



# Human Anatomy - 1<sup>st</sup> year 2020-2021



## Trachea And bronchi

### Lecture (9)

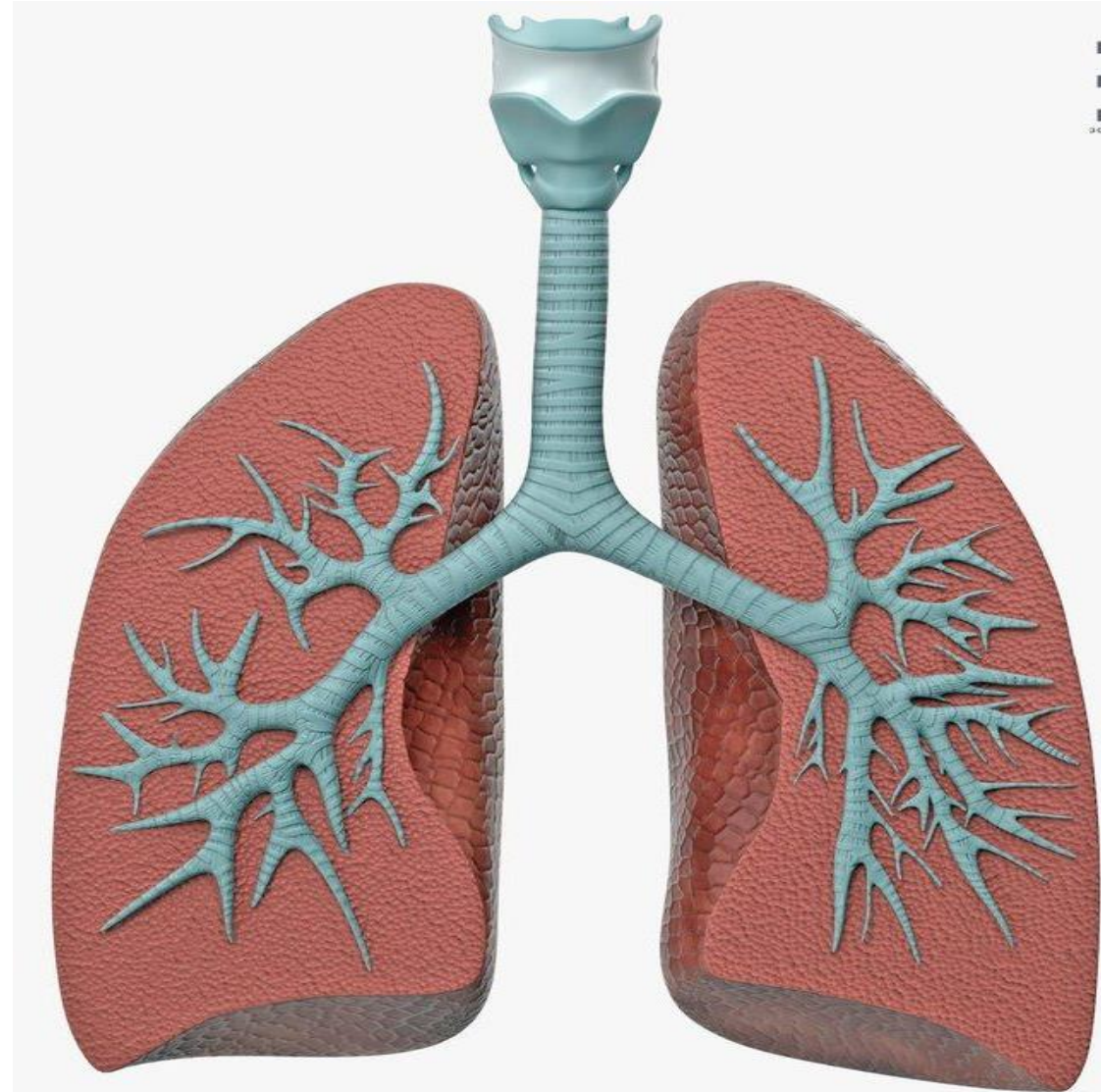
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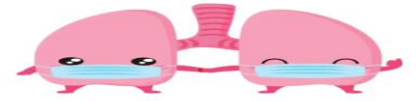
anatomy

College of medicine

University of Basrah



# Objectives



- 🔔 **1. Define the trachea , its divisions ,relation and its blood and nerve supply .**
- 🔔 **2. Describe the right and left main bronchus and the differences in between.**
- 3. Describe the bronchial tree.**



# Trachea

→ It also known as the windpipe, it is a cartilaginous tube (10-11) cm length its about 2.5 cm width .

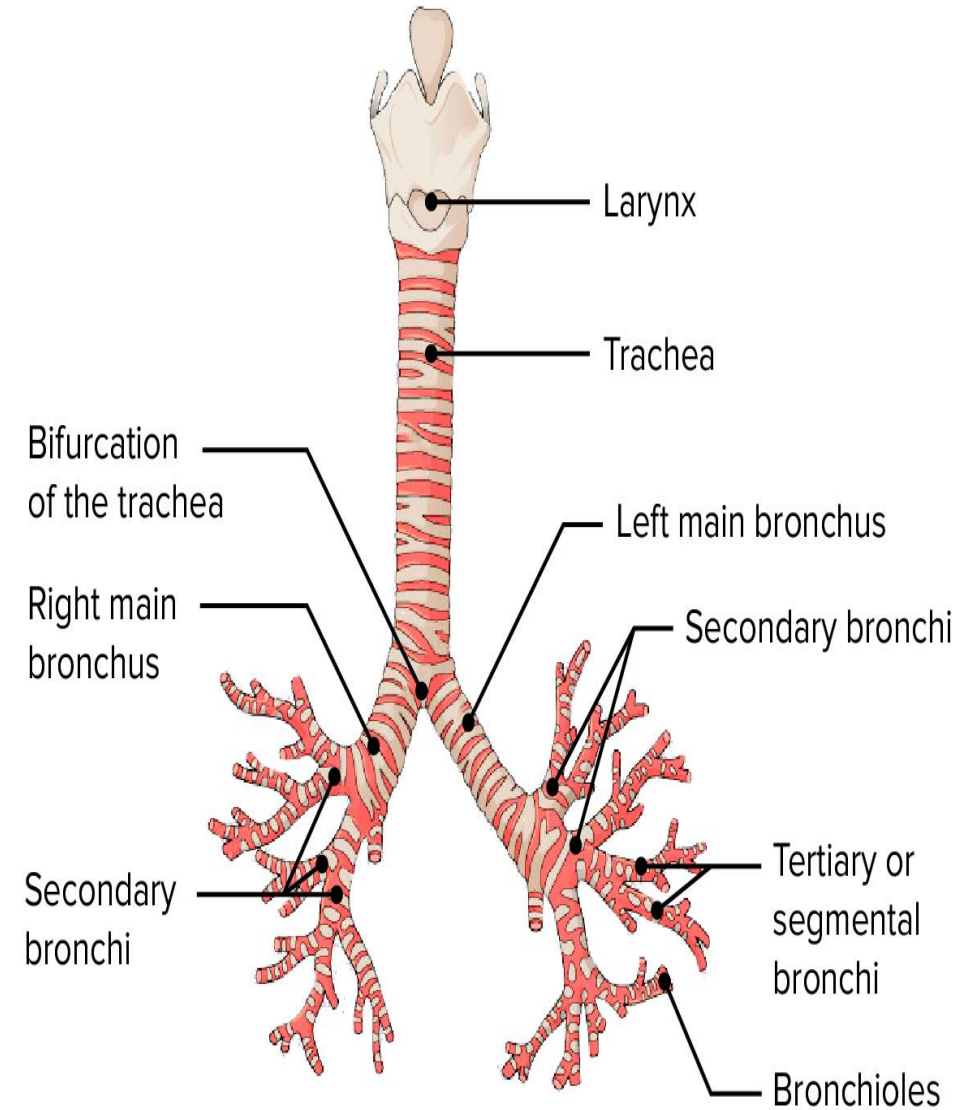
→ It connects the larynx to the bronchi of the lung, allowing the passage of air.

→ It consists two parts; cervical and thoracic parts

🔔 Thoracic part divides at level of the sternal angle (T4-T5) into the right and left main bronchi.

🔔 The tracheal bifurcation houses a cartilaginous ridge called the carina.

→ Each main bronchus branches out into smaller intrapulmonary bronchi that supply air to the pulmonary lobes and segments.



# Trachea

- It consists of 16-20 tracheal cartilages anterolaterally and a fibromuscular wall posteriorly.
- They support the trachea and keep it open during air ventilation.
- The posterior wall of the trachea is formed by the trachealis muscles, making the cartilages appear as incomplete C-shaped rings.
- The structure of its wall makes the trachea sufficiently flexible and elastic to permit the transient expansion of the esophagus during swallowing

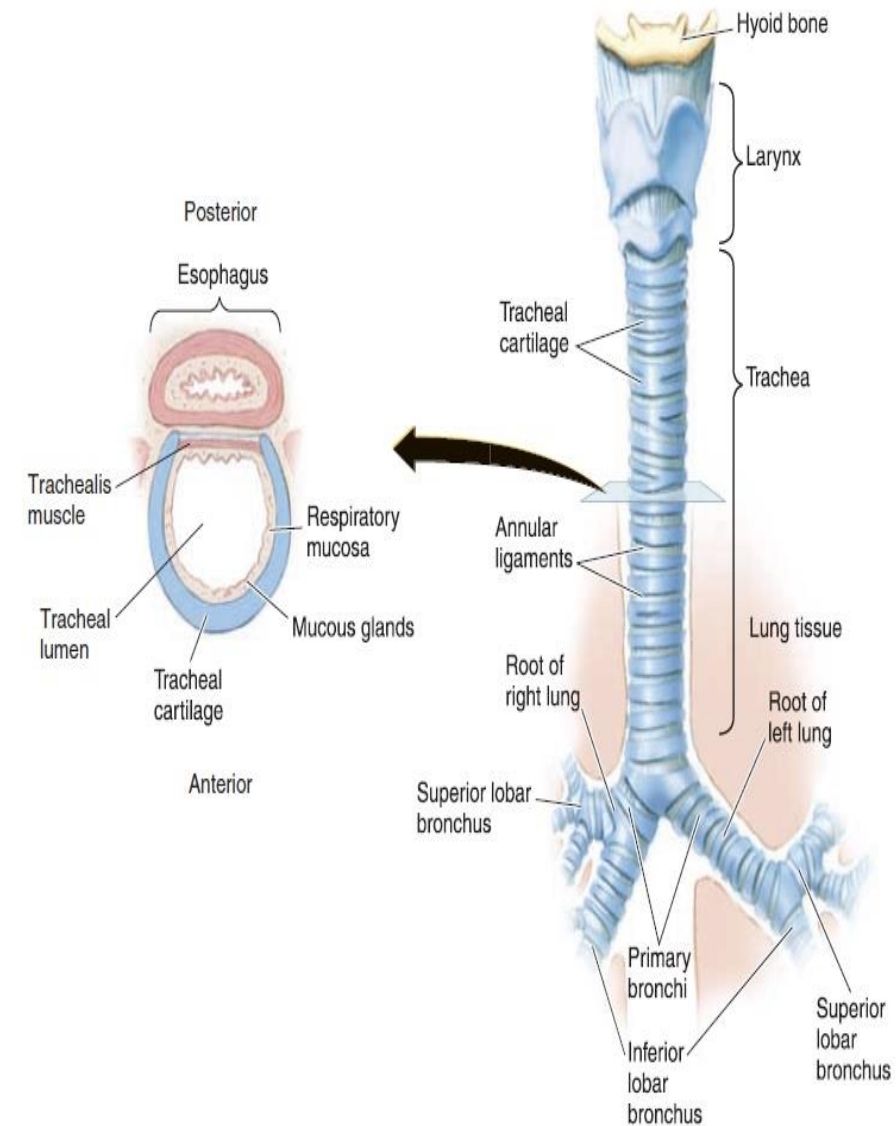

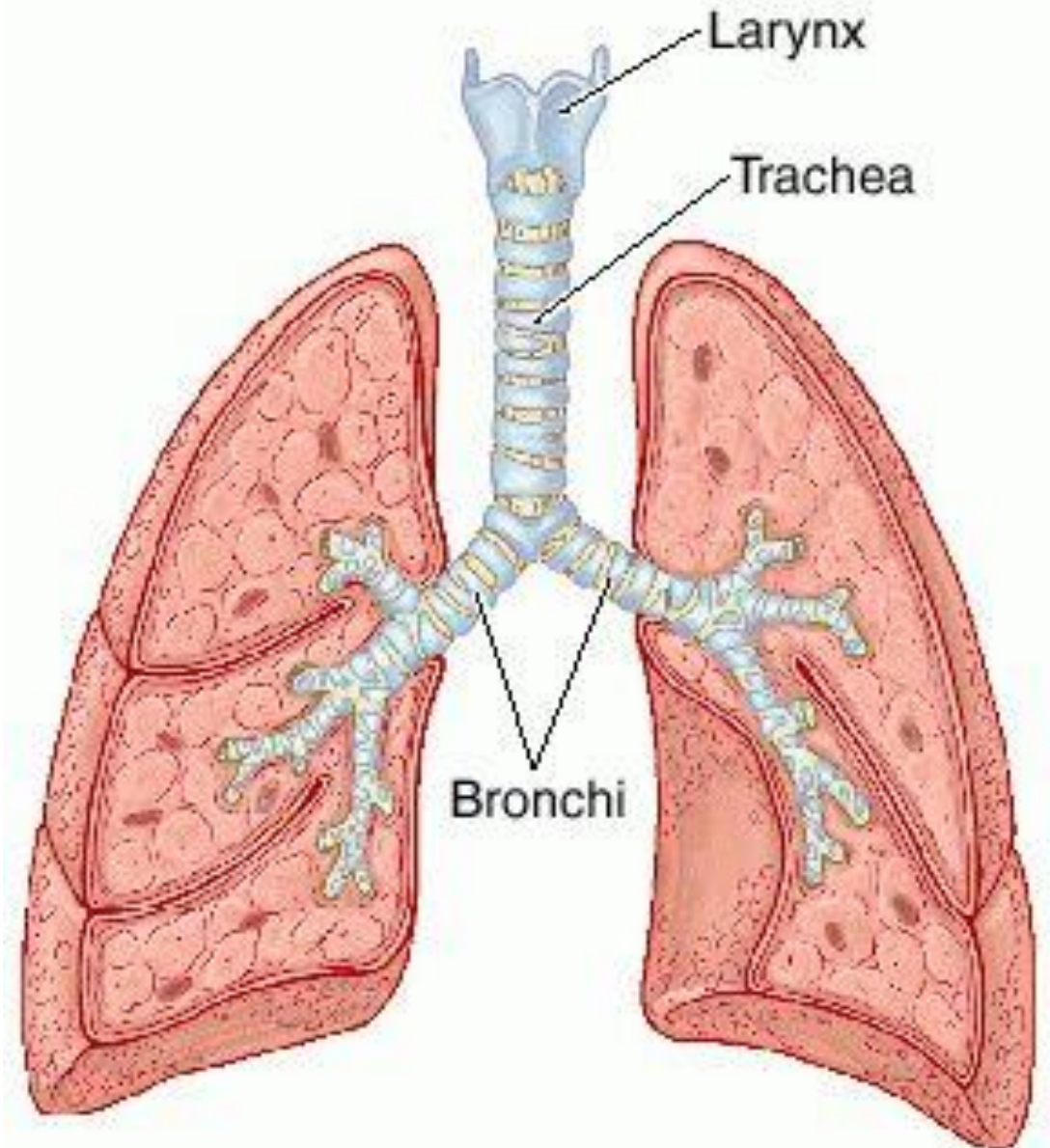


FIGURE 10.7. Transverse Section of the Trachea and the Esophagus

# Function Of trachea

 The main function of the trachea is to transport air in and out of the lungs during the act of breathing .

 In addition, it protects the respiratory tract by warming and moistening the air .

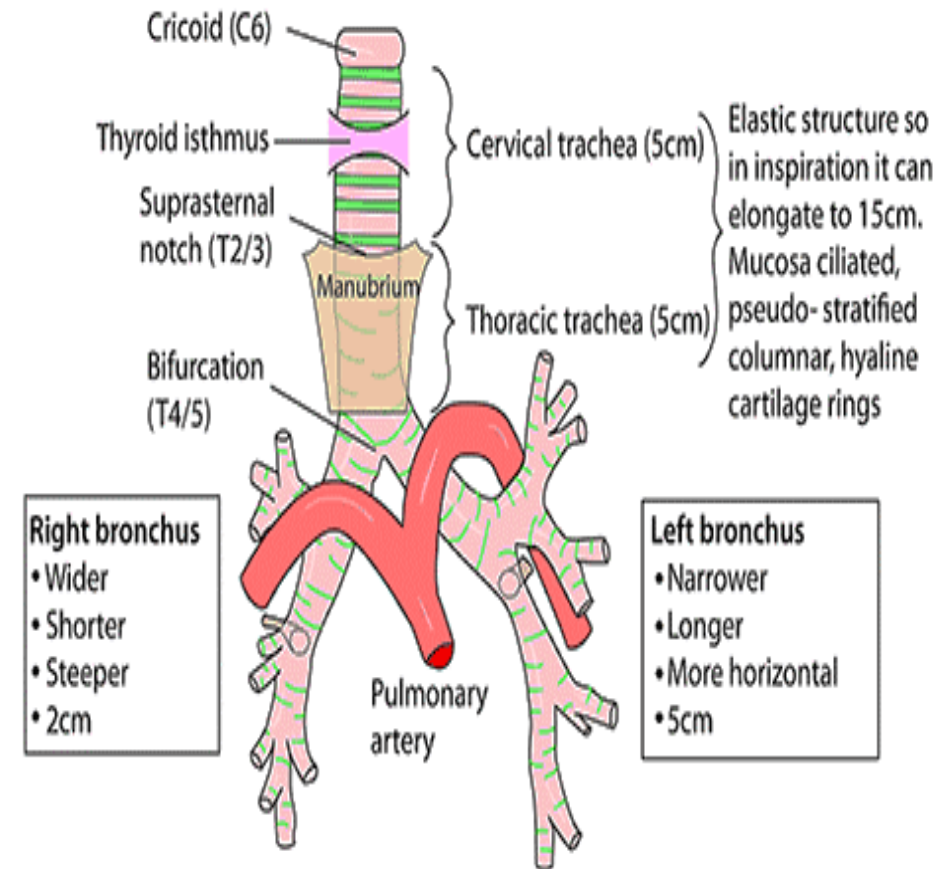


# Parts Of Trachea

**1.** The cervical part of trachea begins at the inferior border of the larynx (cricoid cartilage) located at the level of vertebra C6. It ends at the level of the jugular notch of sternum, which represents the upper border of the superior mediastinum.

**2.** The thoracic part of trachea is located within the superior mediastinum of the thorax. It begins from the superior thoracic aperture and ends at the tracheal bifurcation.

## RELATIONS OF TRACHEA & BRONCHI

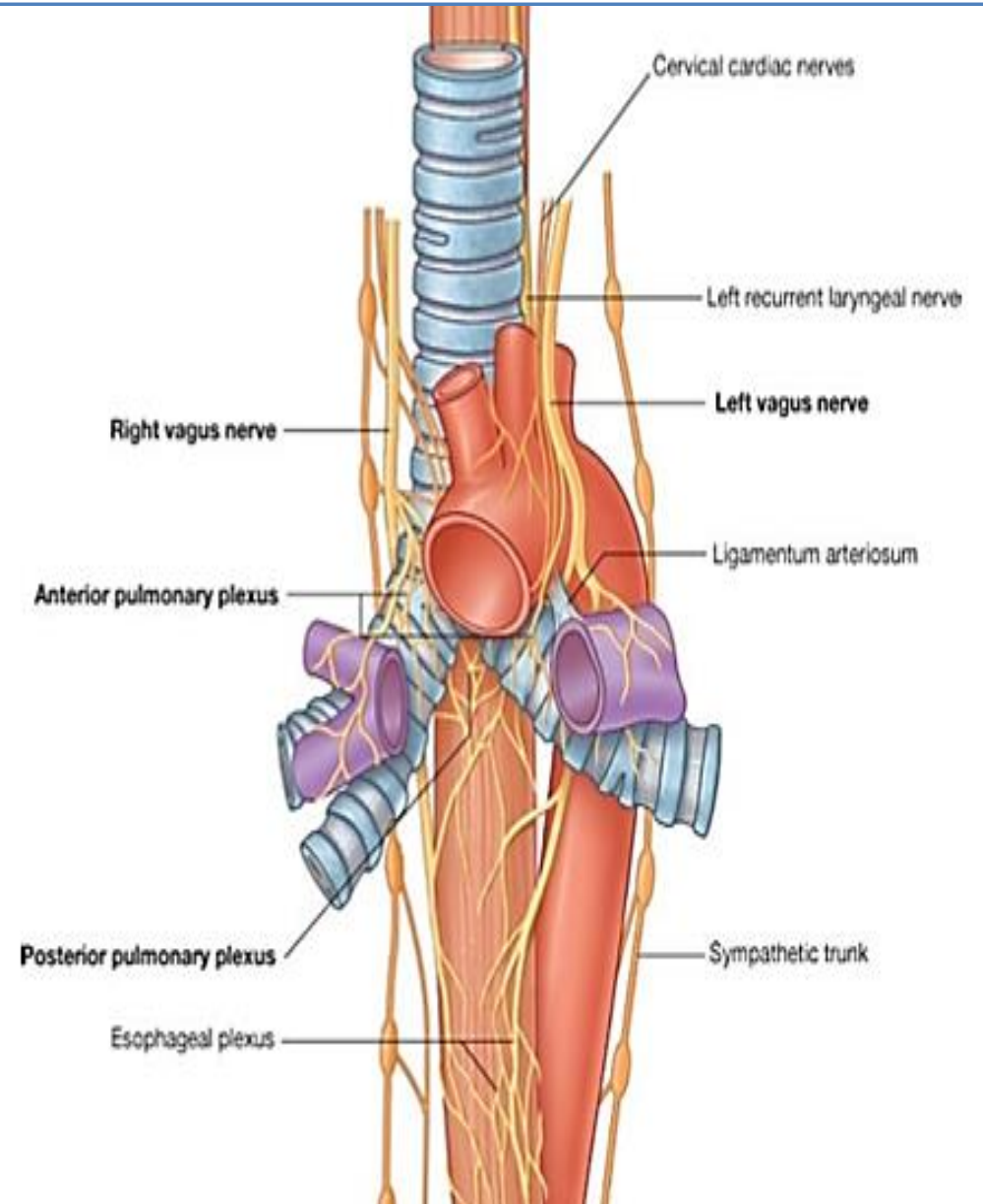


Inhaled foreign bodies are more likely to enter the right main bronchus and then pass into the apical bronchus of the right lower lobe - the first one that points posteriorly

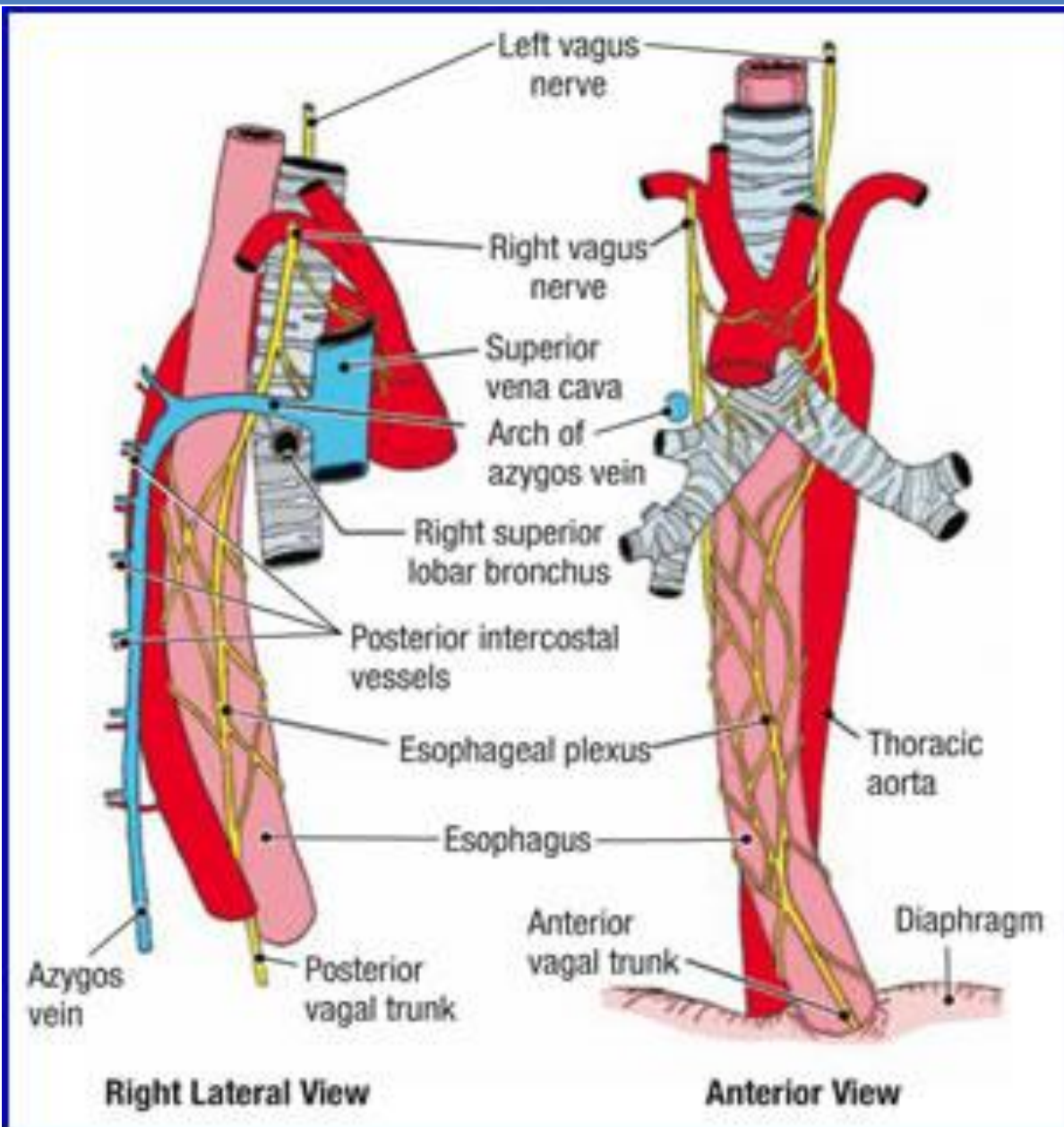
# Relation to the trachea

✍️ **1. Anteriorly:** The sternum, the thymus, the arch of the aorta the left brachiocephalic vein, the origins of the left common carotid arteries.

✍️ **2. Posteriorly:** The esophagus and the left recurrent laryngeal nerve .



# Relation to the trachea



✍ **1. Right side:** The azygos vein, the right vagus nerve, and the right pleura and lung .

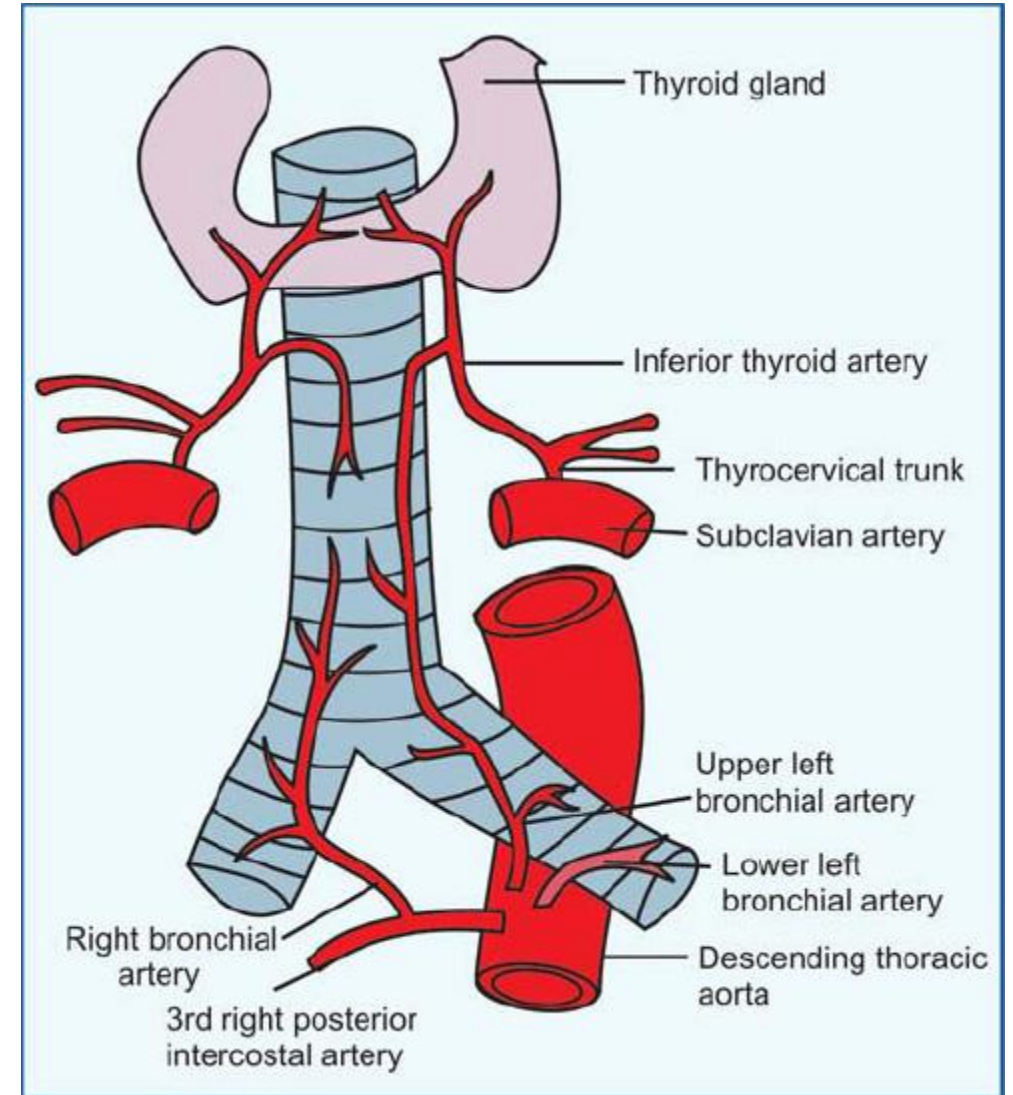
✍ **2. Left side:** The arch of the aorta, the left common carotid left subclavian arteries, the left vagus , left phrenic nerves, and the left pleura and lung .



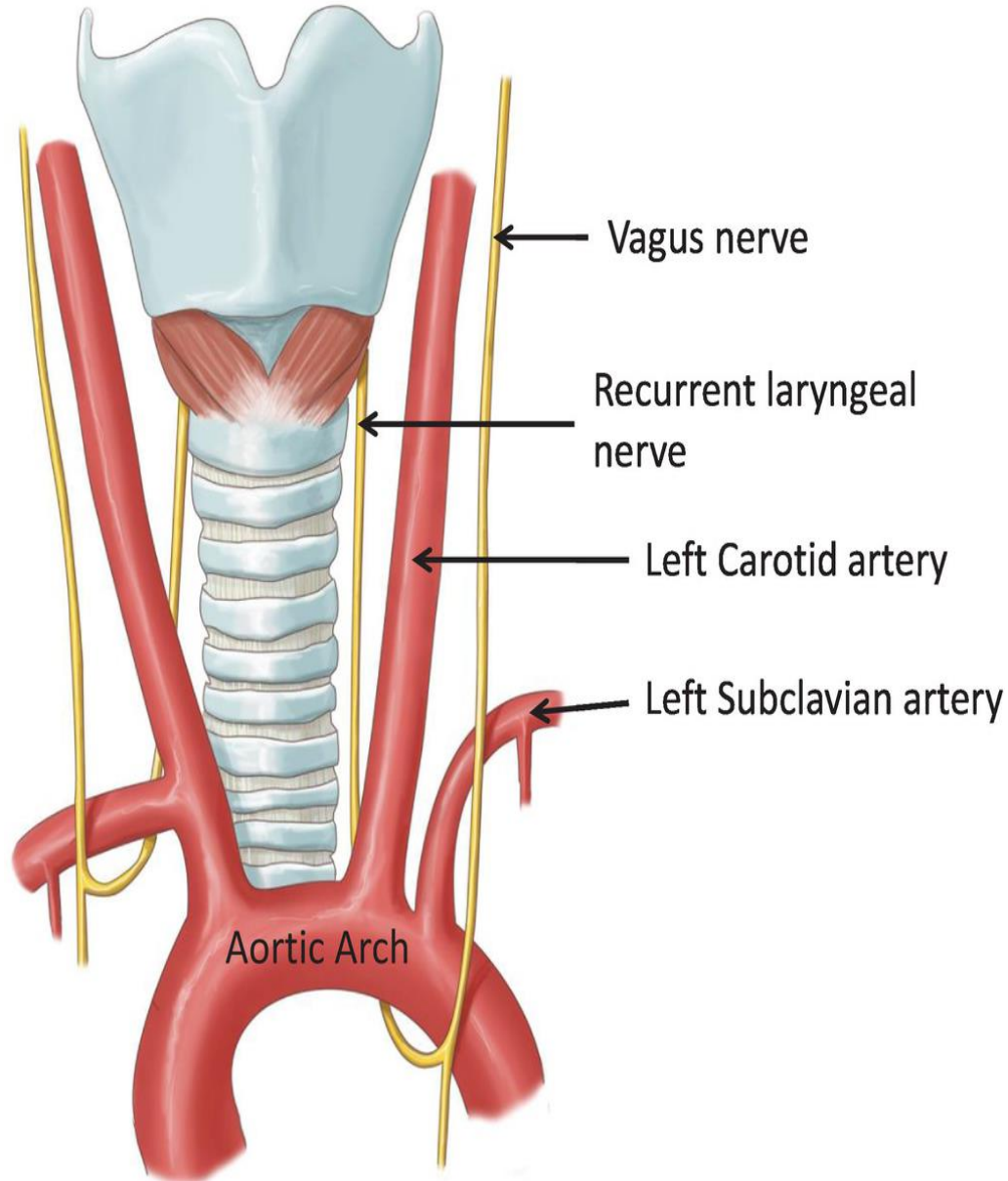
# Blood supply

**1 \*Upper two thirds is supplied by inferior thyroid artery branch from thyrocervical trunk or subclavian artery.**

**2 \*Lower third is supplied by bronchial arteries branches of descending of aorta.**



# Nerve supply



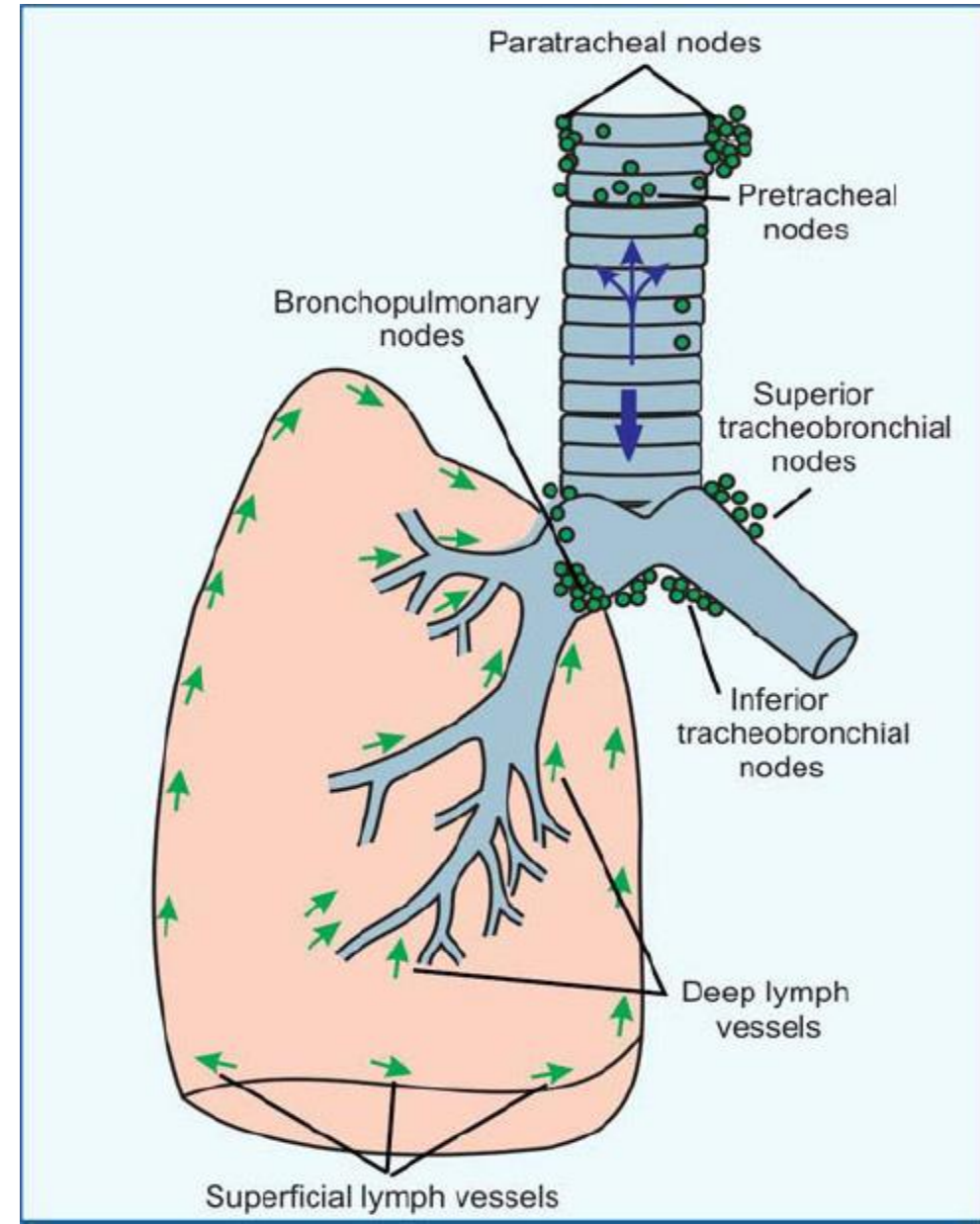
✍ **1. Sympathetic nerves :supply to the trachealis muscle from sympathetic chain .**

✍ **2. Parasympathetic supply: The sensory nerve supply is from \*Right and left vagus and its branch (Recurrent laryngeal nerve ).**

# Lymph drainage

## Lymph Drainage of the Trachea

The lymph drains into the pretracheal and paratracheal lymph nodes and the deep cervical nodes.



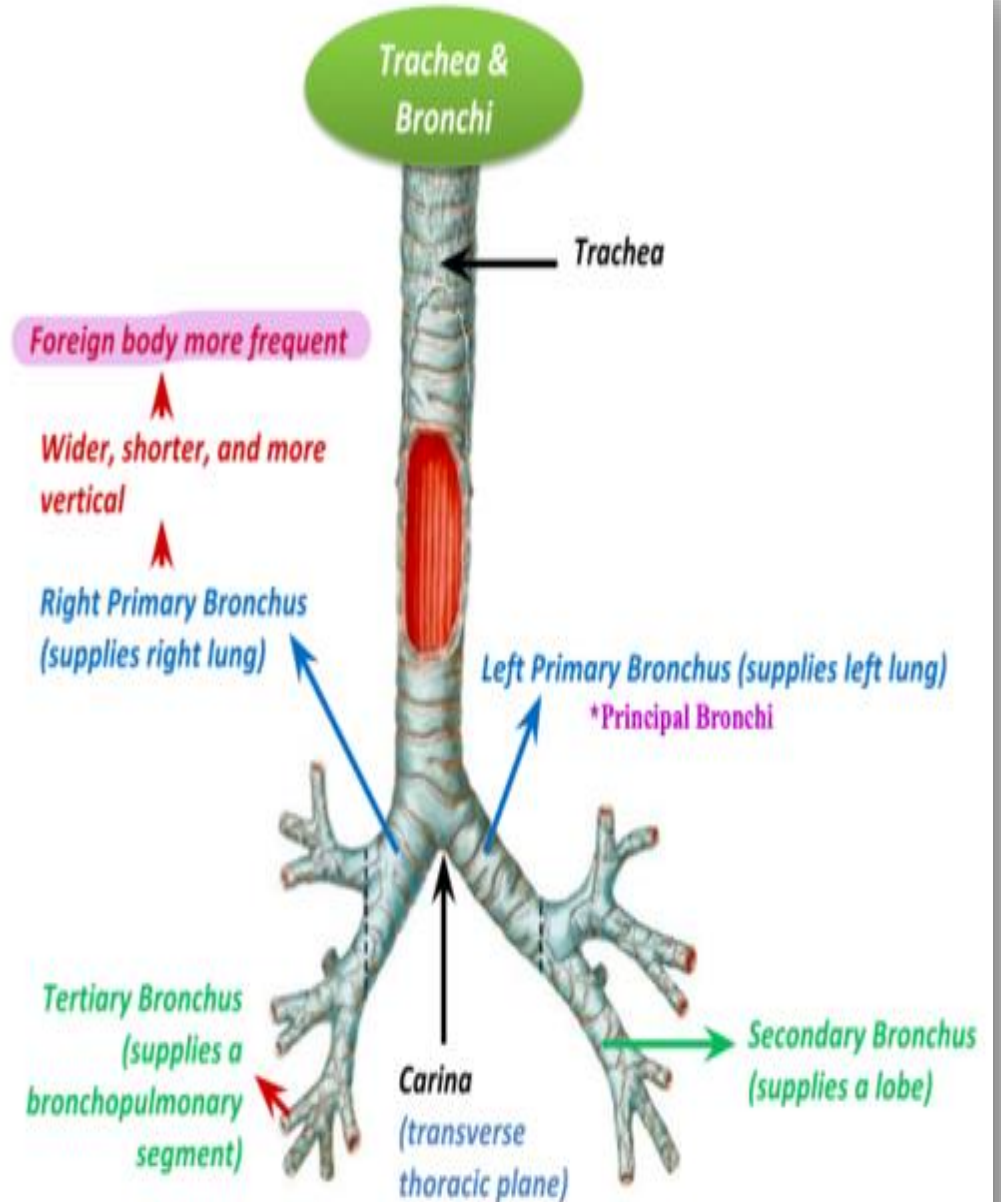
# Bronchi

## 1. Right main bronchus:

✈ It is wider, shorter, and more vertical than the left main bronchus and that is why the aspirated foreign bodies most commonly lodged in the right main bronchus. It is more susceptible to foreign body obstructions.

✈ It enters the right lung at approximately the fifth thoracic vertebra.

✈ The right main bronchus subdivides before and then after its entry to the lung into three secondary bronchi (also known as lobar bronchi), which deliver oxygen to the three lobes of the right lung—the superior, middle and inferior lobe.



# Bronchi

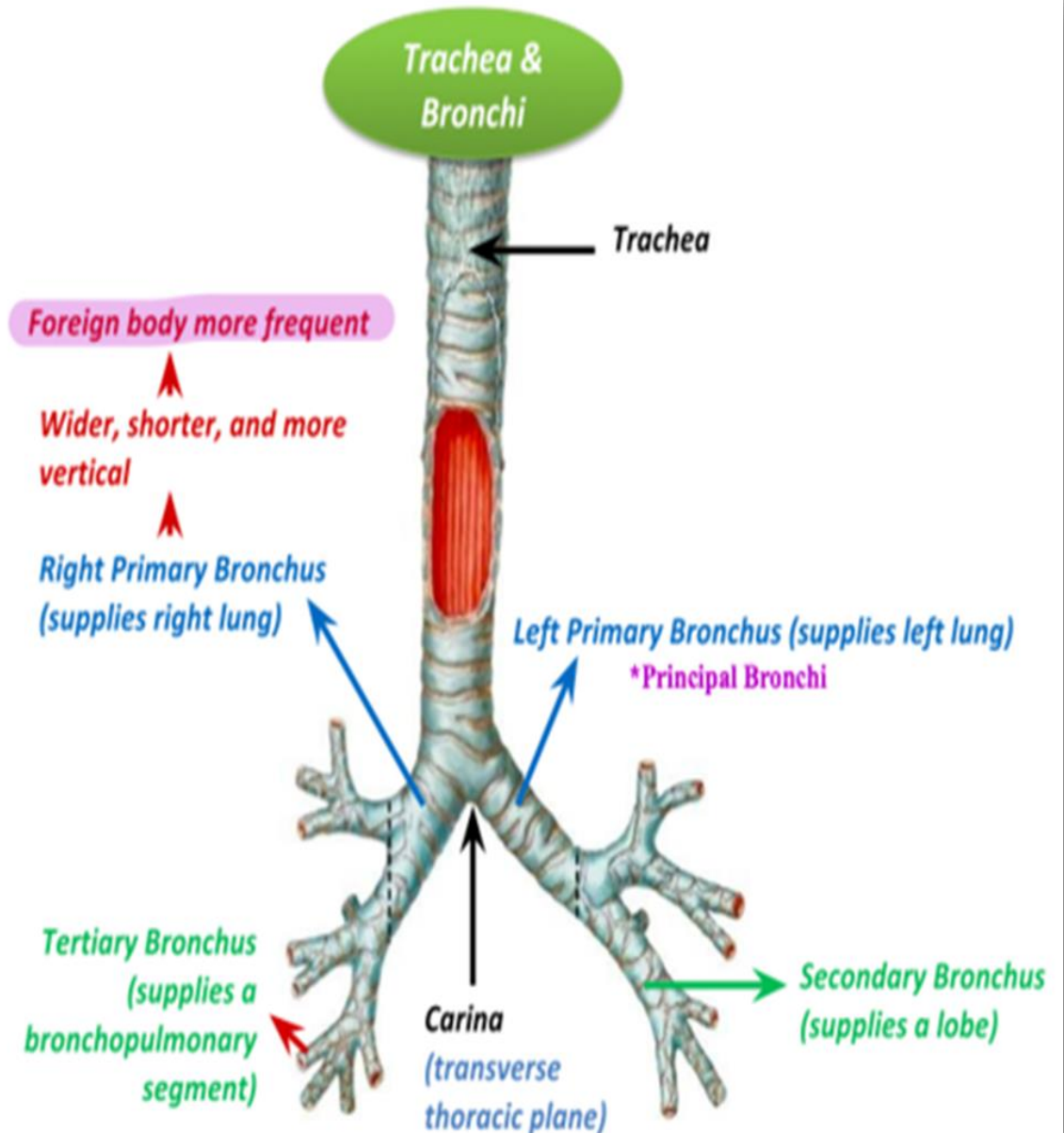
✍ Is smaller in caliber but longer and more oblique than the right.

It enters the root of the left lung opposite the sixth thoracic vertebra.

✍ It passes beneath the aortic arch, crosses in front of the esophagus, the thoracic duct, and the descending aorta..

✍ Then divides after its entry to left lung into two secondary or lobar bronchi to deliver air to the two lobes of the left lung—the superior and the inferior lobe.

## 2. Left main bronchus:



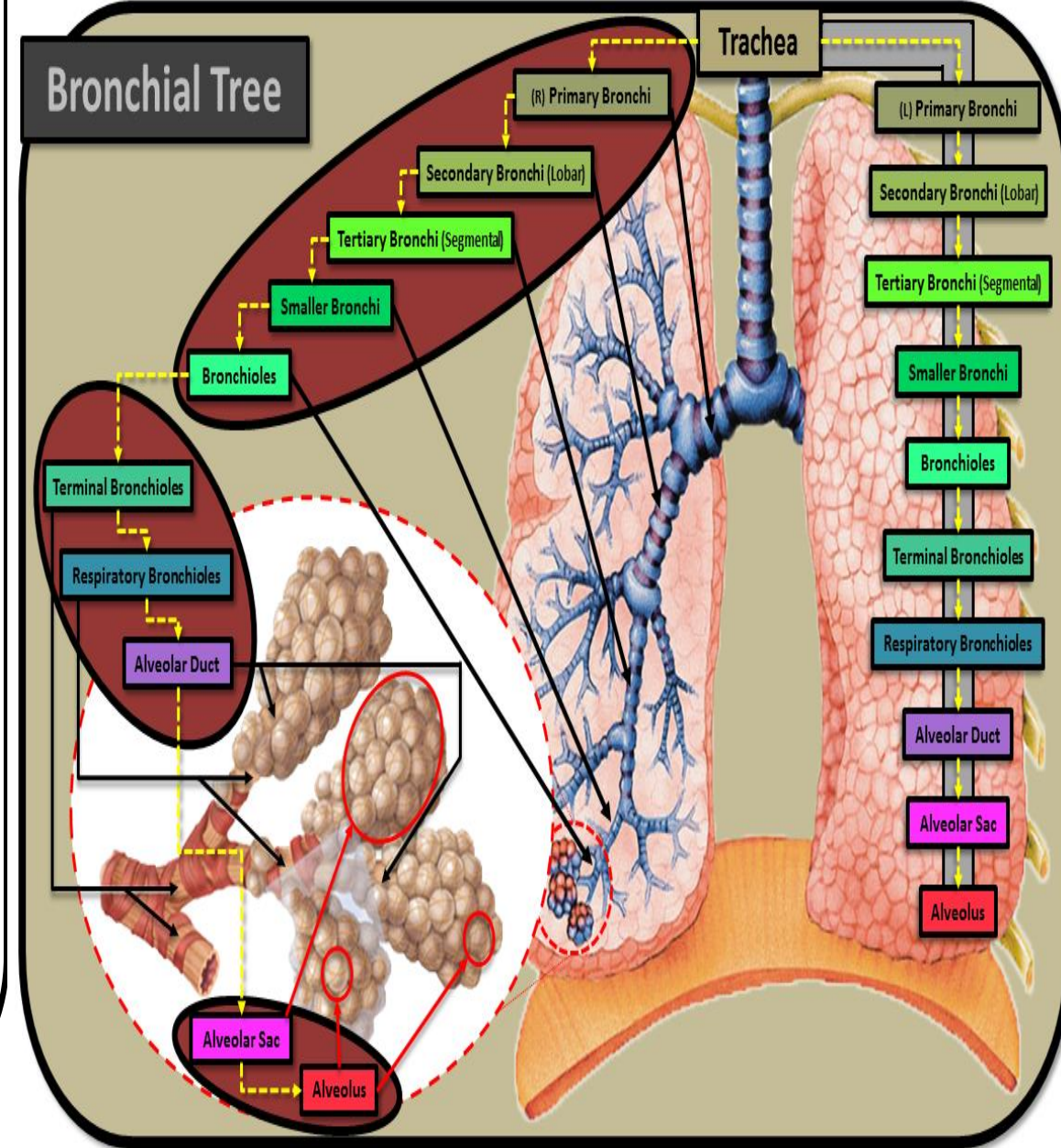
# Bronchial Divisions

**1. Conduction zone branches (filters, humidifies and warm air) includes :**

1. Primary (main) bronchi
2. Secondary (lobar) bronchi
3. Tertiary (segmental) bronchi
4. Smaller bronchi
5. Bronchioles

**2. Respiratory zone branches (site where gas exchange occurs) includes :**

- Terminal bronchioles •
- Respiratory bronchioles •
- Alveolar duct, sac and alveolus •



# Bronchial Divisions

- ▶ The right main bronchi branches into three lobar (• **secondary**) bronchi (superior, middle, inferior) for the three lobes of the right lung. The left main bronchi divides into two lobar (**secondary**) bronchi (superior, inferior) for the two lobes of the left lung.
- ▶ On the right side, the three lobar bronchi divide into a total of ten to twelve segmental (**tertiary**) bronchi.
- ▶ On the left side, the two lobar bronchi branch into a total of eight to ten segmental (**tertiary**) bronchi.
- ▶ Each segmental bronchi provides approximately fifteen intersegmental (**small**) bronchi
- ▶ In turn, the intersegmental (small) bronchi give off many terminal bronchioles and then respiratory bronchioles, which give rise to alveoli in pulmonary lobe .

