Pharyngitis

Background

1. Definition
    - Inflammation of pharynx and/or tonsils
    - Usually of viral etiology, self limited
2. General information
    - Single entity or manifestation of larger disease process
    - Distinguish from Abscess
        - Trismus, deviated uvula (peritonsillar)
        - Drooling, fever (retropharyngeal)
        - Lateral XR; consult ENT, IV PCN
    - Goal of Dx/ Tx
        - Detect and treat Group A Strep while avoiding unnecessary antibiotics for viral infections

Pathophysiology

1. Pathology of disease
    - Virus or bacteria may directly invade or cause irritation to the pharyngeal mucosa, resulting in localized inflammatory reaction
2. Incidence, prevalence
    - Acute pharyngitis
        - 12 million annual ambulatory visits in US
        - Ranks within 20 top most-common primary dx groups
    - Infectious causes (usually associated with acute onset)
        - Group A streptococcus
            - Most common and clinically significant bacterial pharyngitis (15-30% in children; 5-10% adults)
            - Incidence highest in late fall, winter, early spring
        - Diphtheria
            - Rare in US, unless: unimmunized, poor, elderly, immigrants
        - Adenovirus
            - Most common etiology in pts <3 yo
3. Risk factors
    - Air conditioning
    - Allergies
    - Chronic cough
    - Exposure to cold viruses
    - Heating without humidification
    - Hoarse voice
    - Living in a hot, dry climate
    - Reflux esophagitis
    - Sinusitis
    - Smoking
    - Exposure to 2° smoke

- Weak immune system
  - Diabetes
  - Organ transplant
  - Chemotherapy
  - AIDS

Diagnostics

1. **Group A streptococcus**
   - History
     - Sudden sore throat, odynophagia, fever, HA, abd pain, N/V
       - Exposure in past 2 wk: 91% spec
       - See Strep probability score
     - Low risk: coryza, cough, D, hoarseness, no fever, no erythema
   - Physical exam
     - Fever, erythema/ exudate, petechiae on soft palate (95% spec.), tonsillar enlargement, beefy red uvula
     - Tender anterior LAD, scarlet fever "sand paper" rash
       - Uncharacteristic: conjunctivitis, stomatitis, ulcerative lesions
     - Search for signs of dehydration, murmur (RF)
   - Diagnostic testing
     - Can't distinguish between those with viral pharyngitis who are strep carriers and those with strep pharyngitis
     - Rapid strep test (SS-80-90:90-95) (SOR:A)[8]
       - Throat culture: gold standard (90-99% sens) (SOR:A)[8]
     - Can withhold therapy until culture back if unsure of diagnosis
       - Delay does not incr. risk of rheumatic fever
       - Low incidence in adults, min risk of RF: tx can wait in adults
2. **Diphtheria**
   - History
     - Airway obstruction if severe
   - PE
     - Gray/brown pseudomembrane that bleeds when removed (do not attempt)
     - Edematous soft tissue, cervical/ submental LAD ("bull neck")
   - Diagnostic testing
     - Culture membrane in loeffler's medium (SOR:C)[11]
     - EKG: toxin is cardio/ neuro toxic
       - EKG demonstrates myocarditis (as evidenced by electrographic changes such as ST-T wave changes, QTc prolongation, and/or 1st degree heart block)[11]
3. **Mononucleosis**
   - History
     - Prodrome: chills, sweats, fever, malaise
     - Sore throat, fever (38-40 °C), LAD
   - PE
     - Enlarged tonsils, pharyngeal edema w/thick exudate, palate petechiae
     - Post/ant LAD, frequently axillary/inguinal LAD as well

        - Splenomegaly (50%), hepatomegaly (10-15%), jaundice (5%)
    - Diagnostic testing
        - CBC: lymphocytosis, >10% atypical lymphocytes, thrombocytopenia
        - Heterophile antibodies (positive in 90% within first 2-3 wks of dz) (SOR:C)
    - Treatment
        - See Mononucleosis
        - Avoid contact sports, ampicillin (rash)
        - Airway compromise: corticosteroids
4. **Acute Retroviral Syndrome**
    - Manifestation of HIV infection
    - More acute onset, no exudate, rash, ulceration (vs. mono)
    - History
        - Fever, pharyngitis without exudate, arthralgia, myalgia, lethargy
    - PE
        - LAD, maculopapular rash (40-80%)
    - Diagnostic testing
        - HIV antibodies negative; RNA or p24ag will be positive (SOR:A)[12]
5. **Other causes**
    - Adenovirus
        - Pharyngitis with conjunctivitis, influenza like syndrome
        - Most common etiology in pts <3 yo
    - Coxsackie virus
        - Hand-foot-mouth disease, herpangina
    - Herpes virus
        - Exudative pharyngitis in sexually active pts
    - Mycoplasma
    - Chlamydia
        - Fever, cough, sore throat
    - Fungal
        - Candida (esp. with immunocompromised)

Differential Diagnosis

1. Viral etiology 40-60%, bacterial 10-40%; other causes include allergic, traumatic and neoplastic
2. Infectious causes (usually associated with acute onset)
    - Viruses (most common)
        - CMV
        - EBV
        - Adenovirus
        - HSV
        - Influenza
        - Enterovirus
        - Coronavirus

- Bacterial causes
  - Group A strep
    - Most common and clinically significant bacterial cause
  - M. pneumoniae
- Other bacteria
  - Group C and G strep
  - C. diphtheriae
- Candidiasis
  - Thrush - children and immunocompromised

3. Non-infectious causes (usually associated with chronic Sx)
   - Dry air
   - Post nasal drip
   - GERD
   - Smoking
   - Neoplasia
   - Chemical injury
   - Trauma, including intubation

Therapeutics

1. **Group A streptococcus**
   - Goals
     - Prevent complications: abscess, mastoiditis, OM
     - Prevent RF, decr. communicability, hasten improvement
   - Sx usually resolve within 3-4d even without tx
   - Does not prevent glomerulonephritis
   - Treatment of choice (SOR:A)[5]
     - Penicillin
       - No documented evidence of group A strep resistance to penicillin[5]
       - 250 mg QID/ 500 mg BID x10d
       - 25-50 mg/kg/d PO div q6hr x10d (peds)
     - Benzathine Penicillin G 1.2 mil units IM x1 dose
       - 25,000 u/kg IM to max 1.2 mil units (peds)
   - Alternative for allergy
     - Erythromycin
       - 500 mg PO QID x10d
       - 30-50 mg/kg PO per day div BID, QID x10d (peds) max 1 g/d
     - Azithromycin
       - 500 mg PO x1 then 250 mg PO qD x4d
       - 12 mg/kg PO qD x5d (peds)
   - Severe, refractory
     - Clindamycin
       - 300 mg PO QID x10d
       - 20-30 mg/kg/d PO div QID (peds) max: 300/dose
     - Amoxicillin/clavulanate
       - 500/125 mg PO TID x10d
       - 40-45 mg/kg/d (amoxicillin) PO div BID-TID

- Consider short course of steroids if severe sx (SOR:B)[5]
  - Prednisone 1-2 mg/kg PO x5d (peds)
  - Dexamethasone 10 mg IM x1 (adults)
- Recurrent, severe, disabling Strep throat (>5x/yr) may be an indication for tonsillectomy (SOR:C)[3]

2. Diphtheria
   - Diphtheria antitoxin, Vaccination[11]
   - Penicillin G
     - 25,000-50,000 units/kg per day for children to max 1.2 million units in 2 divided doses
     - Continue until patient can swallow pills
     - Then penicillin VK 250 mg 4 times daily for 14 days[11]
   - Erythromycin
3. Mononucleosis
   - See Mononucleosis
   - Avoid contact sports, ampicillin (rash)

Follow-up

1. Admit to hospital
   - Any severe dehydration, airway compromise
   - Mononucleosis with
     - Airway compromise
     - Guillain Barre
     - Inability to swallow
   - Diphtheria: all cases for cardiac monitoring, respiratory isolation
     - May be reportable to public health
2. Refer to specialist
   - Abscess
   - Severe hepatitis
   - Splenic rupture
3. Follow-up
   - Most cases w/symptomatic relief: rest, fluids, pain control

Patient Education

1. http://familydoctor.org/online/famdocen/home/common/infections/cold-flu/163.html

Evidence-Based Inquiry

1. What is the most effective diagnostic evaluation of streptococcal pharyngitis?
2. What are the indications for tonsillectomy in children?

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