Pediatric Pulmonary Tuberculosis

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Pediatric Tuberculosis Disease

- Diagnosis of Pulmonary Tuberculosis
  - Signs and symptoms are often mild and/or non-specific
  - Culture diagnosis provides low yields
  - Younger infants and children have a higher progression to tuberculosis disease and invasive disease

- We will look at 2-3 cases to illustrate this
Case 1

- 5 year old boy from Salluit
- 17 mm PPD as part of contact tracing
- Mother started on treatment for Active Tuberculosis
  - Chest lymph node biopsy +ve
  - “Primary” infection

Case 1

- 2 months of mild cough, mostly night time and with exercise - +/- yellow sputum
- Afebrile, normal energy, no weight loss
- Looks well (90th %ile for weight) with normal examination
- PPD of 17 mm
Case 1

- Is this pulmonary TB?
Case 2

- 23 month old male close contact of smear positive adult
  - On contact screening has PPD of 17 mm
  - 1 week history of mild rhinorrea with worsening cough; afebrile
  - Examination is normal, however child is heard to have a wet cough
Case 2

- Is this Tuberculosis Disease?

Case 3

- 5 month old infant presenting to the ED with 5 days of fever and cough and respiratory distress
- Seen in EDx2 with diagnosis of pneumoniax2 before subsequent admission to MCH
Case 3

- History of 5 weeks travel to Morocco with return 4 weeks prior to presentation
  - No known sick contacts
  - PPD: 17 mm
- Examination:
  - Febrile at 39.8
  - Decreased breath sounds on left
Case 3

- Is this Tuberculosis Disease?

Tuberculosis Disease in Children

- Primary Pulmonary Disease
  - Most common presentation in young children (<5 years)
- Clinically:
  - May have fevers, non-productive cough +/- wheezing, fatigue, poor appetite
  - Night sweats, weight loss are uncommon
  - Often asymptomatic
Diagnosis

• National (US) TB surveillance system
  • Between 1993 and 2001
  • 11,480 pediatric cases (<15 years of age)
  • 23.6% fulfilled laboratory criteria
    • (84.3% of adult cases)


Diagnosis

• In absence of a culture diagnosis, pediatric tuberculosis is diagnosed on probability of disease
• Clinical diagnostic triad:
  • Positive Tuberculin skin test (TST)
  • Clinical/Radiological findings of Tuberculosis
  • Known source case
TB Disease

<table>
<thead>
<tr>
<th>Risk of disease following primary infection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disseminated tuberculosis/ tuberculous meningitis</td>
<td>Pulmonary tuberculosis</td>
</tr>
<tr>
<td>&lt;1 years</td>
<td>10-20%</td>
</tr>
<tr>
<td>1-2 years</td>
<td>2-5%</td>
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<tr>
<td>2-5 years</td>
<td>0.5%</td>
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<tr>
<td>5-10 years</td>
<td>&lt;0.5%</td>
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<tr>
<td>&gt;10 years</td>
<td>&lt;0.5%</td>
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Newton et al; Lancet Infect Dis; 2008

Cases Revisited

- All 3 cases were diagnosed with pulmonary tuberculosis
- Case 1: AFB –ve; Culture positive
- Case 2: AFB –ve; Cultures pending
- Case 3: AFB/PCR/Culture positive