

## HST.035 Homework Assignment #5

(Due Tuesday April 1<sup>st</sup>)

Page 1 of 2

PLEASE PRINT YOUR NAME:

1. In pulmonary emphysema, which one of the following mechanisms can explain obstruction to airflow?

- A. Narrowing of the distal airways (bronchioles) due to submucosal fibrosis.
- B. Premature collapse of the small airways secondary to loss of normal elastic tissue.**
- C. Thickening/fibrosis of the alveolar walls.

2. Which of the following features are characteristic of “interstitial” lung disease?

- A. Reduced lung volume
- B. Decreased diffusing capacity in the alveoli
- C. Normal airway function
- D. All of the above**

3. Squamous metaplasia of the airway lining epithelia (typically made of ciliated columnar cells) is a common response to chronic inflammation/irritation (such as smoking). Although this is supposed to be a protective mechanism for the epithelium, it in fact leads to more pulmonary disease. How can you explain this?

***Cilia of the columnar airway epithelia have an important function in clearing the lungs from foreign particles that are trapped in the airways. Although squamous epithelium is more resistant to chronic irritation locally, loss of ciliary function can result in an increase in pulmonary complications.***

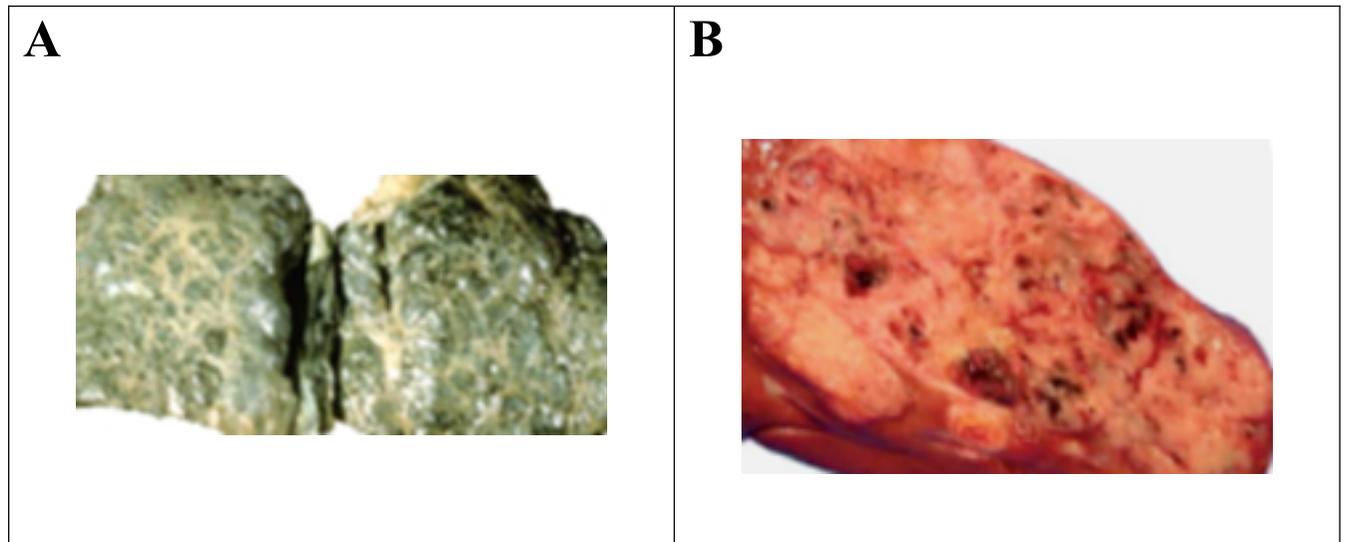
4. Images of normal (left, arrow) and abnormal (right, arrow) small pulmonary arteries are shown below. The abnormal image is from a patient with pulmonary hypertension who died of cardiac failure secondary to his longstanding lung disease. What major abnormality would you expect to see in his heart? (You should be able to answer this in one sentence or less.)

***Cor pulmonale (right ventricular dilatation/hypertrophy because of increased vascular resistance in the thickened pulmonary arteries).***

## HST.035 Homework Assignment #5

(Due Tuesday April 1<sup>st</sup>)

Page 2 of 2



5. Two gross images of abnormal livers are shown above. For each of the statements below, choose A (left image), B (right image), or C (neither of the above). Do not try to make a specific diagnosis, but formulate a differential diagnosis (list of possibilities) for each of these cases.

  A\_ Can represent a long-term complication of chronic active hepatitis C infection

  C\_ Is the liver of a patient who died of severe hepatitis A infection

  B\_ Can be a primary malignant tumor of the liver

  B\_ Can be a metastatic tumor to the liver

  C\_ Represents an infarcted liver

  A\_ Can be a consequence of chronic biliary obstruction

  A\_ Can be associated with esophageal varices

  A\_ Is the liver of a patient with abnormal liver function tests

6. If you haven't already done so, please write down the topic of your term presentation and at least 1-2 key references that will be used as resources for your presentation.