

Student Version of the Case, November 2020

History: A previously healthy 4 year old boy is brought to an urgent care center by his mother for difficulty breathing for one day. Three days prior he had developed a runny nose, cough, and low grade fevers with a temperature maximum of 38.3°. He continued to take liquids well, but his solid intake has decreased. His temperature this morning was 39.4° and he was breathing fast and working hard to breathe. He does not have any ill contacts. He has never been hospitalized or had any surgeries. He was born at term without any complications. He is not taking medications other than acetaminophen. His immunizations are up to date for his age (except he had not received the pneumococcal conjugate vaccine). His parents and 10 year old sister are healthy and the remainder of his family history is non-contributory. There are no smokers in the household, and he has not traveled recently. He does not have a history of choking or vomiting. He has not had frequent ear or skin infections. He does not have a history of foul-smelling stools.

Exam: Temperature: 40°, Pulse rate:130/min, Respiratory rate: 40/min, Blood pressure: 100/70 mm Hg, oxygen saturation 87% in room air. His height and weight are in the 50th percentile for his age. He is awake and alert, in moderate distress. His conjunctiva and tympan membranes are normal. His nasal mucosa is erythematous with yellowish discharge. His lips and mucous membranes are dry. His neck is supple, with several small anterior cervical lymph nodes. Lungs: Moderate subcostal, intercostal, and supraclavicular retractions, symmetric expansion, dullness to percussion at the right base, increased vocal fremitus over the right base, decreased air entry over right lower lobe with crackles, no wheezes. Heart: Tachycardia, regular rhythm without murmur. Pulses are 2+, and capillary refill time is 3 seconds. His abdomen, skin, and neurological examinations are unremarkable.

CBC WBC 20,000, 70% segs, 11% bands, 15% lymphs, 3% monos, 1% eos. Hemoglobin 12.4, platelet count 280,000. Chest x-ray (CXR): Right lower lobe opacity consistent with a round pneumonia.

Questions

- 1. What will be the urgent treatment steps in this patient?**

- 2. Which of the following is the most common cause of pneumonia outside of the neonatal period?**
 - a. *S. pneumoniae*
 - b. *Mycoplasma*
 - c. Viruses
 - d. *Chlamydia*

- 3. *S. pneumoniae* resistance to penicillins is due to:**
 - a. Production of beta-lactamase
 - b. Alteration of penicillin binding proteins
 - c. Increased efflux pumps
 - d. Low tissue bioavailability

- 4. True/False:** Nasopharyngeal and throat cultures are useful in determining etiology of bacterial pneumonia.

- 5. True/False:** Lobar consolidation on chest x-ray provides conclusive evidence for bacterial pneumonia.

- 6. Which factor does not appear to affect the etiology of pneumonia?**
 - a. Age
 - b. Vaccination status
 - c. Current antibiotic use
 - d. Birth rank

- 7. The most common cause of bronchiolitis is:**
 - a. Respiratory syncytial virus
 - b. Human Metapneumovirus
 - c. Parainfluenza
 - d. Adenovirus

- 8. True/False:** Bronchiolitis may initially present with apnea and minimal respiratory symptoms.

- 9. Treatment of bronchiolitis should include all of the following except:**
 - a. Supplemental oxygen for infants with hypoxia.
 - b. Intravenous fluids and close monitoring of nutritional status.
 - c. Good handwashing.
 - d. Antibiotics.

- 10. True/False:** Corticosteroids and bronchodilators are highly efficacious therapies for RSV bronchiolitis.