

• **none of the above - the bronchial arteries supply blood to the bronchi**

**Each lung** is shaped like a cone. It has a **blunt apex**, a **concave base** (that sits on the diaphragm), a **convex costal surface**, and a **concave mediastinal surface**. At the middle of the mediastinal surface, the **hilum** is located, which is a depression in which the **bronchi, vessels, and nerves** that form the **root** enter and leave the lung.

The **root of the lung** contains the following structures:

- **Primary bronchus:** the right and left bronchi arise from the trachea and carry air to the hilum of the lung during inspiration and carry air from the lung during expiration
- A **pulmonary artery:** enters the hilum of each lung carrying **oxygen-poor** blood
- **Pulmonary vein(s):** a superior and inferior pair for each lung leave the hilum carrying **oxygen-rich** blood



1. The small **bronchial arteries** (which are branches of the thoracic portion of the descending aorta) also enter the hilum of each lung and deliver oxygen-rich blood to the tissues. The bronchial arteries tend to follow the bronchial tree to the respiratory bronchioles where the bronchial arteries anastomose with the pulmonary vessels.
2. Branches of the **vagus** nerve pass **behind** the root of each lung to form the **posterior pulmonary plexus**.

**Innervation of the lung:** The lung is innervated by parasympathetic nerves via the vagus and sympathetic nerves derived from the second to fourth thoracic sympathetic ganglia. These nerves form plexuses around the hilus of the lung and give rise to intrapulmonary nerves accompanying the bronchial tree and blood vessels. Both sympathetic and parasympathetic nerves to the lung contain efferent and afferent fibers.

**Important:** When **foreign objects** are aspirated into the trachea, they usually pass into the right primary bronchus because it is larger, straighter, and shorter than the left. It is also in a more direct line with the trachea (important in a dental chair because if a patient swallows an object it tends to lodge in the right bronchus).

Tuberculosis seems to be more common in the right lung than the left due to the shorter right **bronchus**. The reason that the disease is usually restricted to the apex of the lungs is due to the fact that ventilation/perfusion ratio is high as the blood flow is reduced leading to higher alveolar  $PO_2$  this provides a better environment for the obligate aerobes to grow.