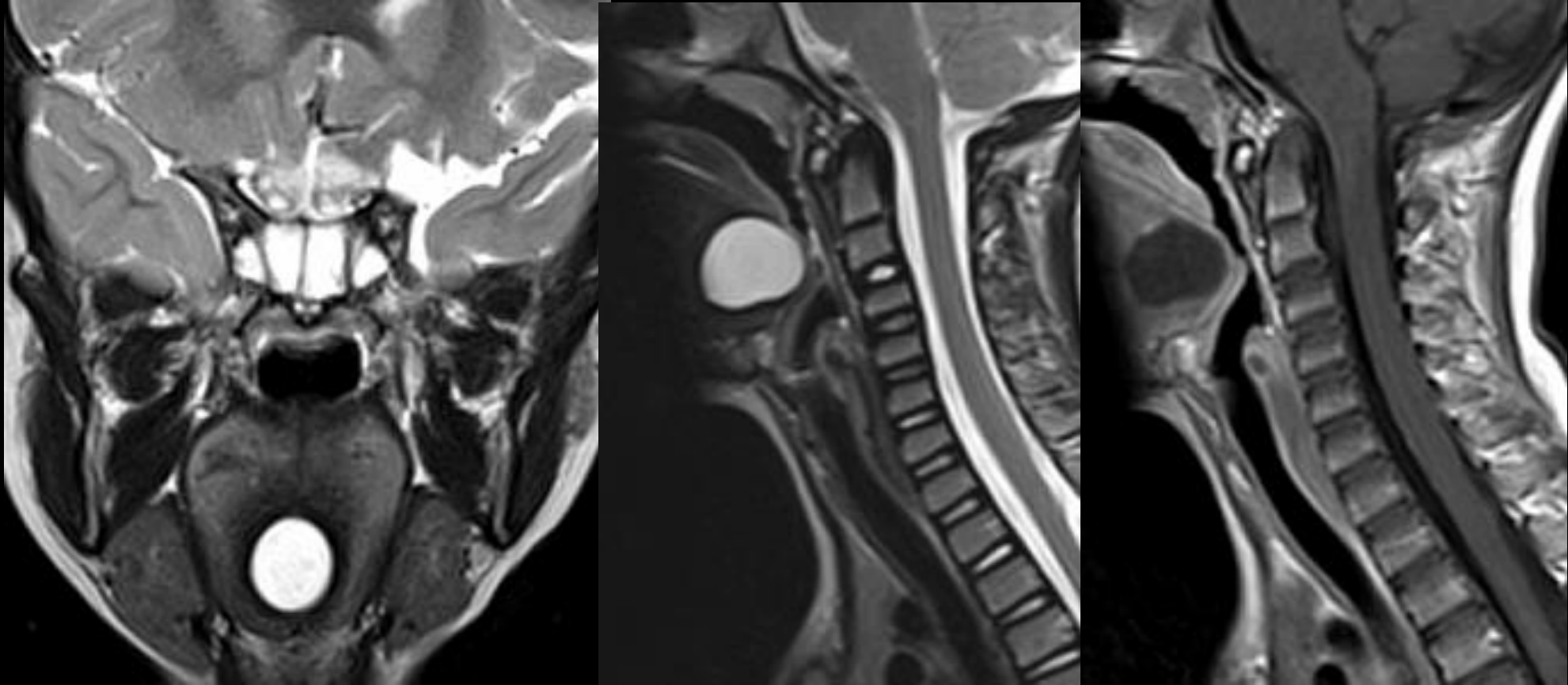


Congenital Lesions and Other Cysts

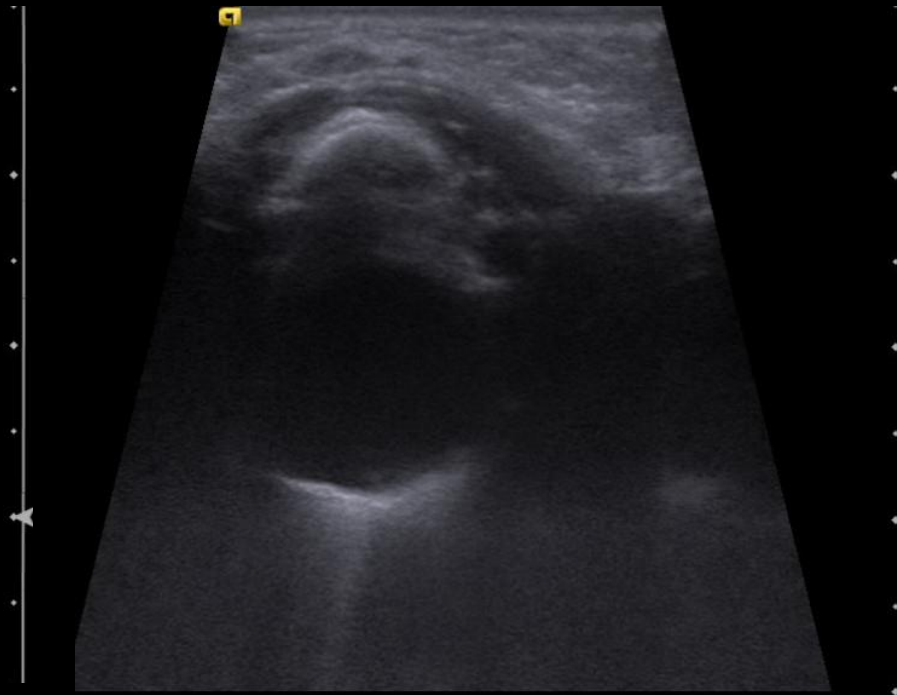
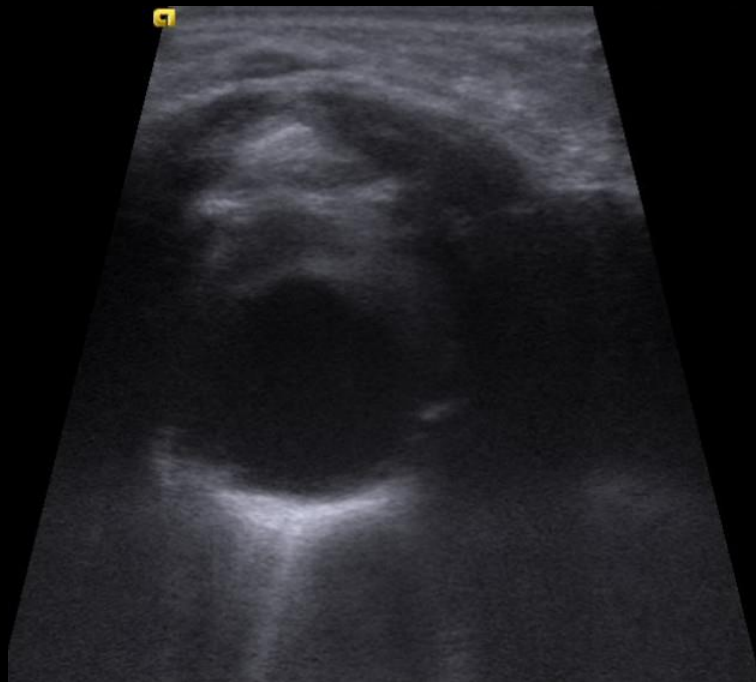
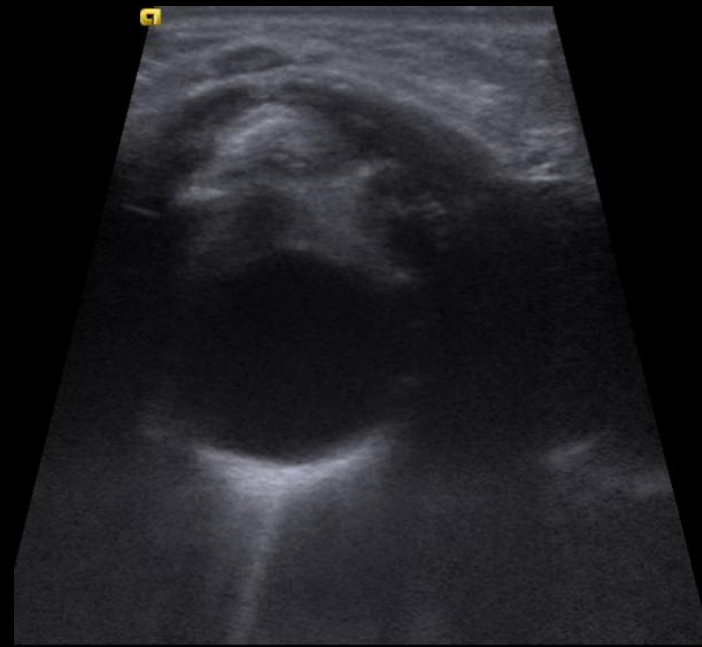
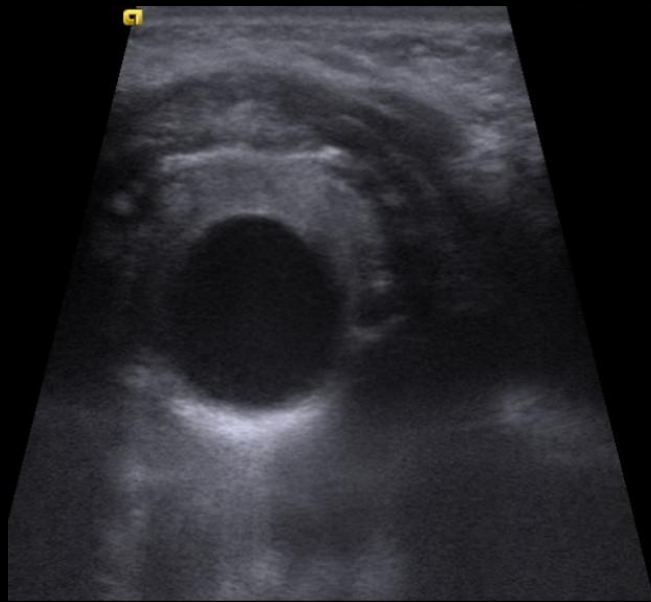
- Thyroglossal Duct Cyst
- Branchial Cleft Cyst
- Dermoid/Epidermoid
- Ranula
- Ectopic thymus/thymic cyst

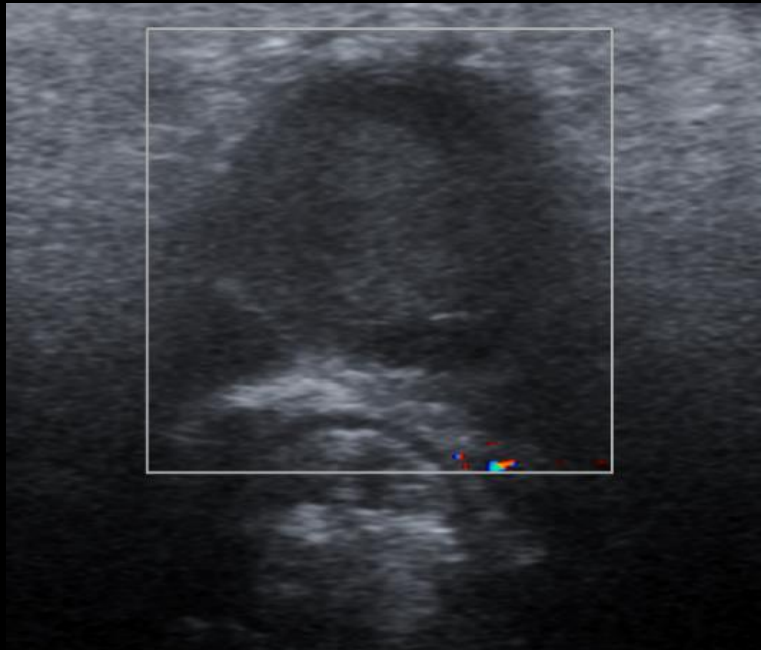
Thyroglossal Duct Cyst

- Most common congenital neck mass
- Anywhere along the course of thyroglossal duct (foramen cecum to thyroid gland)
- Often at or above the level of the hyoid
- Infrahyoid lesions are paramedian
- Confirm the presence of a normal thyroid
- Rim enhancement could indicate secondary infections

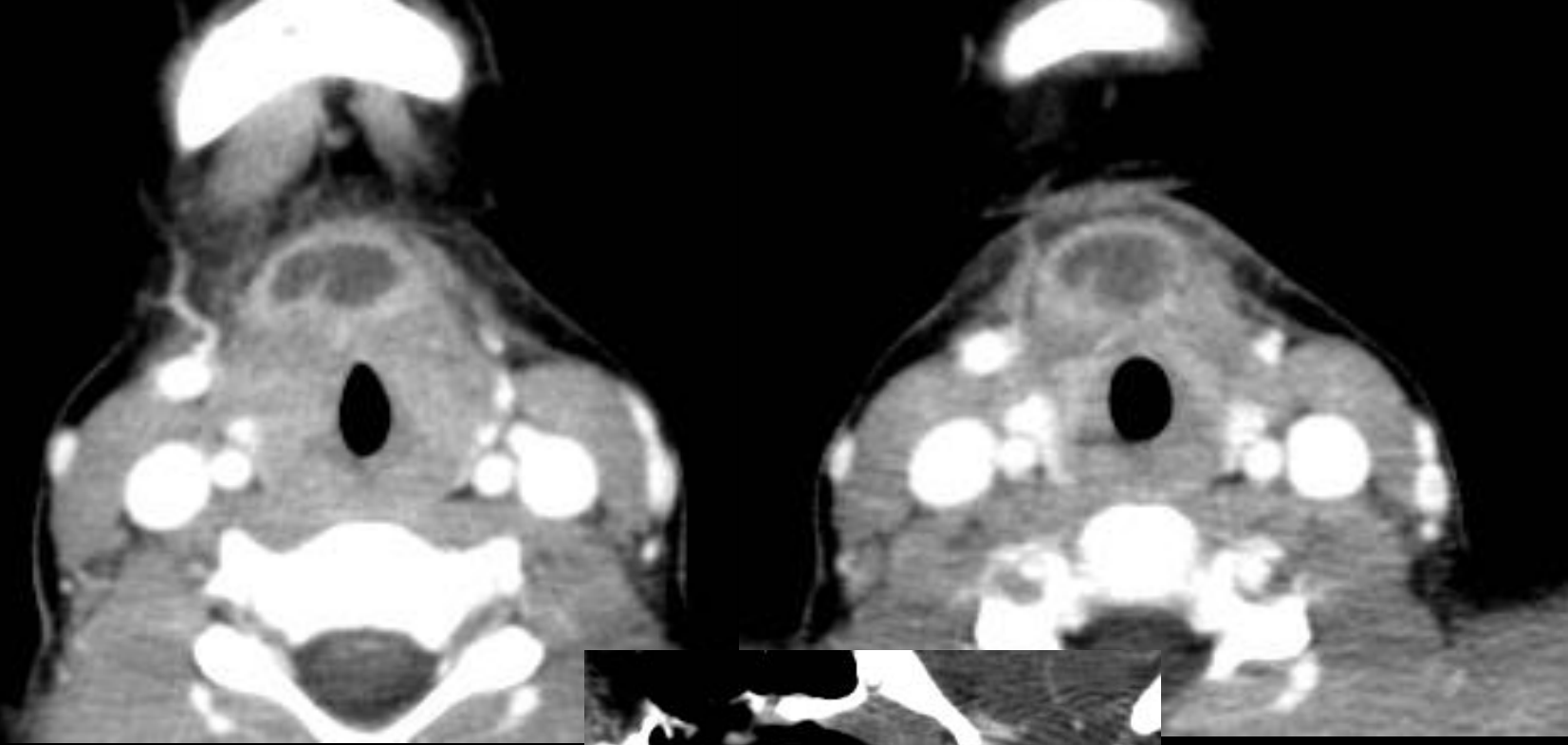


Thyroglossal Duct Cyst

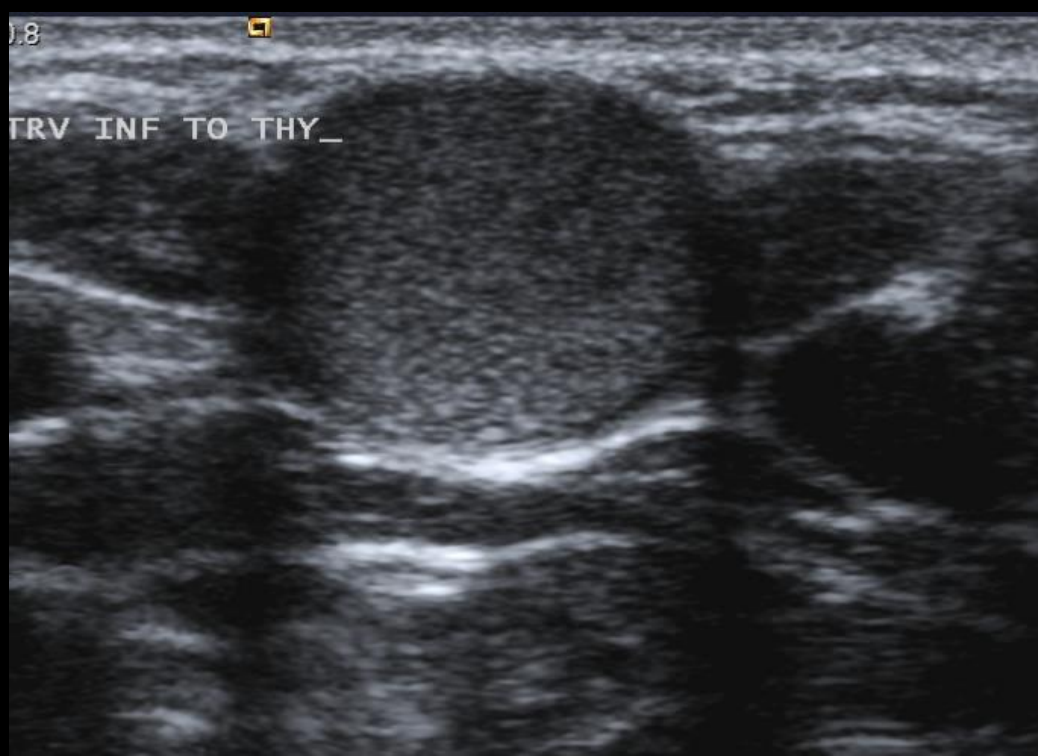




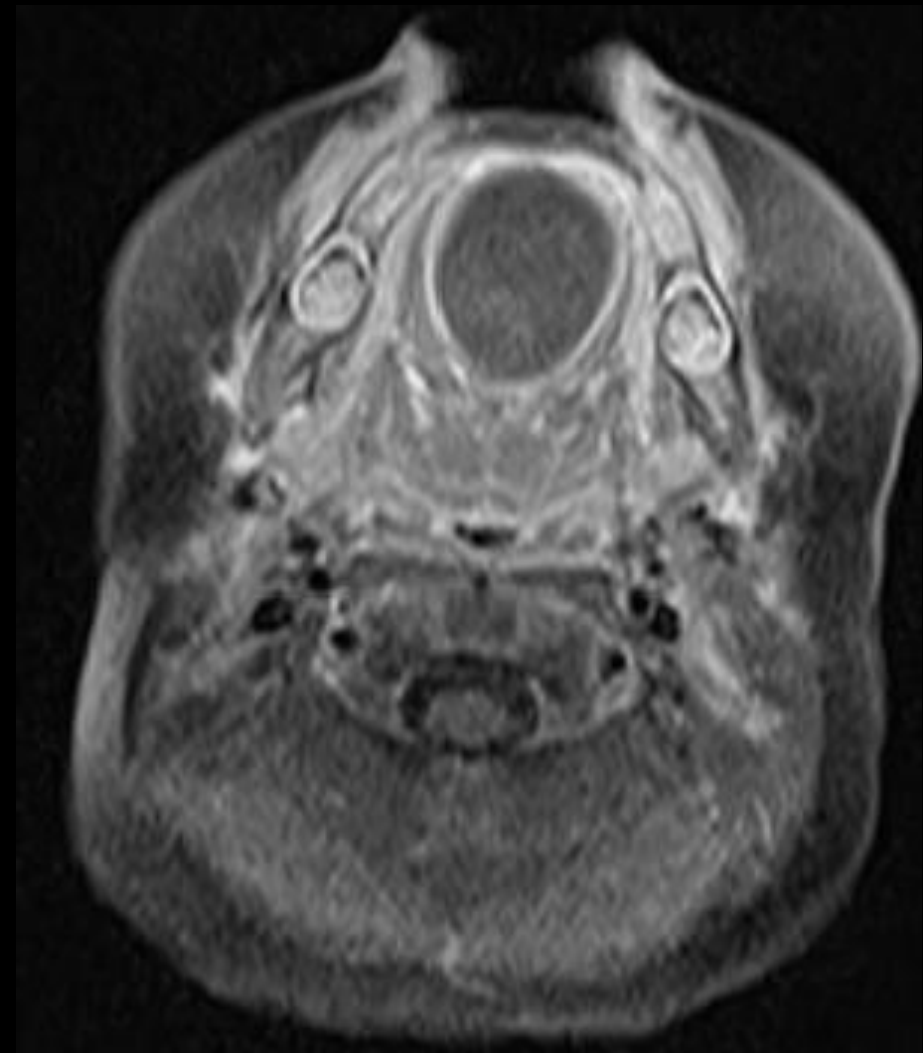
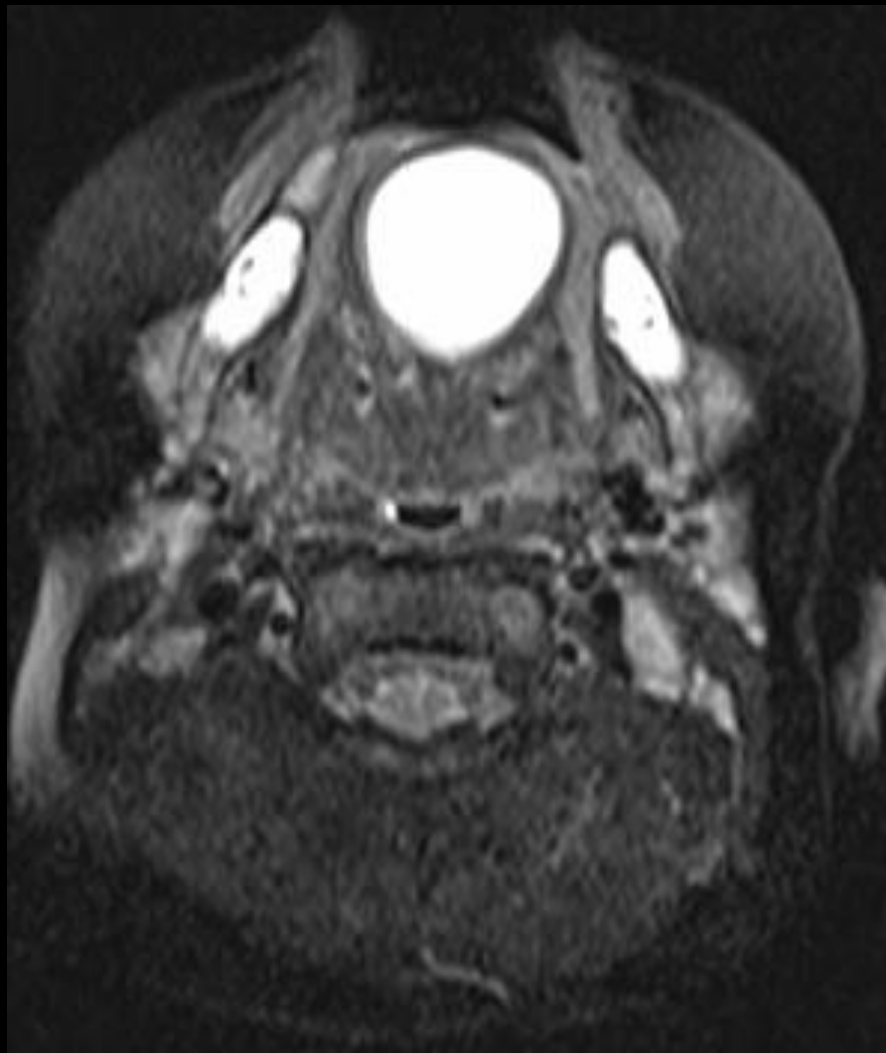
Infrahyoid thyroglossal duct cyst



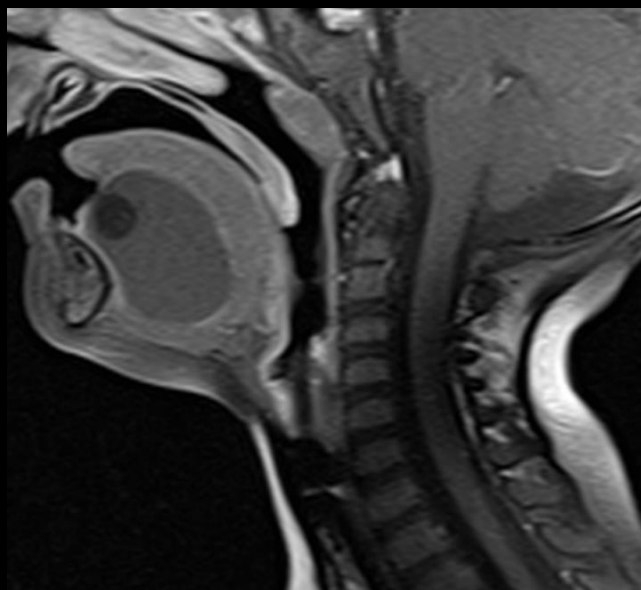
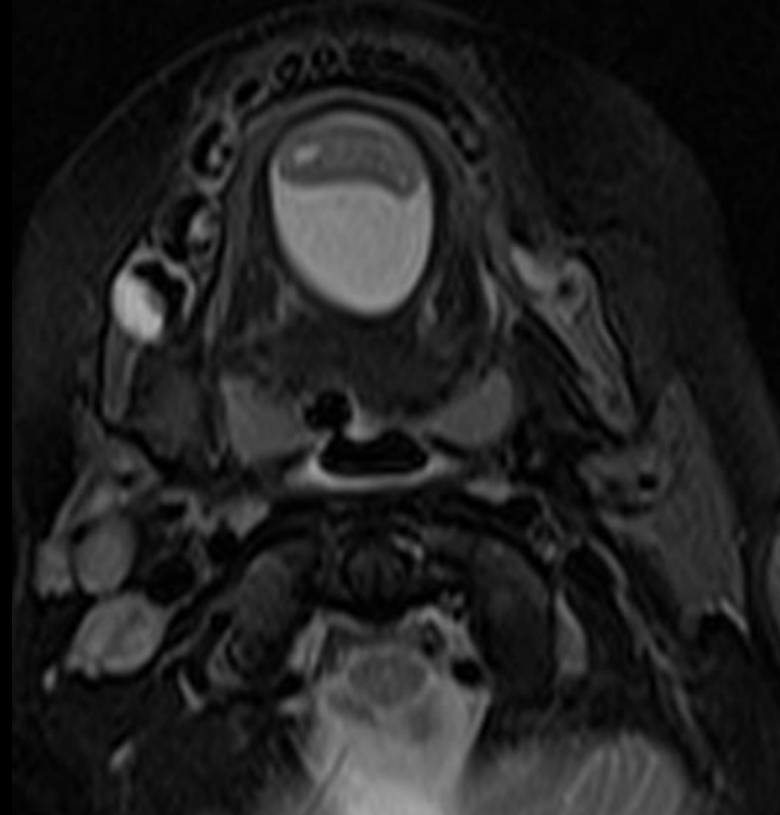
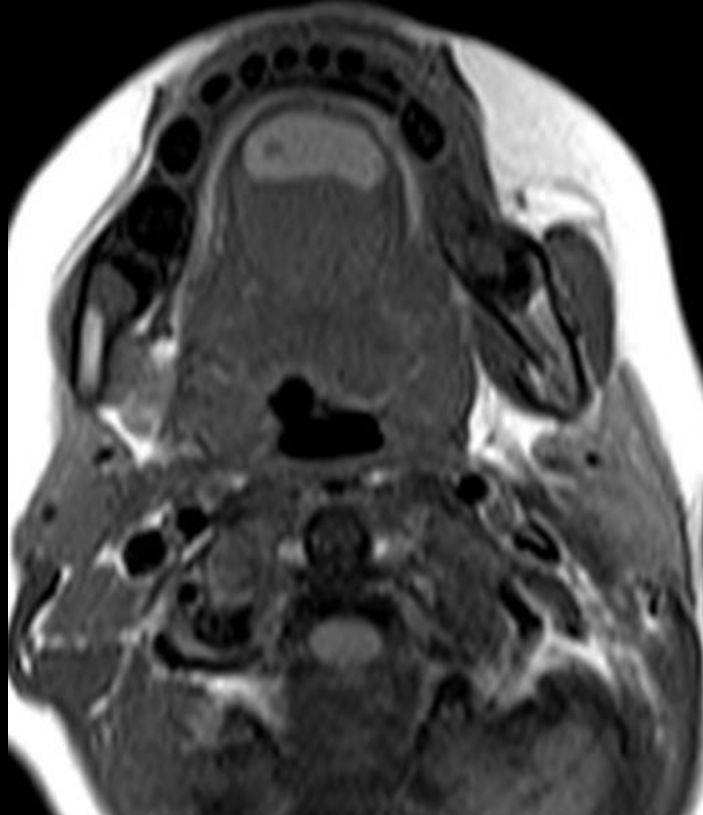
Infected
Thyroglossal
Duct Cyst



Dermoid Cyst



Epidermoid

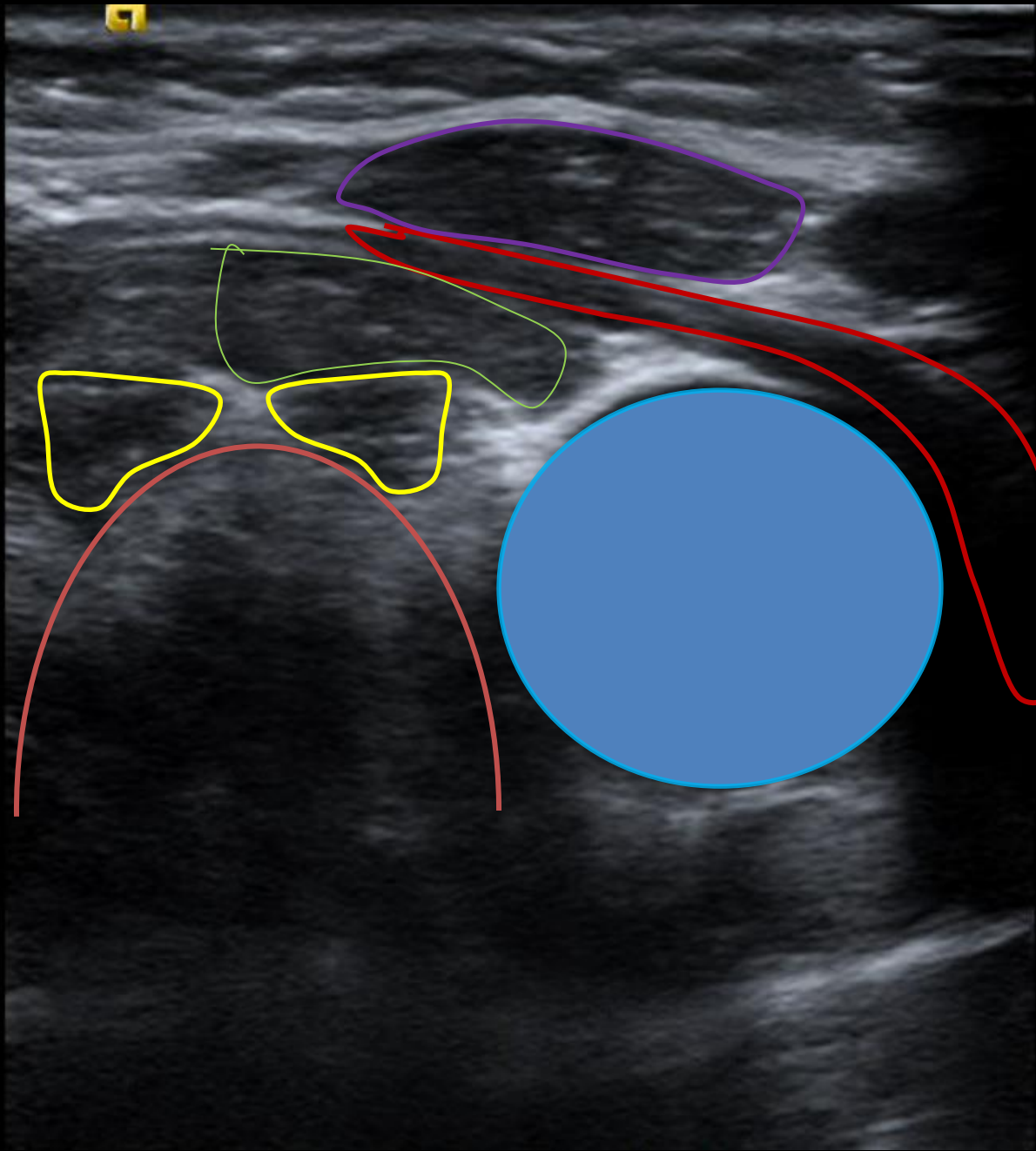


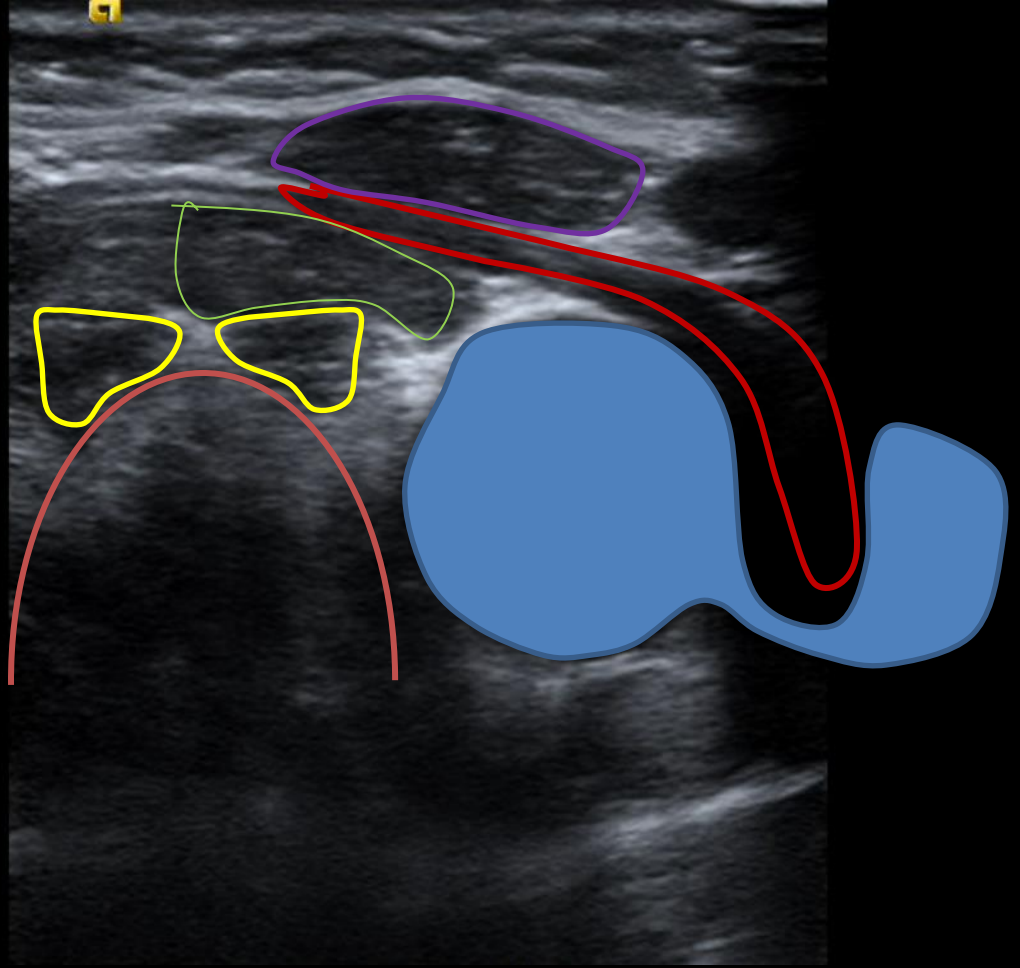
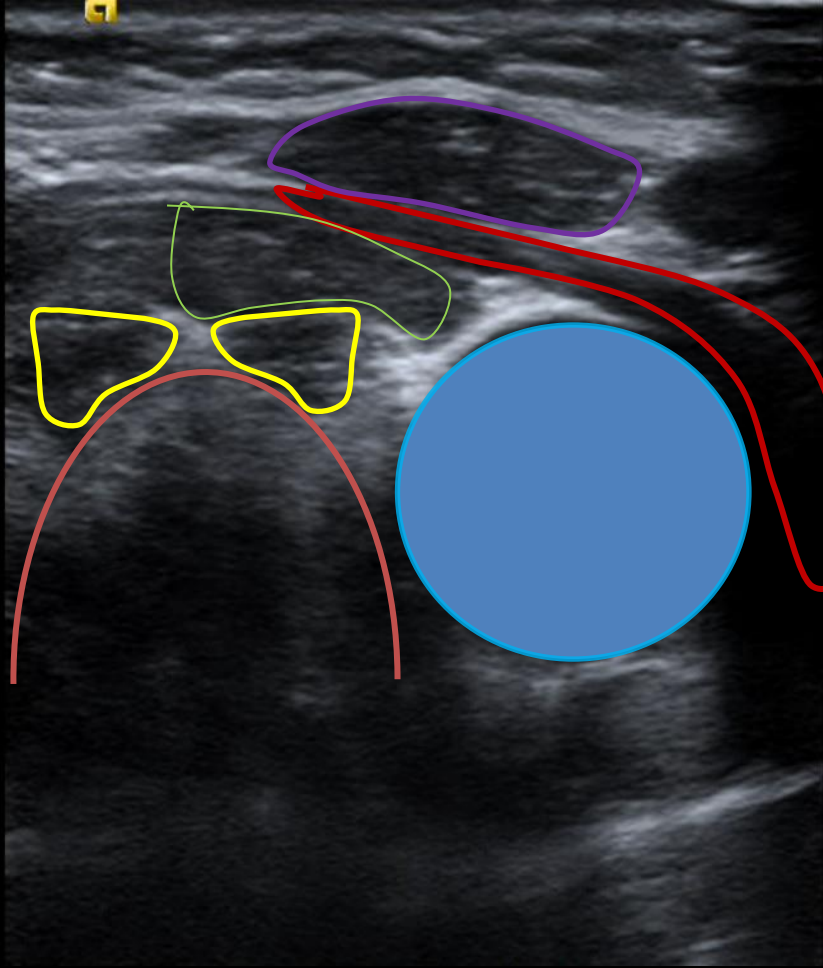
Dermoid



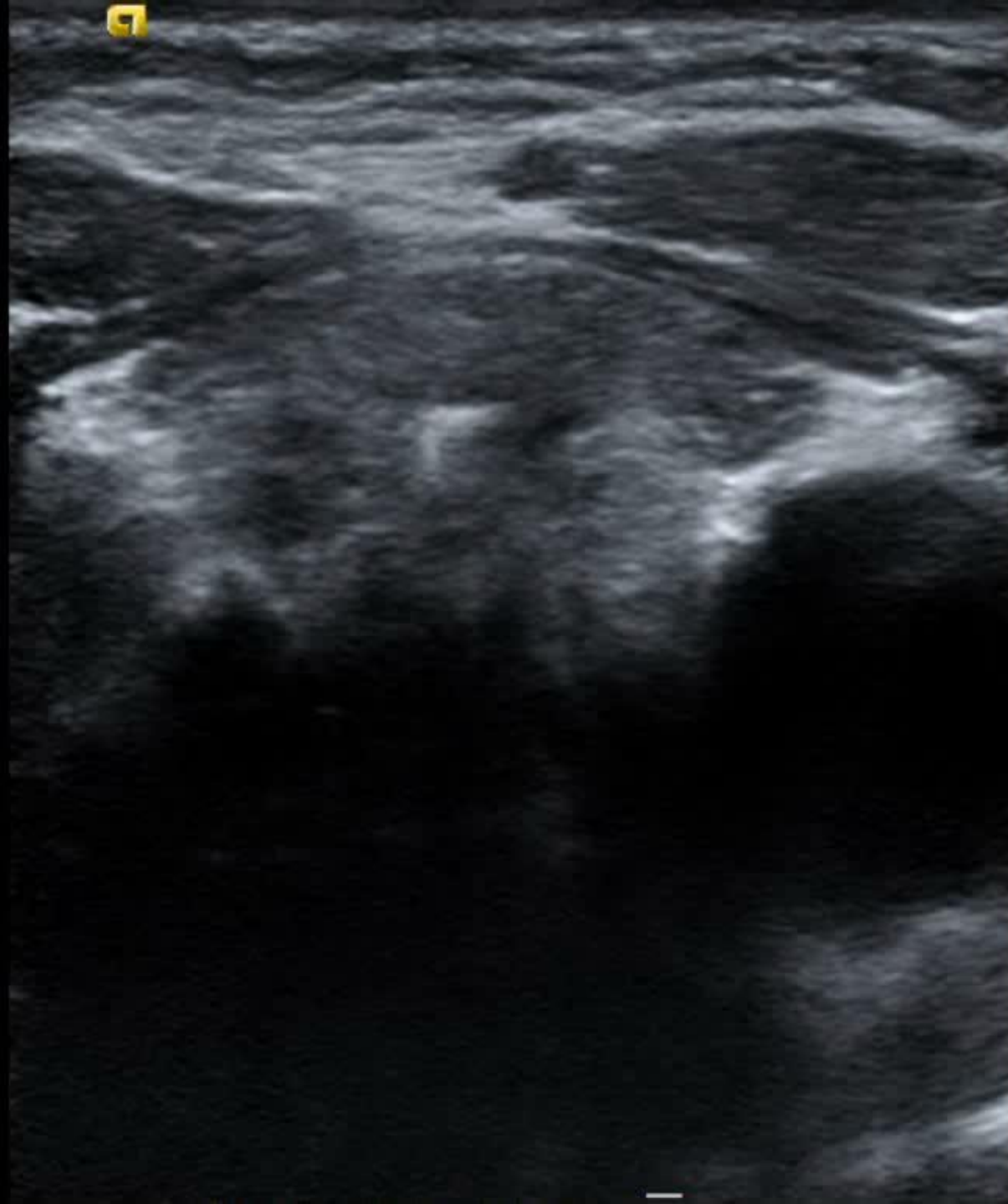
Ranula







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Branchial Cleft Cysts

Lateral neck cysts

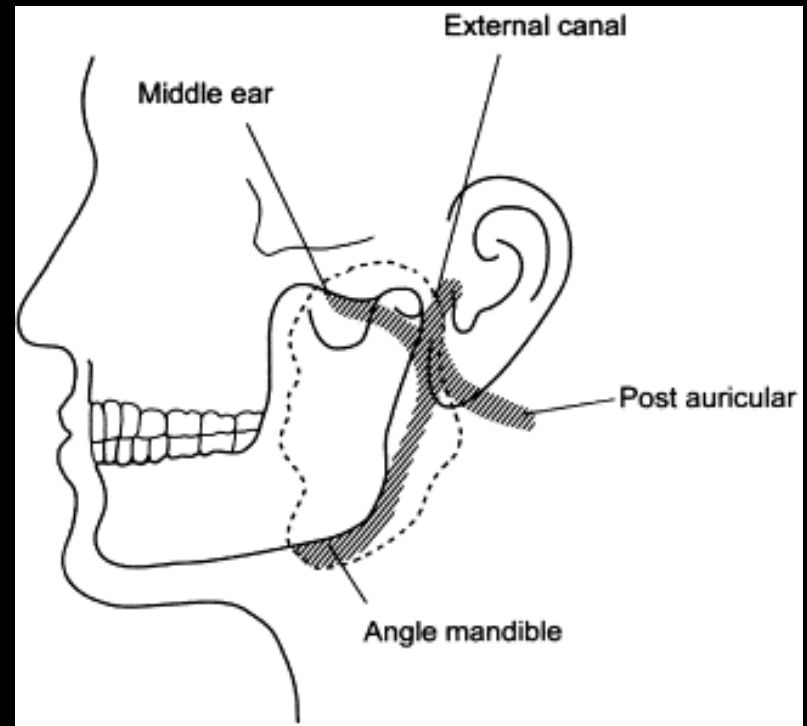
1st branchial cleft cysts are often located inferior and posterior to the tragus, near the external auditory canal.

2nd branchial cleft cysts are by far the most common lesions

Occur along a tract from the palatine tonsil to supraclavicular region

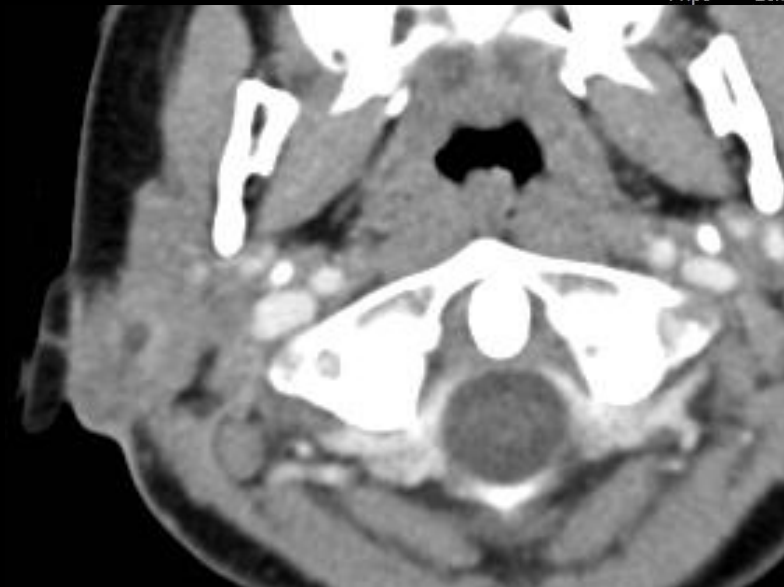
3rd and 4th branchial cleft cysts arise in relation to the pyriform sinus: Usually present as recurrent neck infections and abscesses

1st Branchial Cleft Cyst



SAG POST TO RT_EAR

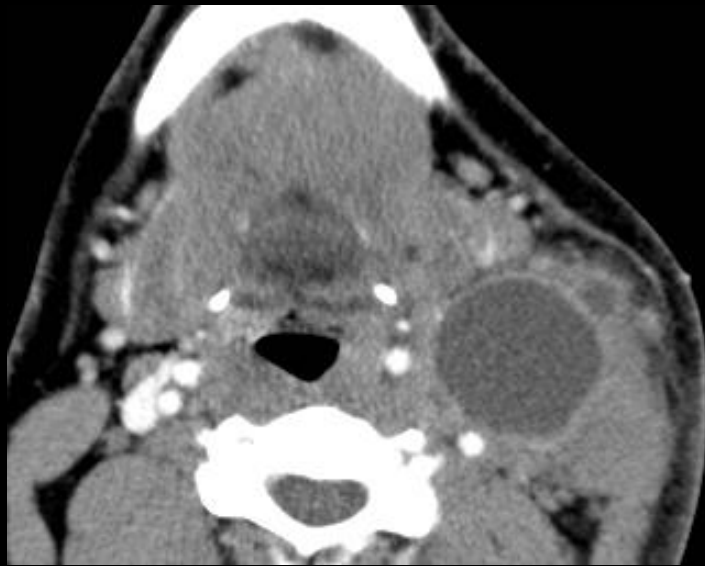
11fps 2cm



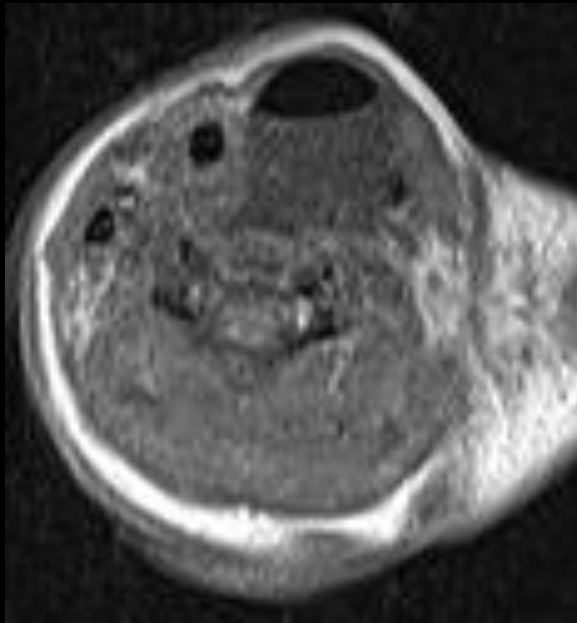
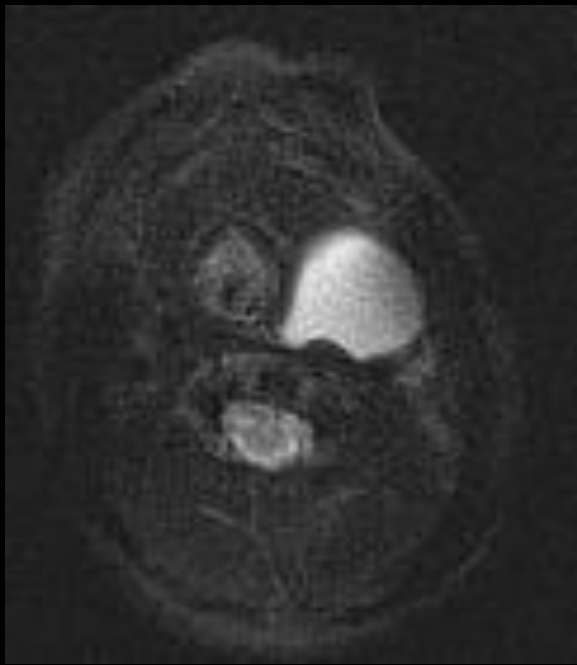
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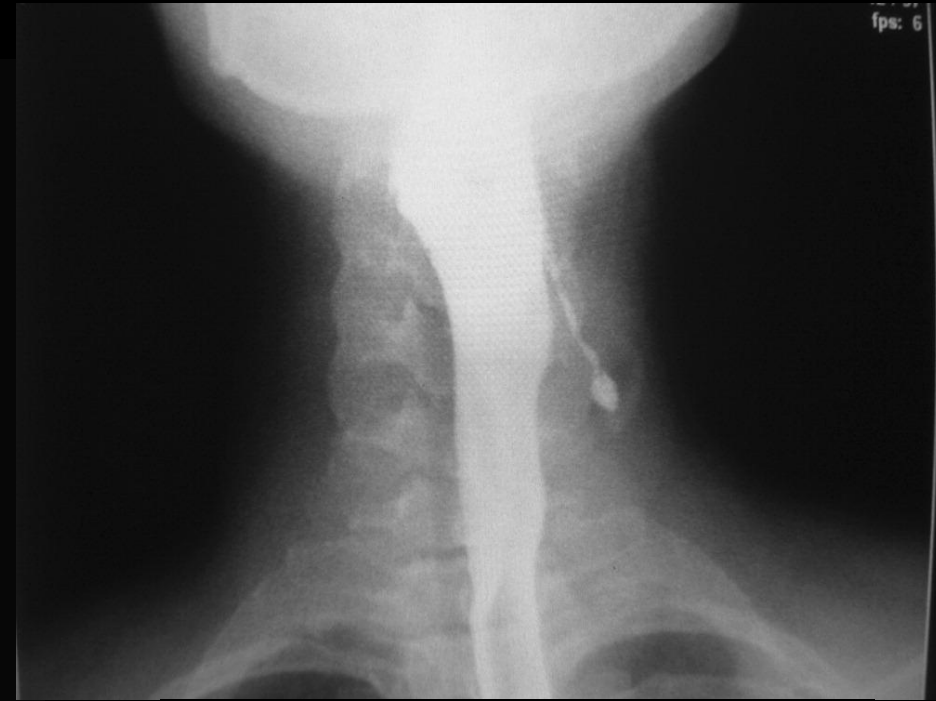
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2nd Branchial Cleft Cyst: Most common
branchial cleft anomaly

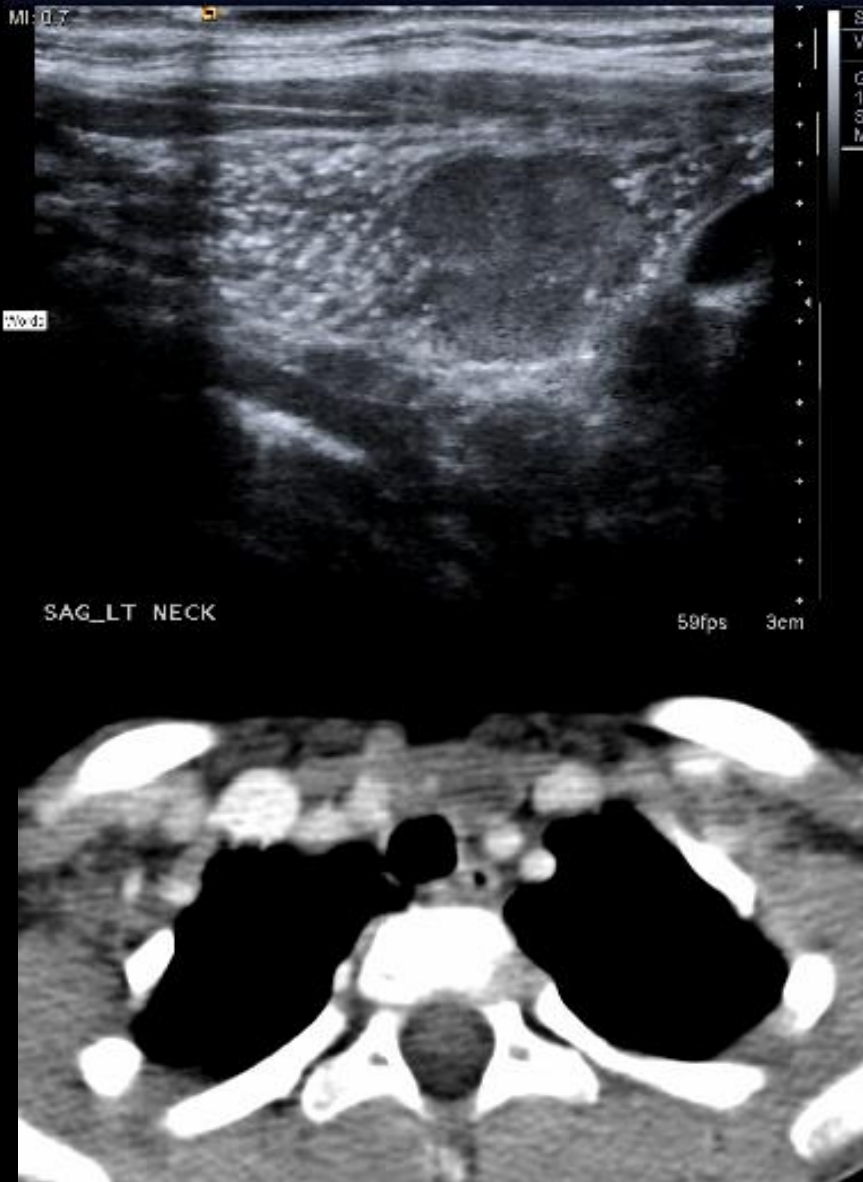


3rd/4th Branchial Cleft Cyst

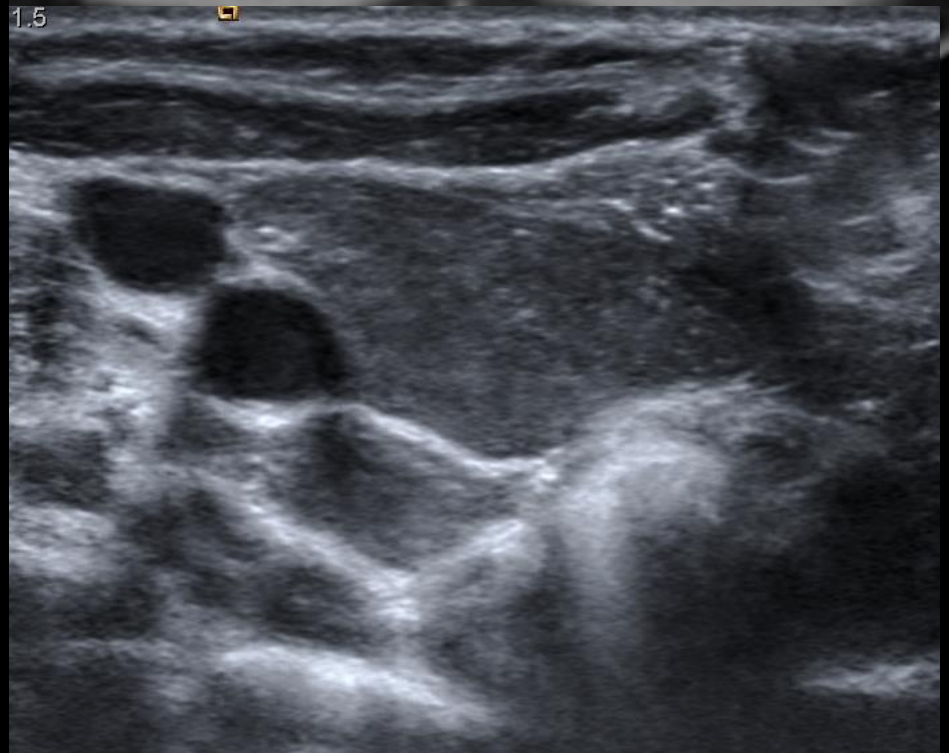


3rd/4th branchial cleft
anomaly:
Recurrent thyroiditis





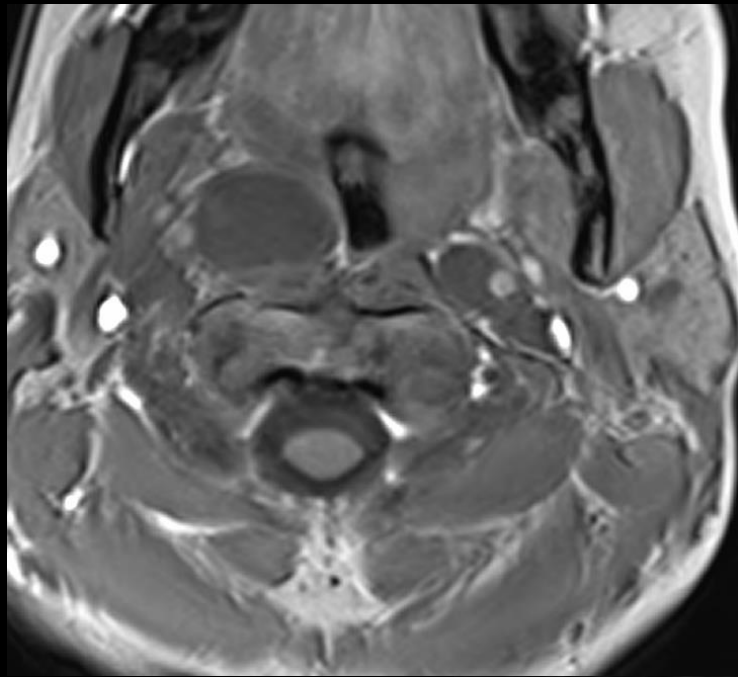
Thymic Cyst

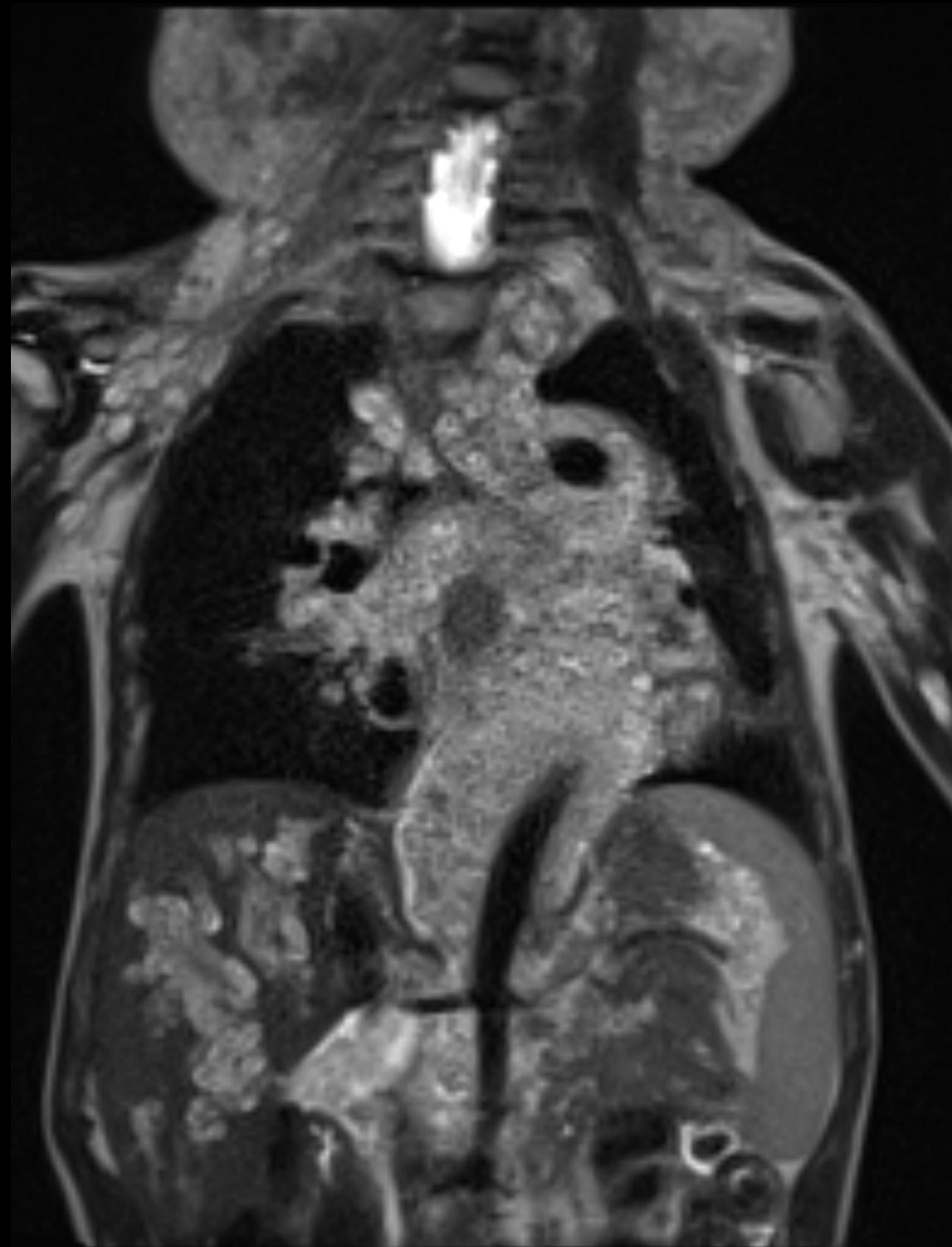
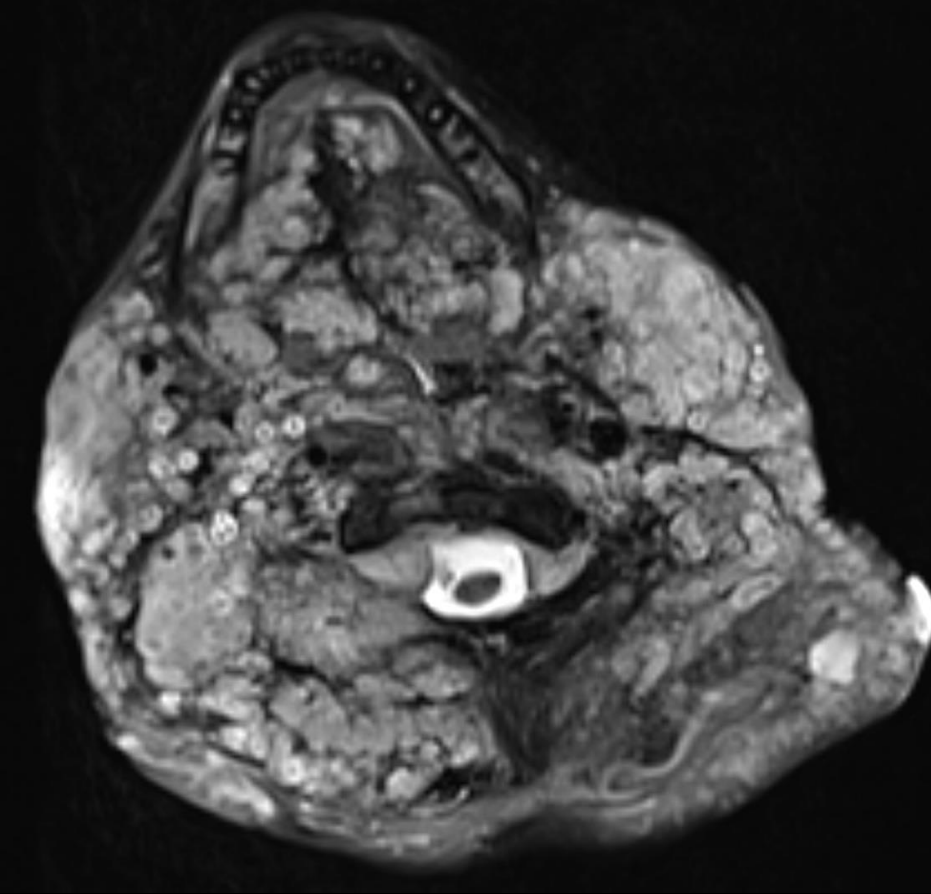


Ectopic thymus

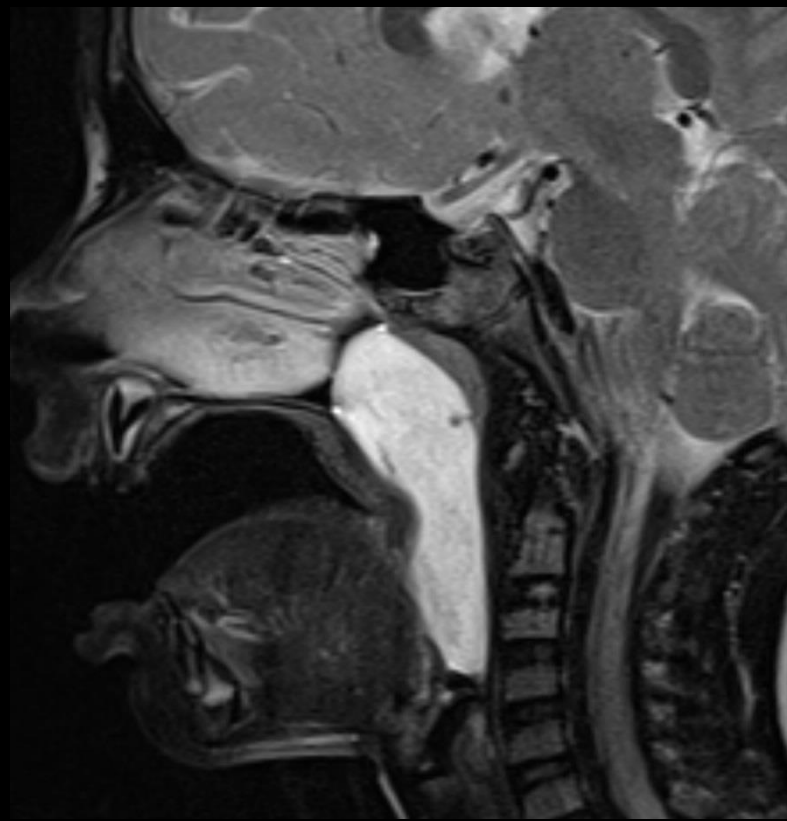
Tumors

- Benign
 - Neurofibroma
 - Lipomas
 - Pilomatricoma
 - Benign salivary gland lesions
 - Langerhan cell histiocytosis
- Malignant
 - Lymphoma
 - Rhabdomyosarcoma
 - Mets: Neuroblastoma, papillary thyroid cancer
 - Nasopharyngeal carcinoma
 - Teratoma

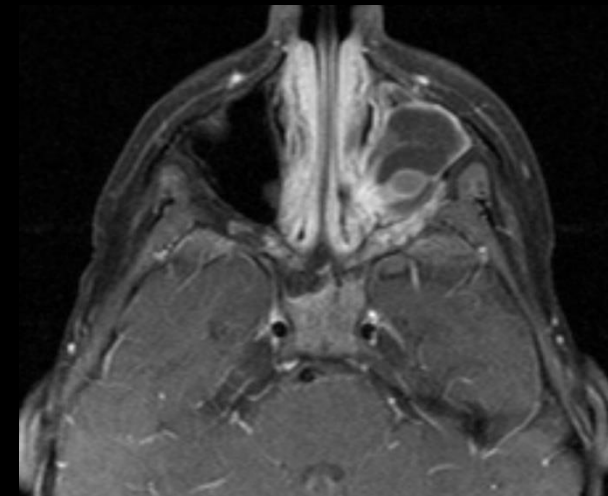


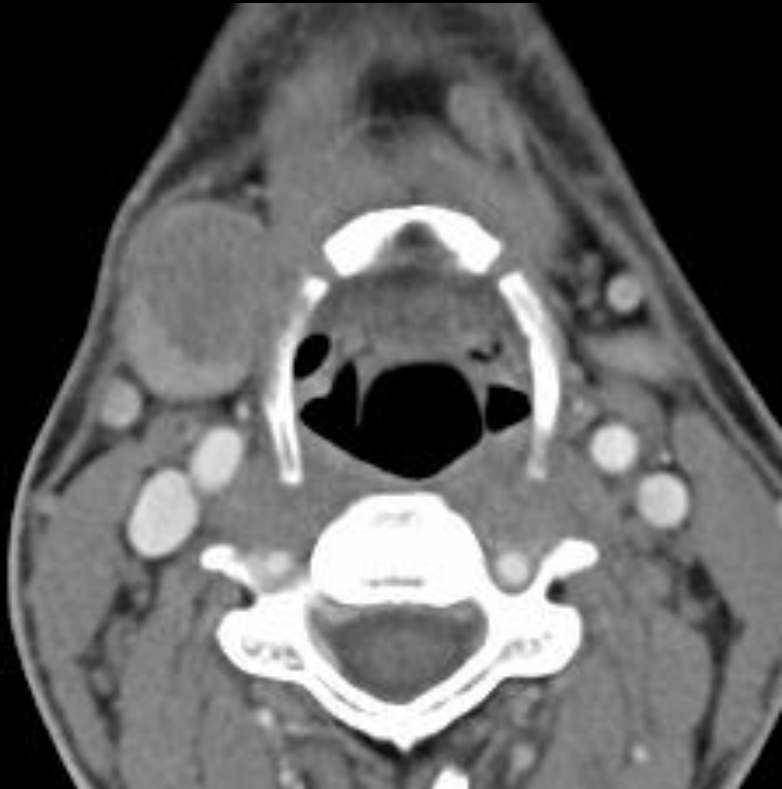


Neurofibromatosis type 1



Antrochoanal
Polyp



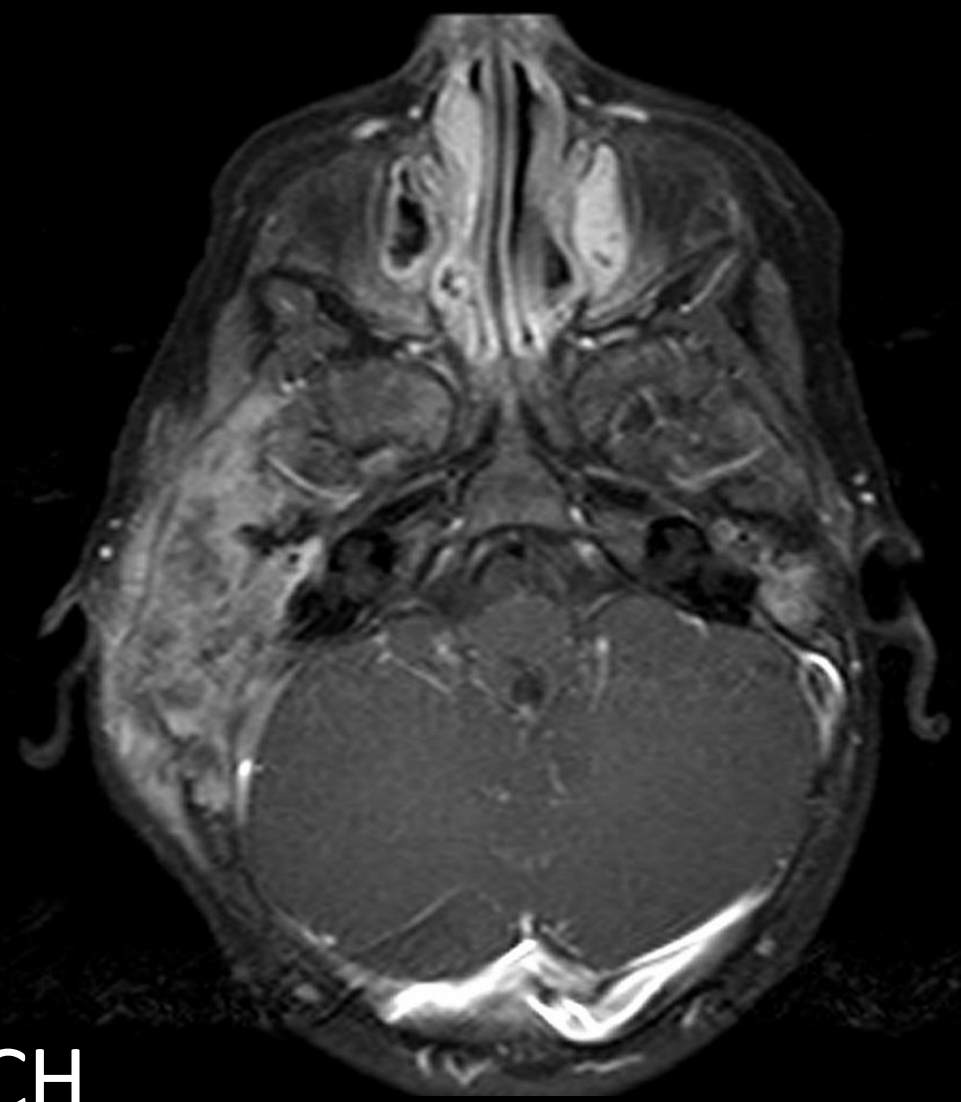


Pleomorphic Adenoma



Mucocele

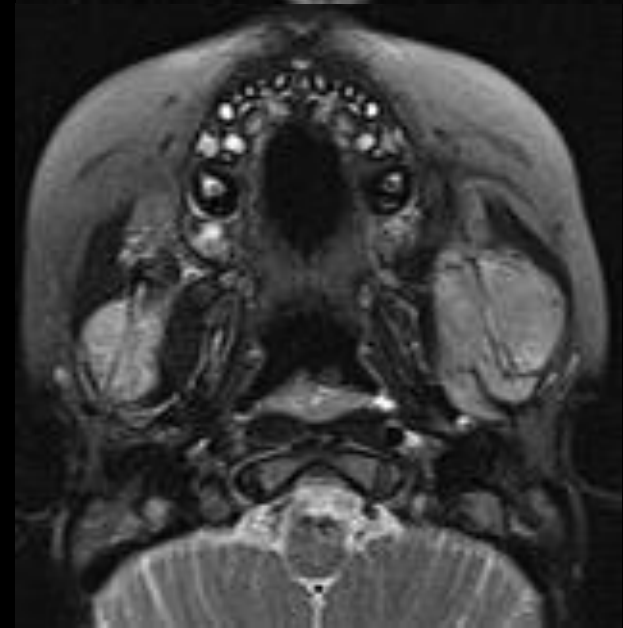
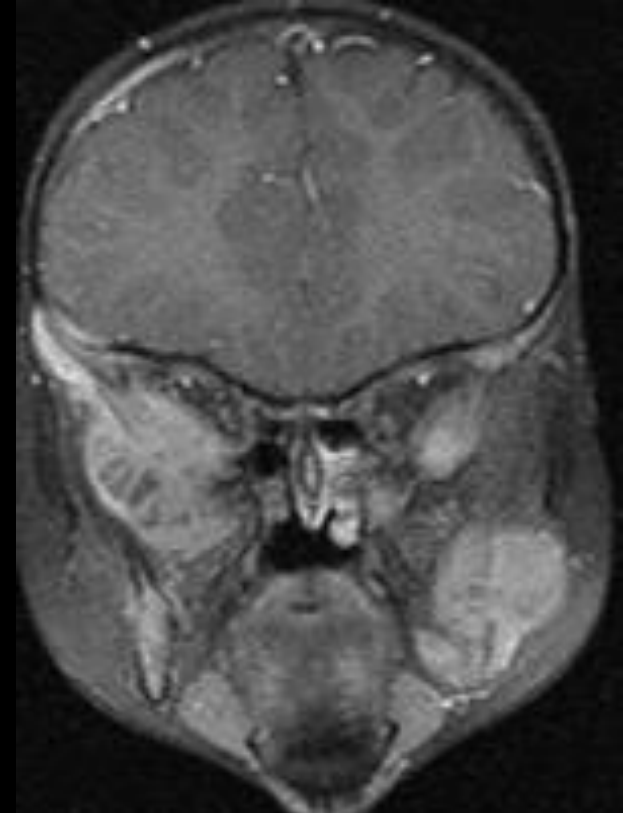
Salivary gland lesions

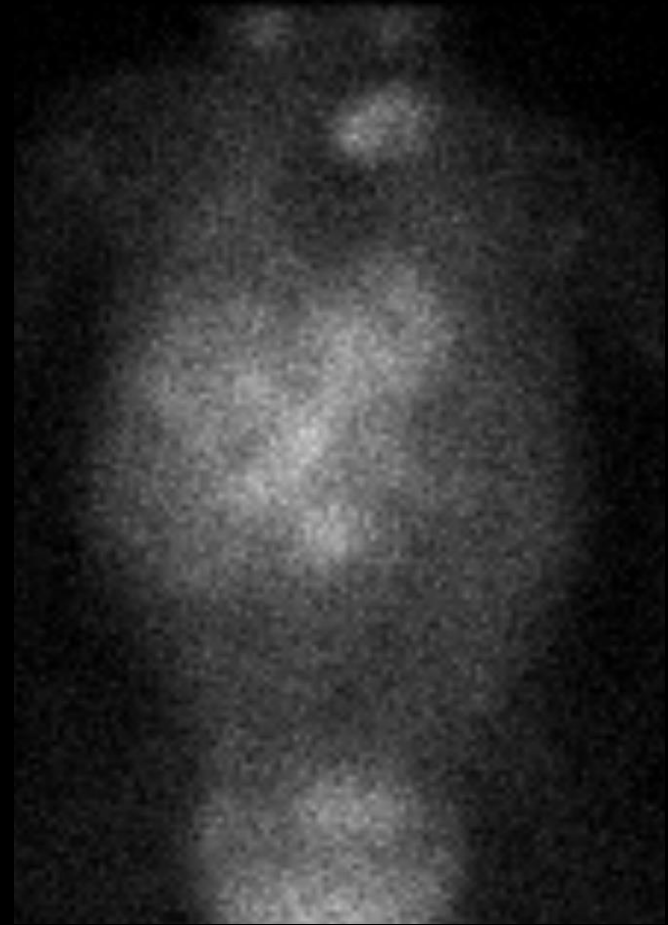
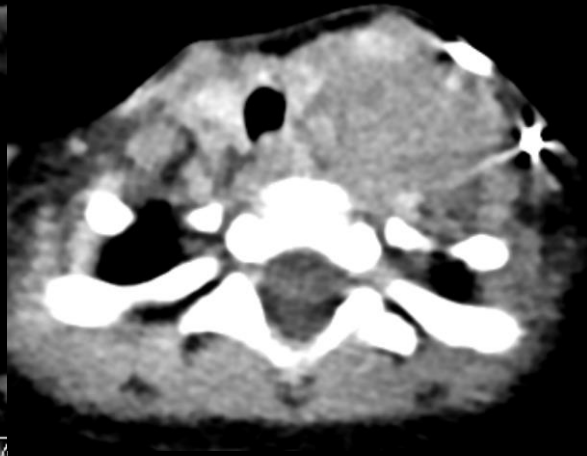


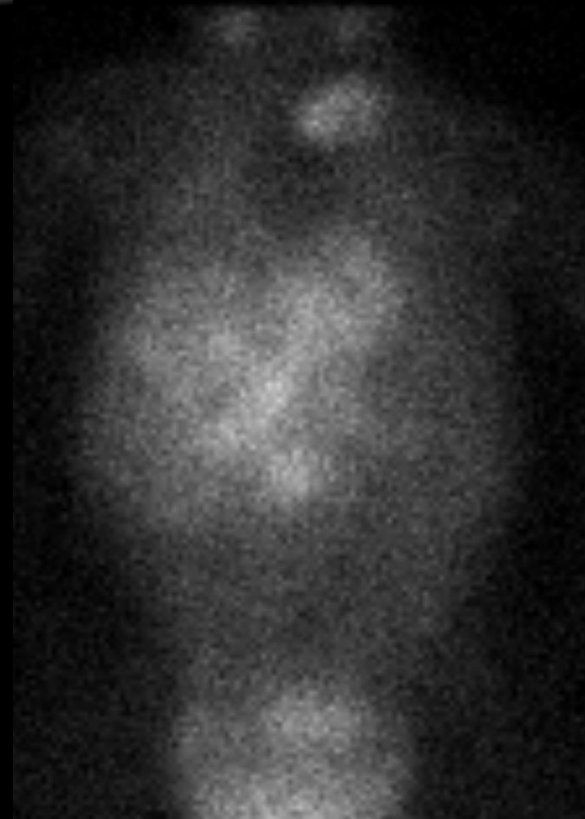
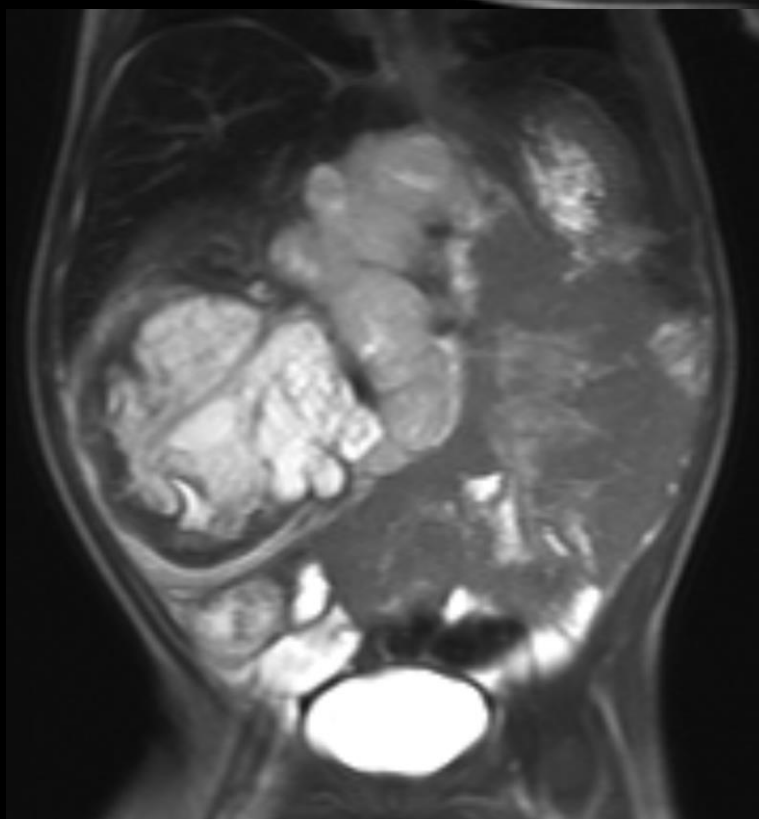
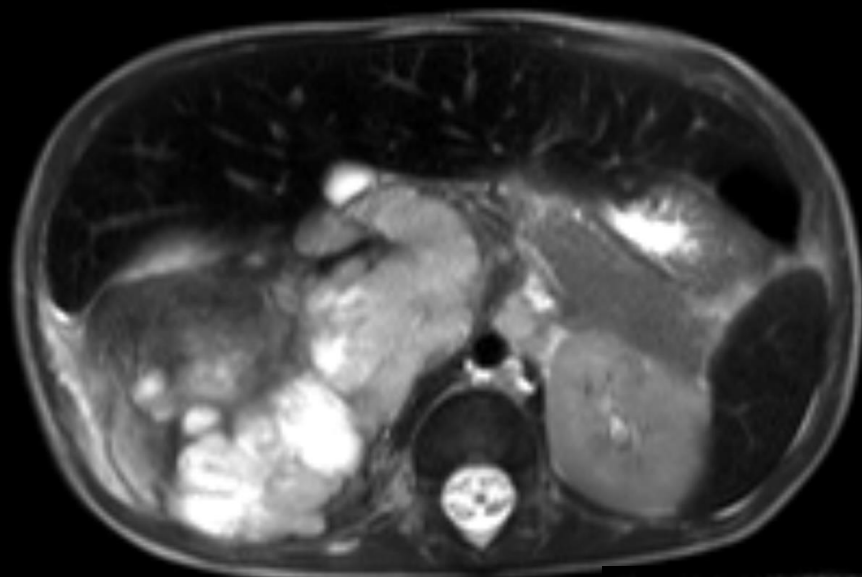
LCH

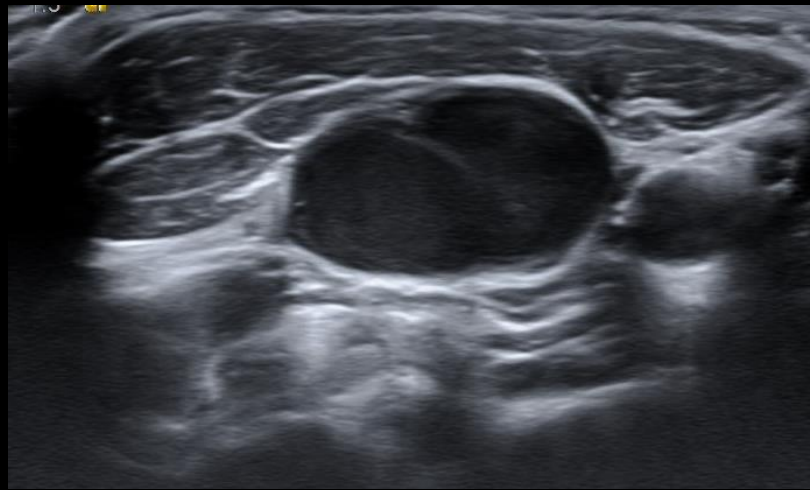
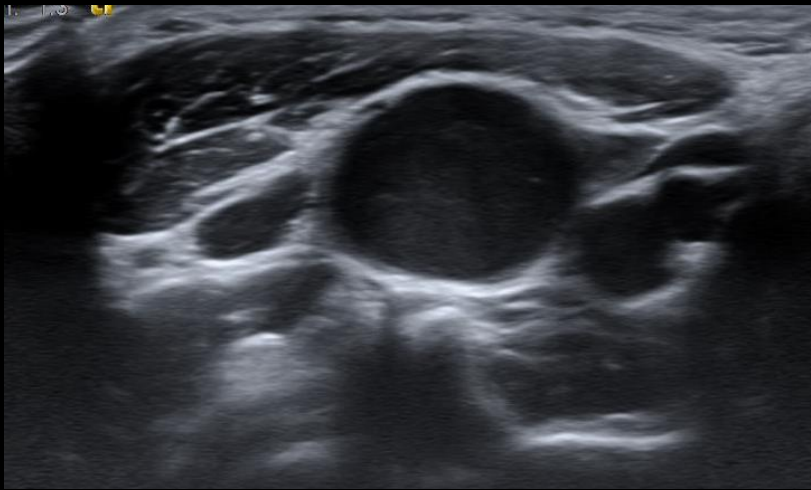


Metastatic
Neuroblastoma

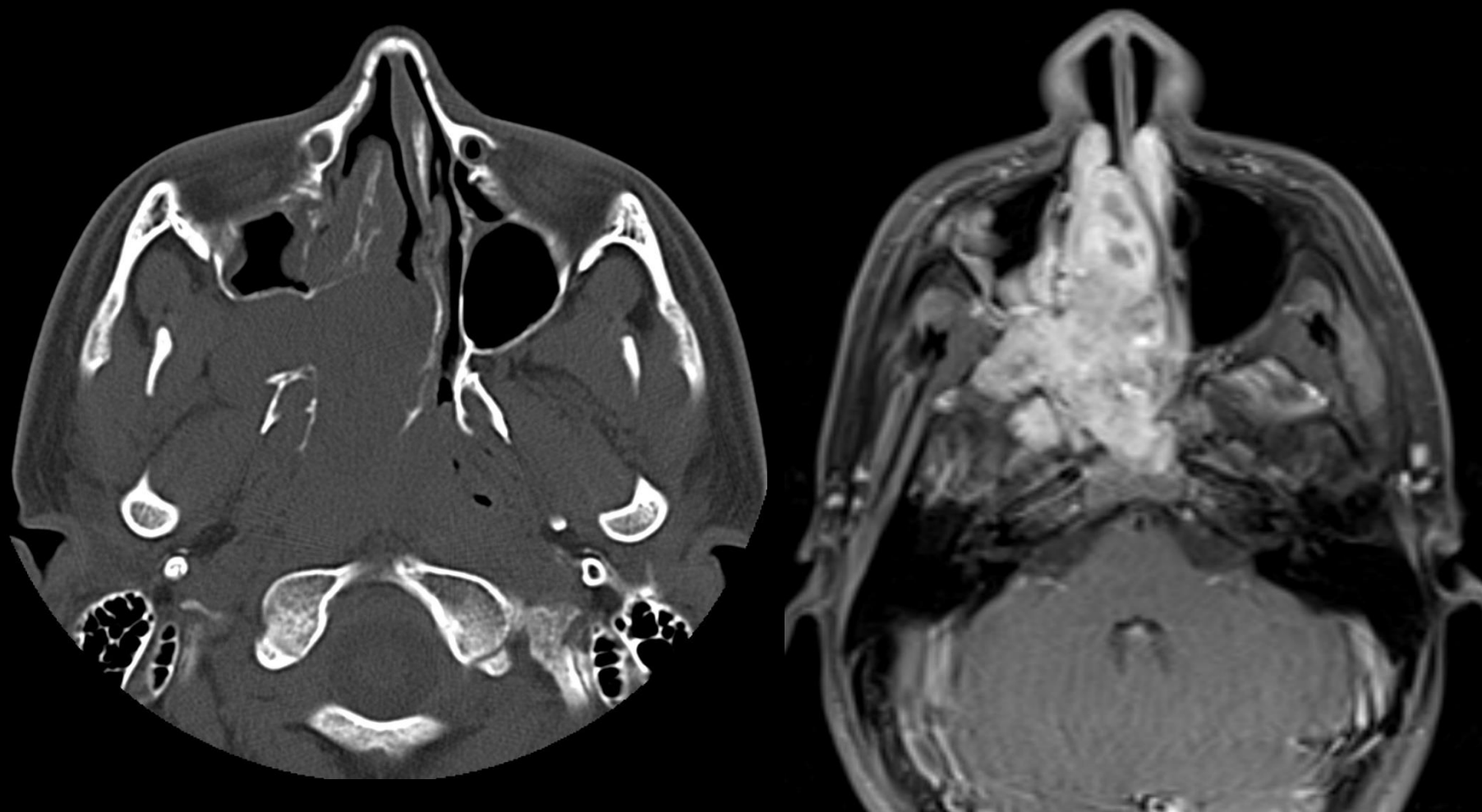




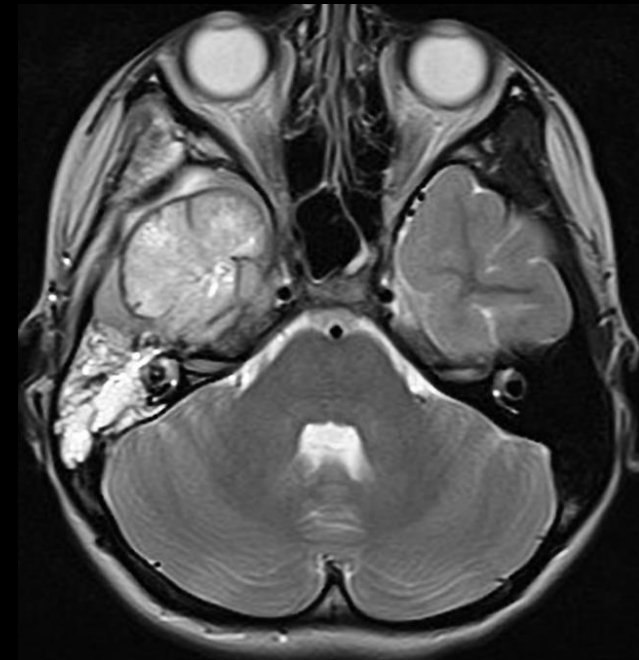
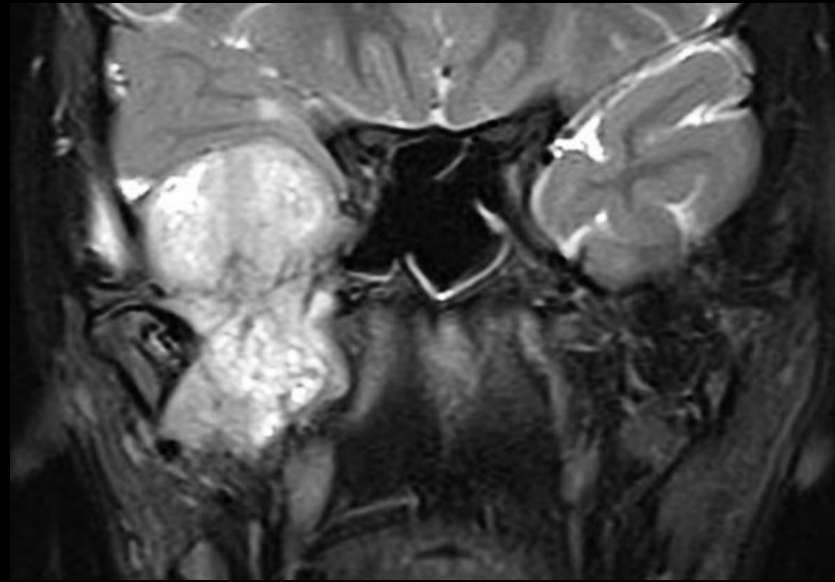
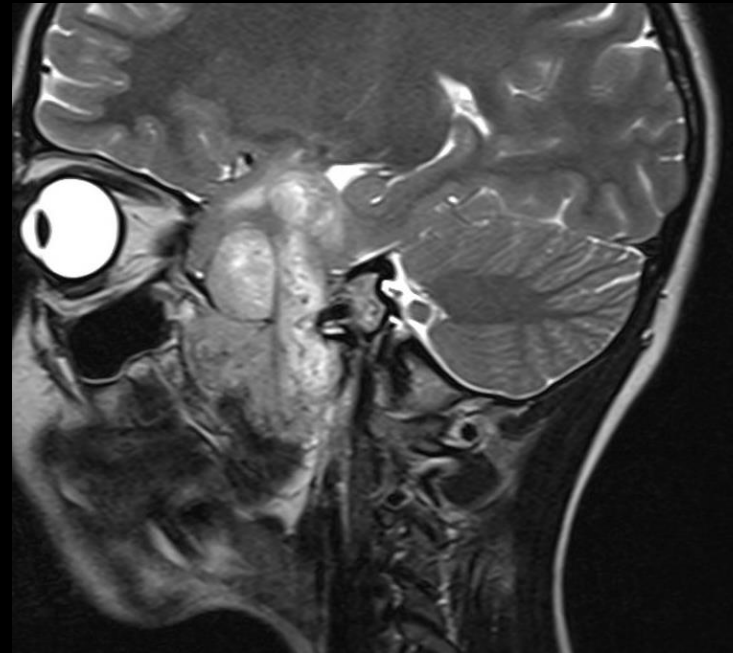
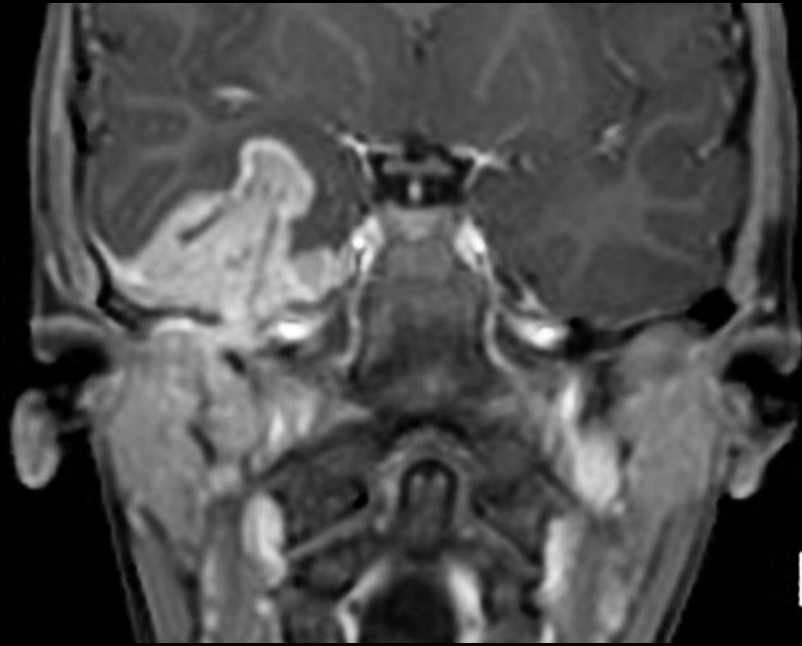




Metastatic lymphadenopathy from nasopharyngeal cancer

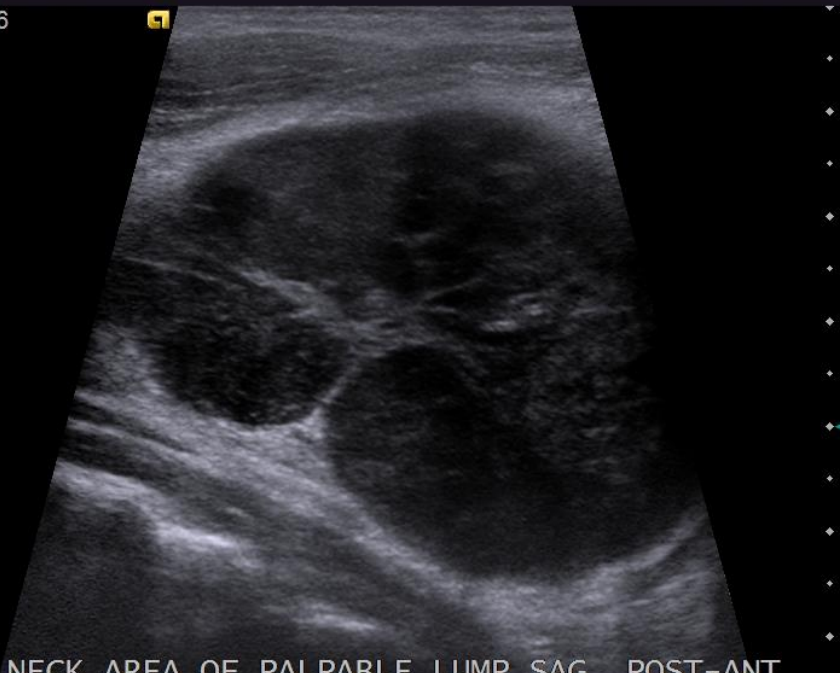


Juvenile nasopharyngeal
angiofibroma



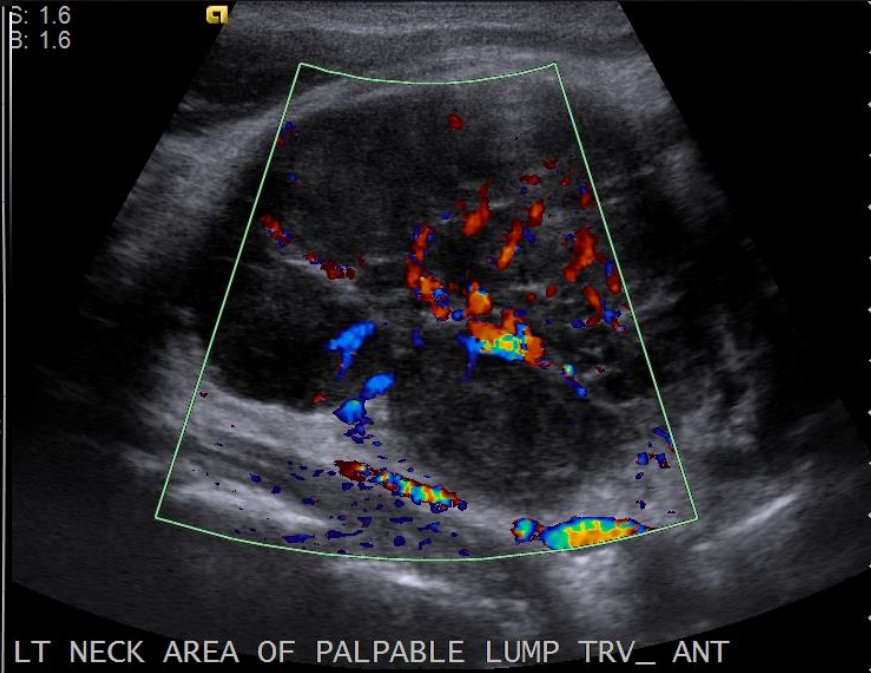
Rhabdomyosarcoma

MI: 0.6



LT NECK AREA OF PALPABLE LUMP SAG POST-ANT

P: 1.6
B: 1.6

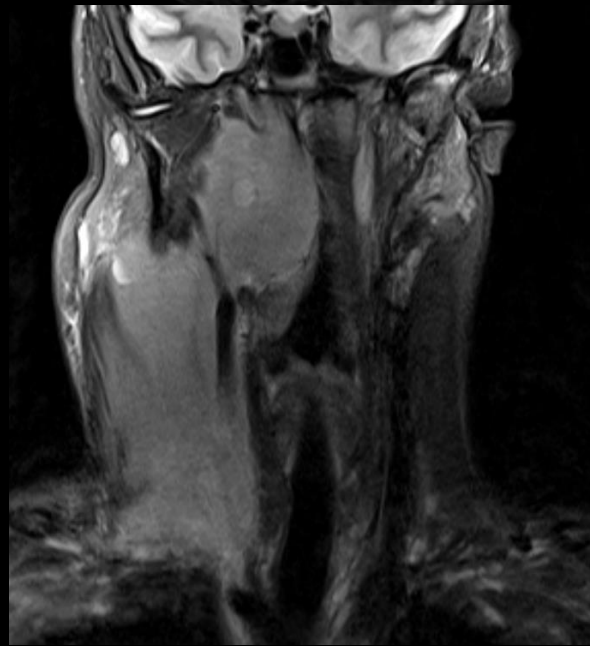
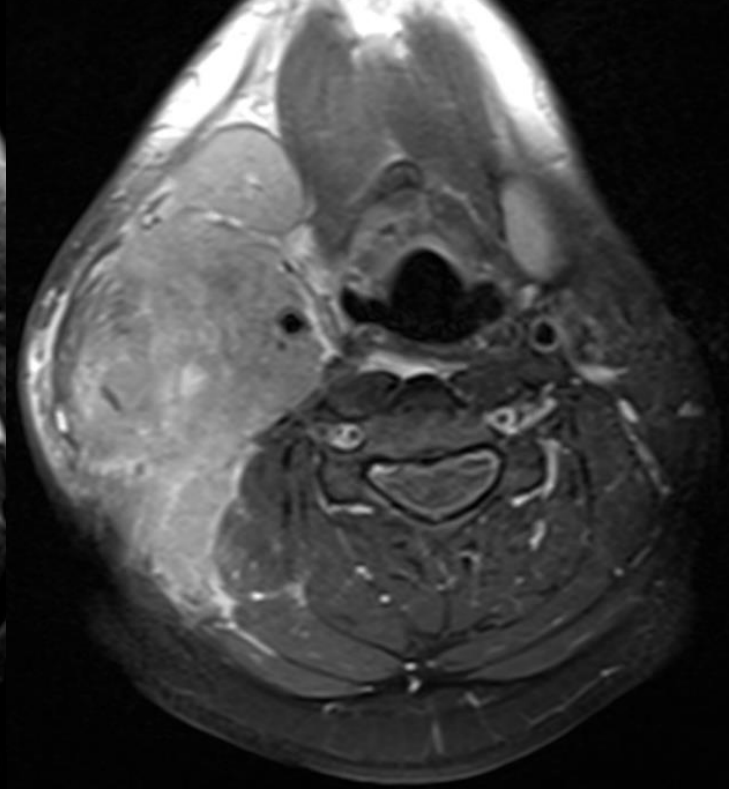
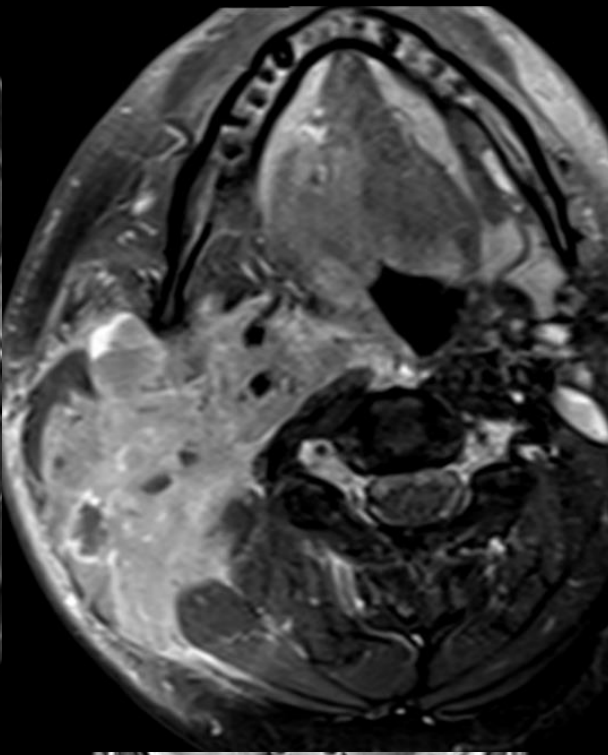
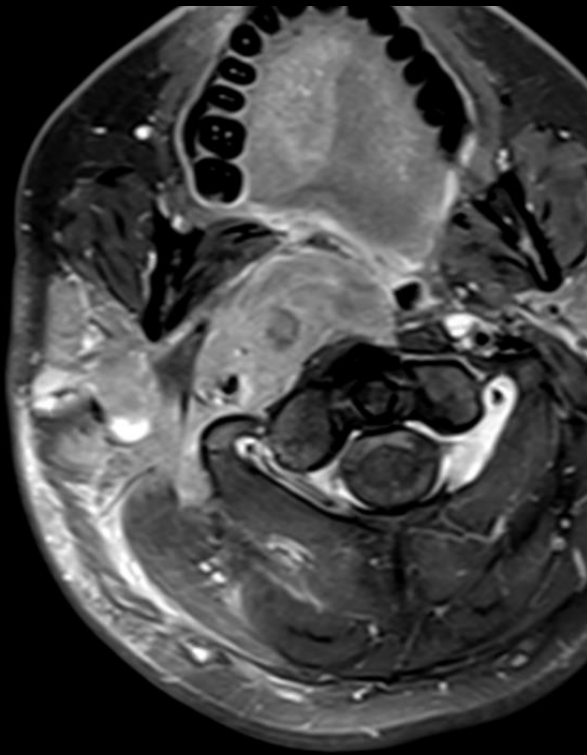


LT NECK AREA OF PALPABLE LUMP TRV_ ANT

Lymphoma

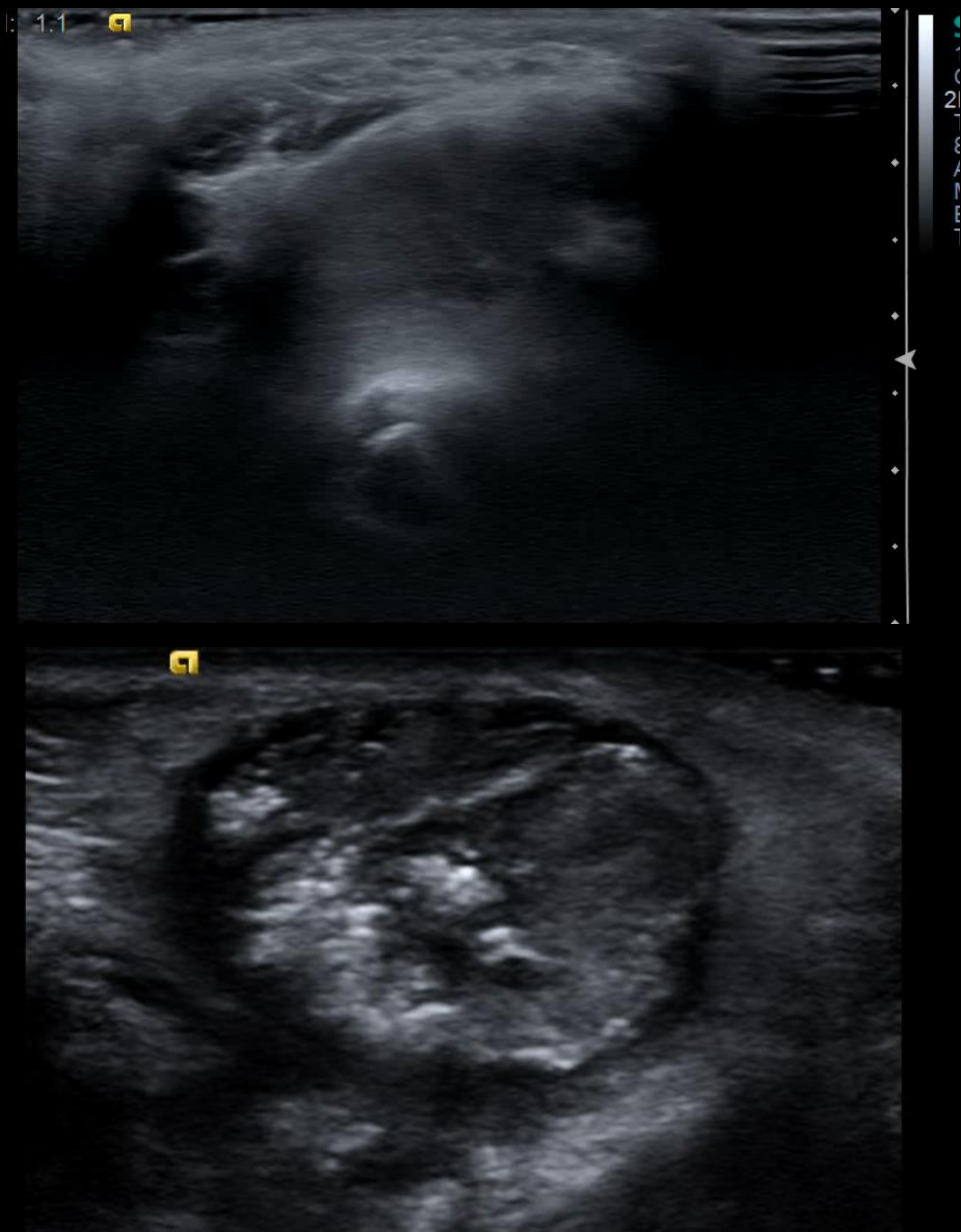








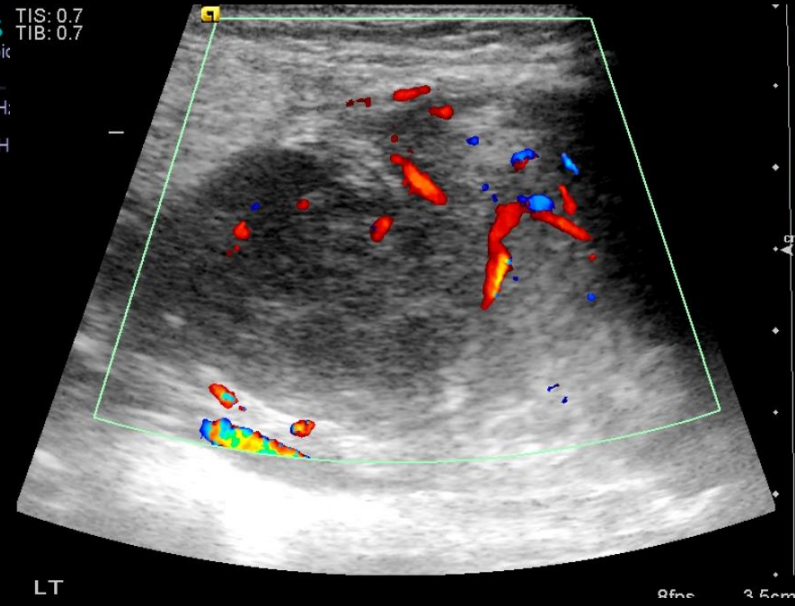
Small blue cell neoplasm



MI: 0.8

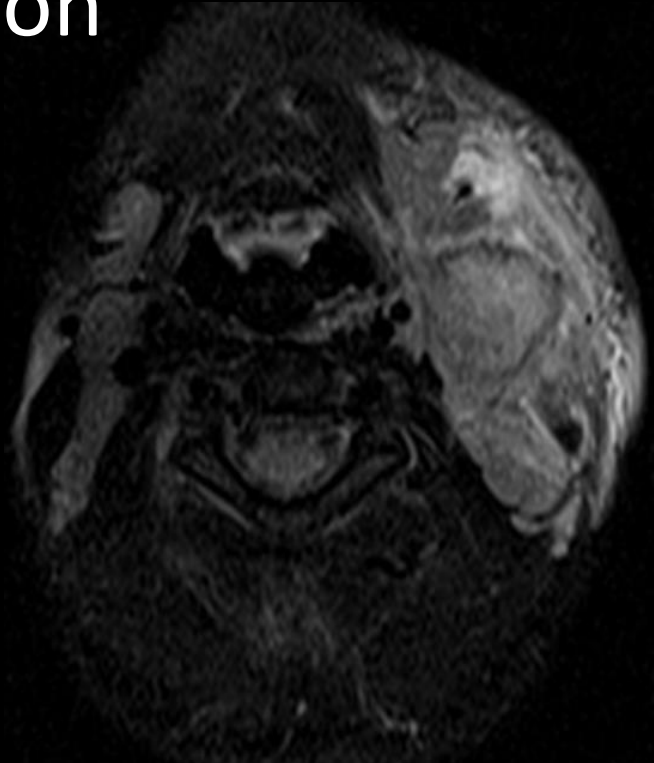
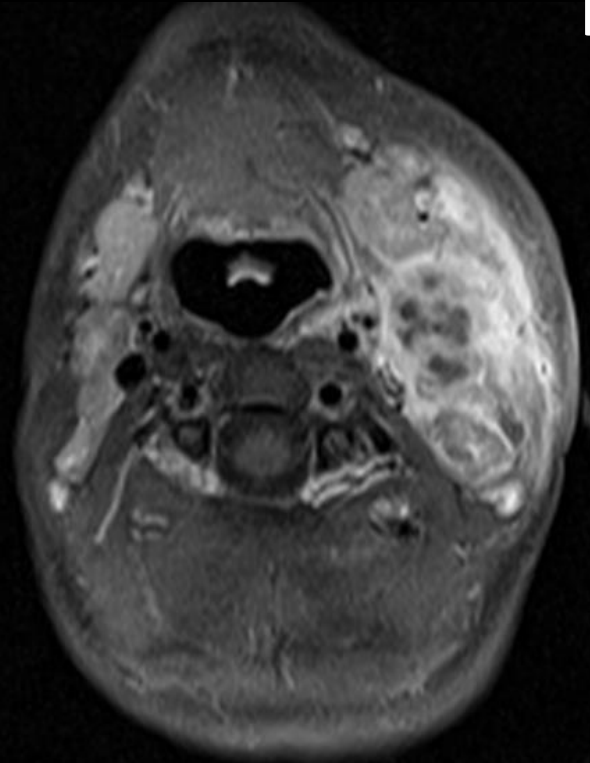


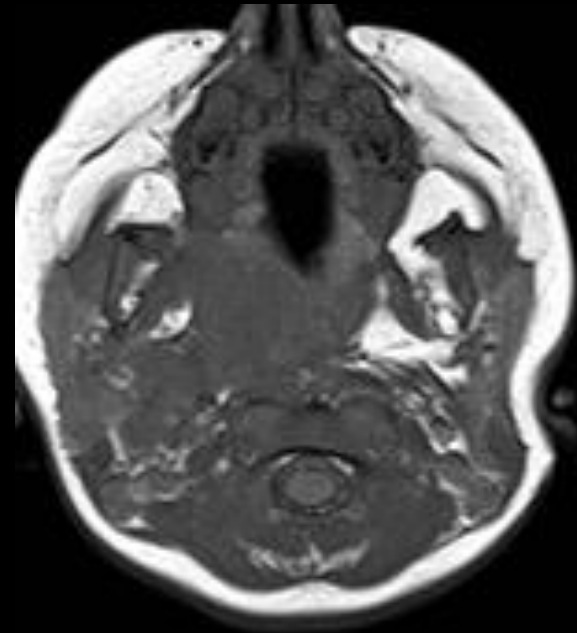
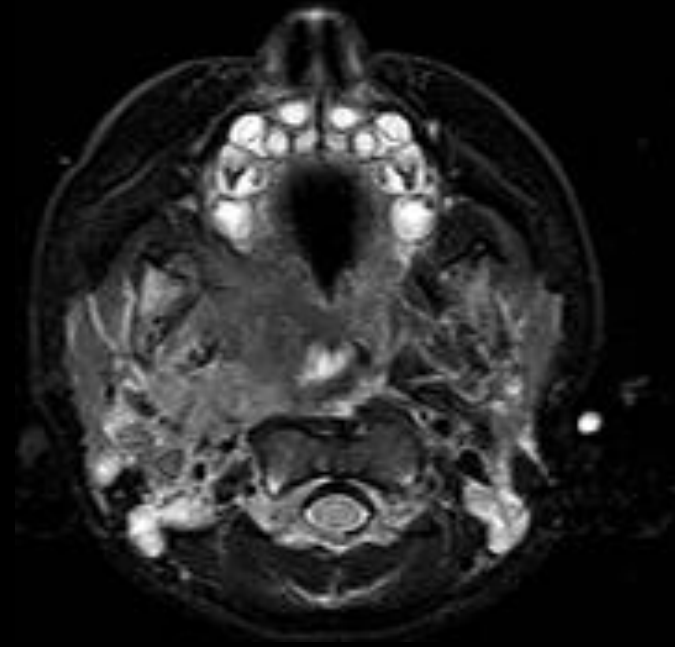
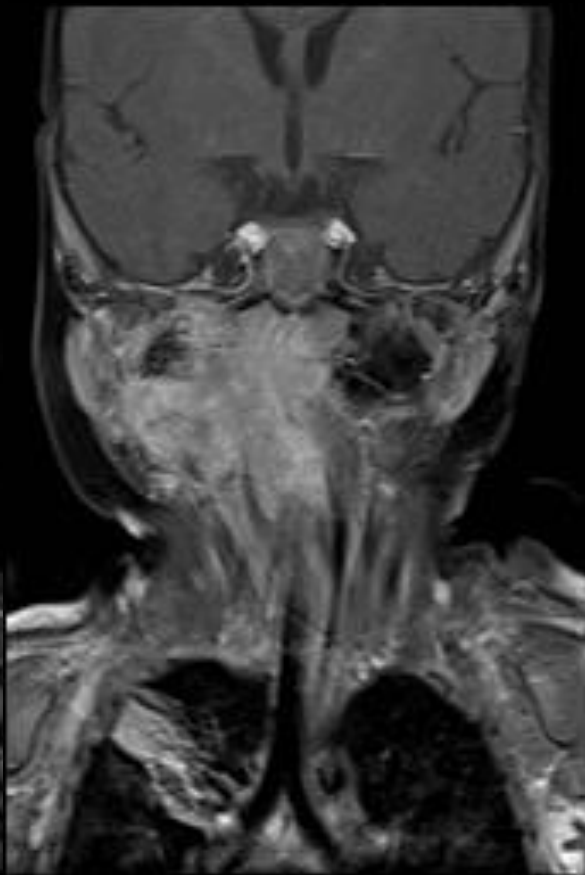
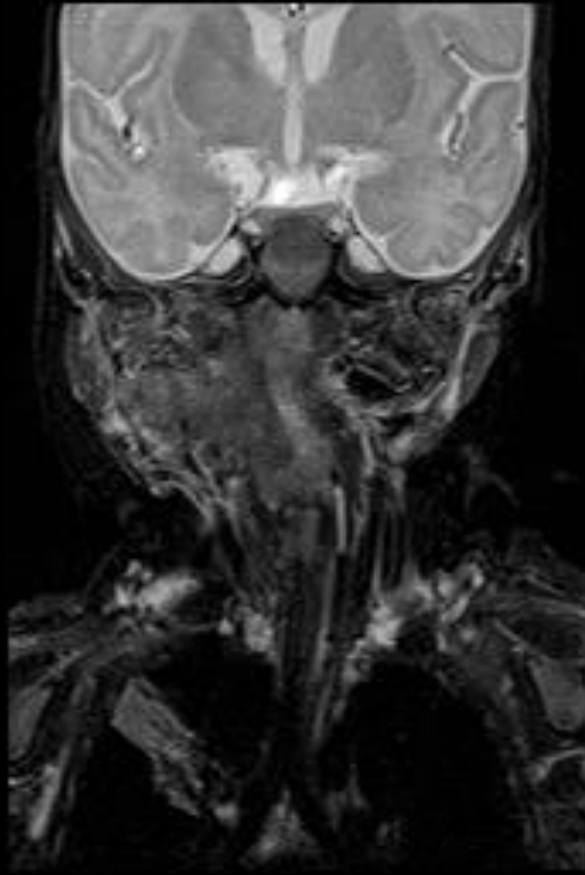
SIEMENS
14L5SP / Thyroid
Detail
2D
GEN / 10.00 MHz:
20 dB / DR 65
ASC 5 / DTCE H
Map A / ST 3
TIS: 0.7
TIB: 0.7



SIEMENS
14L5SP / Thyroid
Gen
2D 100%
GEN / 10.00 MHz
20 dB / DR 65
SC 2
Map A / ST 3
C 100%
CDV / 7.50 MHz
-3 dB / Flow Gen
PRF 1099 / F 2
6
cm/s

Infection





Kaposiform Hemangioendothelioma

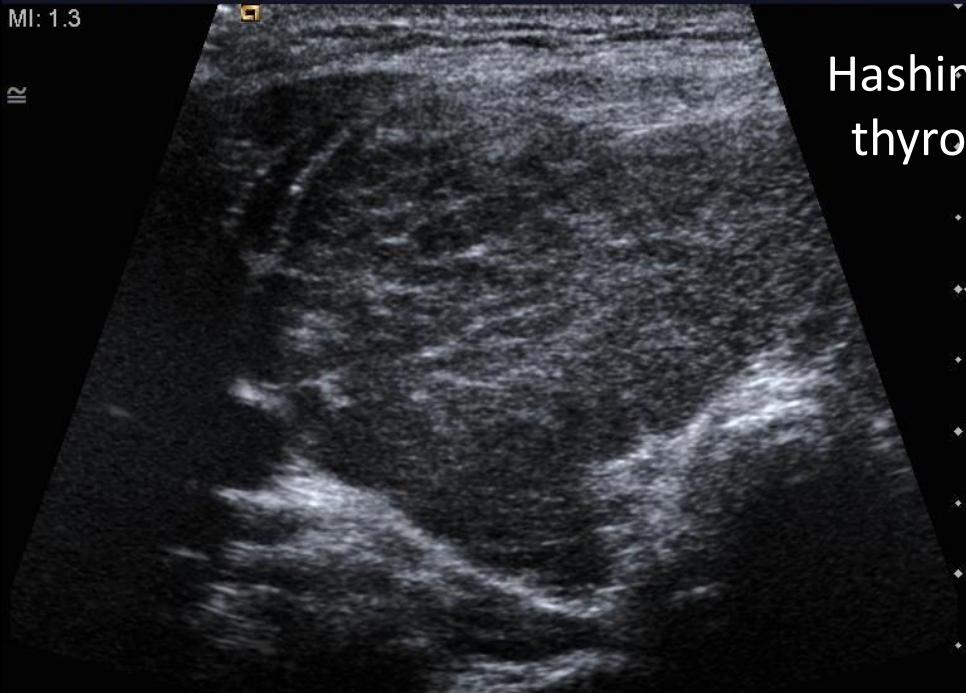


Common Carotid Artery
Aneurysm

Thyroid Lesions

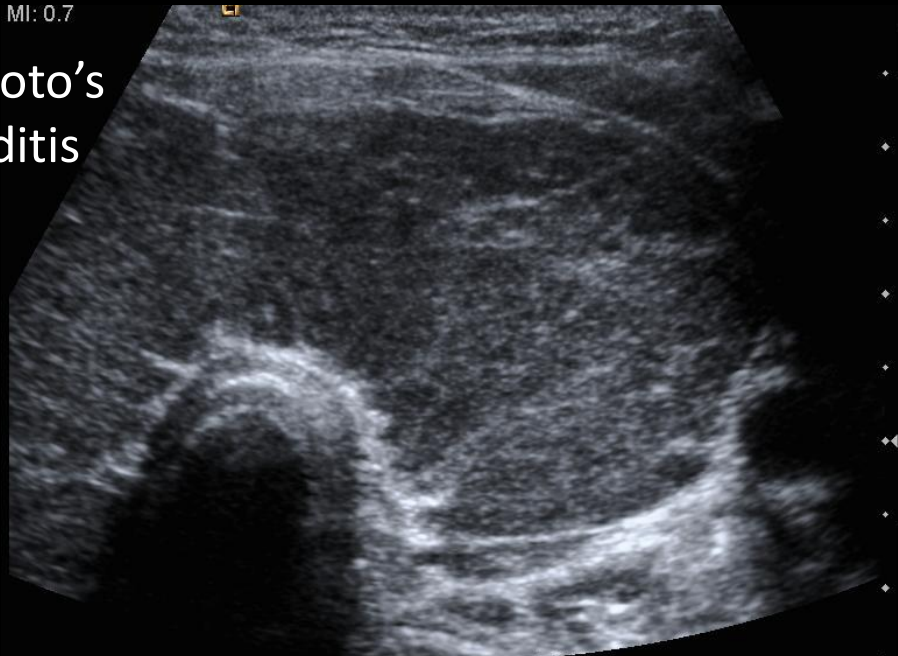
MI: 1.3

IR

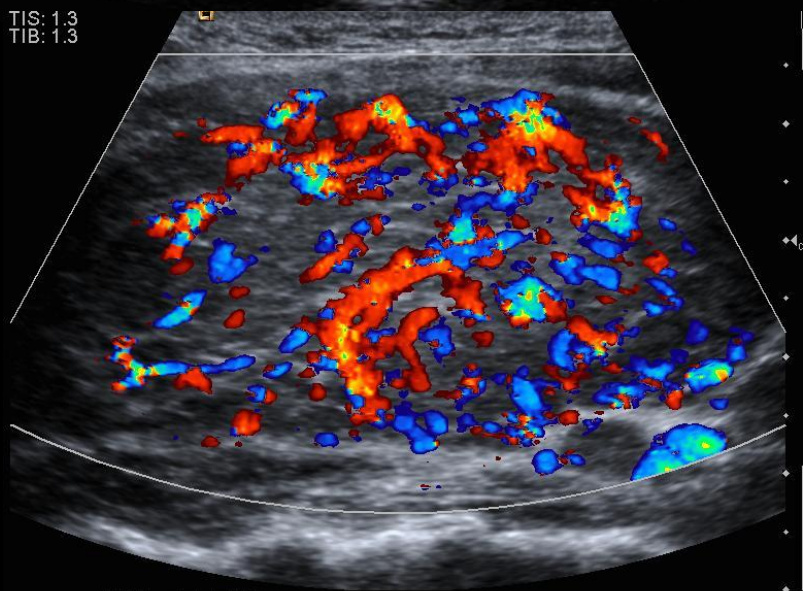


Hashimoto's thyroiditis

MI: 0.7



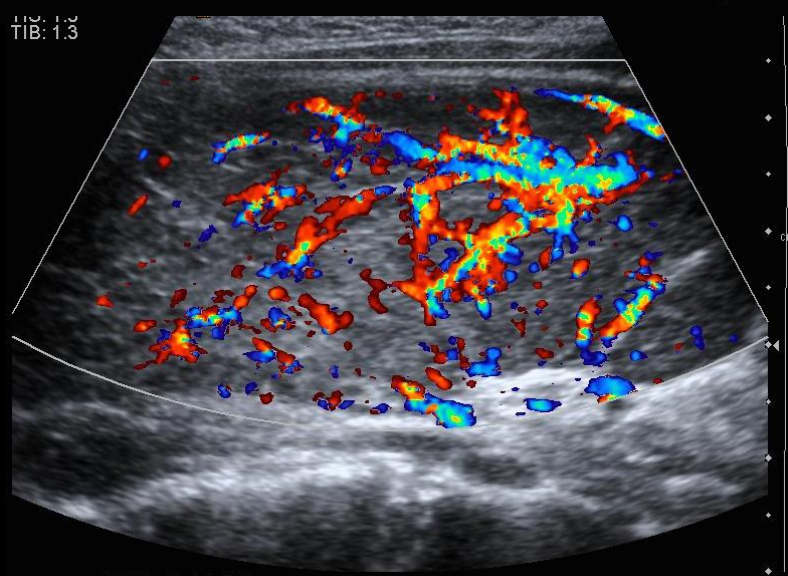
TIS: 1.3
TIB: 1.3



SAG RT THY _

5fps 5cm

TIS: 1.3
TIB: 1.3



SAG LT THY _

6fps 5cm

TRV LT THY _

14fps 4.5cm

ME: 1.1

