

Examinations**Microscopic Anatomy, AP 710****Exam 2, Part A, 13 points**

Respiratory system

October 6, 2000

Imagine that you are passing an endoscope down the trachea of a coughing dog to look for a suspected inhaled foreign body. Ahead of the endoscope you see the bifurcation of the trachea, called the carina. You advance the endoscope into the right bronchus. You remember from gross anatomy that each lobe of the lung has its own secondary bronchus, and so you expect to see 4 (a number) lobar bronchi in this dog's right lung. You pass the endoscope into the right caudal lobar bronchus.

If you could magnify your view of the epithelial surface of the bronchus enough to see the cells, you would expect to see these cell types in the epithelium (name 3 types):

Ciliated cellsGoblet cellsBasal cellsSerous cells

Instead of a foreign body in the airway, you see what looks like a mass or nodule on the bronchial wall, and you take a biopsy to send for histopathology. Finding no other abnormality, you remove the endoscope and recover the dog. While you are waiting for the histopathology report, you refresh your memory of the normal structure of the lungs by quizzing yourself:

The normal bronchial wall consists of epithelium, a connective tissue layer called the lamina propria, and a muscle layer called the muscularis mucosae.

Bronchi do not normally contain which of the following:

- | | |
|---------------------------------|------------------------------------|
| a. Clara cells (in bronchioles) | d. Type I pneumocytes (in alveoli) |
| b. glands | e. a and d |
| c. hyaline cartilage | f. b and d |

Macrophages in the lung originate from what cell type? monocyte
 Macrophages associated with alveoli can be located either in the septum
 or in the lumen.

An important fiber type in the stroma of the alveolar walls is elastin. What cells produce these fibers? fibrocytes

An absence of Type II pneumocytes would most likely cause which of the following:

- Over-inflation of alveoli because of loss of elasticity.
- Collapse of alveoli because of increase in surface tension.**
- Fusion of alveoli because of loss of basement membrane.

- d. Blockage of alveoli because of increased mucus accumulation.
- e. Blockage of alveoli because of increased foreign material accumulation.
- f. None of the above; Type II pneumocytes are aged Type I pneumocytes, and are removed by macrophages.