

CMC #1 PNEUMONIAS

Reading: *Infectious Disease Clinical Short Course*: Pgs 79-90 for fundamentals. 90-119 for specific etiologies. (ID30: pgs. 107-120, 121-146).

Case 1 (Case 4.1 pg 82; ID30 pg. 110)

Initial Presentation:

A 55 year old woman was first seen in the emergency room in December complaining of a non productive cough, nasal stuffiness, and fever. She also noted diffuse severe muscle aches and joint pains as well as a generalized headache.

Epidemiology: She had recently seen her grandchildren who all had high fevers and were complaining of muscle aches.

Physical exam, positive findings: Temp 103°F (39°C). Throat erythematous, clear nasal discharge. Her muscles were diffusely tender. Chest Xray (CXR) - WNL.

Guiding Questions:

1. Based on your initial evaluation, what organ systems appear to be affected by her illness?
2. What are some of possible infectious causes of her illness? How could this infection have been prevented?

Clinical Course:

Three days into her illness she noted some improvement in her cough, muscle aches and joint pains, however on the 4th day she developed a high fever (104°F) preceded by a teeth chattering chill. That day her cough became productive of rusty colored opaque sputum and she began feeling short of breath.

Physical exam: Temp 105°F, RR 36 General appearance- very ill appearing, anxious, woman gasping for air. Lungs- mild dullness to percussion, E to A changes, rales and rhonchi localized to the left lower lobe.

Guiding Questions:

3. How would you characterize the pace of her illness? Does the pace of an illness help in deciding the likely pathogen?
4. What symptoms and signs help differentiate viral from bacterial pneumonia? Can you explain these clinical differences based on your understanding of the pathogenesis of bacterial and viral respiratory infections?
5. How does a viral upper respiratory infection predispose to bacterial pneumonia? What other factors increase the risk of bacterial pneumonia?
6. What is the possible cause of her severe chill (sometimes called a rigor)?

Laboratory: Peripheral WBC 16,000, 68% PMNs, 20% immature forms (bands and metamyelocytes), 8% lymphocytes, 4% monocytes
Sputum gram stain and CXR- to be presented.

Guiding Questions:

7. When should you order a CXR?
8. What are some of the problems encountered with trying to determine the etiology of a pneumonia? How would you recommend making the diagnosis?
9. You initiated treatment with the 3rd generation cephalosporin ceftriaxone. Her fever resolved and her sputum production lessened. On the 4th day of therapy you obtained a new sputum sample which grew *Klebsiella* resistant to ceftriaxone. What would you do with this new culture results?

Case 2 (Case 4.3 (3.3 typo) pg 103; ID30 pg. 137)

Initial Presentation:

A.P. is a 73 year old black male, retired bartender who came to the emergency room complaining of increasing shortness of breath and worsening cough over the past 3 weeks.

5 months earlier he began noting night sweats that drenched his pajamas. This was followed by the development of a nonproductive cough. 1 month ago he began bringing up small quantities of yellow sputum. Also at this time he began experiencing increased shortness of breath following even mild exertion (walking two blocks to the grocery store). Over the past several months he has felt very tired and has lost 10 lbs despite a "good" diet.

Epidemiology: Lives in the city. Visits with a number of old drinking buddies.

Social History: Bartender for 35 years. Recently retired. Lives alone in a one bedroom apartment. Supported by social security.

Habits: former smoker 1/2 pack per day x 28 yrs. Drinks 1/2 pint/day.

Physical Exam: Temp 100.4°F RR 18 A thin male breathing comfortably. Aside from mild clubbing of his nail beds his physical findings (including lung exam) was WNL)

Laboratory: Hct 39, WBC 6,000 55%PMN, 30% Lymphocytes, 15% Mononuclear cells. Sputum gram stain and culture, CXR to be presented.

Guiding Questions:

1. How would you characterize the pace of this man's illness?
2. Do his social history and/or epidemiologic history increase his risk for developing any particular diseases that could account for his present illness? Are there any other questions you might want to ask him?
3. Are there any other diagnostic procedures or tests you would want to perform?

Case #3. (Case 4.2 pg 97; ID30 pg. 125)

Initial Presentation:

RD is a 35 year white male who arrived in the emergency room complaining of right sided chest pain for the past 4 days. 8 days earlier he began drinking large quantities of alcohol. He vaguely recalled passing out on at least two occasions. 4 days ago he developed a persistent cough, productive of green sputum. At this time he also began experiencing right sided chest pains on deep inspiration (pleuritic pain). Initially these pains were dull, however over the next few days they became increasingly sharp.

Physical Exam: Temp. 100.4°F, RR 42/min. A disheveled man, looking older than his stated age, breathing shallowly and rapidly, in obvious pain.

Throat- good gag; extensive dental carries, several loose teeth, severe gingivitis; foul smelling breath and sputum.

Lungs- dullness to percussion right lower lung field; bronchovascular breath sounds heard diffusely (inspiratory and expiratory breath sounds of equal duration); moist, medium rales heard in the right lower lung field; E to A changes (egophony) as well as whispered pectoriloquy were also heard in this areas.

Laboratory: Hct 50 WBC 21,400 79%PMNs, 7%Bands, 1%Lymphs 13%Mono
ABG pH 7.46, pO₂56, pCO₂ 36. Sputum gram stain, CXR- to be presented.

Guiding Questions:

1. What factors may have predisposed this man to develop pneumonia?
2. What is causing his chest pain?
3. How do explain the change in his CXR?
4. How do you explain his pulmonary physical findings?
5. Of what significance is the smell of his sputum?
6. What physiology has led to his hypoxia?