

EMPHYSEMA

ADMITTING HISTORY

This 62-year-old man had a long history of cough and shortness of breath and multiple hospitalizations. He was admitted because of severe, worsening dyspnea. He had lived and worked in Pittsburgh, Pennsylvania, for 35 years as a foundry worker in a steel manufacturing plant. His wife had died 10 years earlier. After his wife's death, he had lived alone for 9 years and had managed his daily activities with progressive difficulties.

Two years before this admission he had been forced to retire early because of declining health. His doctor at that time told him he had chronic emphysema. For the past year he had lived with his brother's family in Chicago. During the interview the patient's brother indicated that his brother might "have the flu again." Although he had 35 pack-year history of smoking unfiltered cigarettes, the patient had stopped smoking at the time of his forced retirement.

His last hospitalization was 9 weeks before this admission. At that time he was hospitalized for 2 days for cough, muscle aches and pains, fever, and respiratory distress. He underwent a complete pulmonary function study and received bronchial hygiene therapy, oxygen therapy, and instruction in at-home breathing exercises.

Also at this time it was noted the patient's expiratory flow rate measurements had declined significantly since his pulmonary function tests a year earlier. In fact, his forced expiratory volume in 1 second (FEV1) had declined from 70% of predicted to 45% in the past year. At discharge 9 weeks before this admission and on 1.5 L/m O₂ by nasal cannula, the patient's arterial blood gases (ABG's) were pH 7.37, PaCO₂ 67 torr, HCO₃⁻ 36 mEq/L, B.E. +14.3 mEq/L and PaO₂ 63 torr. He had received the influenza vaccine 6 months earlier and pneumococcal vaccine 2 years earlier.

At the time of discharge 9 weeks earlier he was pursed-lip breathing and using his accessory muscles of inspiration at rest. He demonstrated no spontaneous cough or sputum production. His bronchodilator therapy had been discontinued at discharge 1 year ago because it had been found to be "ineffective" during his pulmonary function study. He had been strongly encouraged to perform his pulmonary rehabilitation exercises on a daily bases. A weekly exercise flow chart had been provided for him at discharge by the respiratory care department.

PHYSICAL EXAMINATION (Time: 1800)

In the emergency room the patient was febrile, cyanotic, and in obvious respiratory distress. He was 180 cm (6 ft tall) and weighed 66 kg (146 lbs). His skin was cool and clammy to the touch. The patient said, "I am short of breath." ,,,,,,

His vital signs were blood pressure 155/110, heart rate 95 b/m, respiratory rate 25/min, and oral temperature 38.3°C (101°F). He was using his accessory muscles of inspiration and pursed-lip breathing. An enlarged anteroposterior diameter of the chest could easily be seen. Percussion revealed that he had a low-lying hemidiaphragms. Expiration was prolonged, and breath sounds were diminished. Crackles could be heard over the right lower lobe.

A chest x-ray showed pulmonary hyperexpansion, severe apical pleural scarring, a large bleb in the right middle lobe, and a right lower lobe infiltrate consistent with pneumonia. Upon instruction, the patient's forced cough was weak and productive of small amount of yellow sputum. On 2 L/m O₂ by nasal cannula, his ABG's were pH 7.59, PaCO₂ 40 torr, HCO₃⁻ 37 mEq/L, B.E. +9.1 mEq/L and PaO₂ 38 torr. The physician ordered a pulmonary consult and stated that she did not want to commit the patient to a ventilator if possible.

Complete first assessment using RC ASSESSMENT FLOW CHART

6 HOURS LATTER

At this time the patient stated that his chest was feeling tighter and that he was more short of breath. His vital signs were blood pressure 160/115, pulse 97 b/m, respiratory rate 15/min and shallow, and oral temperature 37.8° C (100° F). He was no longer using his accessory muscles of inspiration or pursed lip breathing. His breath sounds were diminished bilaterally, and crackles could no longer be heard over the right lower lobe. Dull percussion notes were elicited over the right lower lobe. His ABG's were pH 7.28, PaCO₂ 82 torr, HCO₃⁻ 36 mEq/L, and PaO₂ 41 torr. His SpO₂ was 68%.

RESEARCH PAPER

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