**11 - Pharyngitis Syndromes and Group A Strep**  
*Speaker: Karen C. Bloch, MD, MPH, FIDSA, FACP*

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**Pharyngitis Syndromes Group A Strep**
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**Disclosures of Financial Relationships with Relevant Commercial Interests**
- None

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**Think Like A Realtor**

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**Pharyngitis**
- Small square footage  
- Micro-neighborhoods  
- Regional differences

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**Case 1**
38yo healthy female with 1 day of sore throat and fever.  
Childhood history of anaphylaxis to penicillin.  
**Physical exam**  
- T=102.3  
- HEENT-tonsillar purulence  
- Neck-Tender bilateral anterior LAN  
**Labs:**  
- Rapid antigen diagnostic test negative

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Question 1
What is the most appropriate antimicrobial treatment?
A. Cephalexin  
B. None  
C. Doxycycline  
D. Clindamycin  
E. Levofloxacin

Group A streptococcus
- AKA Streptococcus pyogenes
- 5-15% sore throats in adults.
- Usually self-limited infection (even untreated)
- Viral vs bacterial pharyngitis clinically similar

Differentiating Pharyngitis
GAS
- Sudden onset
- Fever
- Onset in winter and early spring
- Lymphadenopathy
- Exposure to close contact with streptococcal pharyngitis

Viral pharyngitis
- The 3 C's
  - Conjunctivitis
  - CORYZA
  - Cough
  - Hoarseness
  - Diarrhea
  - Ulcerative stomatitis
  - Tonsils red, but rarely enlarged or purulent

Modified Centor Score

<table>
<thead>
<tr>
<th>Points</th>
<th>Strep probability</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 1</td>
<td>&lt; 10%</td>
<td>No antibiotic or culture</td>
</tr>
<tr>
<td>2</td>
<td>11-17%</td>
<td>Antibiotic if RADT or culture +</td>
</tr>
<tr>
<td>3</td>
<td>28-50%</td>
<td>Antibiotic if RADT or culture +</td>
</tr>
<tr>
<td>4 or 5</td>
<td>35-50%</td>
<td>Antibiotic if RADT or culture +</td>
</tr>
</tbody>
</table>

- Centor criteria useful for negative predictive value to exclude streptococcal pharyngitis.
- IDSA guidelines recommend antibiotics only following a positive testing.

Streptococcal Clues
- Palatal petechia
- Scarletina
**Strawberry tongue**
- Group A strep
- Staph toxic shock
- Kawasaki disease

**Laboratory Diagnosis**
- Adults:
  - RADT screen, if negative, culture optional
- ASO titer or Anti-DNase B antibodies
  - helpful in diagnosis of rheumatic fever and post-streptococcal glomerulonephritis, but not for strep pharyngitis.

**Treatment for GAS Pharyngitis**
- First line:
  - Oral Penicillin or amoxicillin x 10 days
- PCN Allergic:
  - cephalosporin, clindamycin, macrolides
  - Not recommended: tetracyclines, sulfonamides, fluoroquinolones

**Persistence vs Recurrence**
- Asymptomatic carriers (5% adults, >20% peds)
- When to screen:
  - Community outbreaks of strep (eg. dorm, barracks)
  - Family or personal history of rheumatic fever
  - To avoid tonsillectomy
- Eradication regimens:
  - PCN or amoxicillin monotherapy high rate of failure
  - amoxicillin-clavulanate, clindamycin or PCN plus rifampin (4 days)

**Secondary Complications**
- Infectious complications
- Immunologic complications

**Pharyngitis and…**

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Pharyngitis & Rash

- Young adult with fever, sore throat, tonsillar exudate, scarlet fever-like rash
- Negative RADT and culture.

Arcanobacterium haemolyticum

- Gram positive rod.
- Scarletiform rash in ~50%.
- Treatment: azithromycin (clinda, PCN).
- Rarely life-threatening sequelae.

Pharyngitis & Rash

- Acute HIV
- Secondary syphilis

Pharyngitis after Receptive Oral Intercourse

<table>
<thead>
<tr>
<th>Neisseria gonorrhoeae</th>
<th>Herpes simplex virus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest risk MSM</td>
<td>HSV 1 or 2</td>
</tr>
<tr>
<td>Most asymptomatic</td>
<td>Usually with acute infection</td>
</tr>
<tr>
<td>Nonspecific presentation</td>
<td>Nonspecific presentation</td>
</tr>
<tr>
<td>Diagnose by nucleic acid amplification test of pharyngeal swab</td>
<td>Oral or genital ulcers variably present</td>
</tr>
</tbody>
</table>

Pharyngitis & Conjunctivatis

- College freshman with sore throat, fever, and conjunctivitis.
- Roommate and 3 others in her dorm with similar syndrome

Adenovirus

Epidemics in group living situations—barracks, dorms, camps, etc

Pharyngitis and Vesicles

- 35 yo man with sore throat, low grade fever, and lesions on palms & soles. His 3 yo son is sick with a similar illness.

Hand, Foot, and Mouth disease

- Caused by enteroviruses (most common Coxsackie virus)
- Overlap with herpangina (oral lesions only)
- More common in kids (often serve as vector)
Case 2

A 62 yo man presents with 24hr of fever, chills, odynophagia and diarrhea.
He works on a vineyard in Napa Valley, and last week participated in the grape harvest. He admits to sampling the grape must.

PE:
T=102.4, HR=122, BP=97/52
Ill-appearing, left tonsil swollen and erythematous
Left suppurative lymph node tender to palpation
WBC=12.3

Question 2

What is the most likely cause of this patient's illness?
A. Toxoplasmosis
B. Bartonellosis (Cat Scratch Fever)
C. Tularemia
D. Epstein Barr virus
E. Scrofula (mycobacterial lymphadenitis)

Oropharyngeal Tularemia

- Uncommon in the US
- Typically through ingestion (or rarely inhalation)
  - Inadequately cooked game
  - Contaminated tap water (Turkey)
  - Rodent contamination
- Exudative tonsillitis, ulcers, swollen LAN
- Diagnosis: culture (alert lab), serology
- Treatment: streptomycin, doxycycline

Pharyngitis and Chest Pain

- 20 yo college student with sore throat, chills, GI upset. Despite oral amoxicillin, develops new onset of cough and pleuritic CP.
- Septic phlebitis of internal jugular vein
- Often follows Streptococcal pharyngitis or mononucleosis
- Classic cause is *Fusobacterium necrophorum*
- Anaerobic gram-negative rod
- Causes septic pulmonary emboli

Lemierre Syndrome
Extra-Tonsillar Infections: 1

- Epiglottitis
  - Fever, sore throat
  - Hoarseness, drooling, muffled voice, stridor
  - Examine with care!
  - Lateral neck x-ray: Thumb sign
  - *H. influenzae* type B, pneumococcus

Extra-Tonsillar Infections: 2

- Vincent Angina
  - AKA Trench mouth
  - AKA acute necrotizing ulcerative gingivitis
  - Oropharyngeal pain, bad breath
  - Sloughing of gingiva
  - Mixed anaerobes

Extra-Tonsillar Infections: 3

- Ludwig Angina
  - Bilateral cellulitis of floor of the mouth
  - Often starts with infected molar
  - Rapid spread with potential for airway obstruction
  - Fevers, chills, drooling, dysphagia, muffled voice, woody induration of neck
  - Mixed oral organisms (viridans strep, anaerobes)

Case 3

- A 42-year-old, previously healthy woman is seen for a bad “sore throat” that began 4 days earlier while attending her sister’s wedding in southern Ukraine.
- She c/o malaise, odynophagia, and low grade fever. Today, she noted a choking sensation, prompting medical evaluation.

Question 3

The most likely diagnosis is?
A. Streptococcal pharyngitis
B. Kawasaki disease
C. Vincent angina
D. Diphtheria
E. Lemierre syndrome
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Buzz words and Visual Associations

Bull neck:

Grey pseudomembrane: extends onto palate or uvula; bleeds when scraped

Other clues

- Location, location, location
  - Almost unheard of in developed countries (vaccination)
  - Large outbreak in former Soviet Union 1990s
  - Still an issue (high mortality) in developing world
- Sore throat and myocarditis (~25%).
- Sore throat and neuropathies (~5%).
- Sore throat and cutaneous ulcer

Noninfectious Mimics

- PFAPA (periodic fever, aphthous stomatitis, pharyngitis, and adenitis)
- Still’s disease
- Lymphoma
- Kawasaki disease
- Behçet disease

Modified Centor Criteria

- C-“can’t” cough +1
- E-exudate +1
- N-neck adenopathy +1
- T-temperature elevation +1
- OR
  - Age less than 15 +1
  - Age >44 -1

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