A 56-year-old woman with alcoholic cirrhosis is admitted to the hospital with shortness of breath. She has a history of smoking 1 pack of cigarettes per day for the last 5 years and drank a 6-pack of beer daily until she quit drinking 1 year ago. Physical exam findings include digital clubbing, cyanosis, spider angiomas, and ascites. A chest X-ray is normal. An arterial blood gas reveals a PaO2 of 56 mmHg with a normal PaCO2 and pH. She has an oxygen saturation of 87% on room air while standing and an oxygen saturation of 93% while lying down. She is started on supplementary oxygen.

What is the most likely cause of this patient's respiratory distress?

A. Portopulmonary Hypertension  
B. Hepatopulmonary Syndrome  
C. Hepatic hydrothorax  
D. Adult respiratory distress syndrome (ARDS)  
E. Chronic obstructive pulmonary disease (COPD)

Answer: B

The question stem describes the symptoms, signs, and test findings of hepatopulmonary syndrome. Patients with cirrhosis can develop hepatopulmonary syndrome which may be asymptomatic, but may also experience dyspnea and orthodeoxia. Arterial blood gas findings include a widened A-a gradient and hypoxemia. Pulmonary function testing will show decreased DLCO, however the chest x-ray is often normal. Portopulmonary syndrom will rarely cause an increased alveolar-arterial gradient and will have findings like jugular venous distention, an accentuated P2, and a tricuspid regurgitation murmur. Hepatohydrothorax and ARDS will have radiographic findings. COPD exacerbation would cause an increased PaCO2 on arterial blood gas.