

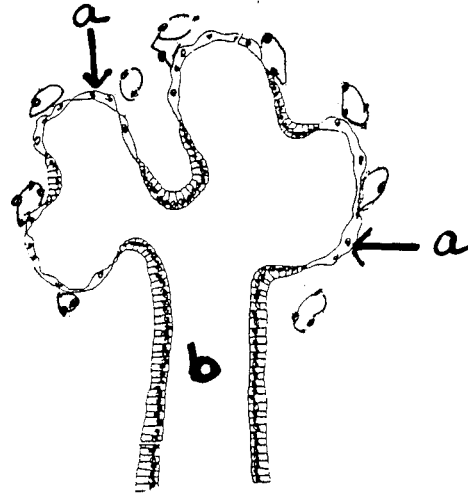
STRUCTURAL BASIS OF MEDICAL PRACTICE

EXAMINATION 9A

August 30, 2007

Part I. Answer in the space provided.

A. With respect to the picture at the right:



1. Identify the stage of lung development depicted in the picture.

Terminal Sac or Saccular Stage

2. Identify the structure indicated by "a".

Alveolar cell; Type I alveoli or Type I pneumocyte

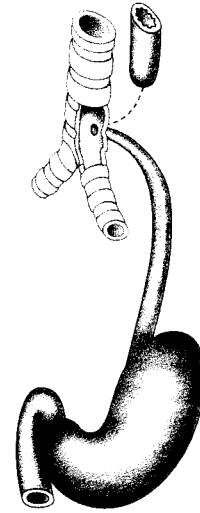
3. Identify the structure indicated by "b".

Terminal bronchiole

B. With respect to the picture at the right:

4. What clinical defect is depicted by this diagram?

tracheoesophageal fistula



Part II. Circle the correct answer.

5. A bronchopulmonary segment is defined as:

- A. Alveolar-capillary junction
- B. Left primary bronchus and its branches
- C. Lung-trachea juxtaposition
- D. Right primary bronchus and its branches
- E. **Segment of lung tissue supplied by a tertiary bronchus**

6. The trachea is derived from:

- A. Hypobranchial eminence
- B. Elongation of bronchial buds
- C. Pharyngeal arch IV
- D. **Respiratory diverticulum**
- E. Tracheoesophageal septum

7. The lung bud:

- A. Appears in the embryo at approximately 8 weeks
- B. **Arises as an outgrowth of the ventral wall of the foregut**
- C. Degenerates before day 28
- D. Forms the trachea and the bronchial buds
- E. Is associated with the third pharyngeal pouch

8. With regards to lung development, which statement is *incorrect*:
- A. Alveolar epithelium is composed of Type I and Type II alveolar cells.
 - B. Type II pneumocytes secrete surfactant.
 - C. Surfactant reduces the surface tension at the air-epithelium interface.
 - D. Alveoli number between 5 and 10 million per adult lung.**
 - E. Right bronchus is divided into 3 lobes; the left bronchus is divided into 2 lobes.
9. All of the following contribute to forming the diaphragm *except*:
- A. Dorsal mesentery of the esophagus
 - B. Lateral body walls
 - C. Pleuroperitoneal membranes
 - D. Pleuropericardial folds**
 - E. Septum transversum
10. The tracheoesophageal septum separates the:
- A. Esophagus and oropharynx
 - B. Esophagus and laryngotracheal tube**
 - C. Esophagus and nasopharynx
 - D. Laryngotracheal tube and oropharynx
 - E. Laryngotracheal tube and nasopharynx
11. An infant presenting with facial dysmorphism, ventricular septal defects, and IQ <70 most likely has been exposed *in utero* to:
- A. Warfarin
 - B. Radiation
 - C. Alcohol**
 - D. Valproic acid
 - E. Tobacco

12. Which teratogen and target structure(s) or defects is linked *incorrectly*?
- A. Phenytoin ---- nails, facial defects, CNS
 - B. Valproic acid – neurotube defects
 - C. Methotrexate -- bone defects, yellow teeth**
 - D. Thalidomide – phocomelia
 - E. Anti-epileptic drugs – microcephaly, hypoplasia of face
13. Minimata Bay Syndrome is characterized by microencephaly and deafness. The most likely teratogen(s) associated with this syndrome is:
- A. Phenytoin
 - B. Methotrexate
 - C. Methylmercury**
 - D. Accutane®
 - E. Selected Serotonin Reuptake Inhibitors (SSRIs)
14. Exposure of a pregnant women to which of the following infectious agents may result in microencephaly, deafness, cataracts and congenital heart disease?
- A. Rubella virus**
 - B. Cytomegalovirus**
 - C. Human immunodeficiency virus
 - D. Varicella virus
 - E. Herpes simplex virus
15. How long does the “critical period” last for the central nervous system?
- A. Weeks 0-3
 - B. Weeks 0-5
 - C. Weeks 2-5
 - D. Weeks 2-12
 - E. Weeks 2-32**