

RETROPHARYNGEAL AND PARAPHARYNGEAL ABSCESS

Retropharyngeal Abscess

Background

1. Retropharyngeal space: extends from base of skull to superior and posterior mediastinum
2. Extends to first and second thoracic vertebrae
3. Infection can spread to mediastinum and cause necrotizing mediastinitis

Pathophysiology

1. A serious deep space infection in neck
2. Children 2-4 years old: follows URI with suppuration of lymph nodes in retropharyngeal space¹
3. Adults: Retropharyngeal lymph nodes atrophy by 2-4 years of age
 - Abscesses caused by
 - Foreign body ingestion
 - External trauma
 - Instrumentation: intubation or esophagoscopy¹
4. Pathogens
 - Polymicrobial: resident flora or oral cavity and respiratory tract²
 - Most common: Strep pyogenes, Staph aureus³

Diagnosis

1. Most common in children younger than 3 years old
2. Symptoms
 - toxic appearing
 - fever
 - neck pain/torticollis
 - muffled voice
 - dysphagia
 - snoring
 - stridorous breathing
 - drooling
 - trismus
 - airway obstruction¹
3. Supine position preferred since forced sitting can increase airway compromise
4. Diagnostic Testing
 - CT scan to assess extent of involvement: preferred test
 - X-ray soft tissue: lateral neck: prevertebral swelling, possible air/fluid level
5. Laboratory evaluation
 - CBC
 - Blood Culture
6. Complications:
 - Airway obstruction
 - Rupture with aspiration pneumonia
 - Mediastinitis
 - Perforation
 - Sepsis¹

Differential Diagnosis

1. Epiglottitis⁴
2. Laryngotracheobronchitis
3. Meningitis

Treatment

1. IV antibiotics (to cover for Strep, Staph, anaerobes, Haemophilus influenzae)
 - ampicillin/sulbactam; 3g IV q6 Unasyn
 - clindamycin: 600mg IV q6-8
 - metronidazole 500mg IV q6-8 + PCN G 2-4 MU IV q4-6
2. Intubation may cause rupture of abscess with aspiration
3. Surgical drainage with intraoral incision⁴

Disposition

1. Admit
2. Consult ENT
3. Consult Pediatric Surgery or General Surgery to perform irrigation and debridement if ENT not available.

Parapharyngeal Abscess

Background

1. Parapharyngeal space: space is located on lateral aspect of neck with base at the skull extending to hyoid bone⁵
2. Contents of the space
 - Anterior Compartment: fat, lymph nodes, connective tissue
 - Posterior Compartment: 9th and 12th cranial nerves, carotid sheath, cervical sympathetic trunk
3. Infection can involve carotid sheath or spread along fascial planes and create spaces for abscesses⁵
4. Pathogens: Polymicrobial
 - Most common: anaerobes such as Prevotella, Porphyromonas, Fusobacterium and Peptostreptococcus⁵

Pathophysiology

1. A serious deep space infection in the neck
2. Sources
 - Dental infections
 - Tonsillitis
 - Mastoiditis
 - Deep cervical lymph nodes

Diagnosis

1. History
 - Can follow an URI, pharyngitis, tonsillitis
 - Symptoms⁵
 - Rapid onset of high fever
 - Swelling of lateral neck with obliteration of inferior border of mandible
 - Bulging of pharyngeal wall
 - Trismus
 - Dysphagia

- Respiratory distress
2. Physical Exam
 - Oropharyngeal asymmetry with tonsil displaced medially
 - Painful cervical mass
 - Lymphadenopathy⁵
 3. Diagnosis
 - CT scan: assess possibility of mediastinal extension. Good for follow up
 - Ultrasound: distinction between cellulitis and abscess
 - MRI: improved soft tissue definition. Diagnose internal jugular vein thrombosis more accurately⁵
 4. Complications:
 - Jugular vs septic thrombophlebitis
 - Erosion of carotid artery
 - Horner's syndrome⁵
 - Cranial nerve palsy 9-12
 - Mediastinitis⁶

Treatment

1. IV antibiotics (strep & anaerobes):
 - Ampicillin/Clavulanic Acid: 150mg/kg per day
 - Penicillin 2-4 MU IV q4-6 plus metronidazole: 500mg IV q6-8
 - Clindamycin if penicillin allergic: 600mg IV q6-8
2. Observation of airway
3. Irrigation and debridement with immediate tonsillectomy⁵

Disposition

1. Admit to hospital
2. Consult ENT
3. Consult Pediatric Surgery or General Surgery for Irrigation and Debridement and tonsillectomy if ENT specialist not available

References

1. Al-Sabah, B. Salleen, H.B., et al. Retropharyngeal Abscess in Children: 10-year Study. *The Journal of Otolaryngology* 2004; Vol 33: 352-355.
2. Todd JK. Bacteriology and clinical relevance of nasopharyngeal and oropharyngeal cultures. *Pediatr Infect Dis* 1984; 03:159.
3. Asmar BI. Bacteriology of retropharyngeal abscess in children. *Pediatr Infect Dis J* 1990; 09:595.
4. Craig, F., Schunk, J. Retropharyngeal Abscess in Children: Clinical Presentation, Imaging, and Current Management. *Pediatrics* 2003; 111:1394.
5. Page C, Biet A. et al. Parapharyngeal Abscess: Diagnosis and Treatment. *Eur Arch Otolaryngol* 2008; 265:681-686.
6. Laupland KB. Vascular and parameningeal infections of the head and neck. *Infect Dis Clin North Am* 2007; 21:577.

Author: Joanne Smucker, MSIII, & Kristen Grine, MD, Penn State Hershey Medical Center, PA

Editor: Dongsheng Jiang, MD, Penn State Hershey Medical Center, PA