What is Tracheal Branching to the Lungs?

Worksheet

Tracheal branching is the sequential division of the trachea into primary bronchi (T5), then secondary bronchi (lobar), then tertiary bronchi (segmental), and finally bronchioles. Each level narrows and branches, distributing air throughout the lungs.

Questions

1. The trachea bifurcates at which anatomical landmark?

A) Carina at T5
B) Sternal notch at C7
C) Laryngeal prominence at T2
D) Manubrium at T1

2. Why do foreign bodies preferentially lodge in the right primary bronchus?

A) It is wider and more vertical than the left
B) It is narrower and more horizontal than the left
C) The carina is located on the right side
D) The right lung has only 2 lobes

3. How many secondary bronchi supply the left lung?

A) 1
B) 2
C) 3
D) 5

4. At what level of the bronchial tree does gas exchange primarily occur?

A) Primary bronchi
B) Secondary bronchi
C) Tertiary bronchi
D) Alveoli (after bronchioles)

5. Where does the trachea bifurcate (split) into primary bronchi?

6. Why is the right primary bronchus wider than the left?

7. How many lobes are supplied by secondary bronchi on each side?

8. Define: At what vertebral level does the trachea bifurcate?

9. Define: What is the carina?

10. Define: How many primary bronchi arise from the trachea?

Answer Key

1. A) Carina at T5 - The carina is the bifurcation point at T5 (the angle of Louis marks this level externally).

2. A) It is wider and more vertical than the left - The right primary bronchus is wider and more vertical (25), making it the path of least resistance for aspirated objects.

3. B) 2 - The left lung has 2 lobes (superior and inferior), so 2 lobar/secondary bronchi. The right has 3 lobar bronchi for 3 lobes.

4. D) Alveoli (after bronchioles) - The bronchi are conductive airways; gas exchange happens at the alveoli, the final respiratory unit.

5. The trachea bifurcates at the level of the 5th thoracic vertebra (T5), a landmark called the carina. This is also at the level of the sternal angle (angle of Louis).

6. The right primary bronchus is wider (~2.5 cm) and more vertical (25 from vertical), while the left is narrower and more horizontal (45). This asymmetry makes foreign body aspiration more common on the right.

7. Right lung: 3 lobes (superior, middle, inferior) = 3 secondary bronchi. Left lung: 2 lobes (superior, inferior) = 2 secondary bronchi. The left has no middle lobe (cardiac notch).

8. T5 (5th thoracic vertebra), also marked by the sternal angle or carina.

9. The ridge/keel at the tracheal bifurcation where the left and right primary bronchi diverge. Highly sensitive to irritation.

10. Two: the right (wider, more vertical) and left (narrower, more horizontal) primary bronchi.