The Pneumococcus

Key Points:
- **Strep pneumococcus** is the most common cause of community-acquired pneumonia
- Classically presents with abrupt onset of fever, chills, cough, and pleuritic chest pain but presentation can vary
- HIV patients are at increased risk of bacterial pneumonia with CD4 counts < 500 cells/cm³

Microbiology
- The organism was first identified in 1881
- *Streptococcus pneumoniae* is a Gram-positive, alpha-hemolytic bacterium

Pathogenesis
- The pneumococcus is present in the nasopharynx of 50% of asymptomatic people at any time
- Pneumonia is likely from aerosolization into the alveoli where they enter alveolar type II cells
- Pneumocci multiply in alveoli and pass through the pores of Cohn – thus, lobar consolidation
- Meningitis is likely from transient bacteremia with invasion at the choroids plexus

Epidemiology
- The pneumococcus is the most common cause of community-acquired pneumonia
  - Isolated in 5-18% of cases but likely the most common cause of culture-negative
  - S. pneumo accounts for 2/3 of all bacteremic pneumonias
- Risk factors for invasive pneumococcal infection include:
  - Tobacco, EtOH, splenectomy
- *S. pneumococcus* is likely the second most common cause of meningitis

Clinical Features of pneumococcal pneumonia
- Classically: abrupt onset of fever, chills, cough, pleuritic chest pain
- Can cause bronchopneumonia (not lobar) which depends on serotype
- Can present similar to “atypical” or walking pneumonia

Diagnosis of pneumococcal pneumonia
- Chest Xray classically shows lobar consolidation, but can show nearly anything
- Sputum gram stain can be helpful but sputum culture was negative in 50% of bacteremia pts.
- Always obtain blood cultures BEFORE antibiotics

Complications of pneumococcal pneumonia
- Typically uncomplicated with complete recovery
- Bacteremia with subsequent seeding of other foci is seen in 25% of cases
- Other complications include parapneumonic effusion, empyema, lung abscess

Treatment
- The current rate of penicillin resistance is 21%
- Isolates here show 0% ceftriaxone resistance and 6% levofloxacin resistance

Pneumococcus in HIV/AIDS
- Increased risk of bacterial pneumonia with CD4 count < 500 cells/cm³
- Clinical presentation typically doesn’t differ from immunocompetent hosts
- Radiographs can have lobar consolidation, reticulonodular infiltrates, or patchy infiltrates