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
Positioning the Patient
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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<tr>
<td>6 mos – 2 yrs</td>
<td>Antibiotics</td>
<td>Antibiotics (severe)</td>
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<tr>
<td></td>
<td></td>
<td>Observation (nonsevere)</td>
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<tr>
<td>&gt; 2 yrs</td>
<td>Antibiotics (severe)</td>
<td>Observation</td>
</tr>
<tr>
<td></td>
<td>Observation (nonsevere)</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 (eg, 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 > 3mos
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.
Other Ear Findings

- Cholesteatoma
- Myringosclerosis
- Perforation
- 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>
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</thead>
<tbody>
<tr>
<td>Diagnostic criteria for pharyngitis</td>
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<tr>
<td>----------</td>
</tr>
<tr>
<td><strong>Associated with streptococcal pharyngitis</strong></td>
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<tr>
<td>Absence of cough</td>
</tr>
<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>
</tr>
<tr>
<td>Palatine petechiae</td>
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<tr>
<td>Scarlatiniform rash</td>
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<tr>
<td>Strawberry tongue</td>
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<tr>
<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>
</tr>
<tr>
<td>Anterior stomatitis</td>
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<tr>
<td>Conjunctivitis</td>
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<tr>
<td>Coryza</td>
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<tr>
<td>Cough</td>
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<tr>
<td>Diarrhea</td>
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<tr>
<td>Discrete ulcerative lesions</td>
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<tr>
<td>Hoarseness</td>
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</table>

**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