LUNGS

INTRODUCTION

- **The lungs are the primary organs of the respiratory system in humans**
- **Humans have two lungs, a right lung and a left lung.**
- **They are situated within the thoracic cavity of the chest. They are separated from each other by the heart and other structures in the mediastinum**
- **The right lung is bigger than the left.**
- **Each Lung invaginates the corresponding pleural cavity.**

- Extend- from the diaphragm to just slightly superior to the clavicles.

- **Colour :** **Pink (in child)**
  Brown or grey (young)
  Black (deposition of carbon)

- **Weight :** **Rt. Lung =625 gm**
  Lt. lung =575 gm

External feature

1. **Apex-** narrow superior portion
2. **Base-** broad inferior portion
3. **Border**
   - **A. Anterior Border**
   - **B. Posterior Border**
   - **C. Inferior Border**
4. **Surfaces**
   - **a. Costal surface**
   - **b. Medial surface**
     - **1.ant.part**
     - **2.post.part**

Apex-

- rounded superior end of lung
- Lies about 2.5 cm above the medial end of clavicle
- Covered by cervical pleura and the suprapleural membrane
- Grooved by subclavian artery and subclavian vein

Base-

- Semilunar and concave in shape, inferior broad portion of lungs
- Rests on dome of diaphragm

Anterior border-

- **The anterior border is thin and is present between the anterior thoracic wall and medial surface**
- **At the level of 4th costal cartilage, the anterior border of the left lung deviates for the accommodation of the heart which is seen as the cardiac notch.**

Posterior border-

- **It is thick and rounded.**
- **It is related to the head of the upper 10 ribs, sympathetic trunk and splanchnic nerves.**

Inferior Border –

- **This border separates the base of the lung from the costal and medial surfaces**

Surfaces of lungs

Costal surface-

- **It is convex external surface,** lying against the ribs.
- **The surface is related to the upper six ribs in the mid clavicular line.**

Medial surface

- It is faces internally and is further divided into a posterior(vertebral part) and an anterior Mediastinal part).

Vertebral part

- It is flat and related to the bodies of vertebra, posterior intercostals vessels

Mediastinal part

- It is that part of the medial surface that is related to the mediastinum
- The main feature of this surface is the hilum

- Hilum- through which bronchi, pulmonary blood vessels, lymphatic vessels, and nerves enter and exit.

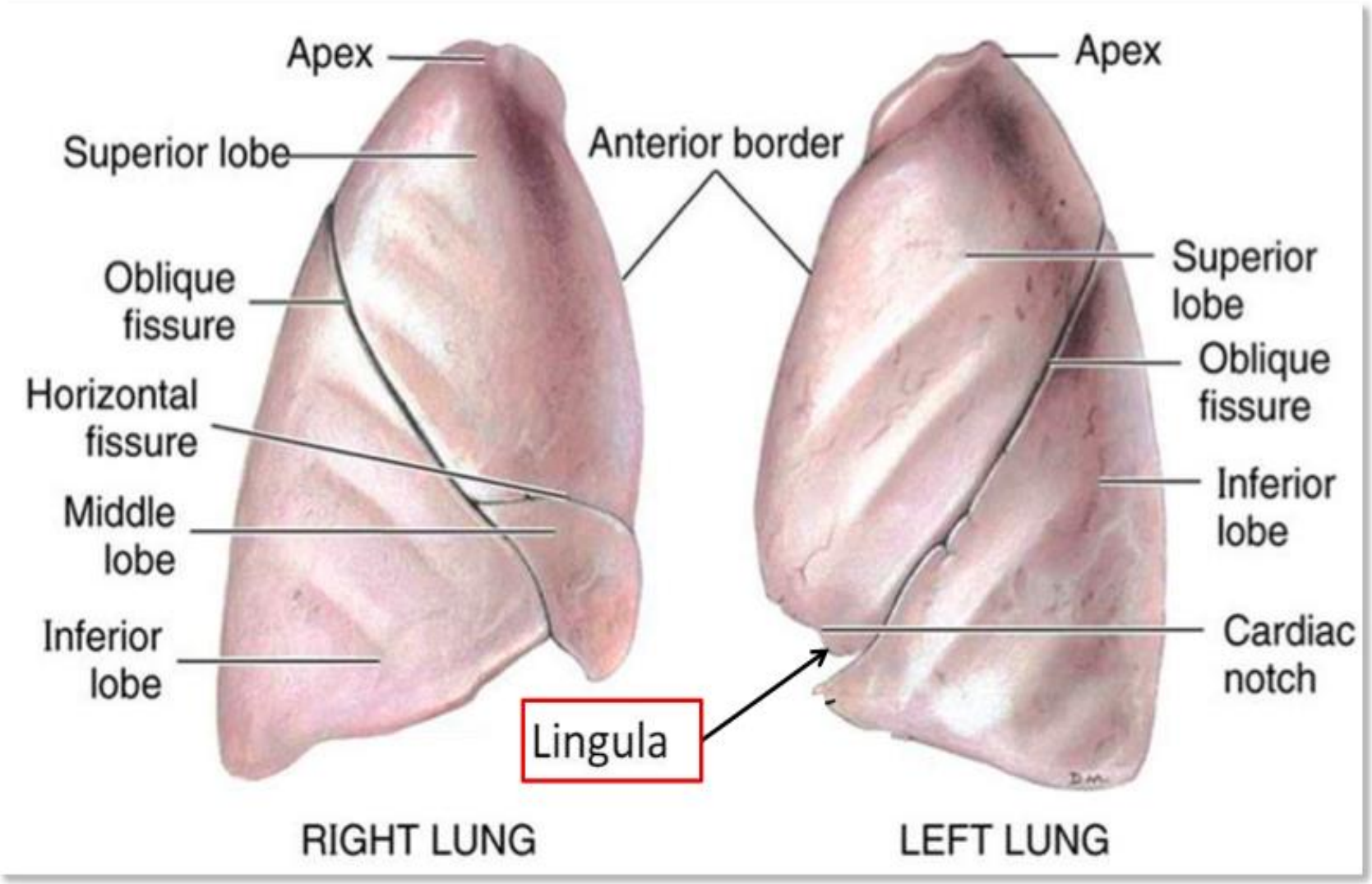
Fissures and lobes

- Right lung: 3 lobes
  a. Superior lobe
  b. Middle lobe
  c. Inferior lobe

2 Fissures – oblique & horizontal

Left lung: 2 lobes
a.Superior lobe
b.Inferior lobe

1 Fissure - oblique



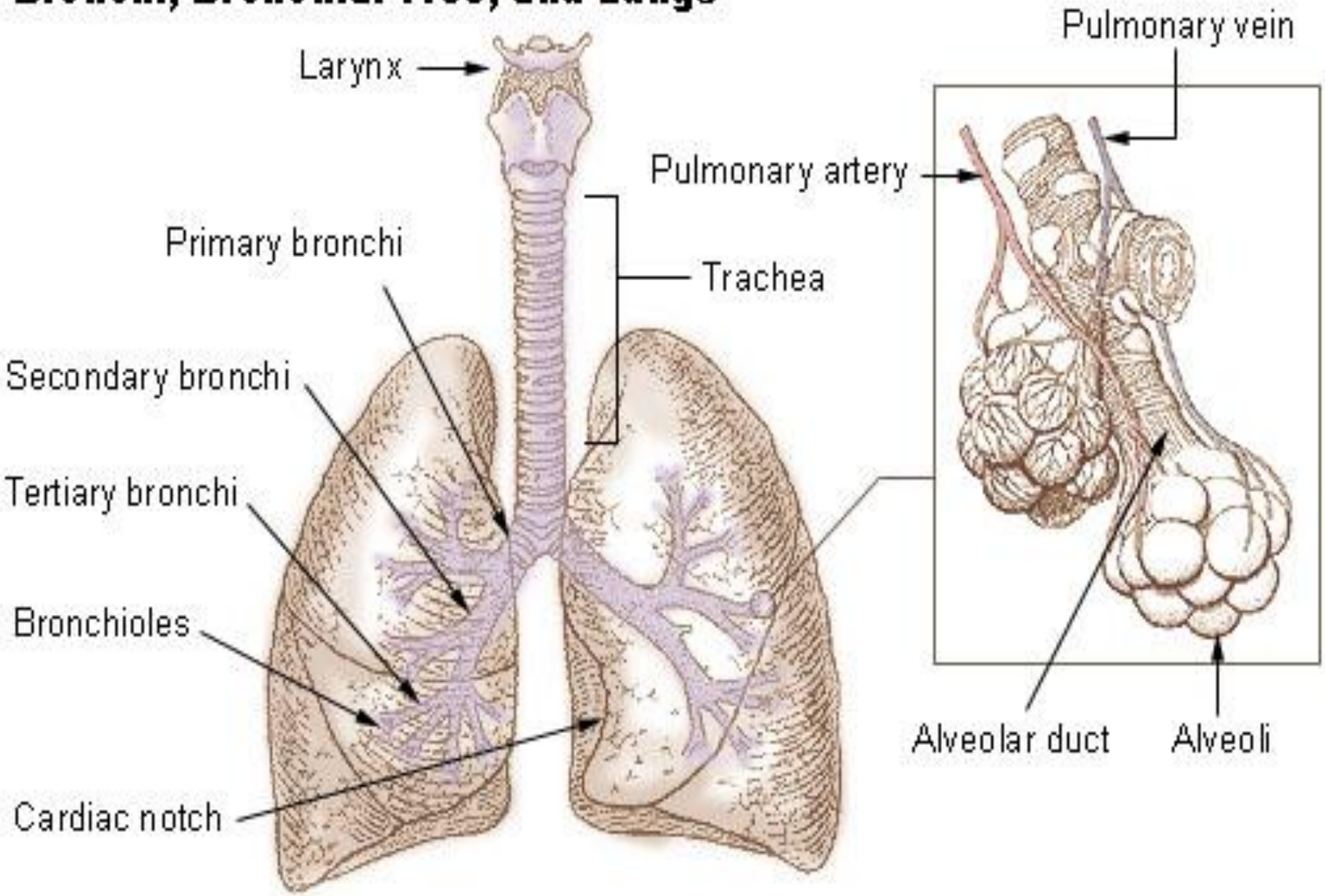
3 surfaces:

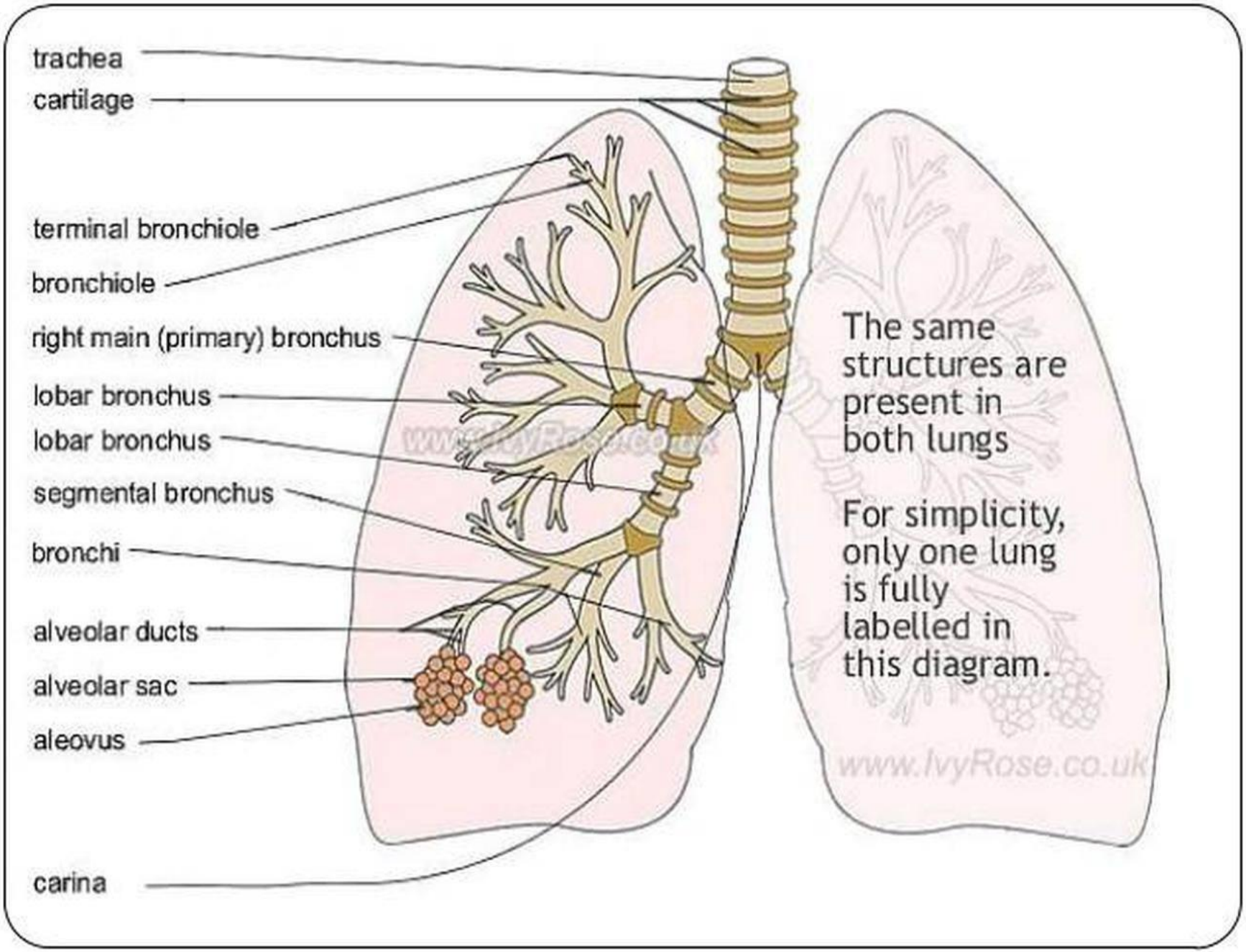
(Costal, Mediastinal & Diaphragmatic)

Note-

- **The medial part of the upper lobe of right lung is partially separated by a fissure of variable depth containing the terminal part of azygos vein called the lobe of azygos.**
- **The anterior margin of the left lung has a deep cardiac notch.**
- **Because of the presence of this notch the lower part of the superior lobe of this lung has the appearance of a tongue like projection. this projection is called the lingula**

Bronchi, Bronchial Tree, and Lungs




trachea
cartilage
terminal bronchiole
bronchiole
right main (primary) bronchus
lobar bronchus
lobar bronchus
segmental bronchus
bronchi
alveolar ducts
alveolar sac
aleovus
carina
The same structures are present in both lungs
For simplicity, only one lung is fully labelled in this diagram.
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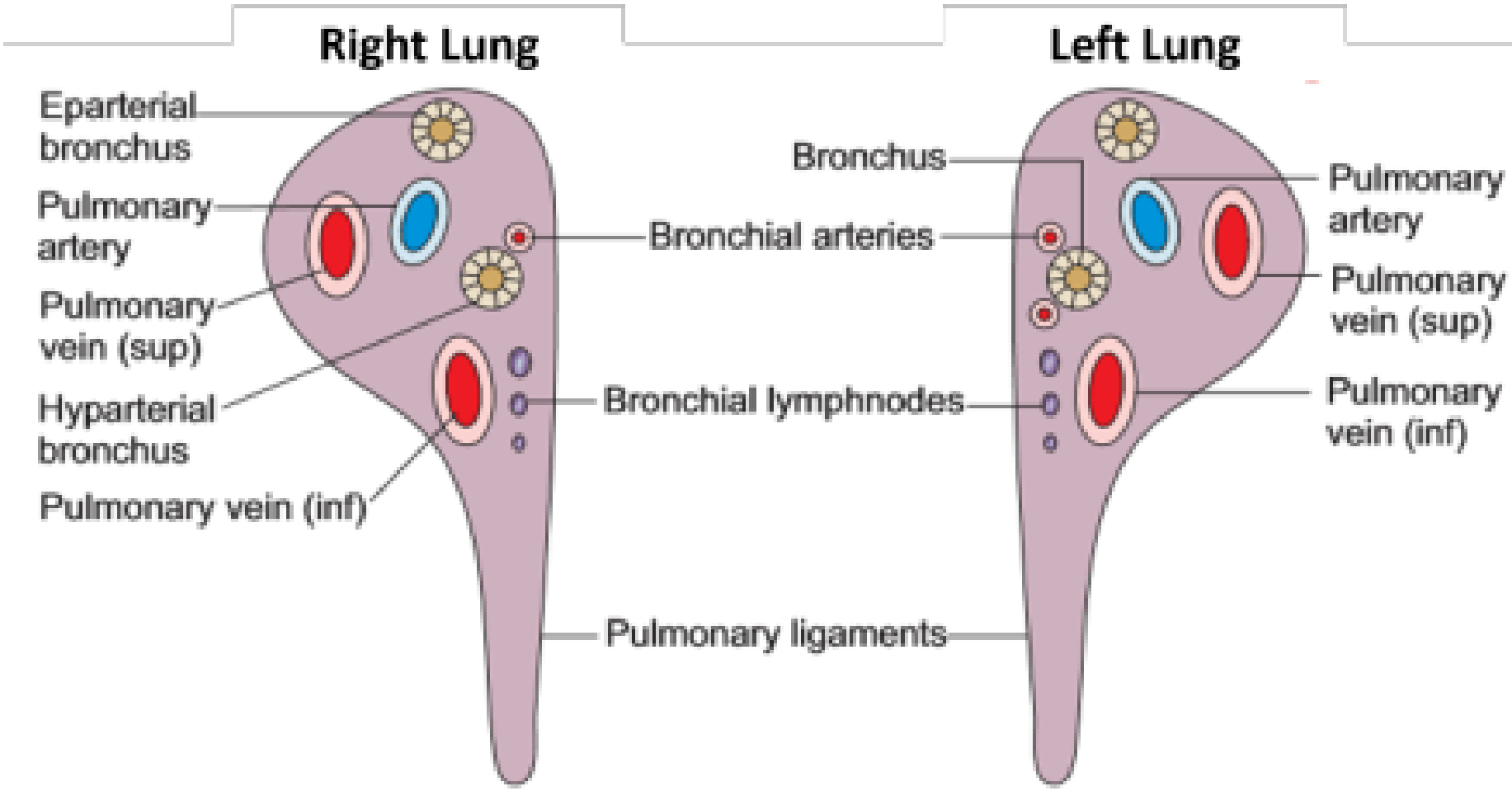
ROOT OF THE LUNGS

- It is a short, broad pedicle which connects medial surface of the lung to mediastinum.
- The roots of the lungs lie opposite the bodies of 5-6-7 thoracic vertebrae.

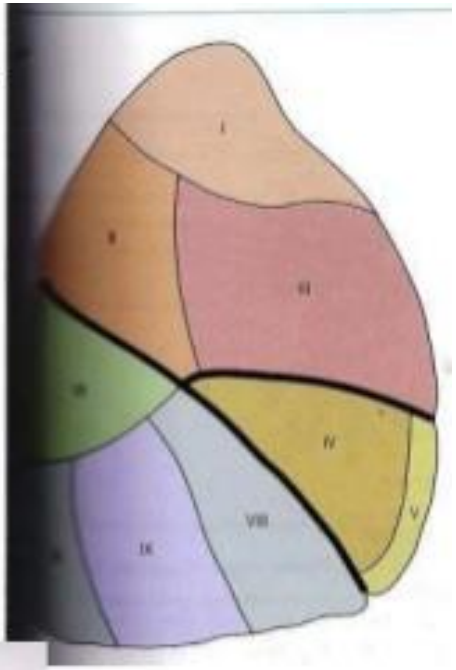

Right Lung
Left Lung
Eparterial bronchus
Pulmonary artery
Pulmonary vein (sup)
Hyparterial bronchus
Pulmonary vein (inf)
Bronchial arteries
Bronchial lymphnodes
Pulmonary ligaments
Bronchus
Pulmonary artery
Pulmonary vein (sup)
Pulmonary vein (inf)

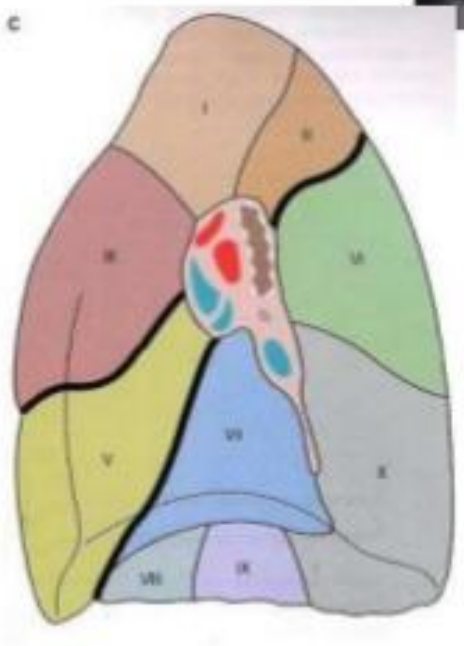
Brochopulmonary segment

- **These are well define- anatomic, functional and surgical sectors of the lungs, aerated by segmental/ tertiary bronchi**
- **Each segment is an independent respiratory unit by itself and is supplied independently by a single segmental bronchus**
- **Each segment has a segmental bronchus, segmental artery, autonomic nerve and lymph vessels**
- **The segmental veins lies in the connective tissue between adjacent pulmonary units**
- **During segmental resection, the surgeon works along the segmental veins to isolate a particular segment.**

RIGHT LUNG BRONCHOPULMONARY SEGMENTS

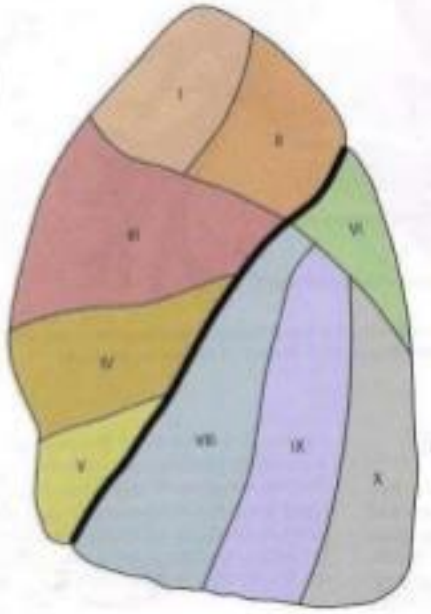
Upper lobe	Apical
	anterior
	posterior
Middle lobe	medial
	lateral
Lower lobe	superior
	Medial basal
	Anterior basal
	Lateral basal
	Posterior basal

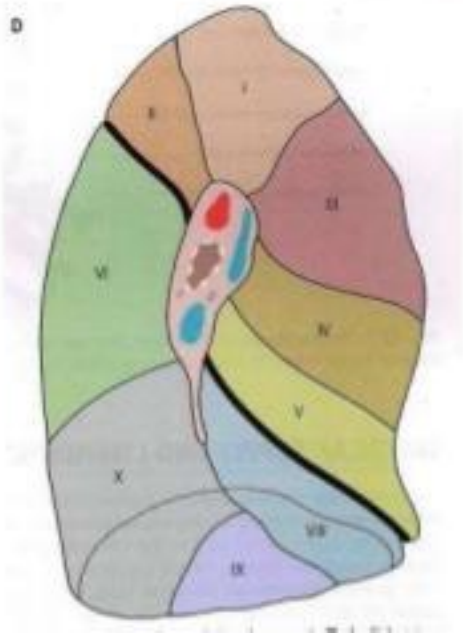




LEFT LUNG BRONCHOPULMONA SEGMENTS

Upper lobe	apical
	anterior
	posterior
	Superior lingular
	Inferior lingular
Lower lobe	superior
	Medial basal
	Anterior basal
	Lateral basal
	Posterior basal





- **Arterial supply-**

1. bronchial arteries
   - Rt side -1 , Lt. side -2
2. Pulmonary artery

Venous drainage- bronchial vein

Lt- hemiazygos vein

Rt- azygos vein

- Lymphatic drainage- bronchopulmonary lymph node
- Nerve supply- Sym- T2- T5

  Para. - vagus

Applied Aspect

1. C.O.P.D.
2. PNEUMONIA
3. TUBERCULOSIS
4. HAEMOTHORAX
5. PNEUMOTHORAX
6. HYDROPNEUMOTHORAX