Pediatric Physical Exam:
Ears and Throats

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Objectives

• Understand etiology, epidemiology, diagnosis and treatment of common pediatric ear problems.
• Learn about presentation and management of strep throat.
• Become more familiar with exam techniques used to examine children’s ears and throats.
Examining Ears

Ear examination

Eardrum

Ear canal

Otoscope
Examining Ears
Positioning the Patient
Normal Ears

Structure of the normal left inner ear
Describing Your Findings

- **PCOM**
  - Position
    - Normal vs. Retracted vs. Bulging
  - Color
    - Pearly gray vs. Red vs. Yellow/Amber
  - Opacity
    - Translucent/Transparent vs. Opaque
  - Mobility
    - Normal vs. Decreased
Position

Normal

Retracted

Bulging
Color

Pearly gray

Erythematous streaks

Yellow
Opacity

Translucent

Opaque
Mobility

- Normal

- Decreased
Acute Otitis Media – Risk Factors

- Age < 2yo
  - immune response against bacterial polysaccarides is not as fully developed
  - eustachian tube is shorter and more horizontal & not as functional as in older children
- Male gender
- Day care attendance

- Older siblings
- ETS exposure
- Absence of breastfeeding
  - Bottle feeding
  - Pacifier use
- Immune deficiency
- Craniofacial anomalies
- Onset of first AOM infection before 6 months of age
Acute Otitis Media - Pathogens

- **Bacteria**
  - Strep pneumoniae
    - 10-25% of all cases
    - 50% resistant to PCN
    - Only 20% remit spontaneously
  - Haemophilus influenza (non-typeable)
    - 25% of cases
    - 50% remit spontaneously
  - Moraxella catarrhalis
    - 12% of cases
    - 80% remit spontaneously

- **Viruses - often copathogens**
  - RSV
  - Influenza
  - Parainfluenza
  - Enteroviruses
Acute Otitis Media - Diagnosis

- ALL of PCOM must be abnormal – not just color
- Must demonstrate abnormal mobility
  - Insufflation technique
Acute Otitis Media - Treatment

• First Line - High dose Amoxicillin (80-90mg/kg divided bid; max 1g per dose)
• Second Line – Augmentin (high dose Amox component), Cephalosporins, Zithromax
• 10 day course is standard, but 5-7 day courses may suffice in low-risk children.
  • Older than 2y
  • Intact TM
  • No AOM in the last month
• Refer to ENT if
  • 3 AOM in 6 mos or 4 AOM in 12 mos.
# Recent AOM Treatment Guidelines

<table>
<thead>
<tr>
<th>Age</th>
<th>Certain Diagnosis</th>
<th>Uncertain Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 mos</td>
<td>Antibiotics</td>
<td>Antibiotics</td>
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<td>6 mos - 2 yrs</td>
<td>Antibiotics</td>
<td>Antibiotics (severe)</td>
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<td></td>
<td></td>
<td>Observation (nonsevere)</td>
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<tr>
<td>&gt; 2 yrs</td>
<td>Antibiotics (severe)</td>
<td>Observation (nonsevere)</td>
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<tr>
<td></td>
<td>Observation</td>
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</tbody>
</table>

Observation - appropriate only when follow-up ensured and antibacterial agents started if symptoms persist or worsen.

Nonsevere illness - mild otalgia and fever <39°C in the past 24 hours.

Severe illness - moderate to severe otalgia or fever 39°C.

Certain diagnosis of AOM meets all 3 criteria: 1) rapid onset, 2) signs of MEE, and 3) signs and symptoms of middle-ear inflammation.
Otitis Media with Effusion (AKA Serous Otitis)

- Fluid is not purulent
- TM may or may not be erythematous
Chronic Otitis Media vs. Otitis Media with Effusion (OME)

- **Chronic OM**
  - intractable middle ear or mastoid tissue pathology (e.g., granulation tissue or cholesteatoma) behind an intact or perforated tympanic membrane.

- **OME**
  - middle ear effusion (MEE) behind an intact tympanic membrane without signs or symptoms of acute infection

- Refer to ENT if effusion lasts > 3 mos
Otitis Externa (AKA “Swimmer’s Ear”)

- More common in summer months in temperate climates or all year in warm, humid places
- Physical Findings – pain with pinna manipulation, red/macerated external auditory canal, + pinna erythema
- Organisms: Pseudomonas, Staph aureus, Aspergillus
- Treatment: Ear drops containing various combinations of steroids, acidifying agents, antiseptics, and antibiotics/antifungals.
YOU'VE GOT SWIMMER'S EAR...
Other Ear Findings

- Cholesteatoma
- Perforation
- Myringosclerosis
- Myringotomy tube
Open Up & Say “AAAAH”
Strep Throat

- Group A β-hemolytic strep
  - 8-40% of children and 5-9% of adolescents who have sore throat, fever, and tonsillopharyngeal inflammation have GABHS infection
<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Diagnostic criteria for pharyngitis</th>
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<tbody>
<tr>
<td><strong>Associated with streptococcal pharyngitis</strong></td>
<td></td>
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<tr>
<td>Absence of cough</td>
<td></td>
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<tr>
<td>Discrete patchy exudate</td>
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<tr>
<td>Exposure to GABHS in the previous 2 wk</td>
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<tr>
<td>Fever</td>
<td></td>
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<tr>
<td>Palatine petechiae</td>
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<tr>
<td>Scarlatiniform rash</td>
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<td>Strawberry tongue</td>
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<td>Tender anterior cervical nodes</td>
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<tr>
<td>Tonsillar swelling</td>
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<tr>
<td><strong>Associated with viral pharyngitis</strong></td>
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<tr>
<td>Anterior stomatitis</td>
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<tr>
<td>Conjunctivitis</td>
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<td>Coryza</td>
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<tr>
<td>Cough</td>
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<td>Diarrhea</td>
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<td>Discrete ulcerative lesions</td>
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<td>Hoarseness</td>
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**Key:** GABHS, group A beta-hemolytic streptococci.  
Data from Bisno AL et al, and Ebell MH et al.
Diagnosis

• Rapid Strep Assay
  • sensitivity (76-87%)
  • specificity (90-96%)

• Throat Culture

• **Note up to 20% of population are carriers.**
Management

• Treatment
  • First Line: Penicillin
    • Oral: PCN-VK 250/500mg po TID x 10d
    • IM: 600,000/1.2 million units IM x 1
  • If PCN-allergic, then po erythromycin or 1st generation cephalosporin x 10d

• Isolation
  • No school until antibiotics x 24hrs
Sequelae

- Rheumatic fever
- Post-strep glomerulonephritis
Scarlet Fever

Rash scarlattinoso

Accentuazione ad ascelle ed inguini
Time to Practice Your Skills