

NECK & AIRWAY EMERGENCIES

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NECK & AIRWAY EMERGENCIES

- To identify the role of imaging in the evaluation of N & A emergencies
- To list normal variants that mimic disease
- To categorize emergent n & a conditions including infections, masses, airway foreign bodies & tracheomalacia

NORMAL VARIANTS

- Tracheal buckling
- Retropharyngeal “pseudomass”

TRACHEAL BUCKLING

- Increased flexibility of thoracic trachea in young infant
- Cervical trachea fixed
- Deviates away from arch

RETROPHARYNGEAL PSEUDOMASS

- Pseudothickening of soft tissues
 - Airway not fully distended
 - Spine not fully extended
- True soft tissue swelling should result in anterior airway displacement

RETROPHARYNGEAL PSEUDOMASS



SPECTRUM OF ABNORMALITIES

- INFECTIONS
- FOREIGN BODIES
- NECK & AIRWAY MASSES
- TRACHEOMALACIA / STENOSIS

INFECTIONS

- Acute Laryngotracheobronchitis (*Croup*)
- Acute Epiglottitis
- Retropharyngeal abscess
- Infectious Mononucleosis

CROUP

● CLINICAL PRESENTATION

- < 2 y, inspiratory stridor & barking cough

● Etiology

- Parainfluenza

● Imaging findings

- Subglottic tracheal narrowing “steeple sign”
- Inspiratory overdistension of hypopharynx

“STEEPLE SIGN” - *DDX*

- Croup
- Epiglottitis
- Vocal cord paralysis
- Laryngeal web
- Congenital subglottic stenosis

EPIGLOTTITIS

● CLINICAL PRESENTATION

- > 2 y, fever, sore throat, drooling & stridor

● ETIOLOGY

- Hemophilus influenza

● IMAGING FINDINGS

- Thickened epiglottis & aryepiglottic folds
- Subglottic narrowing (*variable*)

RETROPHARYNGEAL ABSCESS

● CLINICAL PRESENTATION

- < 4y, prior URI, fever, neck pain, drooling

● ETIOLOGY

- Staphylococcus or Streptococcus

● IMAGING FINDINGS

- Prevertebral soft tissue swelling
- Soft tissue gas *uncommon*

INFECTIOUS MONONUCLEOSIS

● CLINICAL PRESENTATION

- > 3y, fever, sore throat, pharyngitis & adenitis

● ETIOLOGY

- Epstein Barr Virus

● IMAGING FINDINGS

- Massive tonsillar & adenoidal enlargement
- +/- Prevertebral soft tissue swelling

AIRWAY FOREIGN BODY

- Symptoms depend on location & size
 - Endobronchial > Laryngotracheal
 - Complete vs partial obstruction
- Nonopaque > Opaque
- Greater morbidity w/ laryngotracheal

AIRWAY FOREIGN BODY *IMAGING FDGS*

- Filling defect in airway
- Hyperinflation - *diffuse, focal*
- Atelectasis

INTRINSIC MASSES

● **HEMANGIOMA**

● **PAPILLOMA**

● **GRANULOMA**

SUBGLOTTIC HEMANGIOMA

● CLINICAL PRESENTATION

- Neonatal period
- Inspiratory stridor
- Dyspnea
- Cutaneous hemangiomas in 1/2

SUBGLOTTIC HEMANGIOMA

● NECK RADIOGRAPHY

- Eccentric subglottic narrowing

● CT & MR

- Well circumscribed intraluminal mass
- Useful for preoperative planning w/ large masses

EXTRINSIC MASSES

● INFANTS & YOUNG CHILDREN

- Cystic hygroma - *Thyroglossal duct cyst*
- Hemangioma - *Fibromatosis colli*
- *Branchial cleft cyst*

● OLDER CHILDREN

- Lymphoma - *Branchial cleft cyst*
- Rhabdomyosarc - *Thyroglossal duct cyst*

FIBROMATOSIS COLLI

- Infants & neonates
- Unilateral neck mass (R > L) or torticollis
- Pressure necrosis or venous occlusion of sternocleidomastoid followed by fibrosis
- Focal or diffuse
- Variable echotexture

CYSTIC HYGROMA

- Malformations of lymphatic channels
- Posterior to sternocleidomastoid
- 10% extend to mediastinum
- Well circumscribed
- Primarily cystic
- May contain septa

BRANCHIAL CLEFT CYST

- Failure of obliteration of cervical sinus of 1st or 2nd clefts or pouches
- Abnormalities include cysts, sinuses or fistulas
- Cysts are the most common
- Painless, nontender mass
- Lateral to thyroid
- Round or oval

THYROGLOSSAL DUCT CYST

- Persistence of thyroglossal duct
- 65% supra-, 20% infrahyoid & 15% at level of hyoid
- Midline or slightly off-midline
- Anechoic or hypoechoic

TRACHEOMALACIA

- Weakness of tracheal wall 2° abnormality of supporting cartilage
- Narrows during inspiration
- Extrinsic > Intrinsic
- Focal or generalized
- Present in neonatal period with inspiratory stridor & dyspnea

TRACHEOMALACIA

DDX

- Extrinsic compression
 - Vascular ring
 - Aberrant left subclavian artery
 - Double aortic arch
 - Aberrant left pulmonary artery
 - Dilated esophageal pouch in esophageal atresia

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