

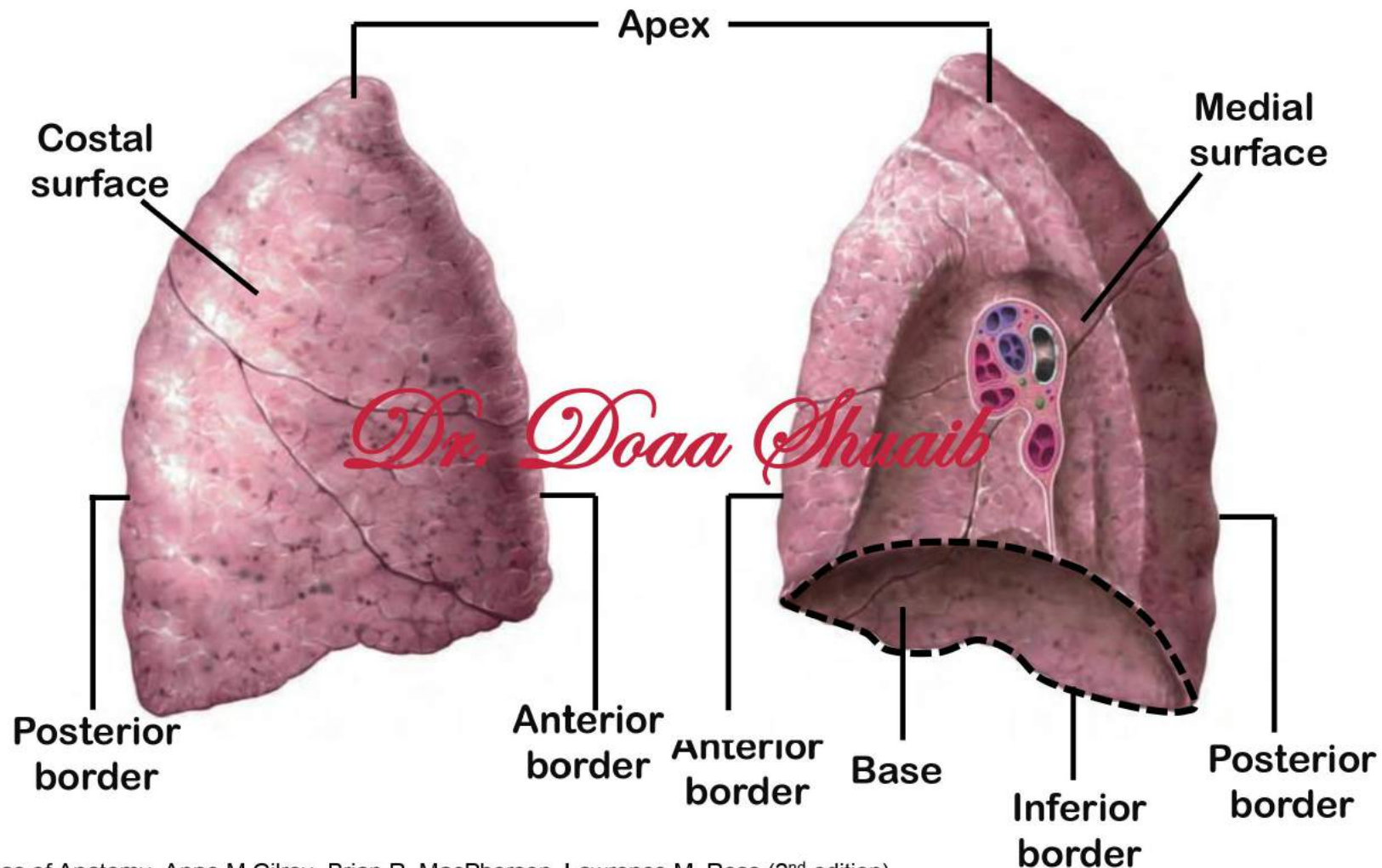
Anatomy of the lung



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Each lung resembles half a cone



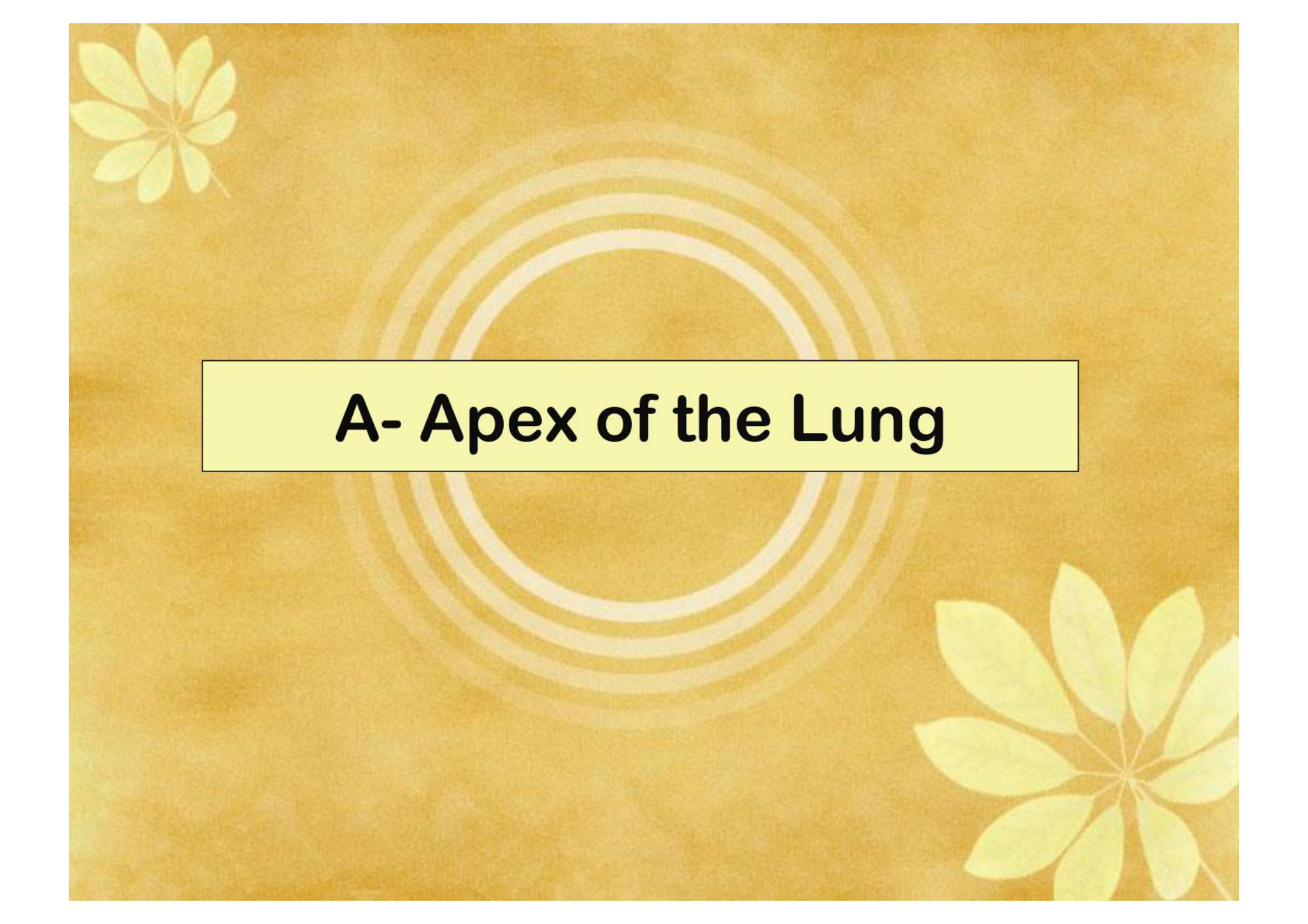
Source: Atlas of Anatomy, Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross (2nd edition)

It has: - An apex

- Base

- Two surfaces (costal and medial)

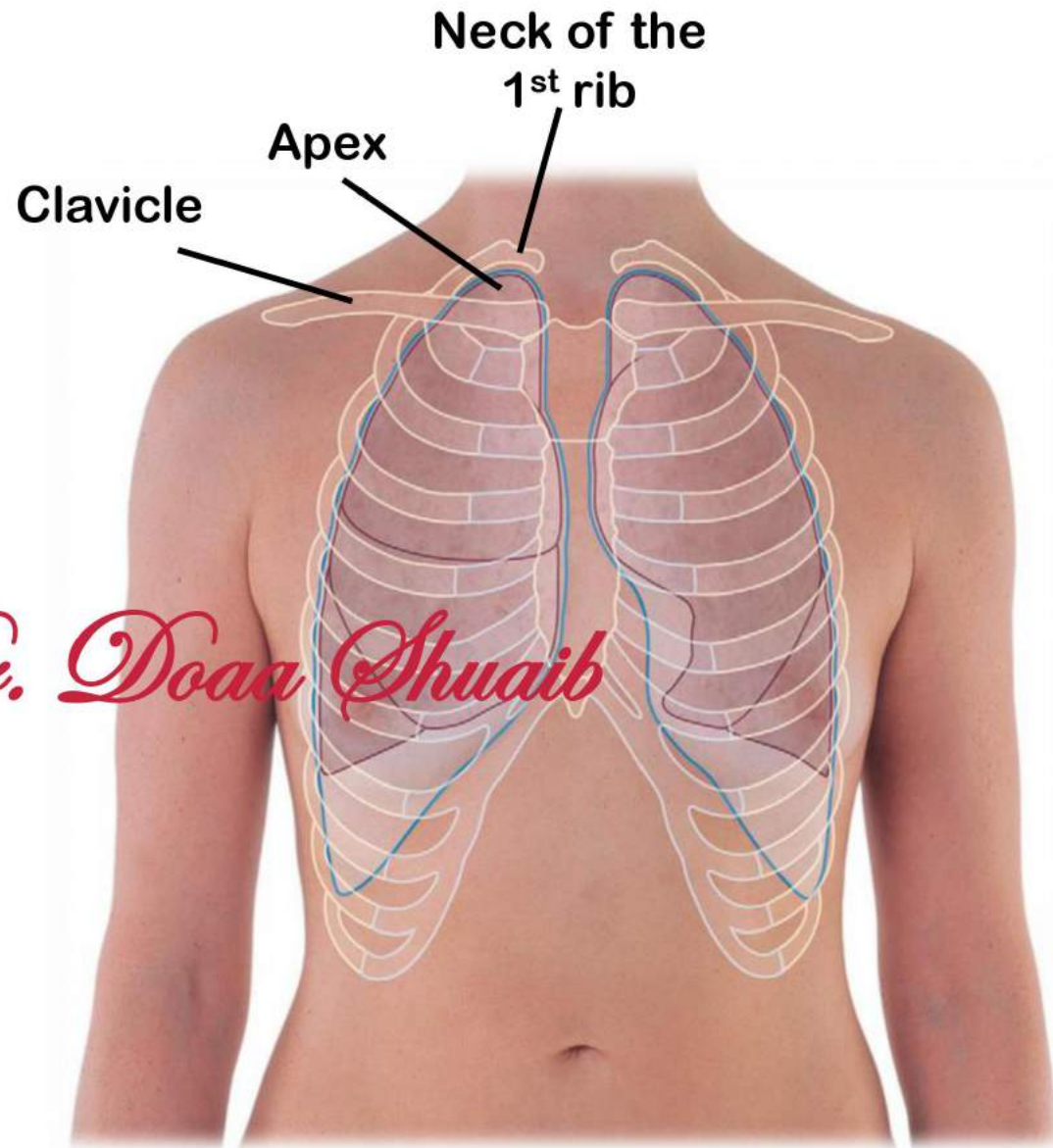
- Three borders (anterior, posterior and inferior).

The background is a textured, golden-yellow surface. In the center, there are several concentric, light-colored circles that create a ripple effect. In the top-left and bottom-right corners, there are stylized, light-green floral motifs with multiple pointed petals.

A- Apex of the Lung

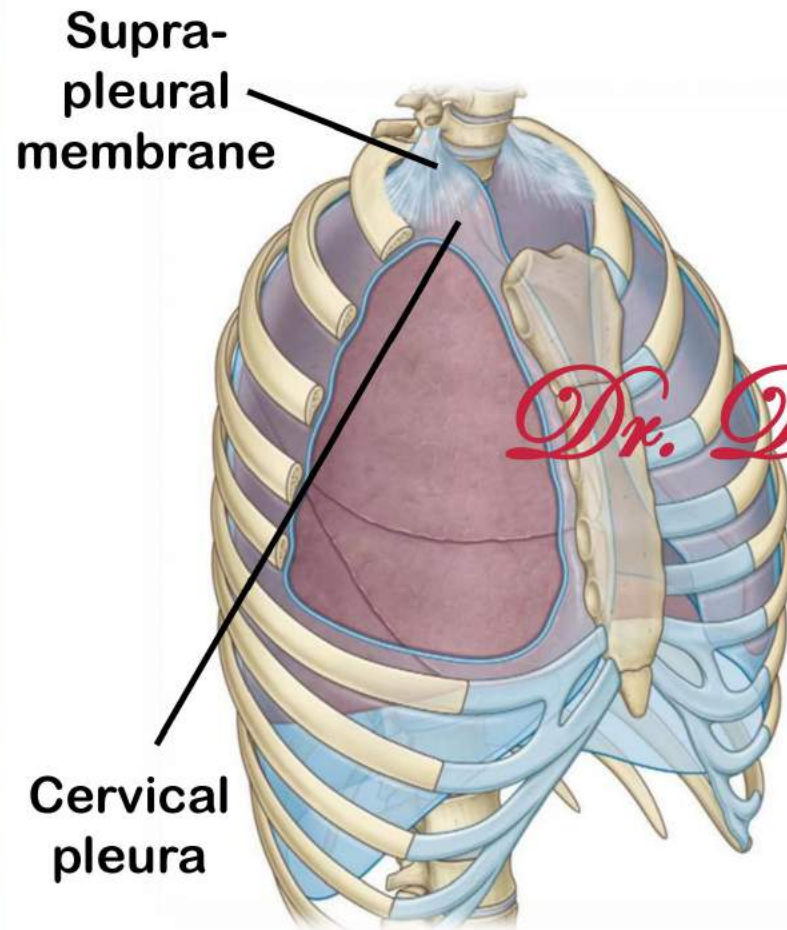
Apex

- Rounded, upper end which projects upwards, through the thoracic inlet, into the root of the neck
- It reaches the neck of the 1st rib (behind)
- It lies about one inch above the medial third of the clavicle (in front).

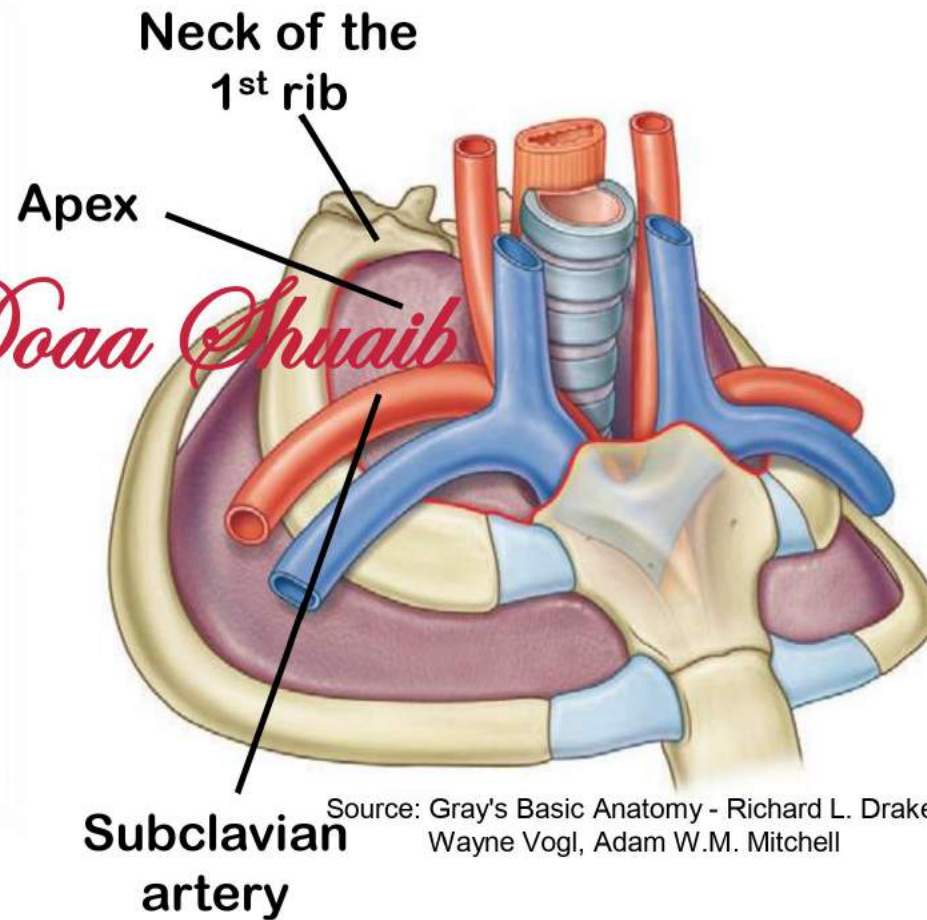


Source: Gray's Basic Anatomy - Richard L. Drake,
Wayne Vogl, Adam W.M. Mitchell

Apex



Source: Gray's Atlas of Anatomy



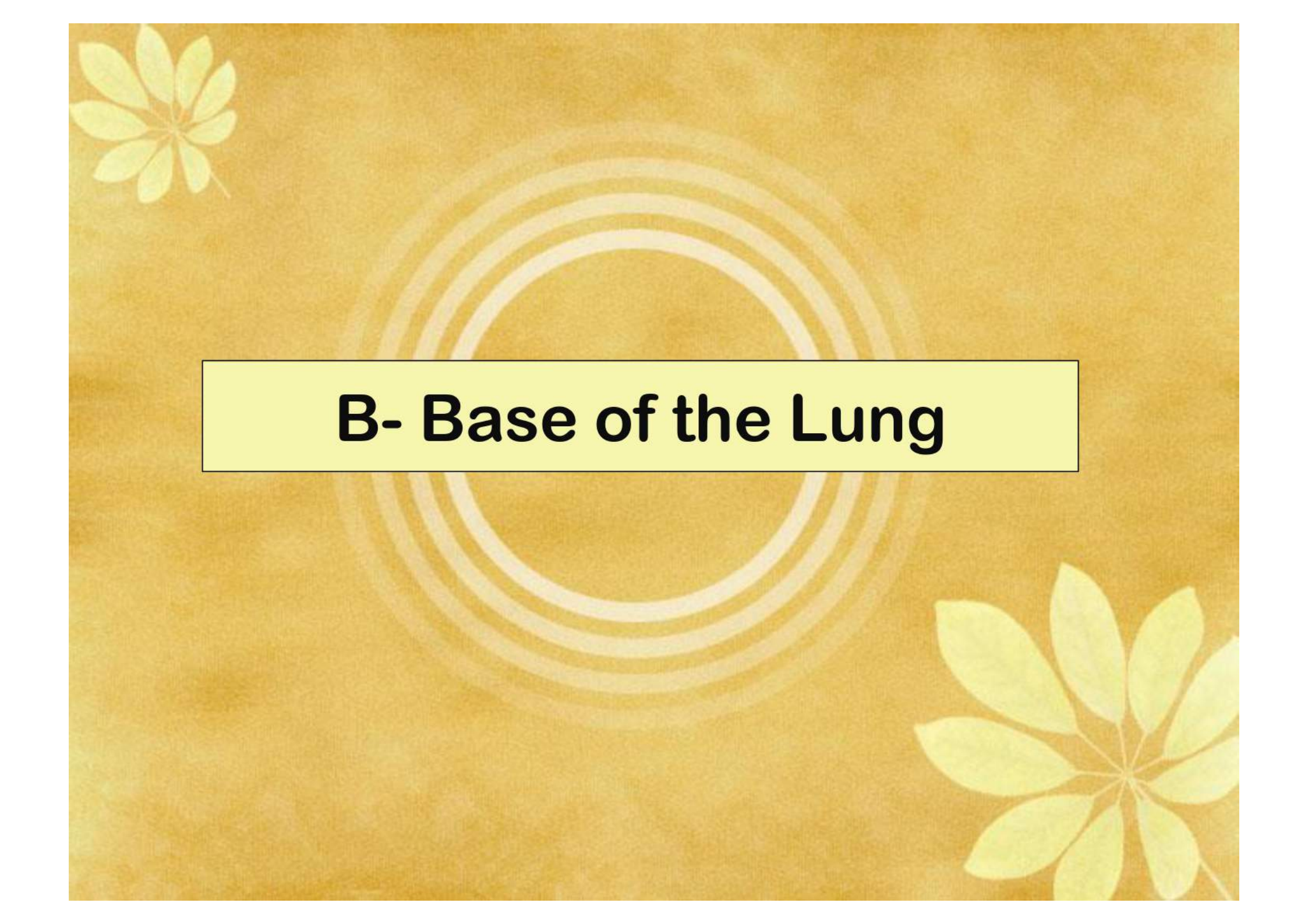
Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

Relations

Above and in front: the apex is covered by the cervical pleura and suprapleural membrane.

Upwards and laterally: It is grooved by the subclavian artery arching.

Behind: the apex is separated from the neck of the 1st rib by the three structures which lie in front of the neck

The background is a textured, golden-yellow surface. In the center, there are several concentric circles of varying shades of yellow and white, creating a subtle, circular pattern. In the top-left and bottom-right corners, there are stylized, light-yellow floral motifs with multiple pointed petals.

B- Base of the Lung

Base

Copula of the diaphragm

Liver

Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Spleen

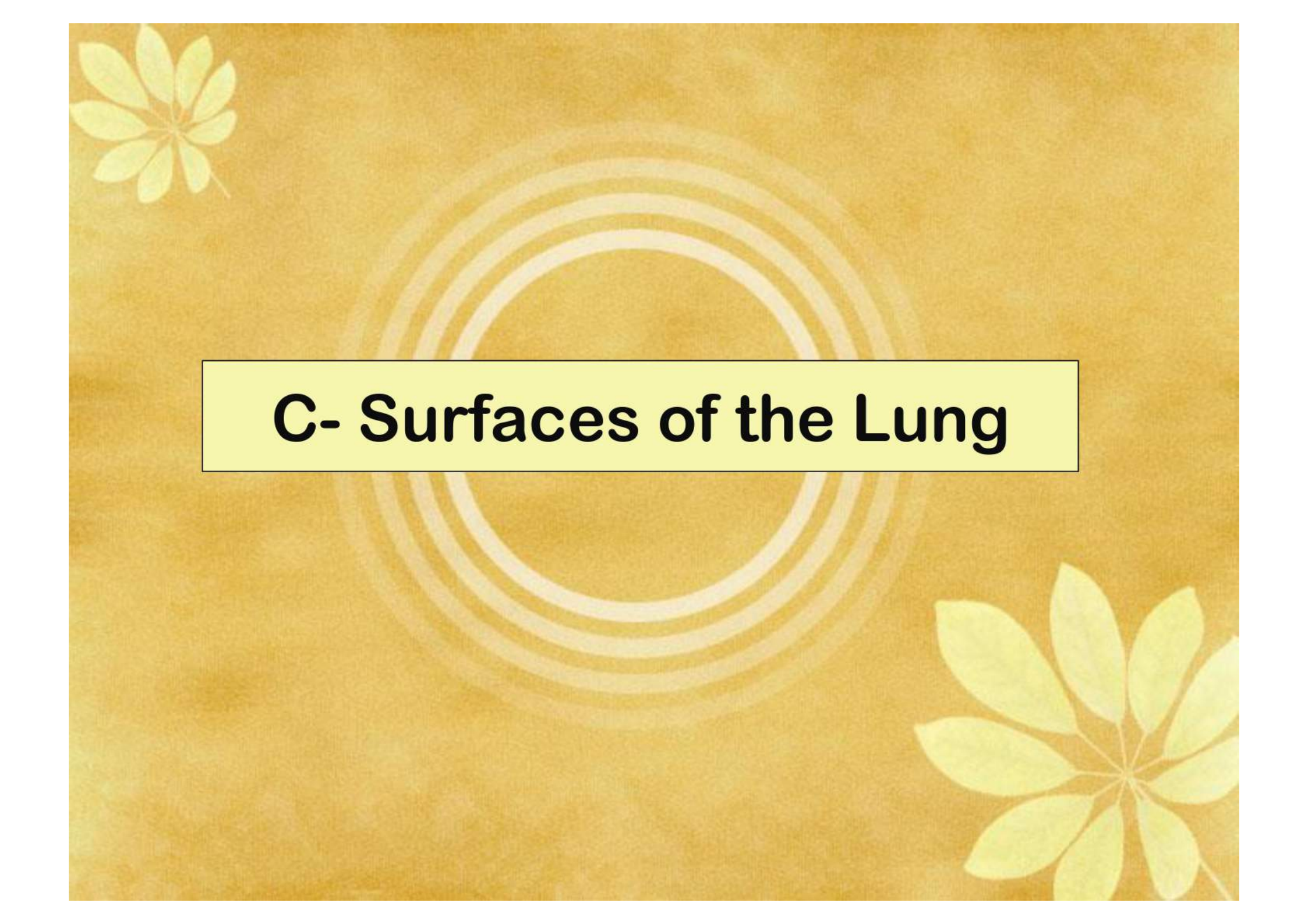
Stomach

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Source: Atlas of Anatomy, Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross (2nd edition)

Base

- It is the concave, lower surface which rests on the cupola of the diaphragm.
- The base of the lung is separated by the diaphragm from:
 - Right lobe of the liver (right lung)
 - Left lobe of the liver, fundus of the stomach and spleen (left lung).

The background is a textured, golden-yellow color. In the center, there are several concentric circles in a lighter shade of yellow. In the top-left and bottom-right corners, there are stylized floral motifs with multiple pointed petals.

C- Surfaces of the Lung

Surfaces

Mediastinal
(anterior part)

Vertebral
(posterior part)

Posterior
intercostal
vessels

Bodies of
thoracic
vertebrae &
intervertebral
discs

Sympathetic
chain

Hilum of the
lung

Intercostal
nerves

Splanchnic nerves

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Source: Atlas of Anatomy, Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross (2nd edition)

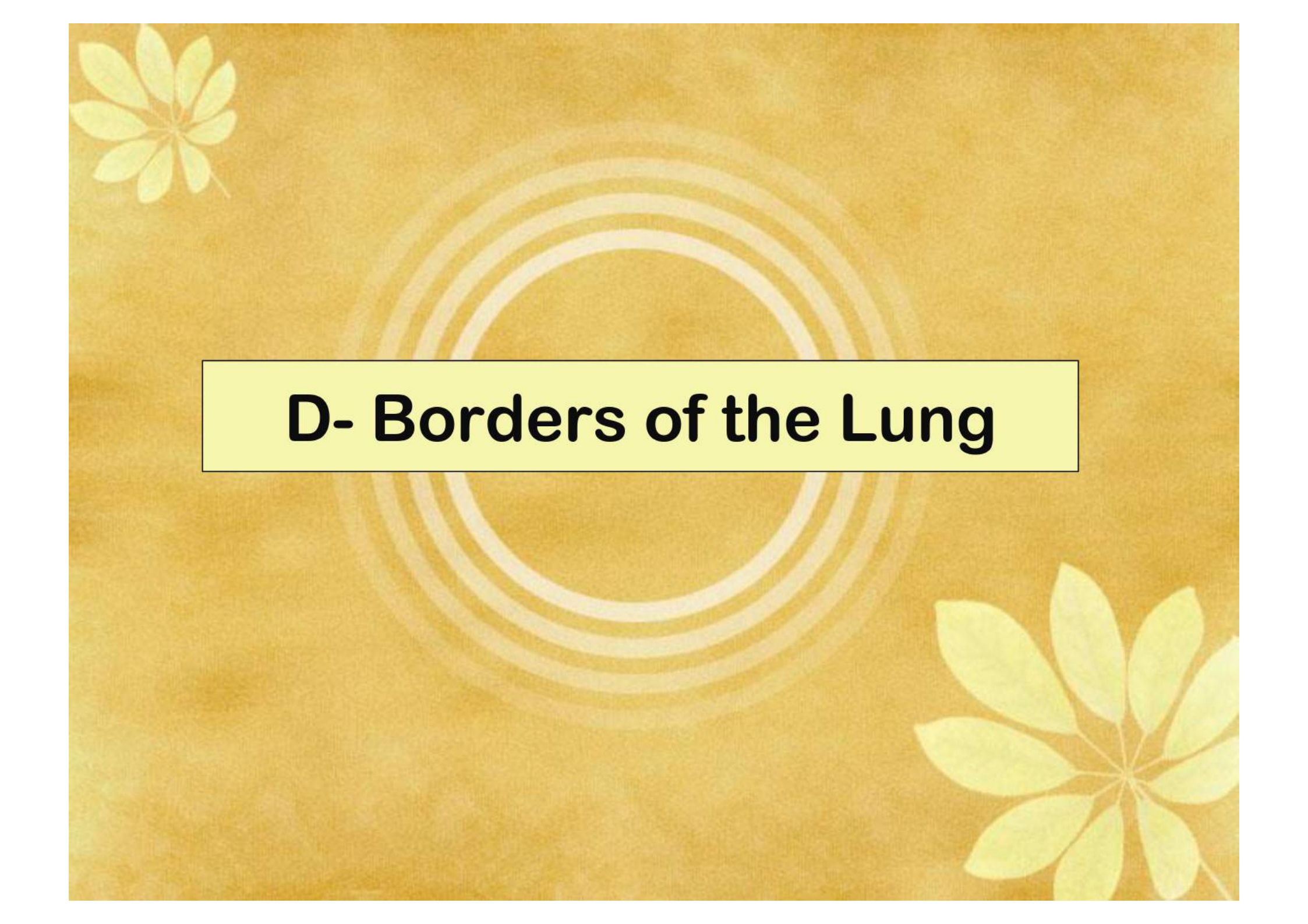
2. Medial surface

It is divided into 2 parts:

a- Vertebral (posterior part): has same relations in both lungs to:

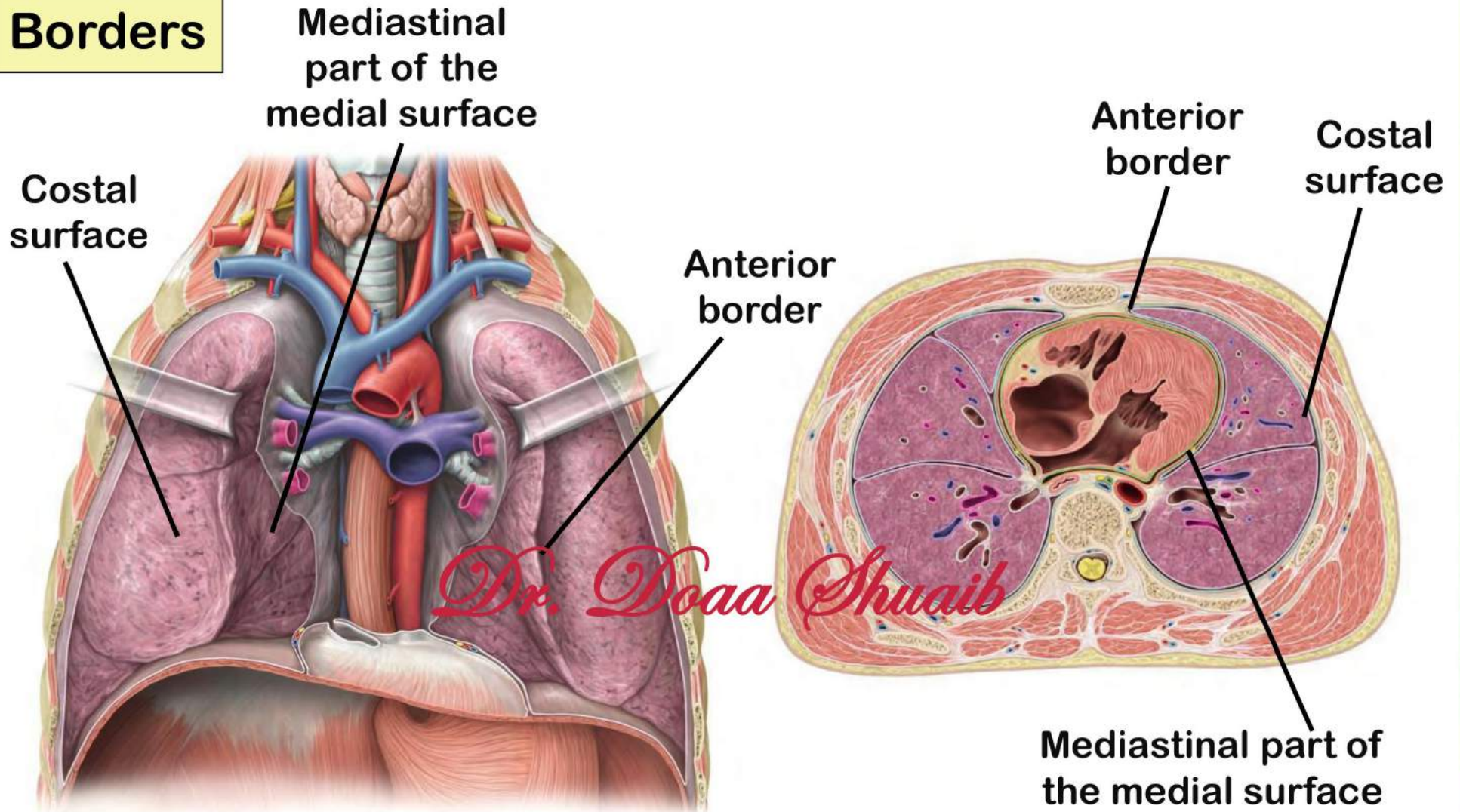
- (i) Bodies of thoracic vertebrae and intervertebral discs.
- (ii) Intercostal nerves and posterior intercostal vessels.
- (iii) Sympathetic chain and splanchnic nerves.

b- Mediastinal (anterior part): presents the hilum of the lung and several grooves and impressions which differ between the right and left lungs.



D- Borders of the Lung

Borders



Source: Atlas of Anatomy, Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross (2nd edition)

1. Anterior border

- Thin and sharp
- It separates the costal surface from the mediastinal part of the medial surface.
- It has a notch in its upper part caused by the 1st rib.

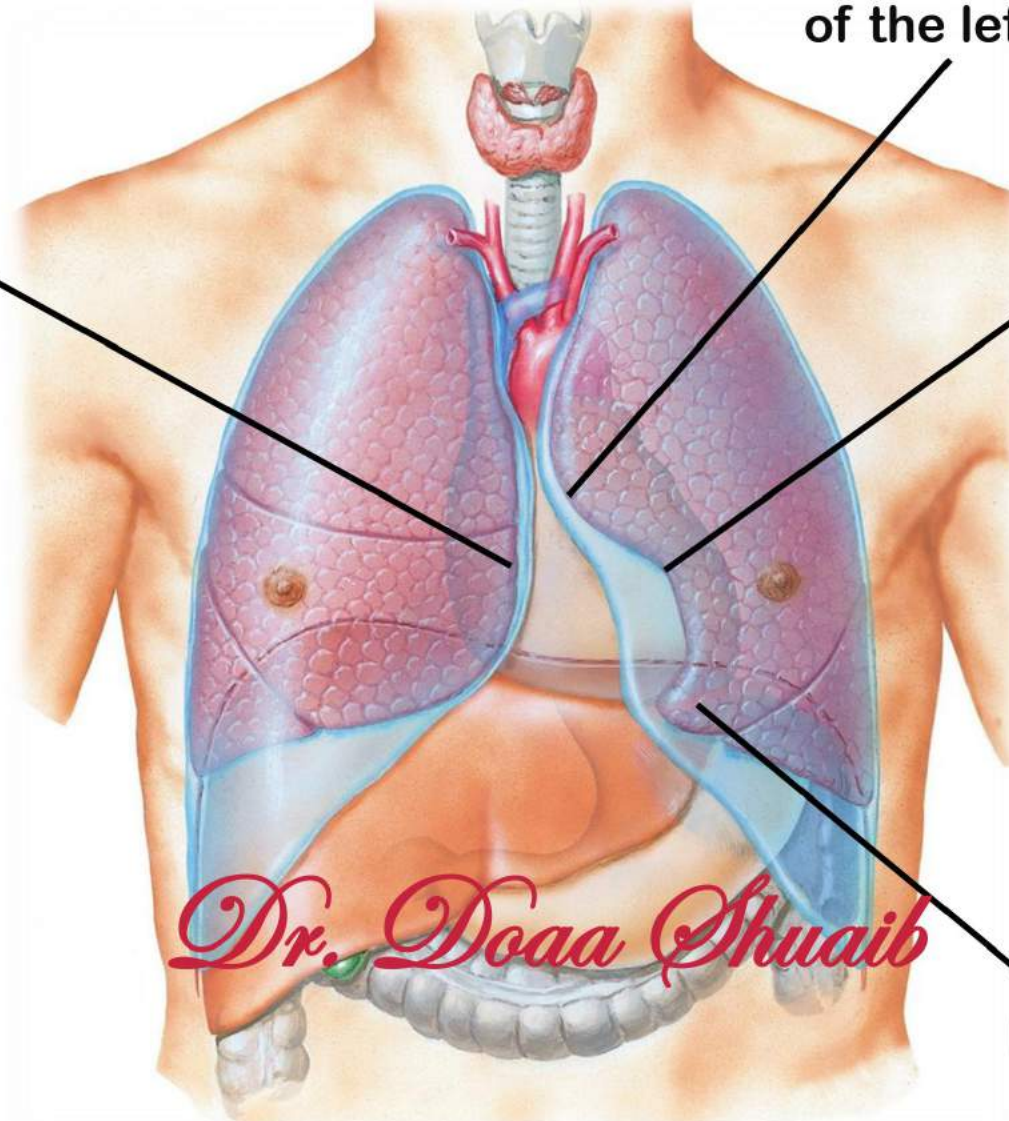
Borders

Anterior border
of the right lung

Anterior border
of the left lung

Cardiac
notch

Lingula



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

1. Anterior border

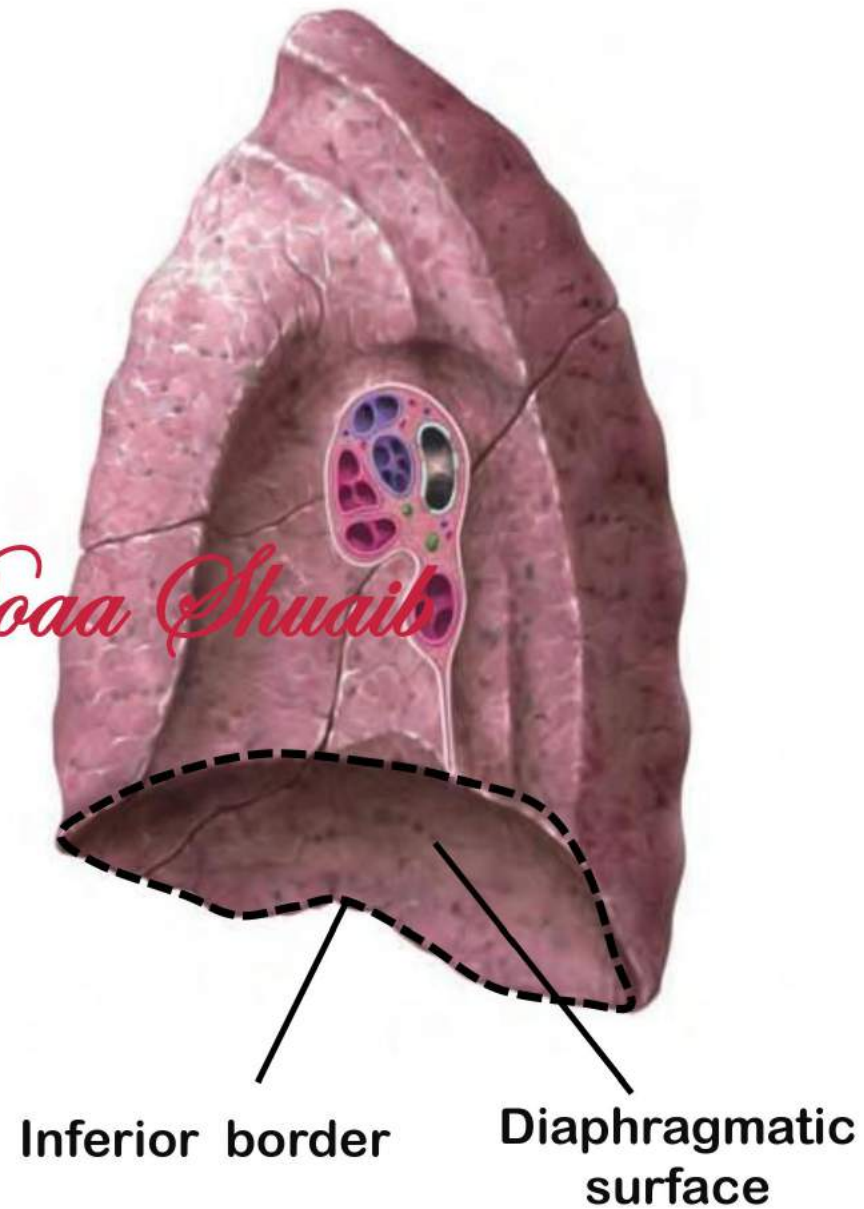
- a- In the right lung**, the anterior border is straight and corresponds to the anterior border of the pleura.
- b- In the left lung**, the lower part of the anterior border presents the cardiac notch followed by a tongue-like process, the lingula.

Borders

2. Inferior border

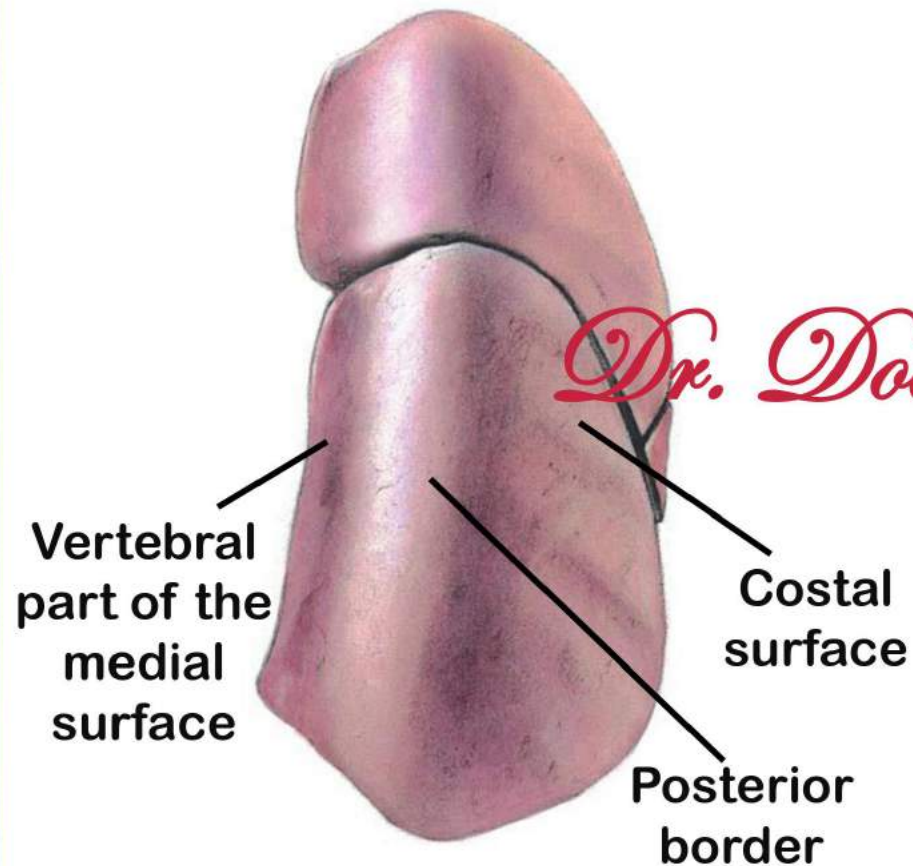
- Encircling diaphragmatic surface
- forming the boundary of the base of the lung

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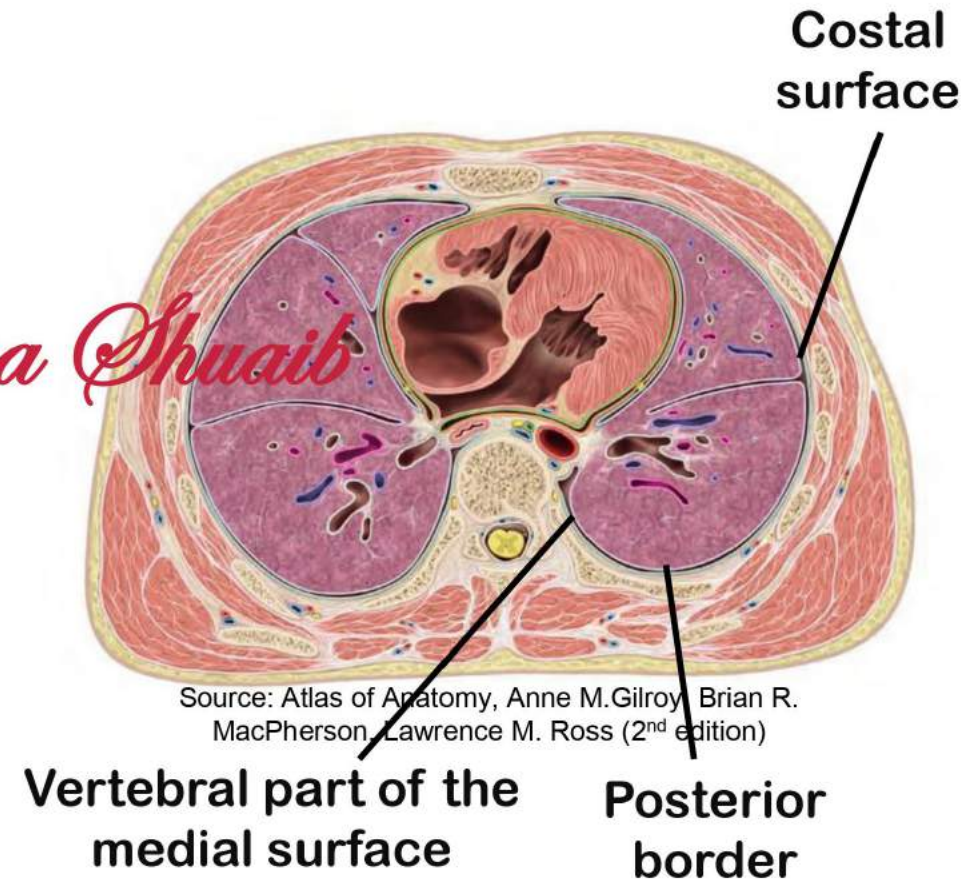


Source: Atlas of Anatomy, Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross (2nd edition)

Borders

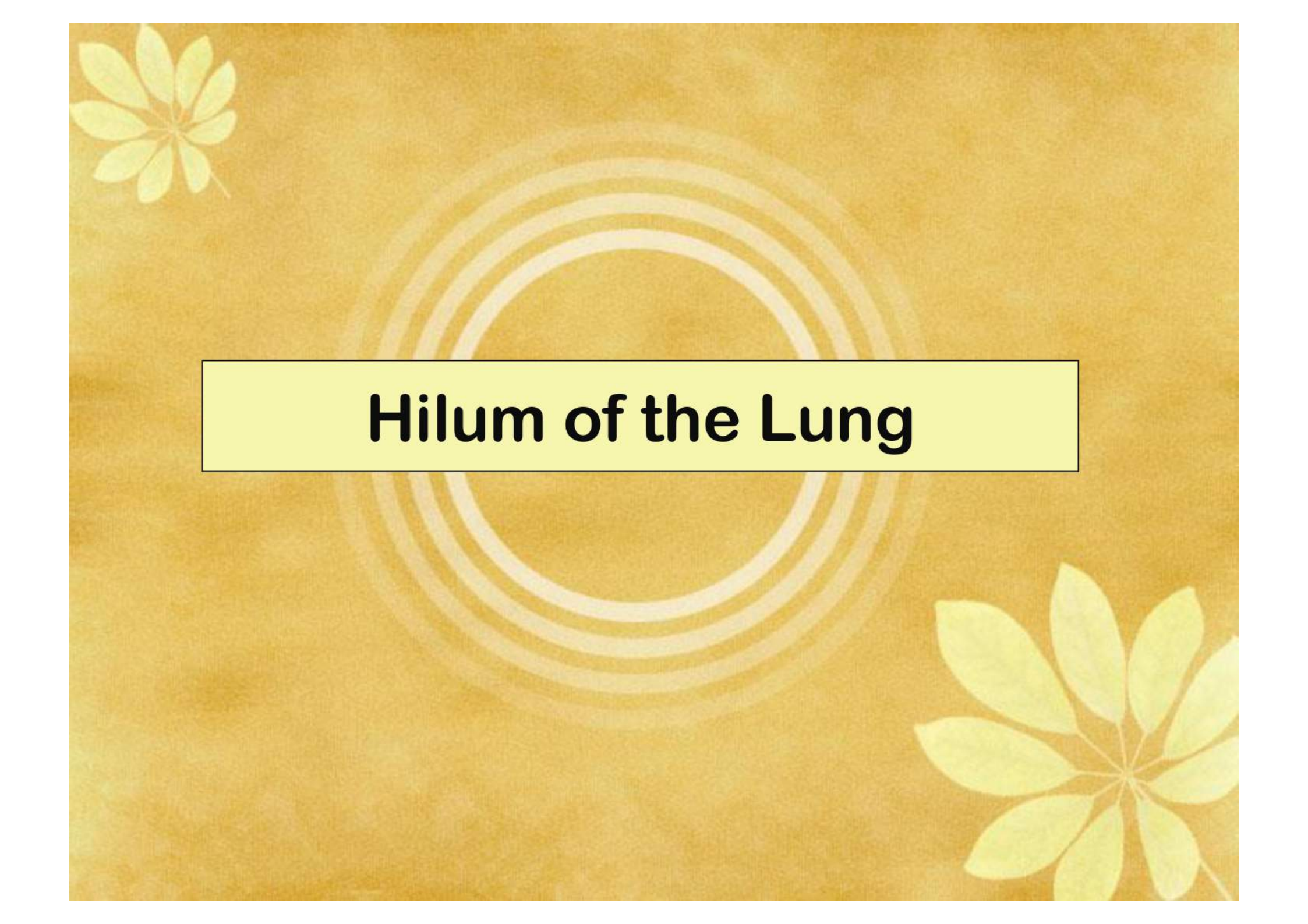


Source: Grant's Atlas of Anatomy 13th edition



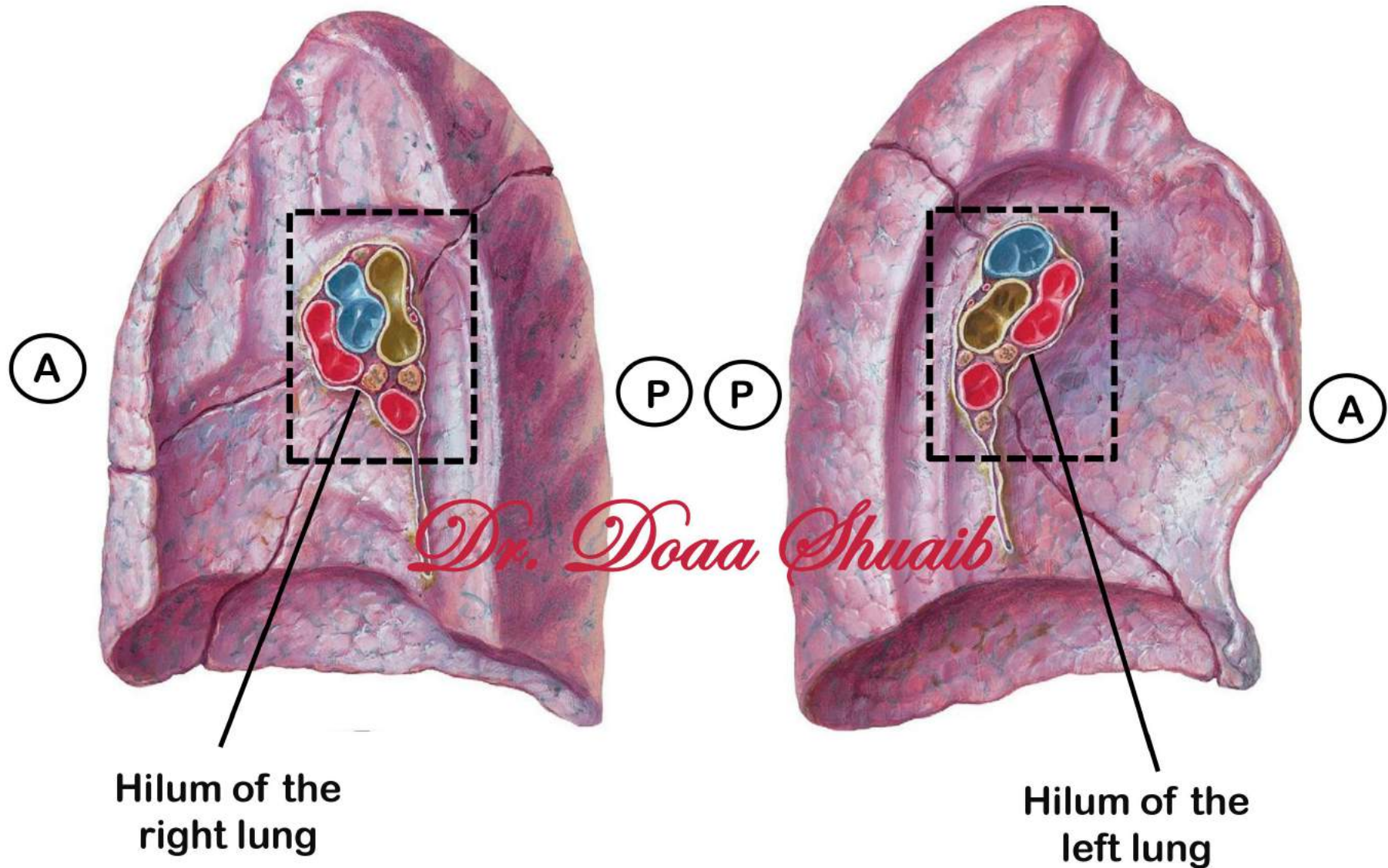
3. Posterior border

- Thick and rounded
- It separates the costal surface from the vertebral part of the medial surface.

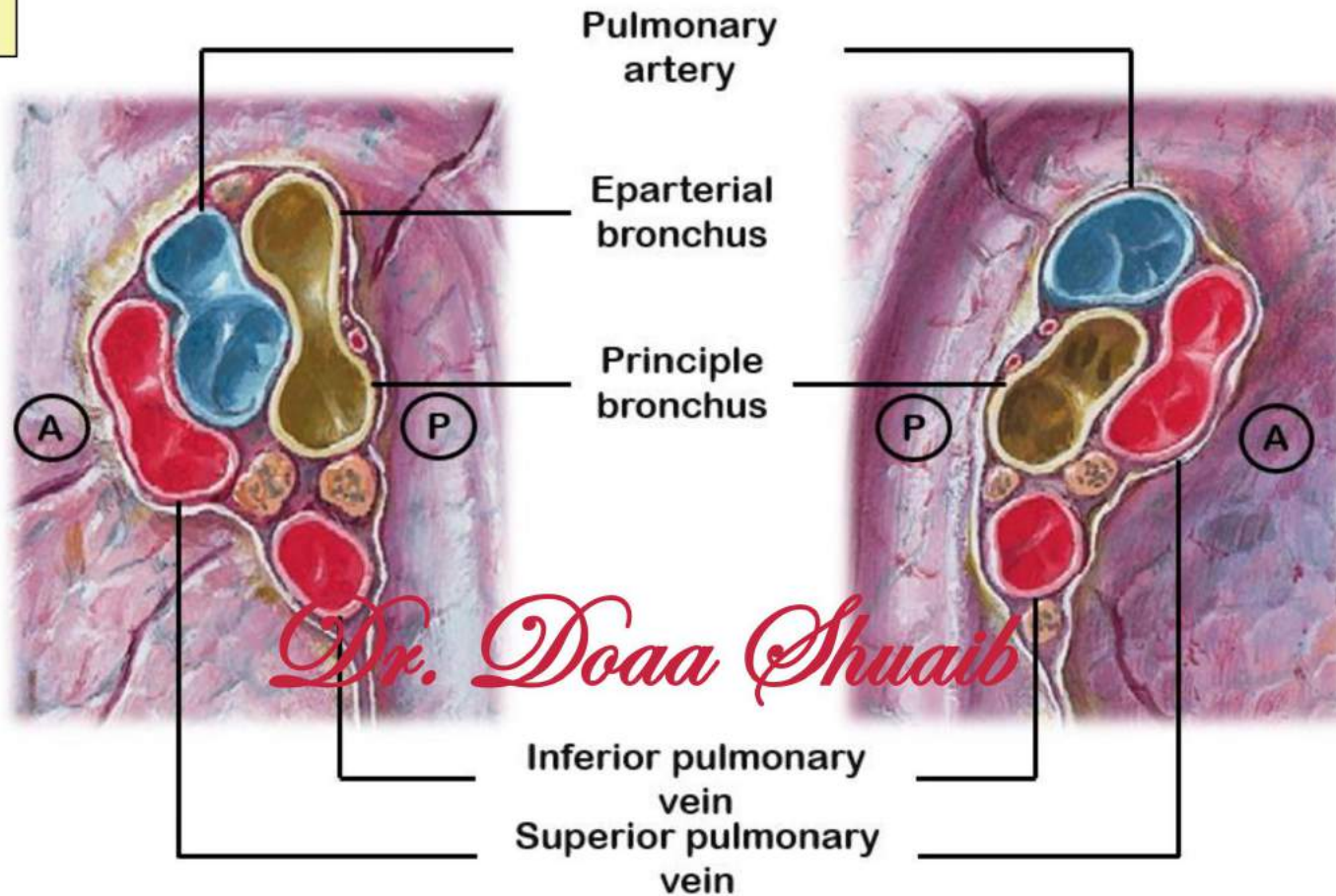
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Hilum of the Lung

Hilum of the lung



Hilum



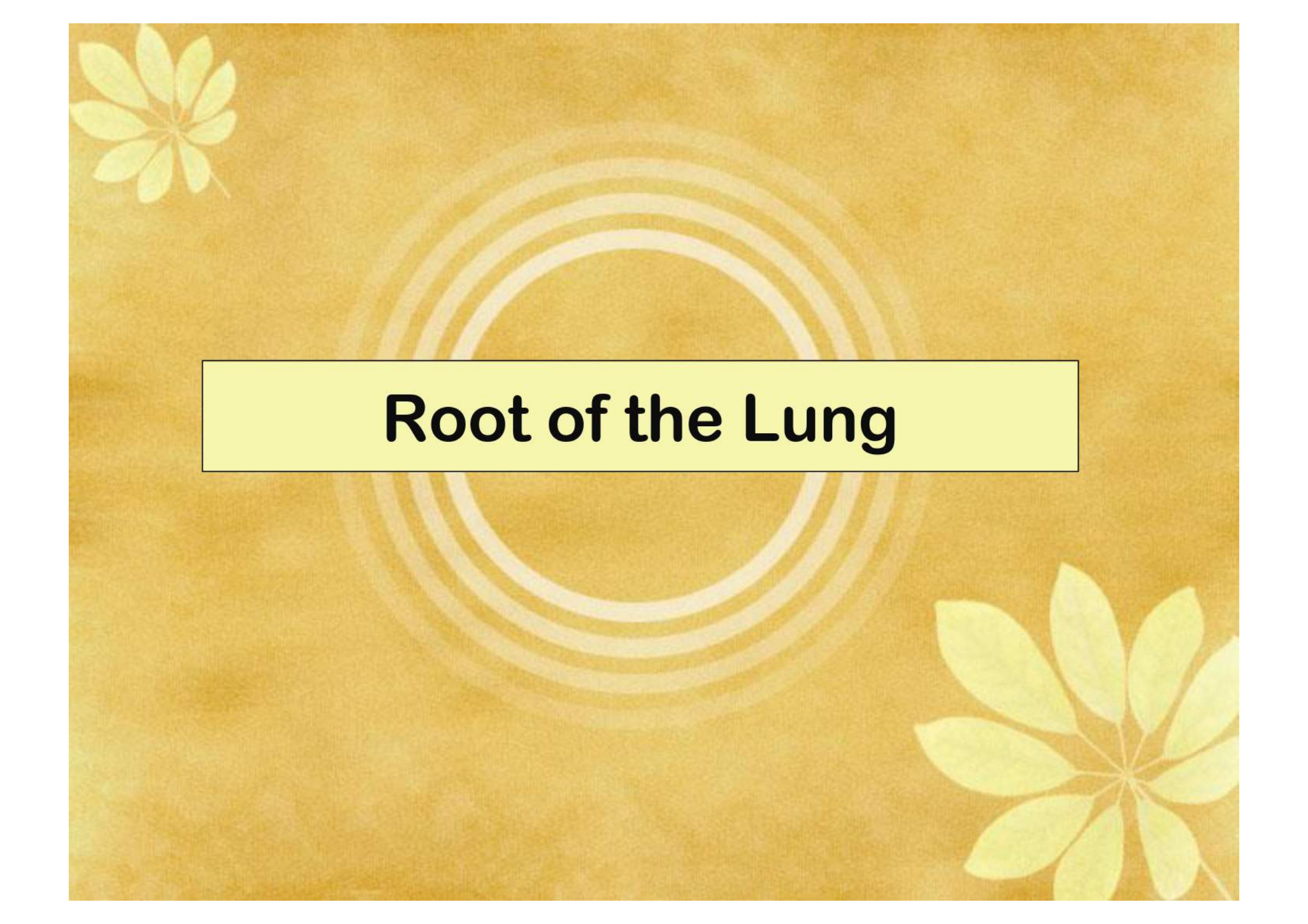
Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Hilum of the right lung

- (i) Principal bronchus (most posteriorly).
- (ii) Superior pulmonary v (most anteriorly).
- (iii) Inferior pulmonary v (most inferiorly).
- (iv) Pulmonary artery (between principal bronchus & sup. pulmonary v).
- (v) Superior lobar (eparterial) bronchus (above principal bronchus).
- (vi) Branch from pulmonary artery (in front of eparterial bronchus).

Hilum of the left lung

- (i) Principal bronchus (most posteriorly).
- (ii) Superior pulmonary vein (most anteriorly).
- (iii) Inferior pulmonary vein (most inferiorly).
- (iv) Pulmonary artery (above and in front of principal bronchus).

The background is a textured, golden-yellow surface. In the center, there are several concentric circles in a lighter shade of yellow. In the top-left and bottom-right corners, there are stylized floral motifs with multiple pointed petals.

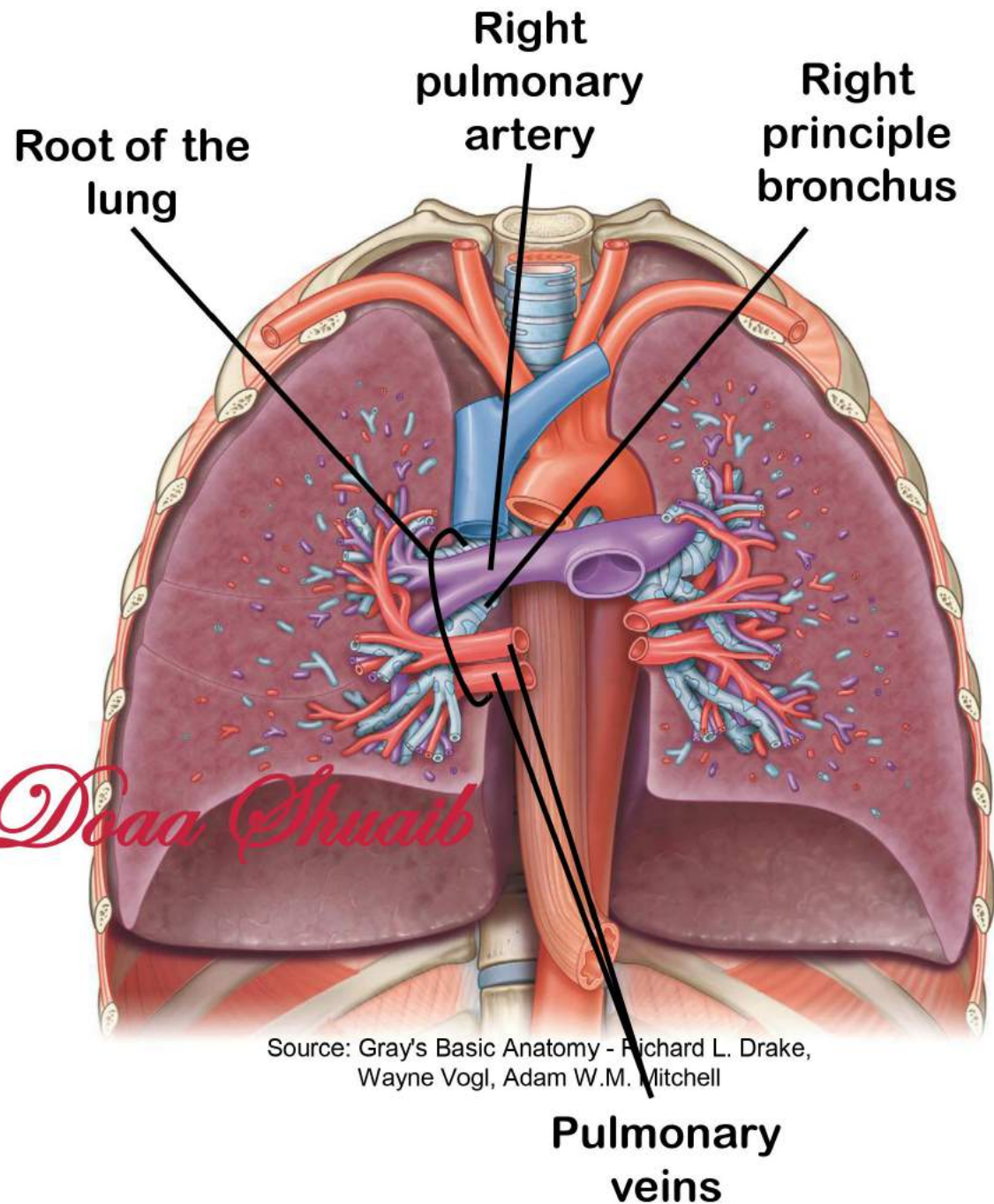
Root of the Lung

Root of the Lung

Definition

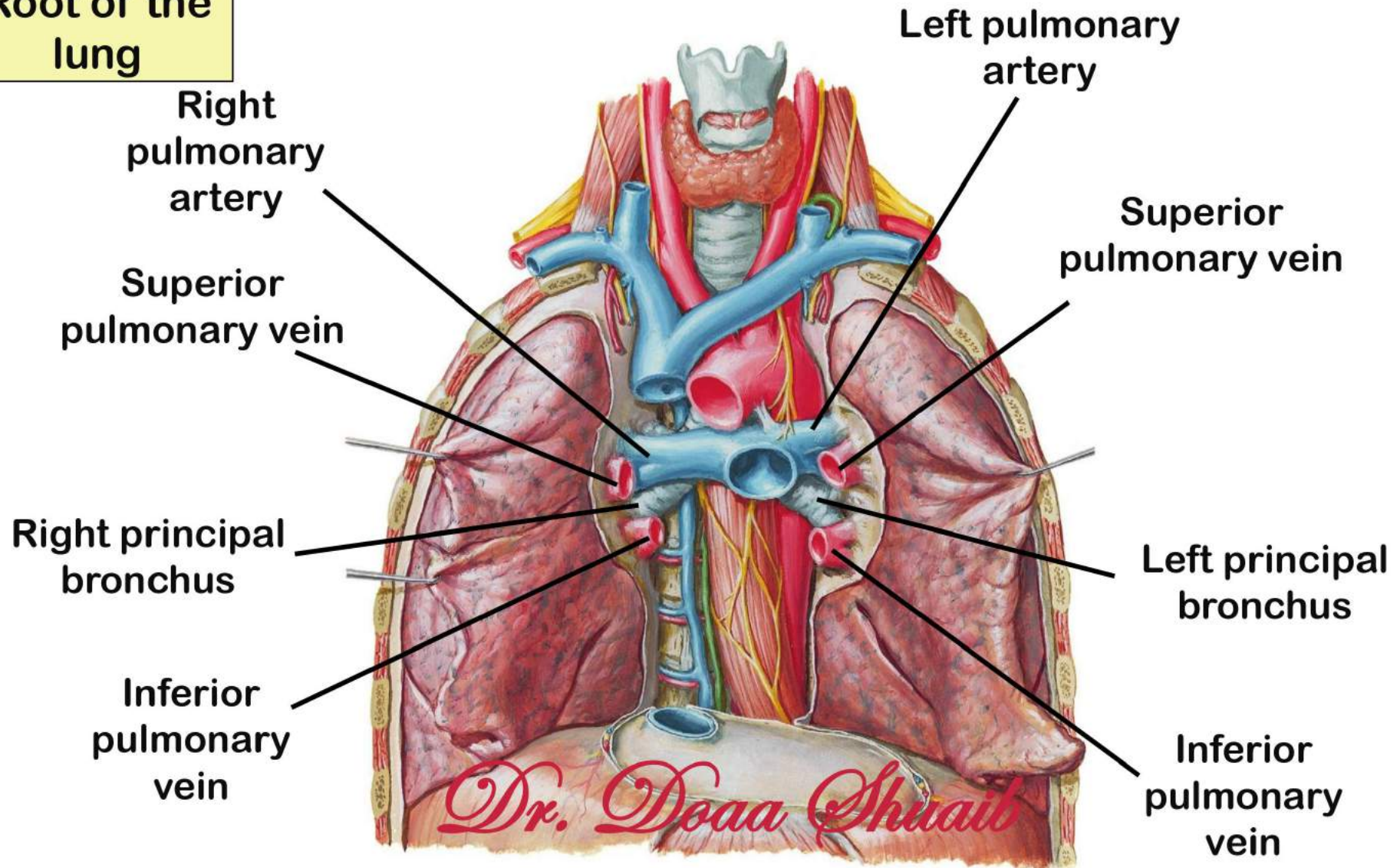
Group of structures, which connects the lung to mediastinum

Dr. Deaa Shuaib



Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

Root of the lung



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Contents

- 1- **Principal bronchus**, most posteriorly.
- 2- **Superior pulmonary vein**, most anteriorly.
- 3- **Inferior pulmonary vein**: most inferiorly.
- 4- **Pulmonary artery**: lies between the principal bronchus and superior pulmonary vein in the right root and above and in front of the principal bronchus in the left.

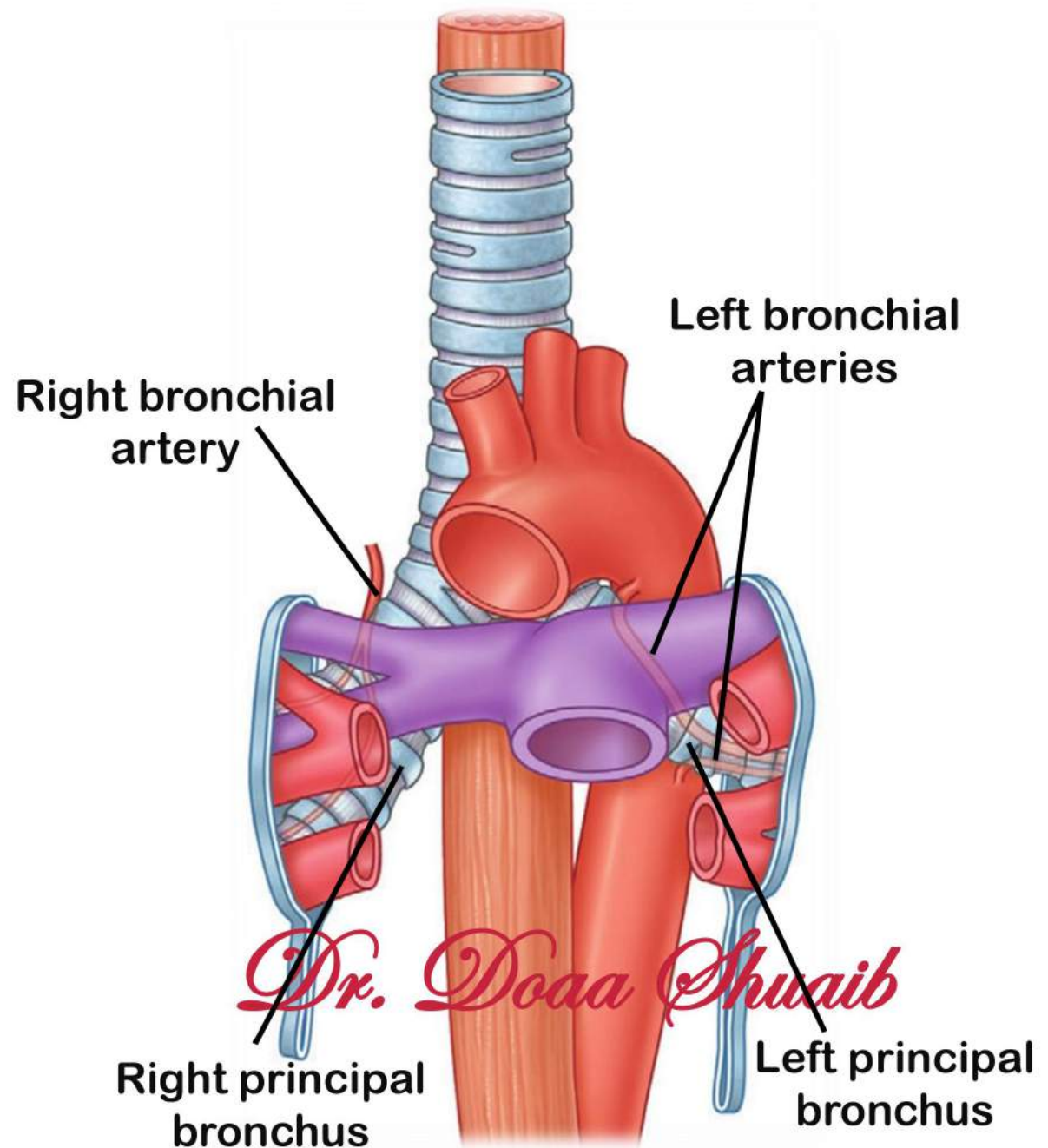
Root of the lung

Contents

5. Bronchial vessels:

Along the posterior wall of the bronchi

- The right lung receives one bronchial artery
- The left lung has two bronchial arteries

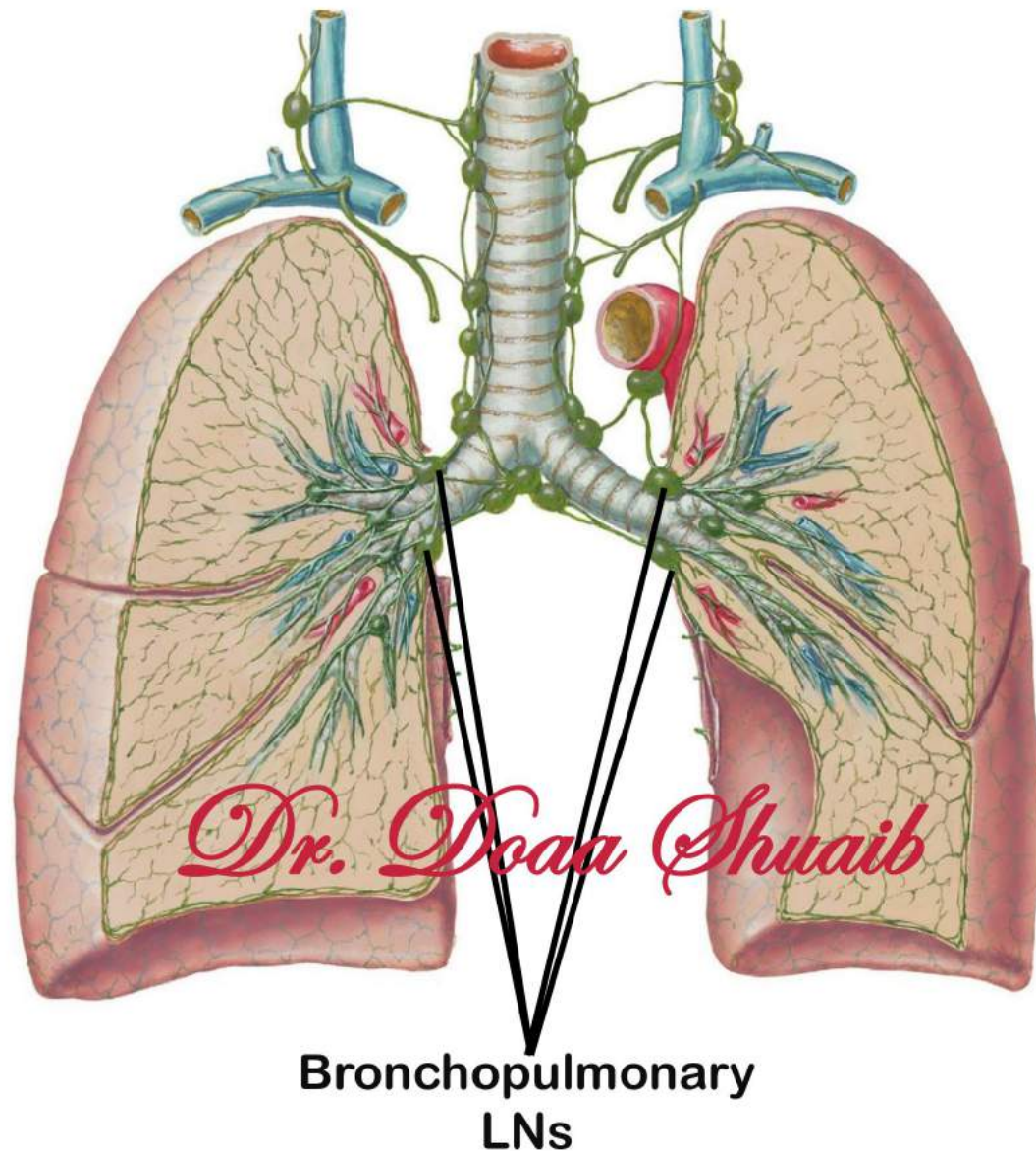


Source: Source: Gray's Basic Anatomy - Richard L. Drake,
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Root of the lung

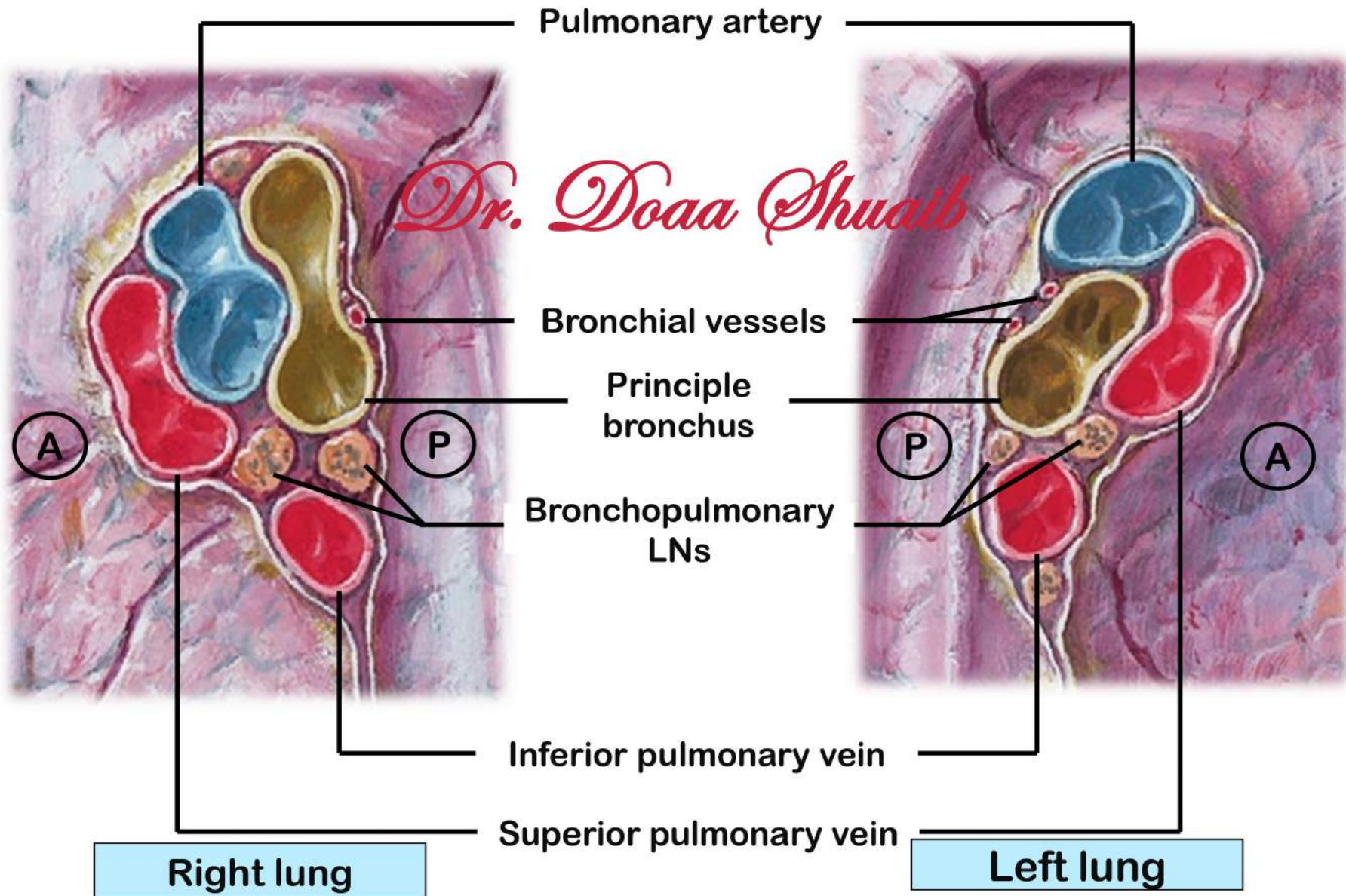
Contents

6. Bronchopulmonary LNs & lymph vessels: within the root

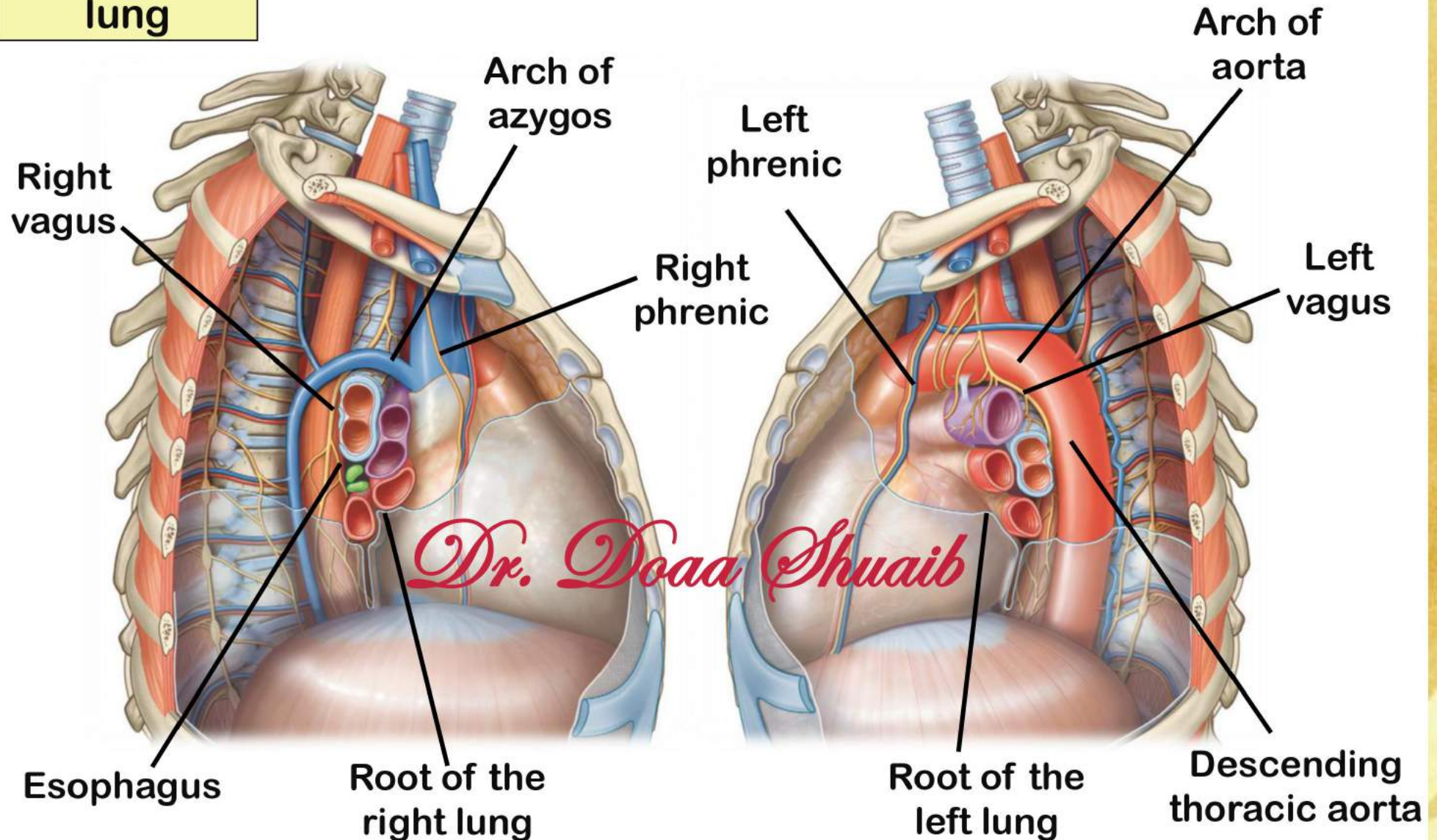


Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Root of the lung



Root of the lung



Source: Gray's Atlas of Anatomy

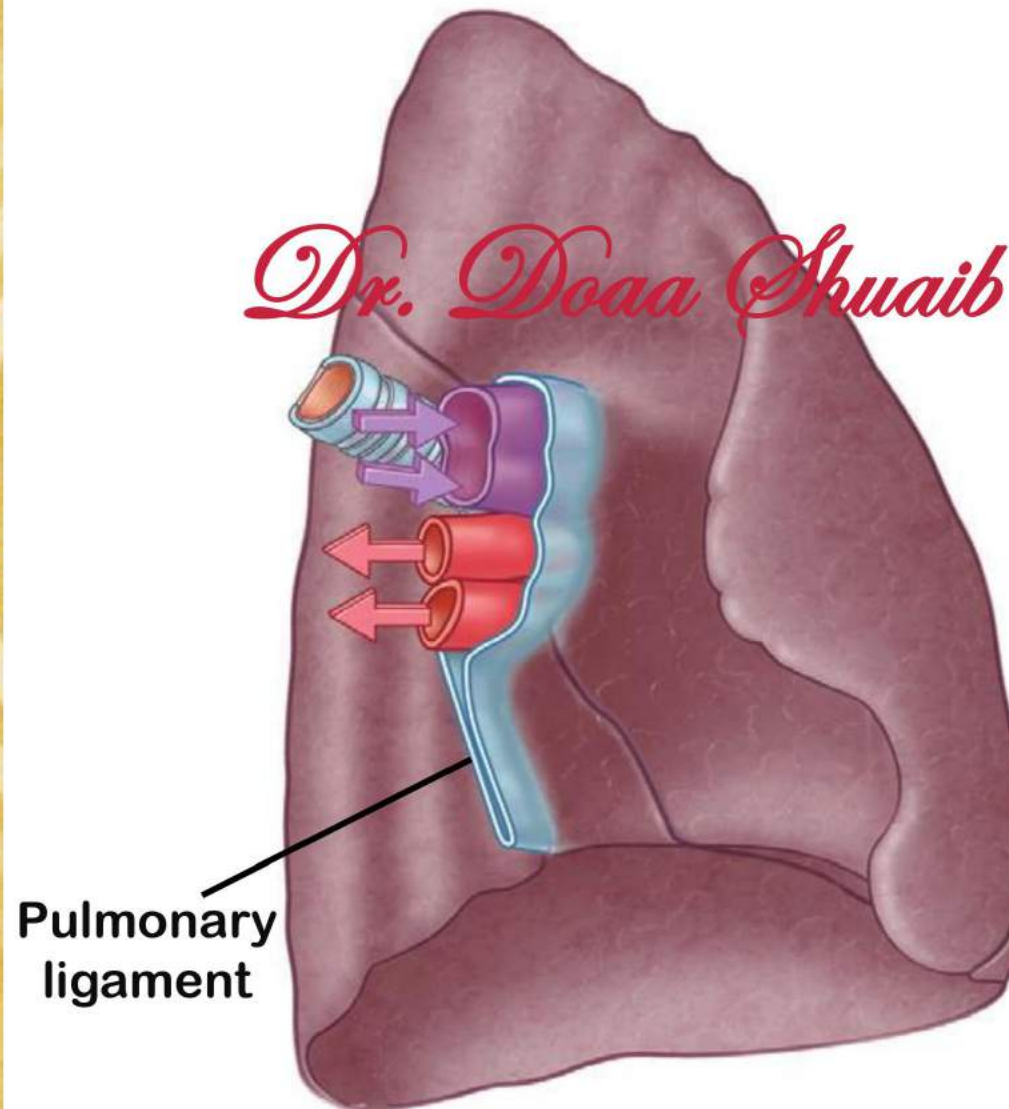
Relations

- a- In front:** phrenic nerve and anterior pulmonary plexus.
- b- Behind:** vagus nerve (breaks up to form posterior pulmonary plexus), oesophagus (on the right) and descending thoracic aorta (on the left).
- c- Above:** arch of azygos vein (on the right) and arch of aorta (on the left).

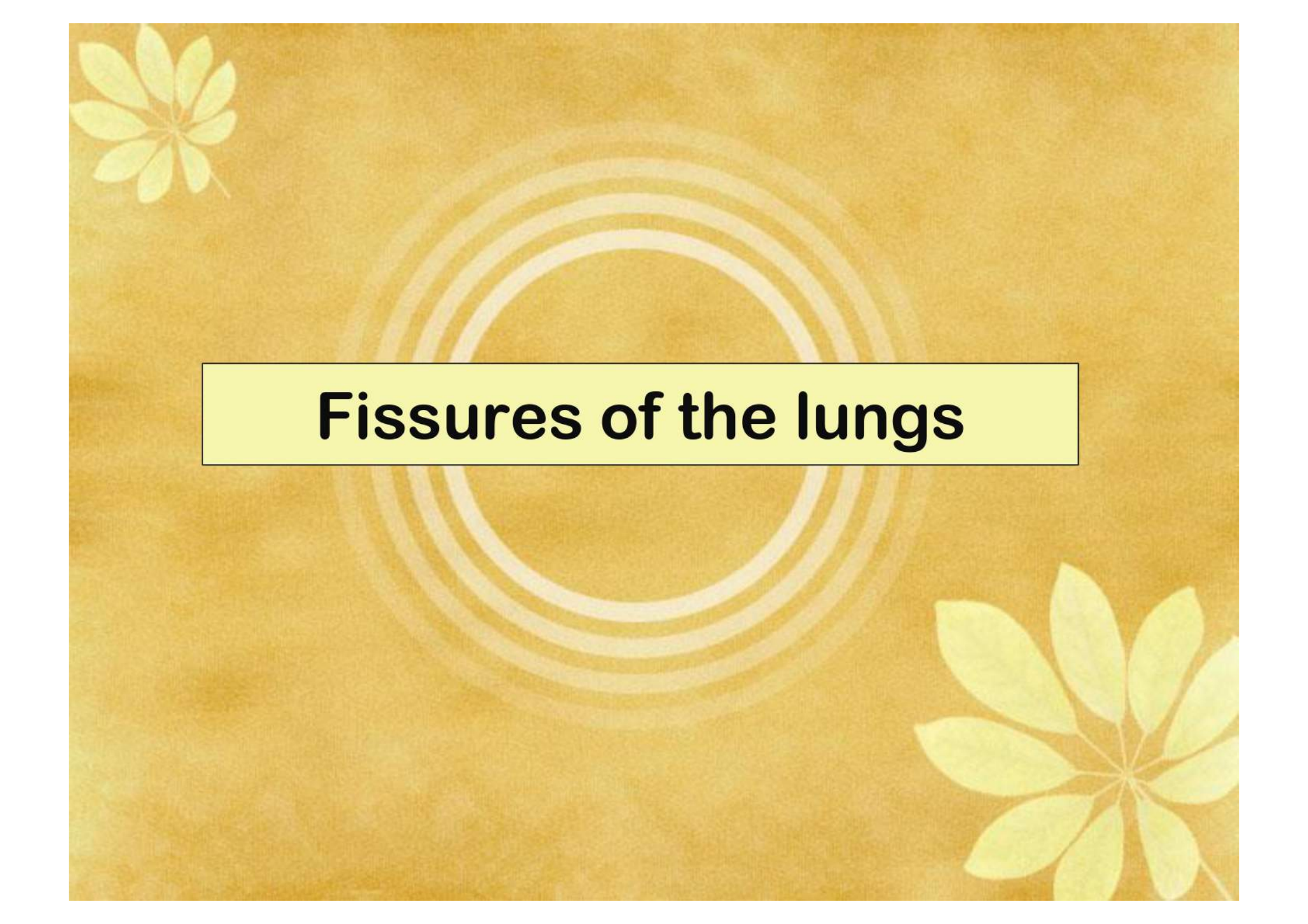
Root of the Lung

Relations

d. Below: pulmonary
ligament



Source: Gray's Basic Anatomy - Richard L. Drake,
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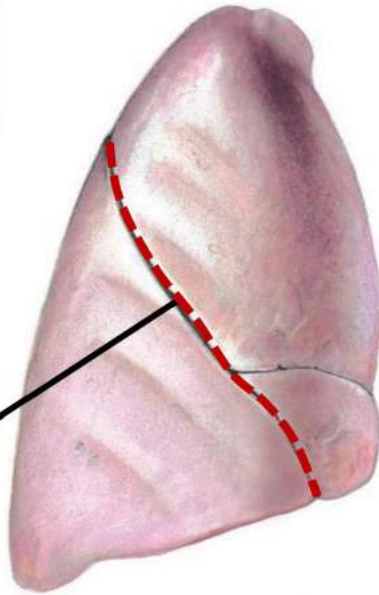
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Fissures of the lungs

Fissures of the Lung

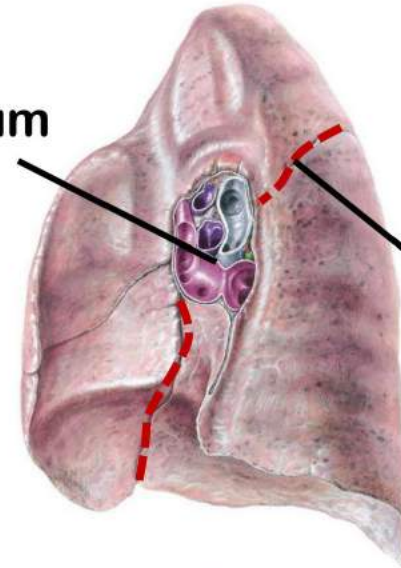
Right lung

Oblique fissure



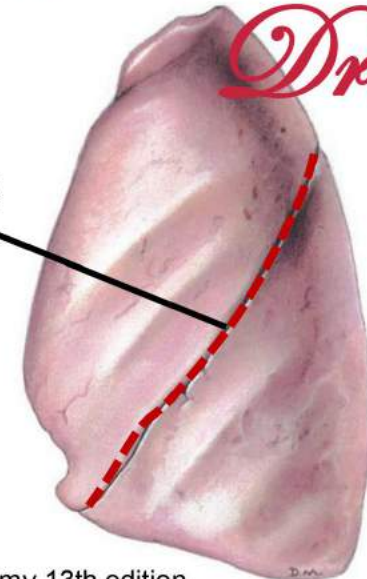
Hilum

Oblique fissure



Oblique fissure

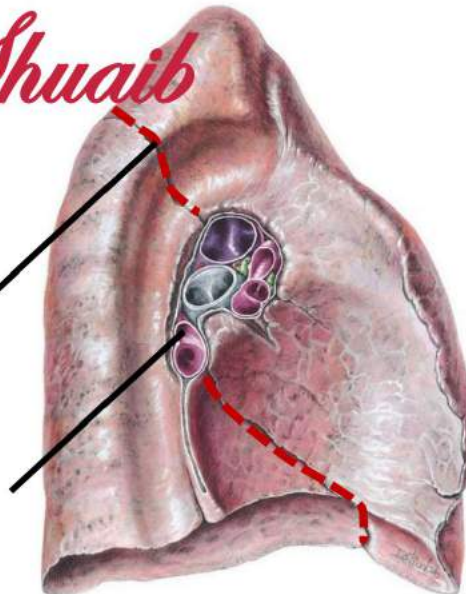
Left lung



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Oblique fissure

Hilum



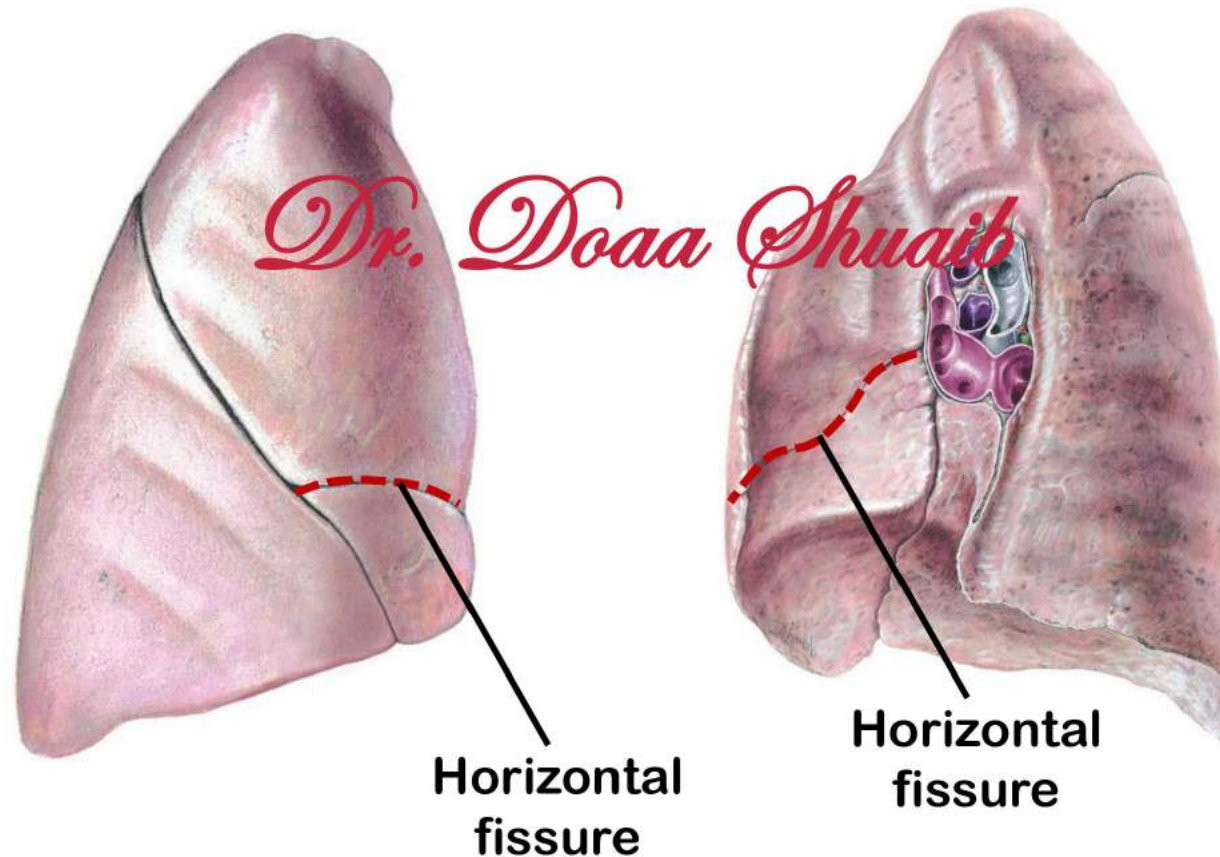
Source: Grant's Atlas of Anatomy 13th edition

1. Oblique fissure

- In both lungs
- It is a deep fissure which cuts into the costal then the mediastinal surface of the lung as far as the hilum.
- It begins at the posterior border of the lung, 6 cm below the apex and extends downwards, forwards and medially to reach the inferior border where it ends.

Fissures of the Lung

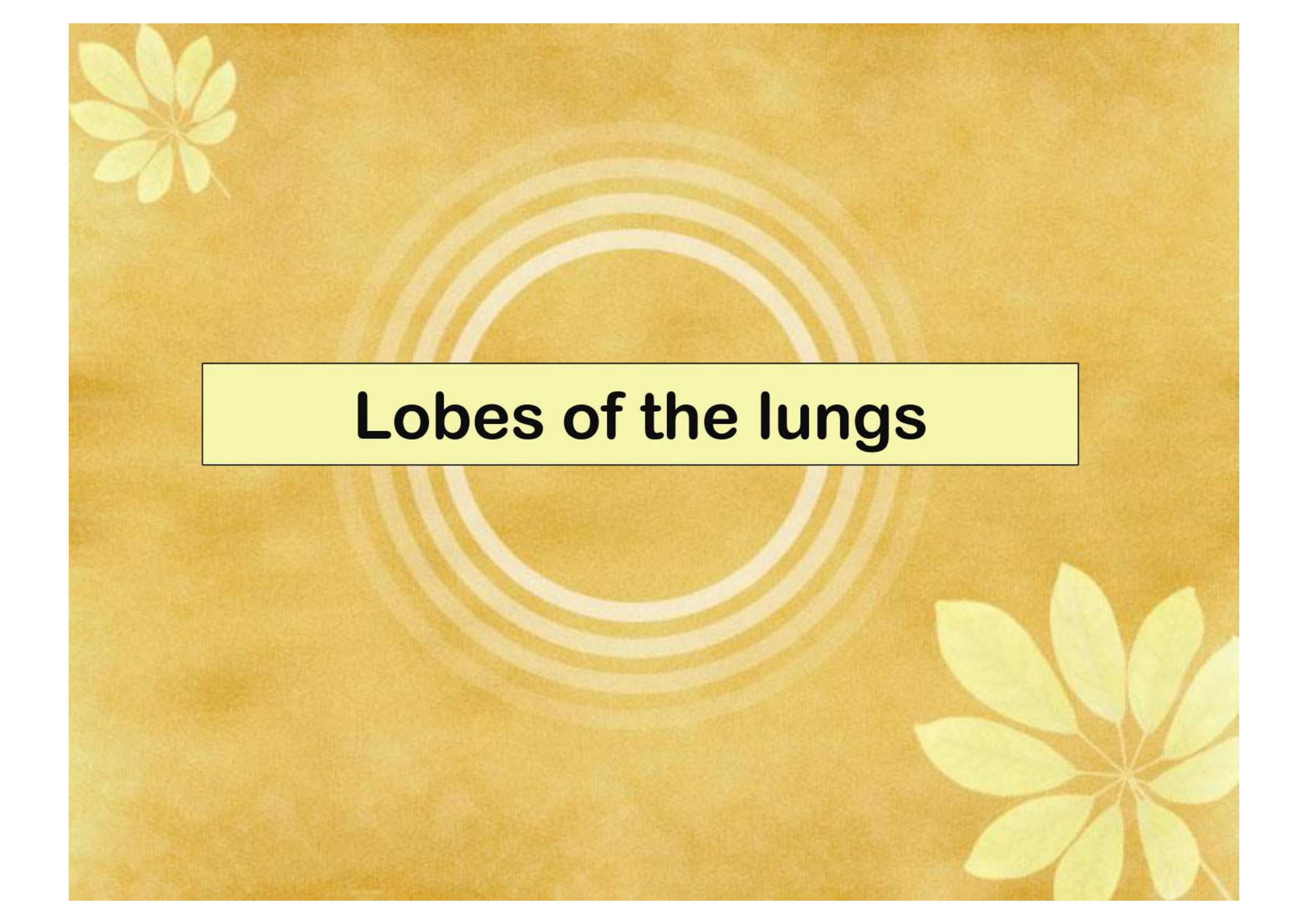
Right lung



Source: Grant's Atlas of Anatomy 13th edition

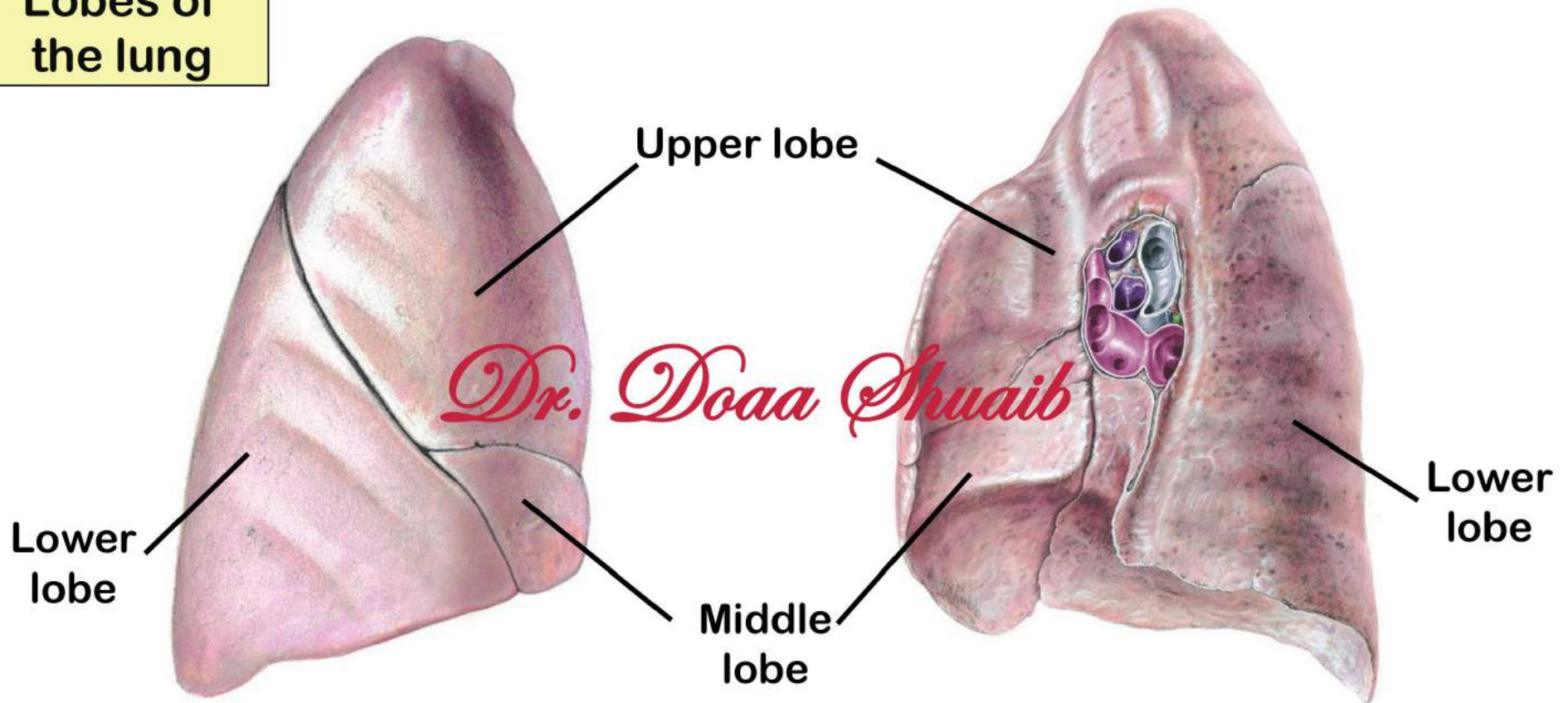
2. Horizontal fissure

- In the right lung only
- It is a deep fissure which cuts into the costal and mediastinal surfaces of the right lung separating the upper lobe from the middle lobe.
- It begins at the anterior border of the right lung and extends to the right and slightly upwards to end by meeting the oblique fissure.

The background is a textured, golden-yellow color. In the center, there are several concentric, light-colored circles that create a subtle, circular pattern. In the top-left and bottom-right corners, there are stylized, light-green floral motifs with multiple pointed petals.

Lobes of the lungs

Lobes of the lung



Source: Grant's Atlas of Anatomy 13th edition

1. Lobes of the right lung

1- Upper lobe:

Lies above and in front of the oblique fissure, above the horizontal fissure. It includes the apex of the lung and the upper part of the anterior border down to level of the 4th costal cartilage.

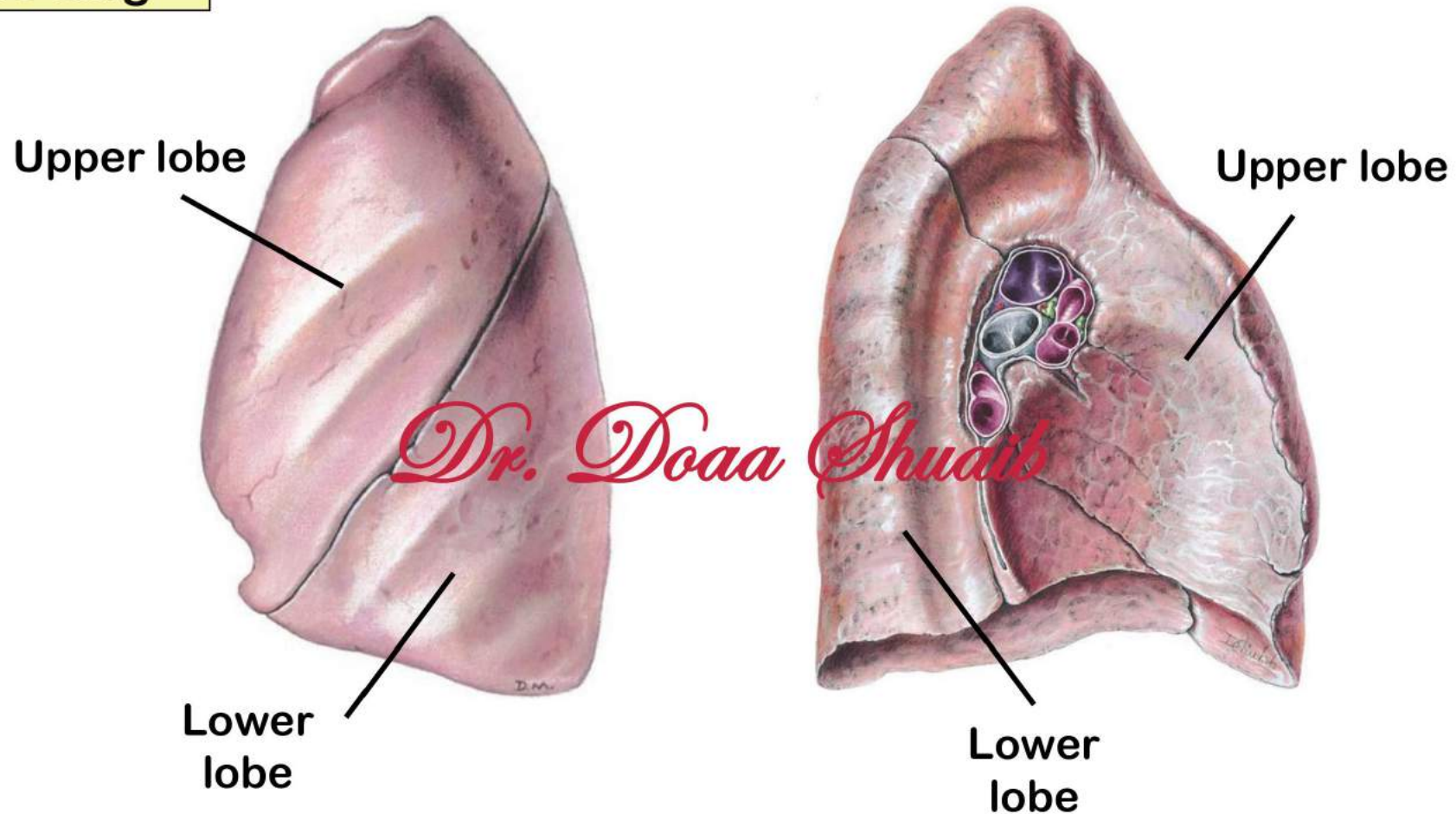
2- Middle lobe:

Lies in front of the oblique fissure and below the horizontal fissure. It includes the lower parts of the front of the costal surface and the anterior border of the right lung as well as the anterior part of its base.

3- Lower lobe:

Larger than the two other lobes together, it lies below and behind the oblique fissure. It includes most of the base of the lung and the greater part of the posterior border.

Lobes of the lung



Source: Grant's Atlas of Anatomy 13th edition

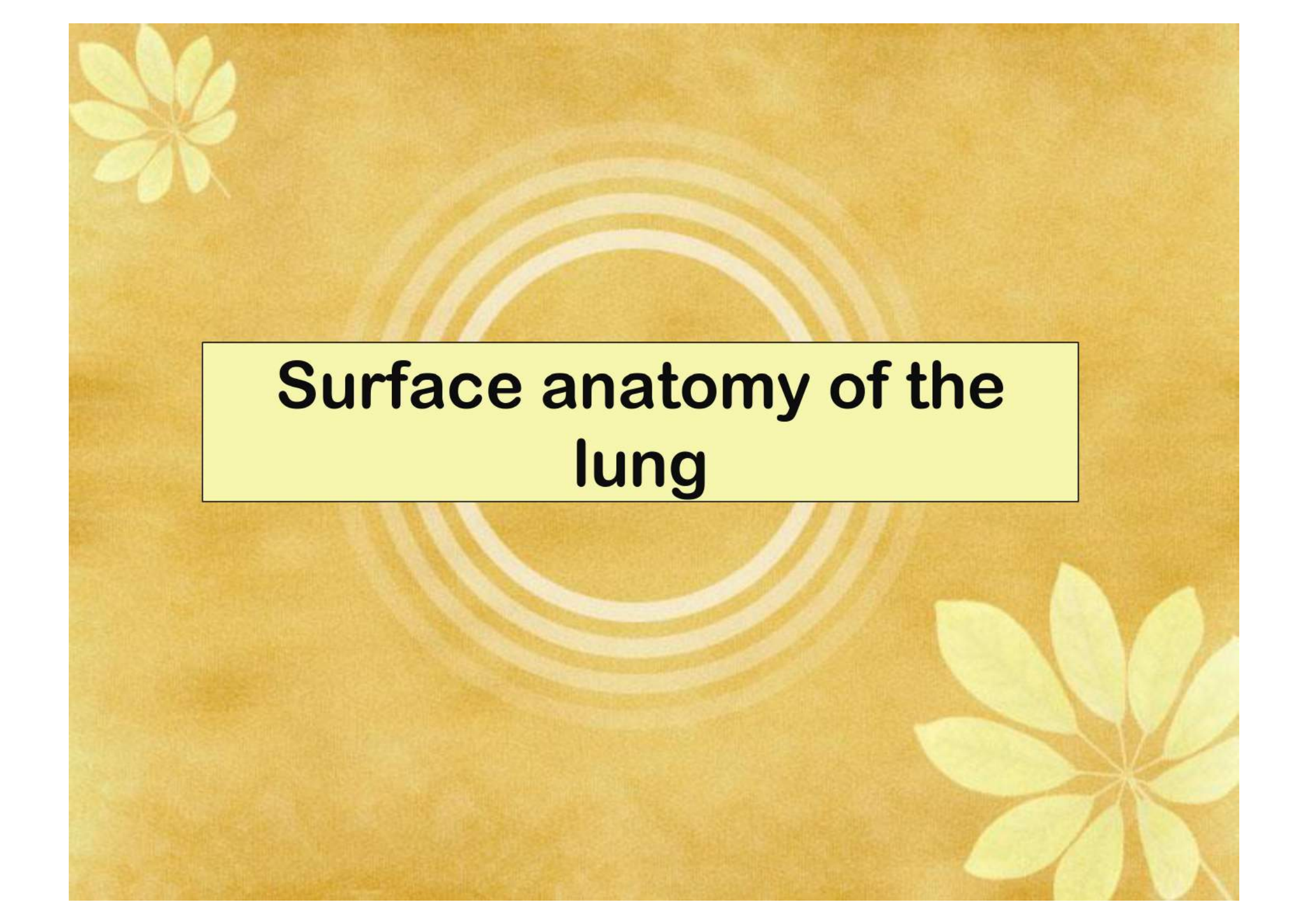
2. Lobes of the left lung

1- Upper lobe:

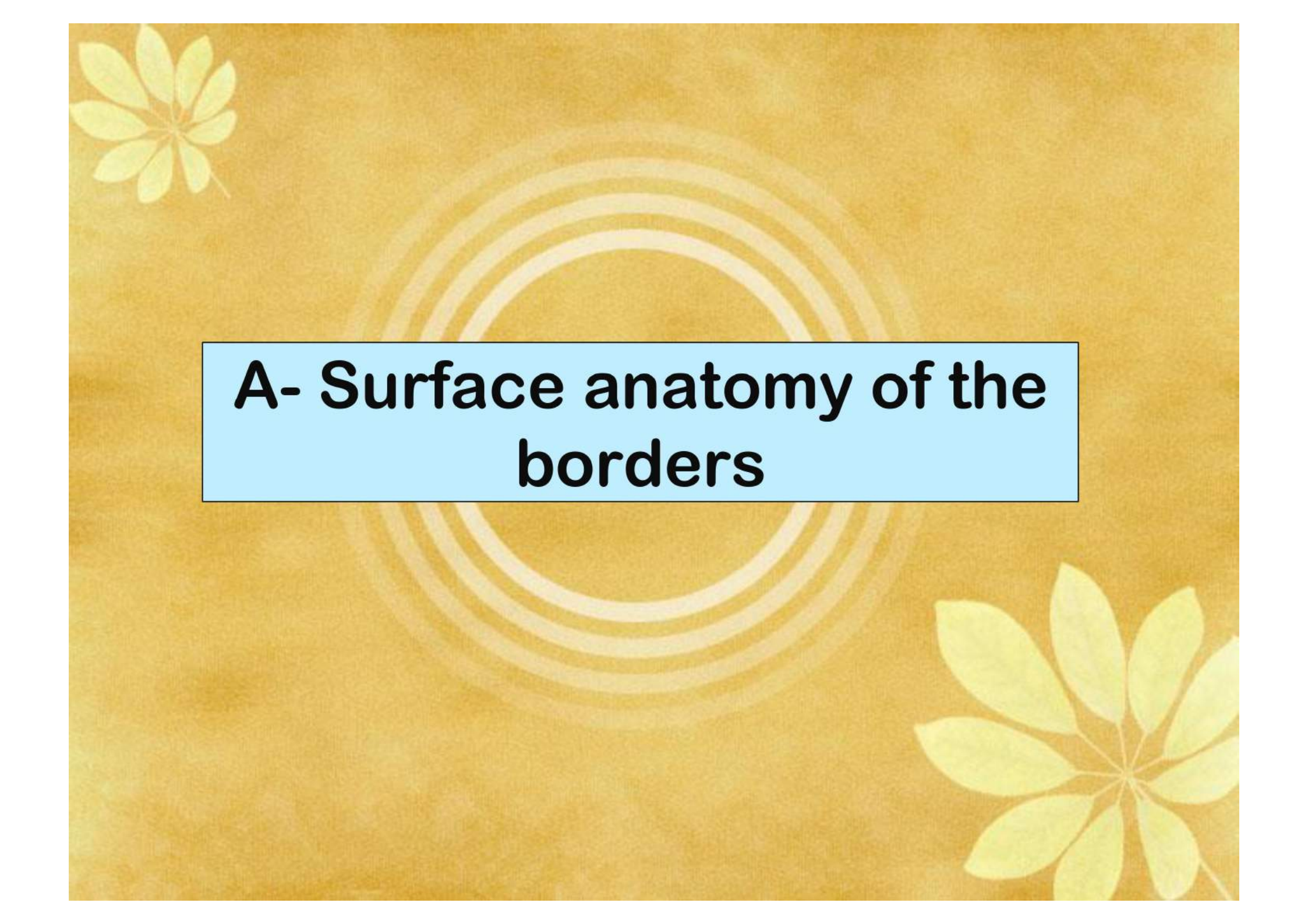
- Lies above and in front of the oblique fissure
- It is equivalent to the upper and middle lobes of the right lung together.
- It includes the apex of the lung and the whole anterior border including the cardiac notch and the lingula.

2- Lower lobe:

- Identical to that of the right lung.

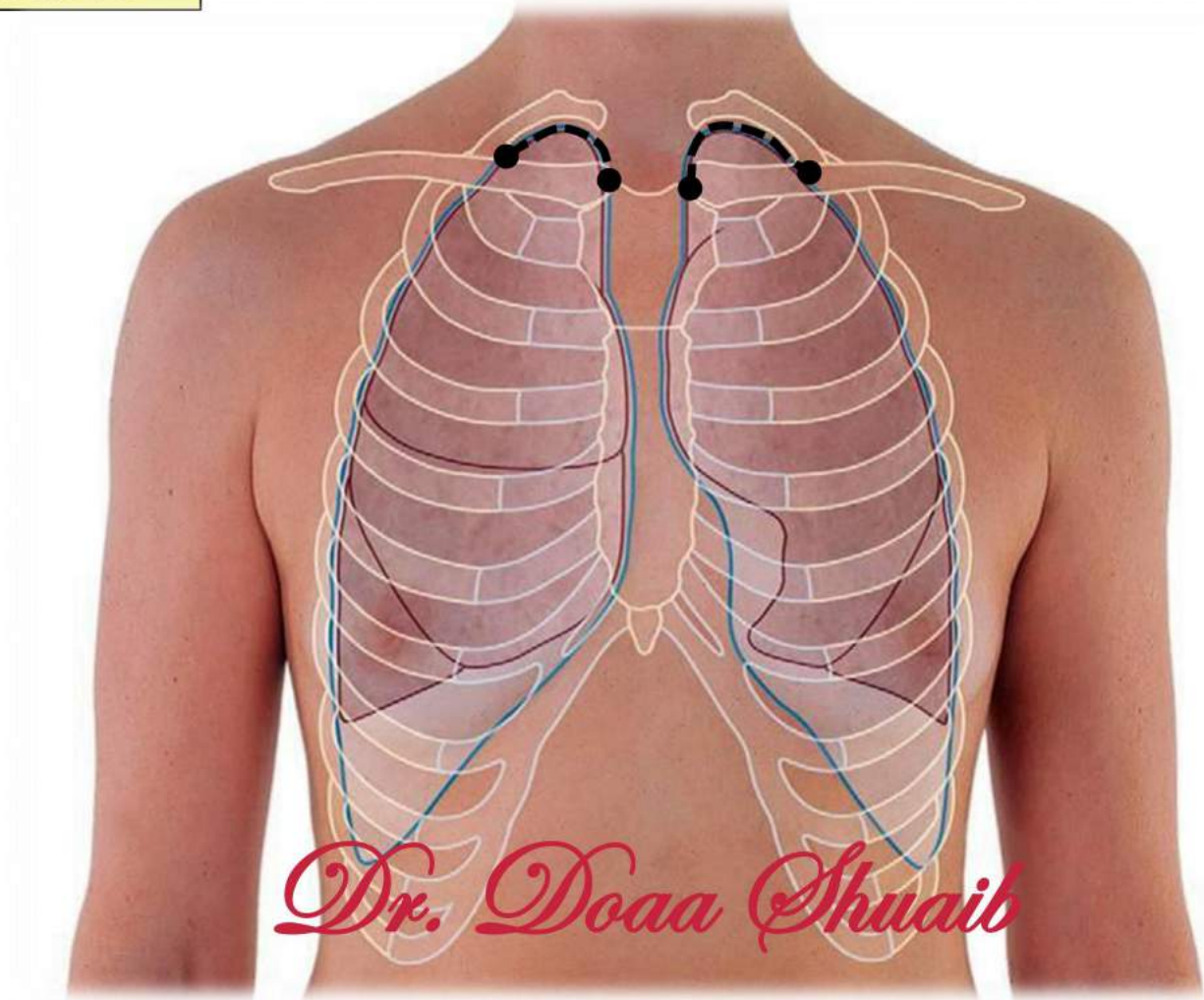


Surface anatomy of the lung



A- Surface anatomy of the borders

Surface anatomy of the borders

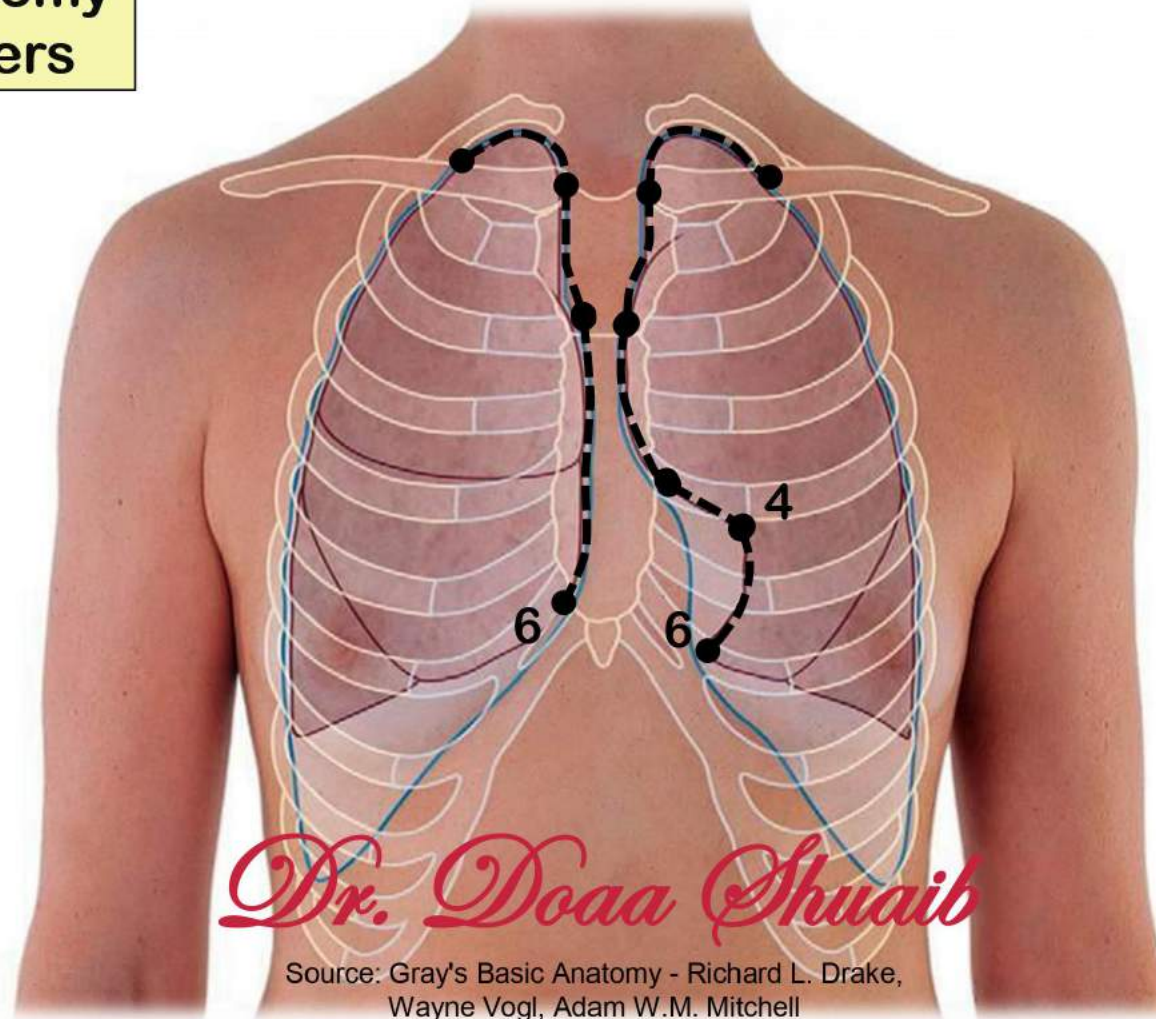


Source: Gray's Basic Anatomy - Richard L. Drake,
Wayne Vogl, Adam W.M. Mitchell

1. Apex of the lung

- Represented by a curved line extending from the junction of the medial and middle thirds of the clavicle to the sternoclavicular joint.
- The line is convex upwards with its summit 3 cm above the medial 1/3 of the clavicle.

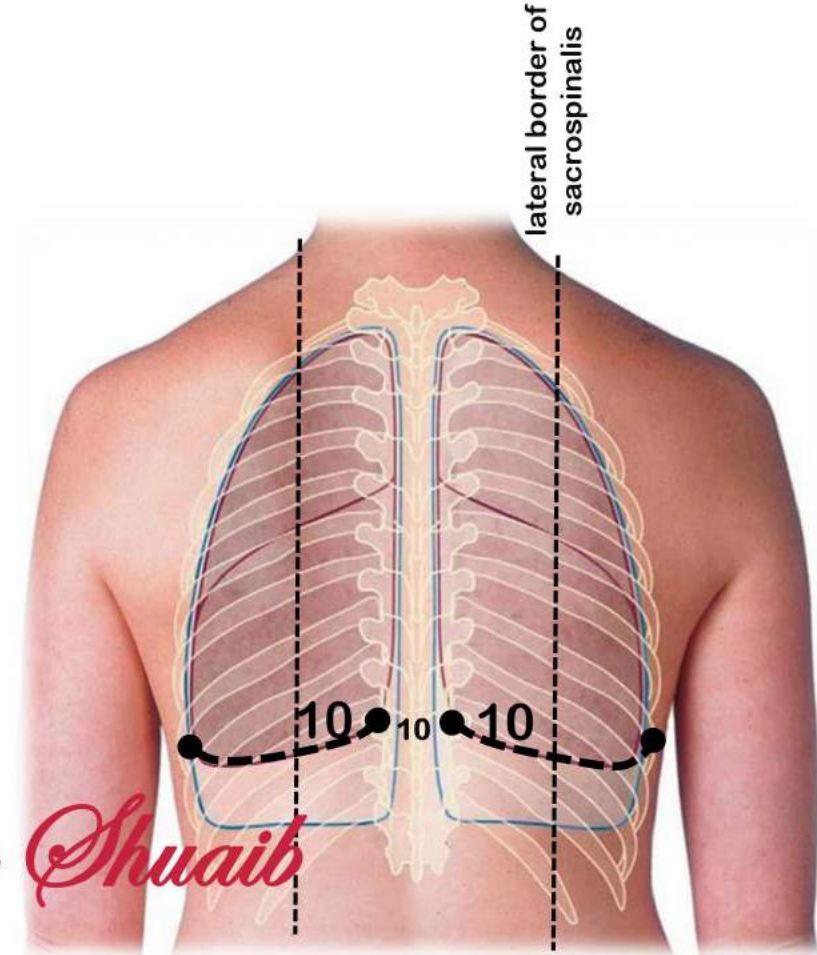
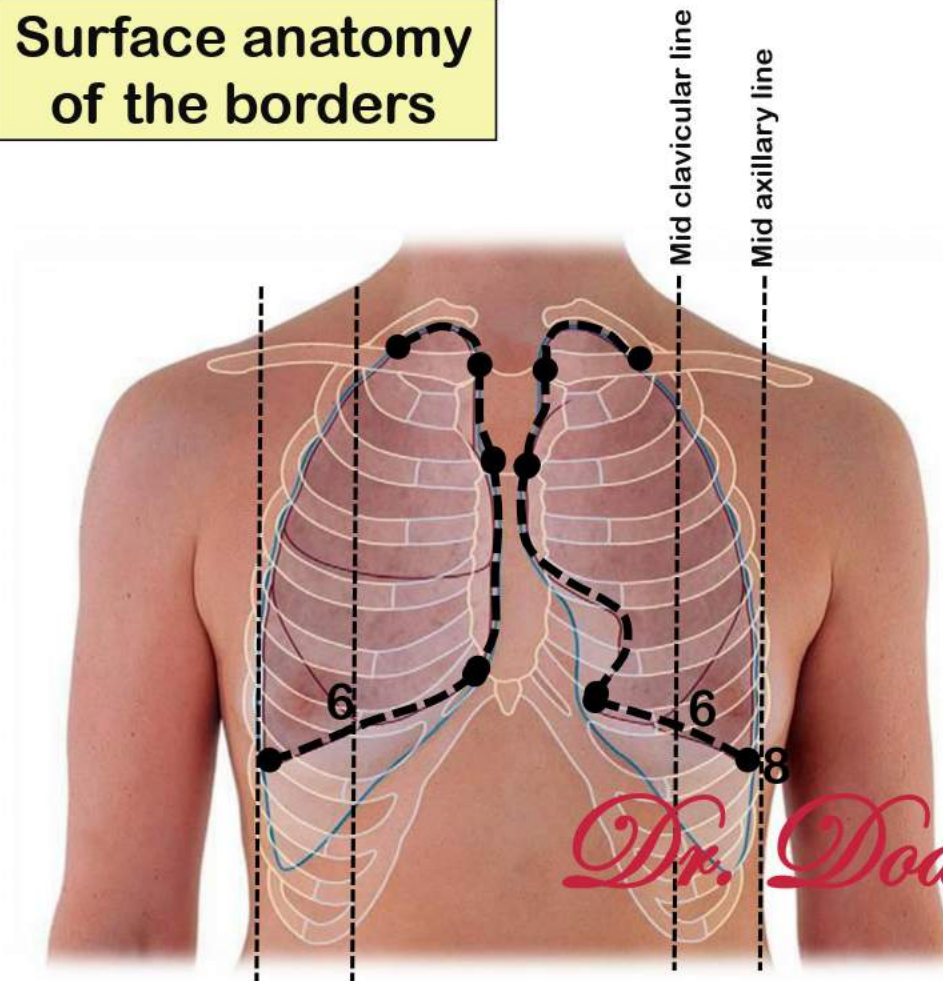
Surface anatomy of the borders



2. Anterior border of the left lung

- The upper part is the same for both lungs. It descends obliquely downwards and medially from the sternoclavicular joint to the sternal angle
- Below this level:
 - **Anterior border of right lung:** descends vertically to the **6th sternocostal junction**.
 - **Anterior border of left lung:** descends to the level of the **4th costal cartilage** where it deviates to the left, about half an inch from the left border of the sternum, then curves downwards and medially (representing the cardiac notch and the lingula) to end at the 6th sternocostal junction.

Surface anatomy of the borders



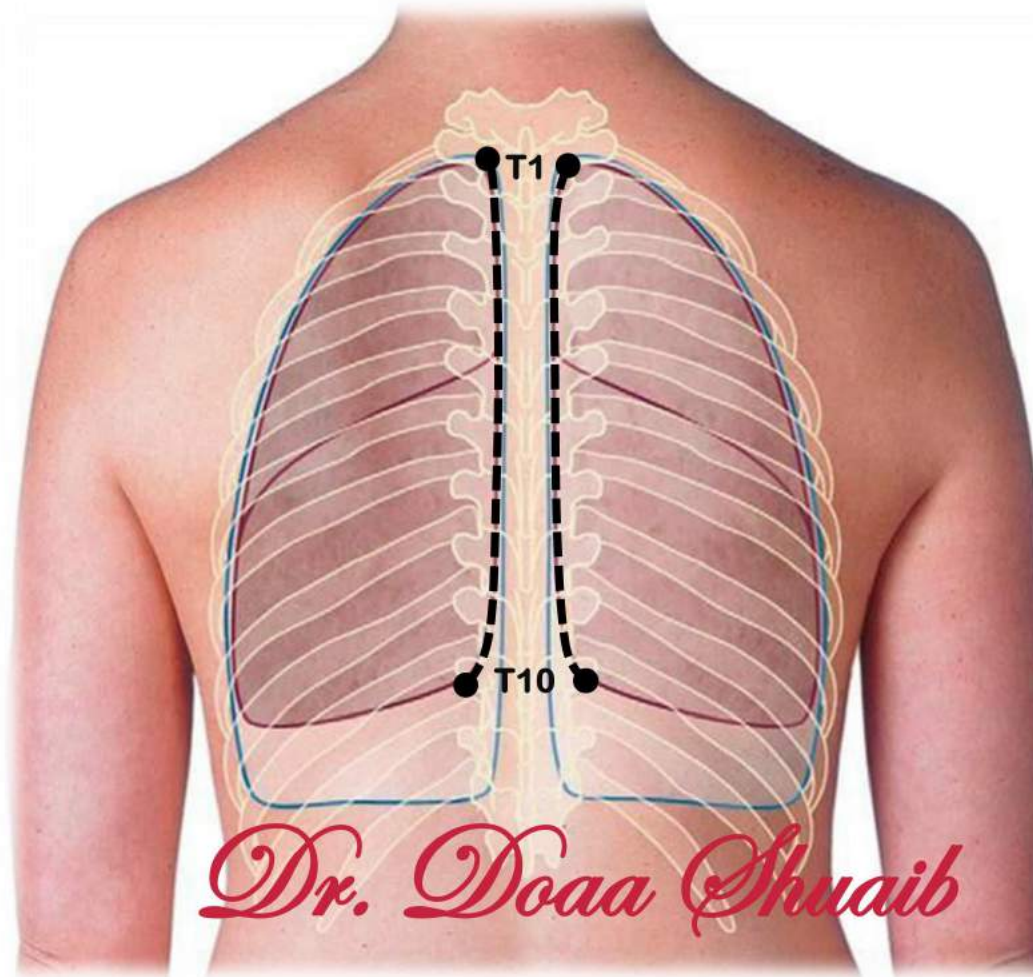
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Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

3. Inferior border of the lung

- Begins, in both lungs, at the **6th sternocostal junction**
- Then it curves laterally and backwards around the thoracic wall
- It ends at the level of the **10th thoracic spine** where it becomes continuous with the posterior border.
- The line crosses the following ribs:
 - a- **6th rib**: in the midclavicular line.
 - b- **8th rib**: in the midaxillary line.
 - c- **10th rib**: at the lateral border of sacrospinalis muscle.

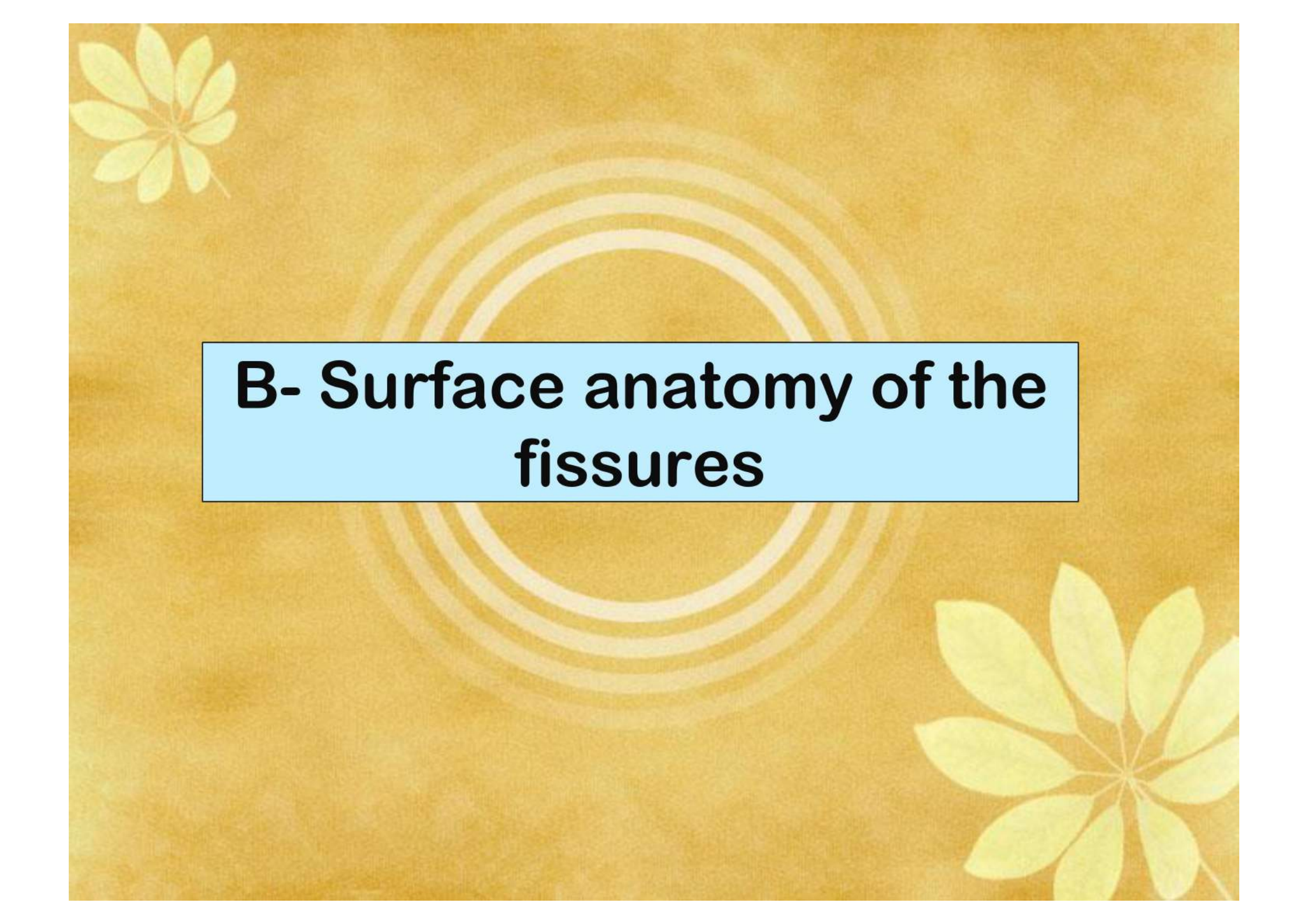
Surface anatomy of the borders



Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

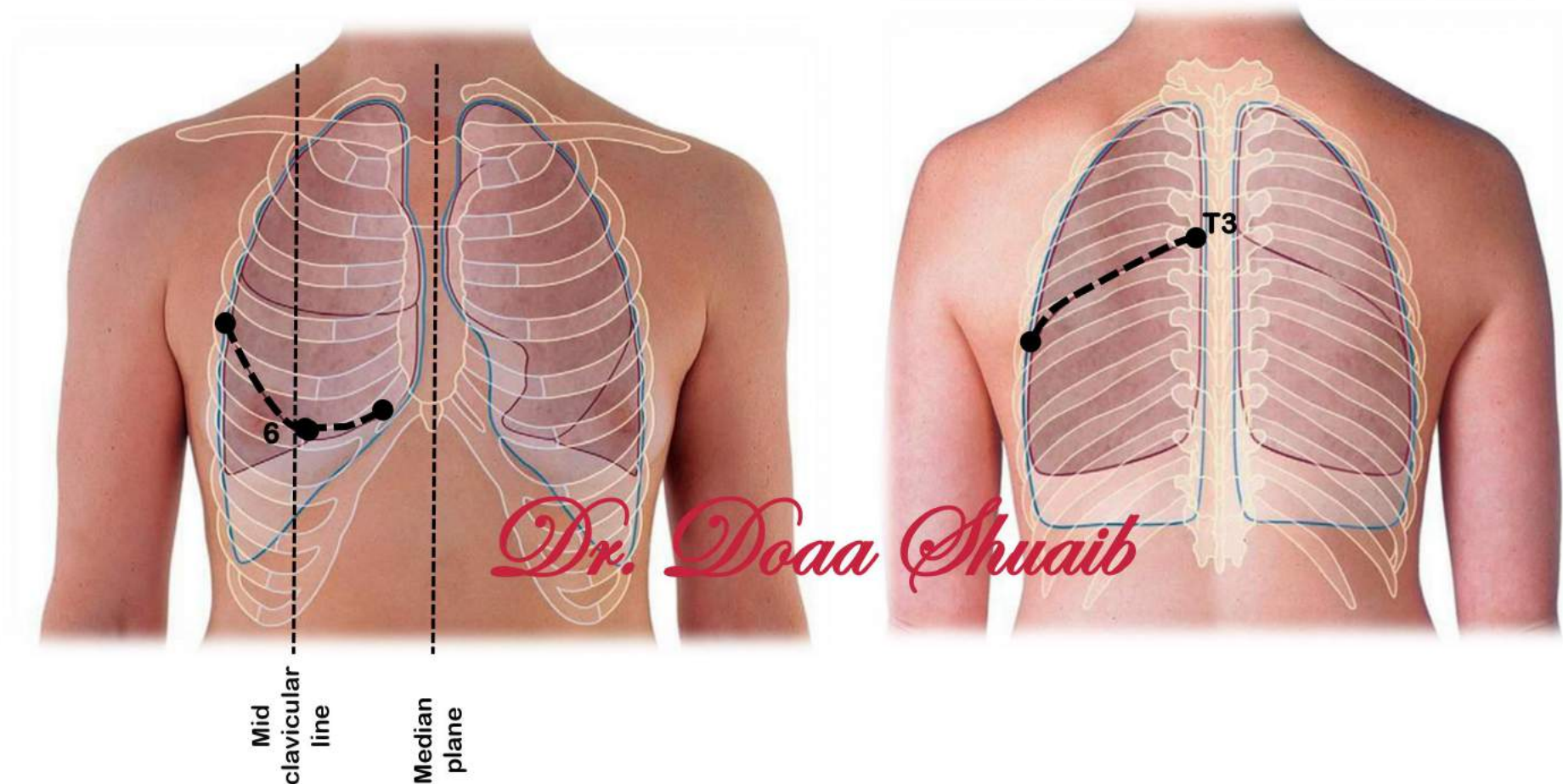
4. Inferior border of the lung

- The same for the 2 lungs
- It begins at the level of the **10th thoracic spine** where the inferior border ends
- It ascends vertically upwards alongside the vertebral column to end at the level of the **1st thoracic spine** where it joins the apex.



B- Surface anatomy of the fissures

Surface anatomy of the fissures

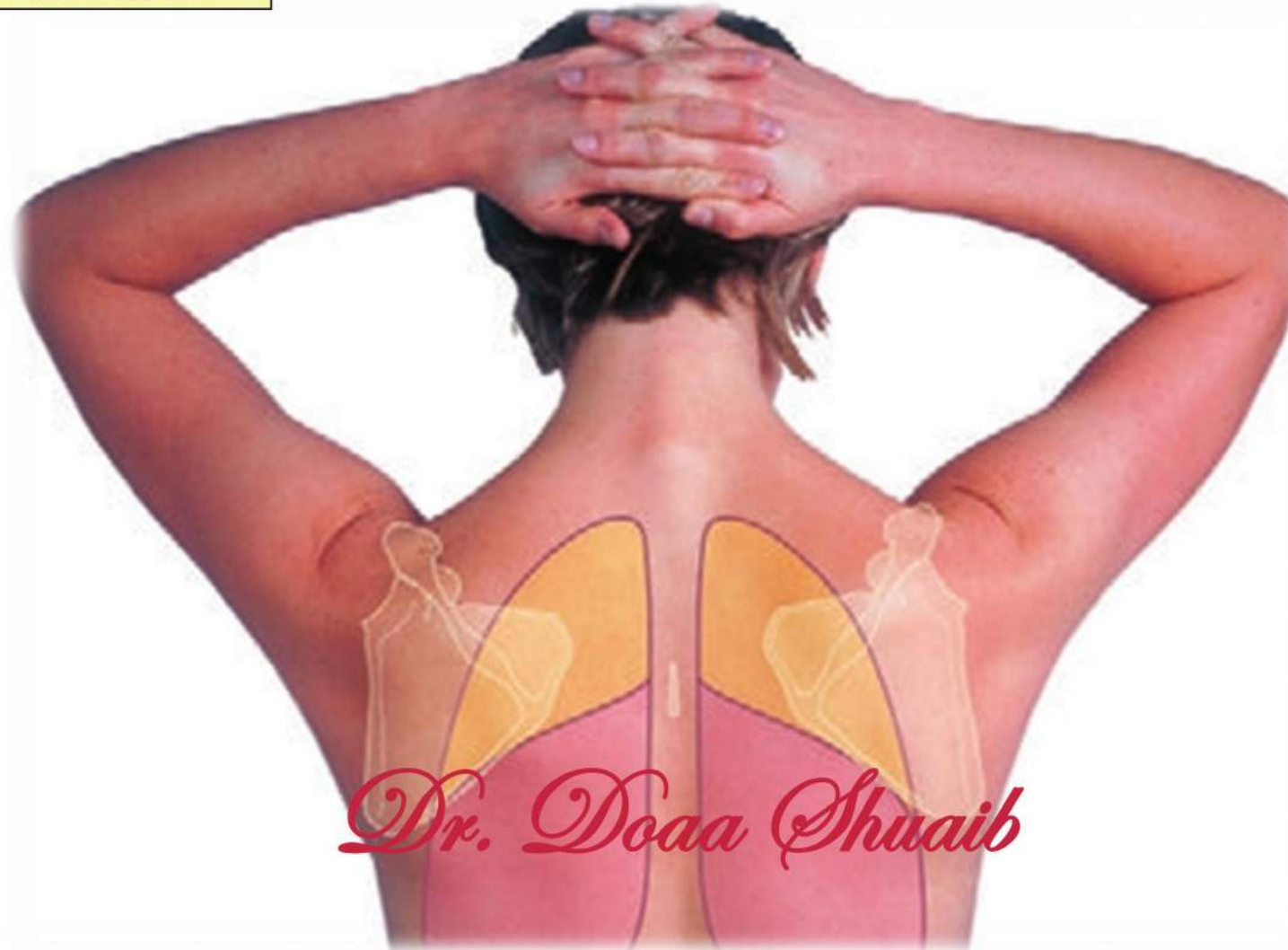


Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

1. Oblique fissure

- In both lungs
- Represented by an oblique line which starts posteriorly at a point 3 cm from the **3rd thoracic spine**, opposite the root of the spine of the scapula.
- It runs downwards and outwards, cutting the **6th rib** in the midaxillary line then following the rib to end anteriorly at the **6th costal cartilage** 3 inches from the median plane.

Surface anatomy of the fissures

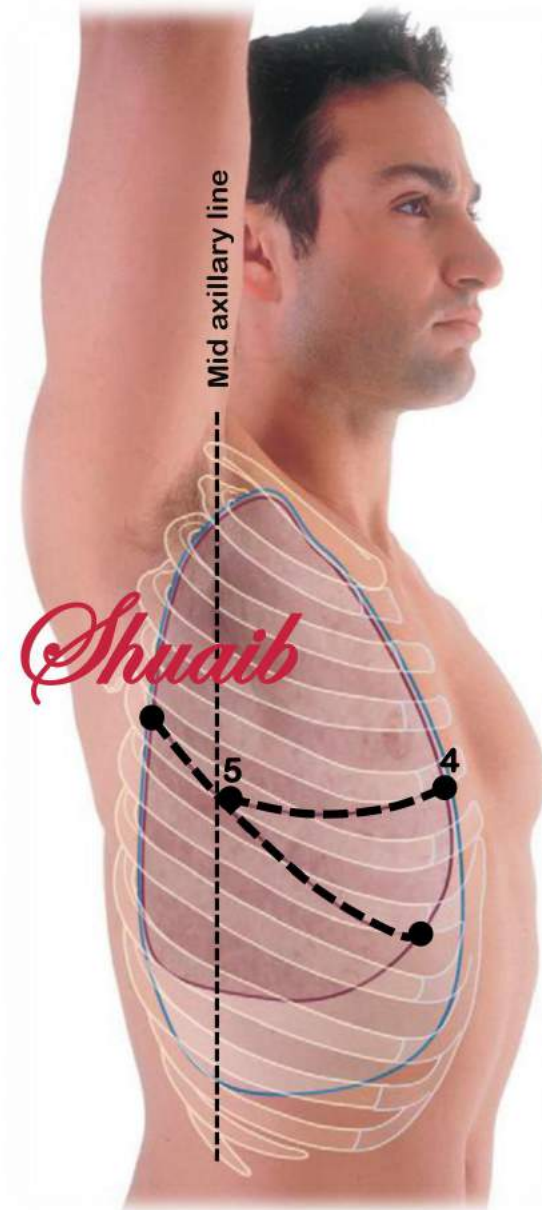
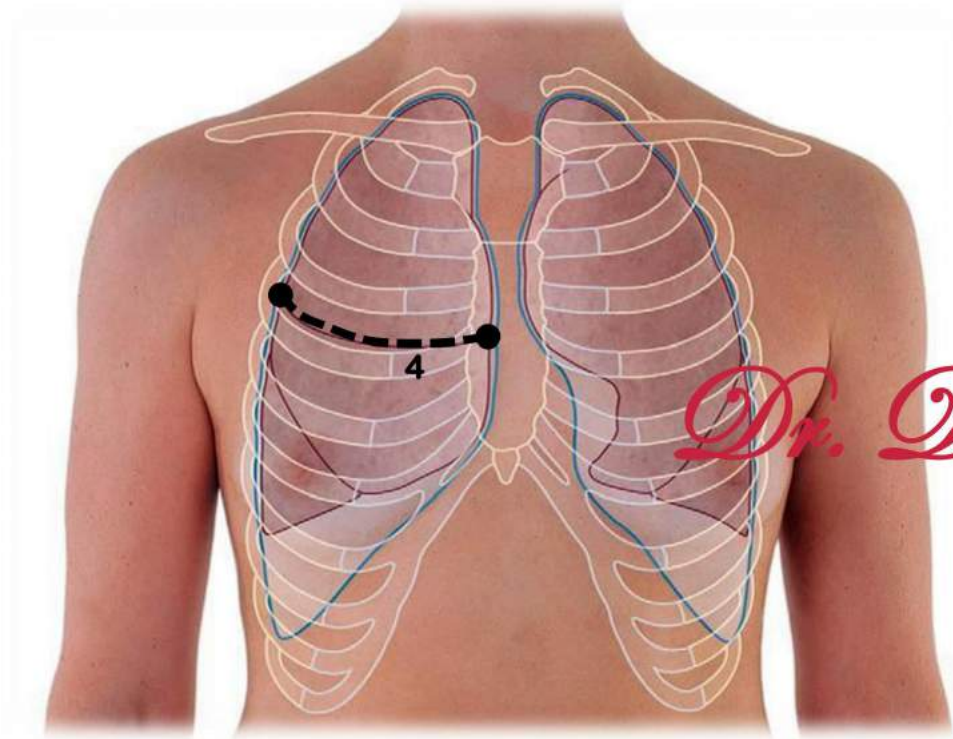


Source: Gray's Basic Anatomy - Richard L. Drake,
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1. Oblique fissure

It corresponds to the medial border of the scapula when the arm is raised above the shoulder and the hand is put behind the head.

Surface anatomy of the fissures



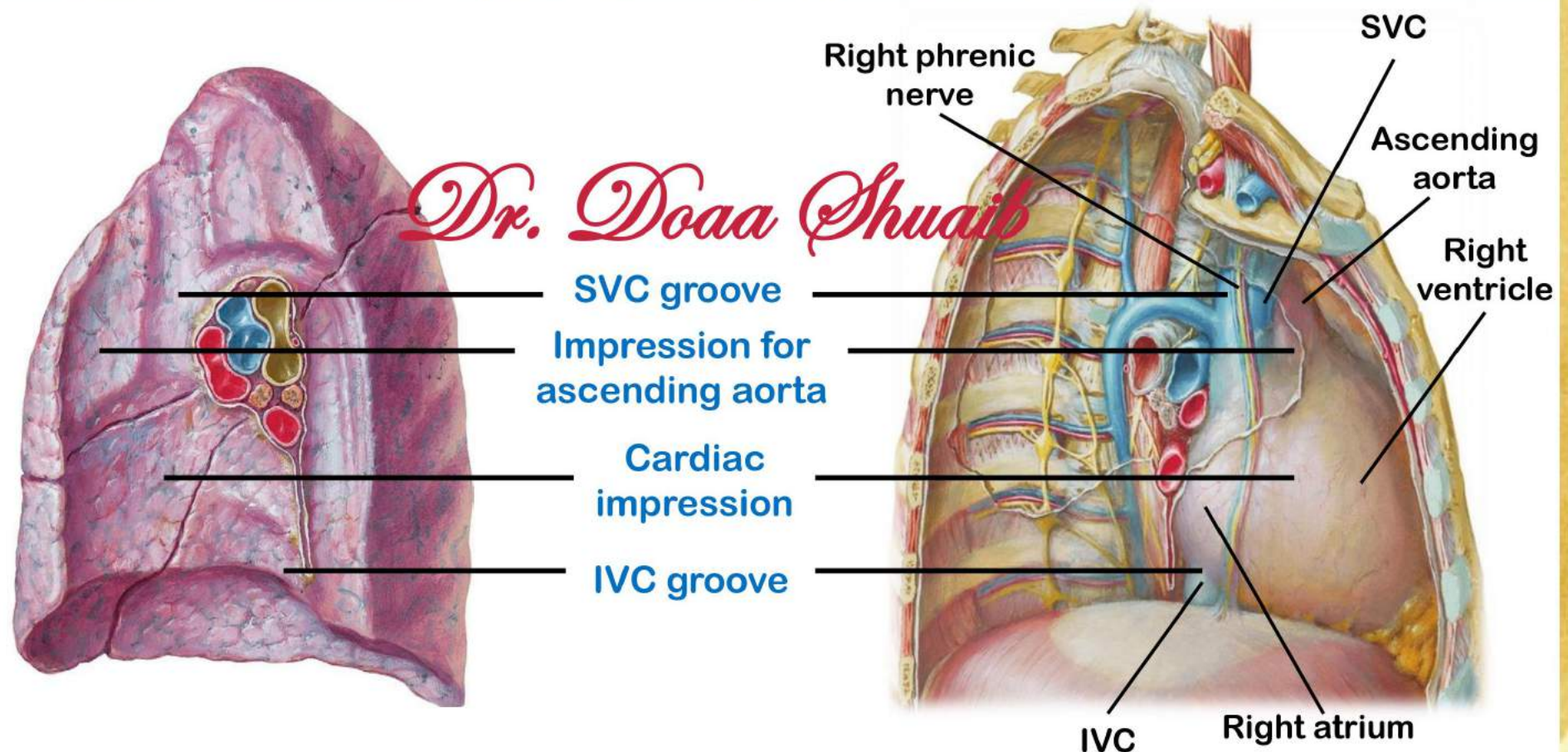
Source: Gray's Basic Anatomy - Richard L. Drake, Wayne Vogl, Adam W.M. Mitchell

2. Horizontal fissure

- Represented by a horizontal line which starts from the anterior border of the right lung, behind the right margin of the sternum, at the **4th costal cartilage**
- It runs to the right and slightly upwards till it meets the oblique fissure at the **5th rib** in the midaxillary line.

**Mediastinal surface of the
right lung**

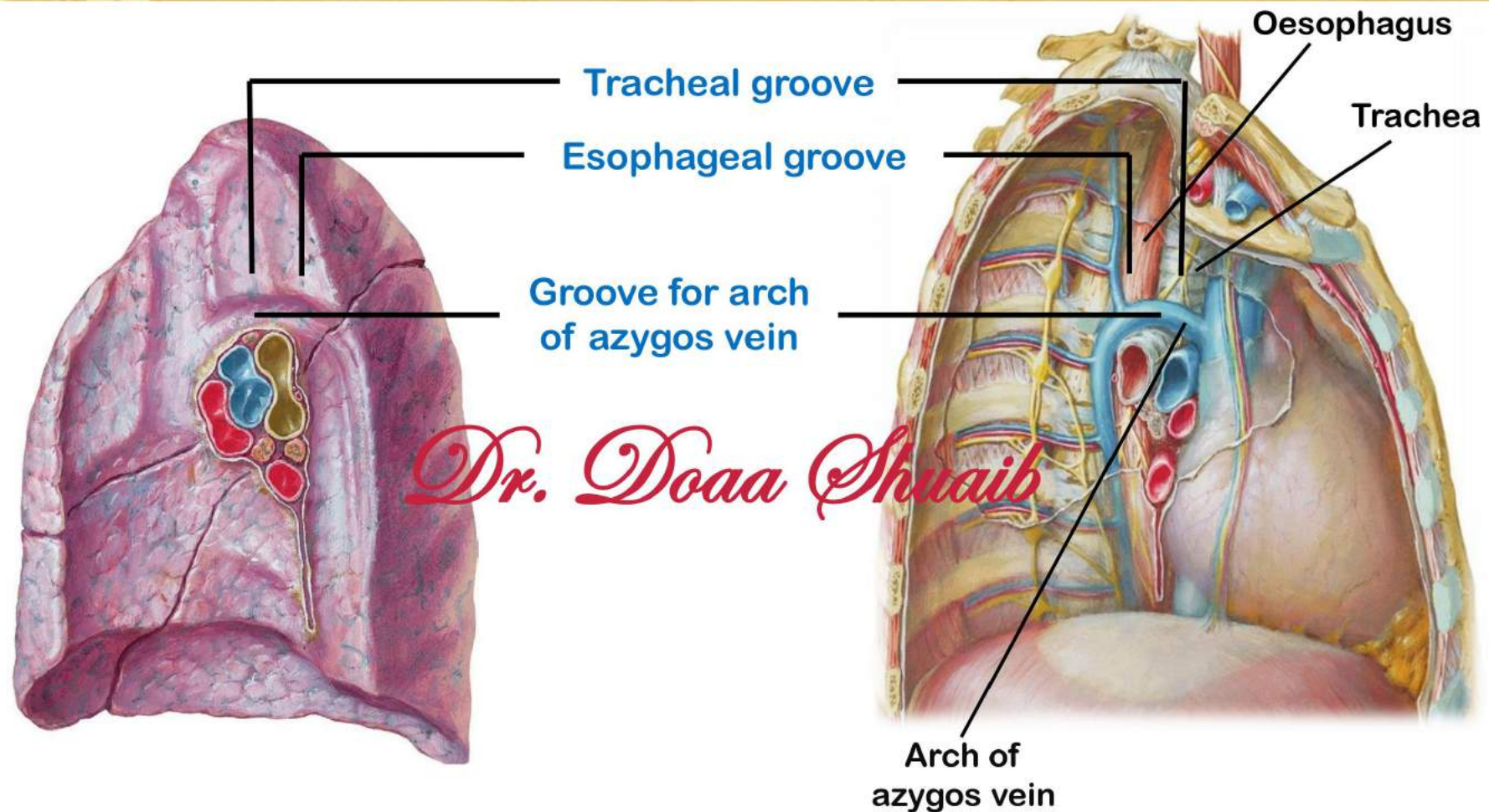
A- Impressions and grooves in front of the hilum and pulmonary ligament



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

- 1- **Cardiac impression:** in front of the hilum and pulmonary ligament. It is related to the right atrium, right auricle, small part of right ventricle, pericardium and right phrenic nerve.
- 2- **Superior vena caval groove:** It is related to the S.V.C. and the right phrenic nerve. It is continuous upwards with the groove for the right brachiocephalic vein
- 3- **Impression for ascending aorta:** between the cardiac impression, the superior vena caval groove and the anterior border of the lung. It is related to the ascending aorta.
- 4- **Inferior vena caval groove:** Infront of pulmonary ligament It is related to the I.V.C. and the right phrenic nerve.

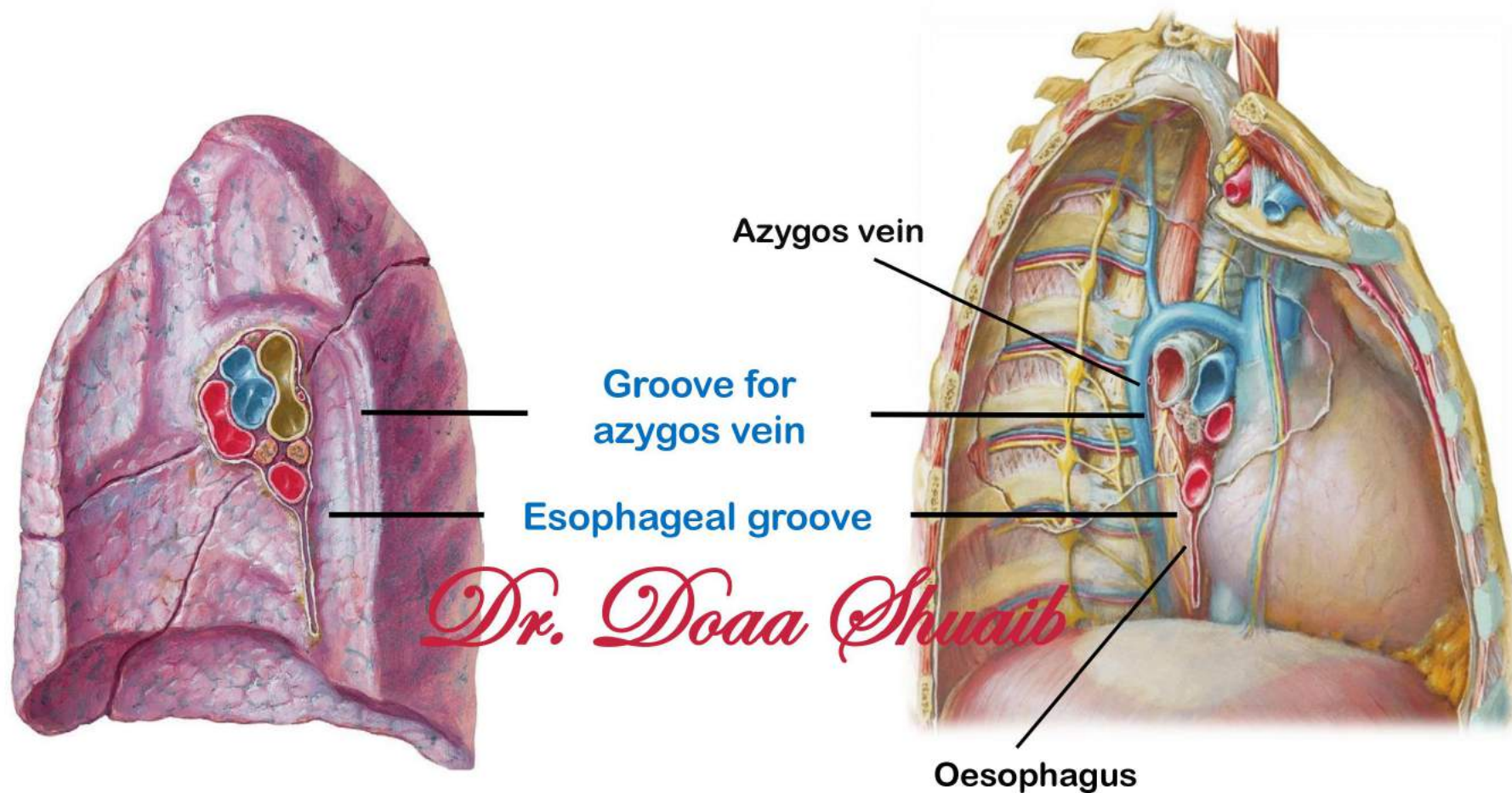
B- Grooves above the hilum



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

- 1- Groove for arch of azygos vein:** just above the hilum. It is continuous posteriorly with the groove for the azygos vein. It is related to the arch of the azygos vein and the right vagus nerve.
- 2- Tracheal groove:** above the groove for the arch of the azygos vein, behind the groove for S.V.C. and right brachiocephalic vein. It is related to the trachea and the right vagus nerve
- 3- Oesophageal groove:** behind the tracheal groove. It is continuous below with the oesophageal groove behind the hilum, interrupted only by the groove for the azygos arch.

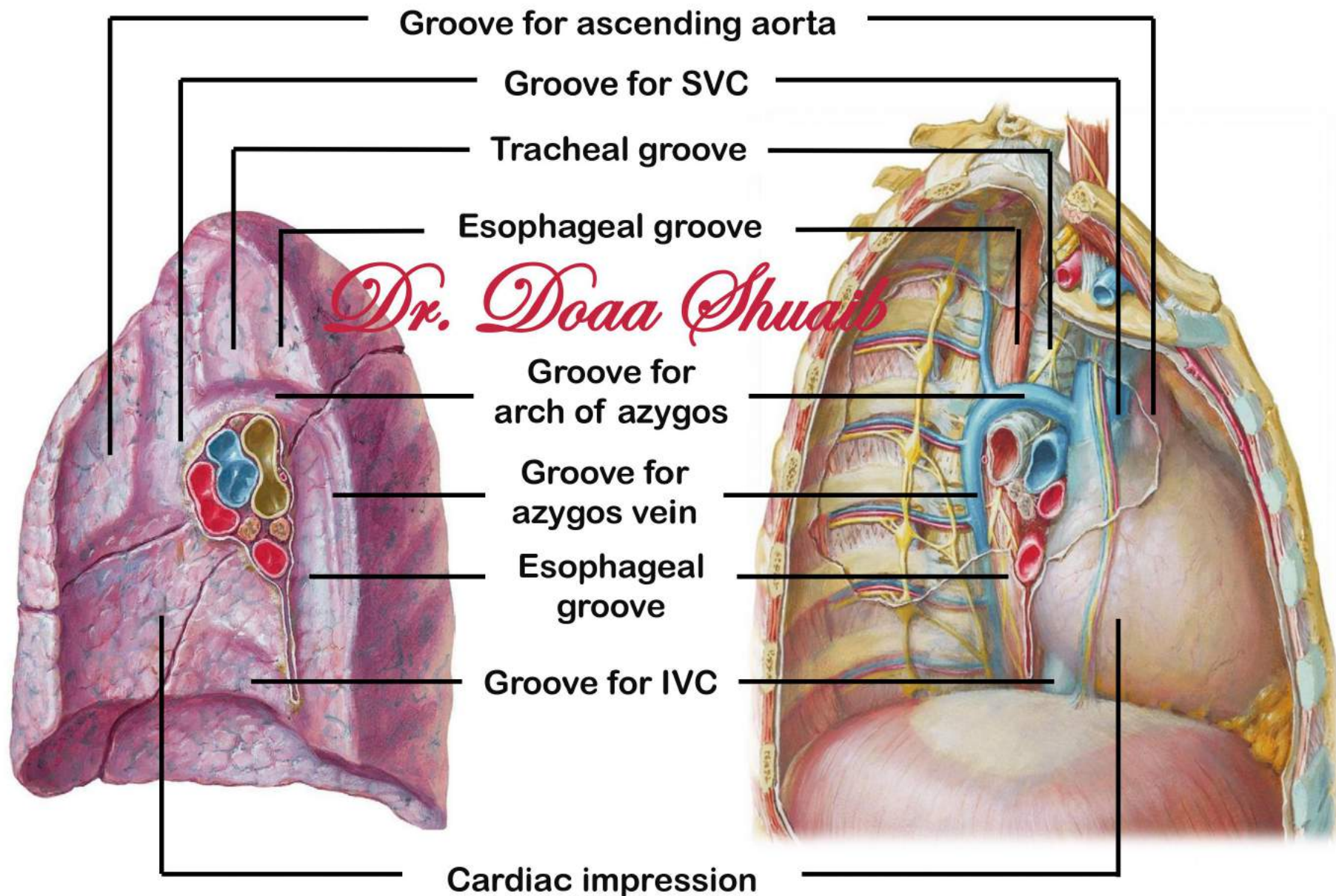
C- Grooves behind the hilum and pulmonary ligament



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

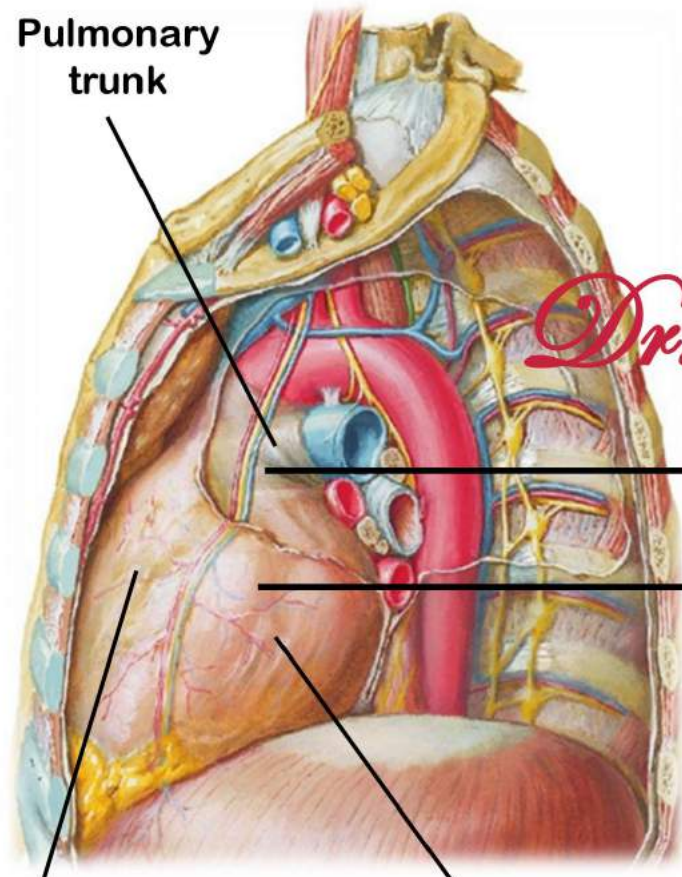
- 1- **Oesophageal groove:** narrow vertical groove descending downwards as a continuation of the identical one above the hilum.
- 2- **Groove for azygos vein:** narrow vertical groove descending downwards as a continuation of the groove for the azygos arch, behind the oesophageal groove.

Mediastinal surface of the right lung



**Mediastinal surface of the
left lung**

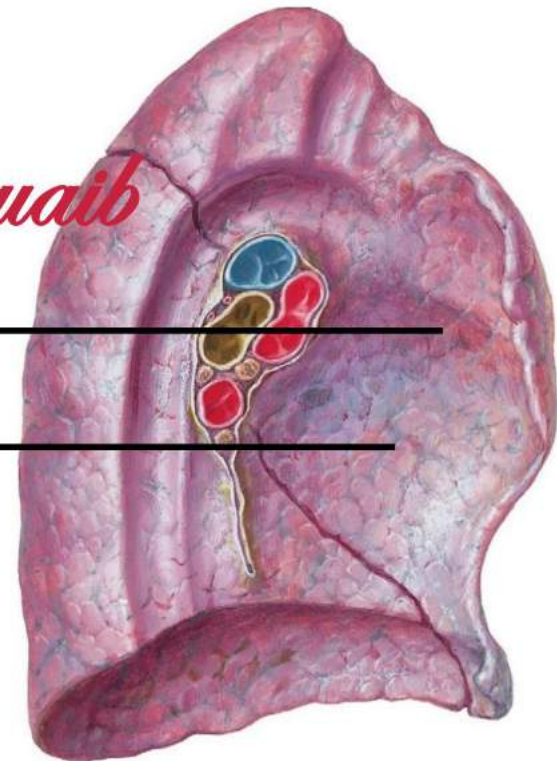
A- Impressions and grooves in front of the hilum and pulmonary ligament



Dr. Doaa Shuaib

Impression for
pulmonary trunk

Cardiac
impression



Right ventricle

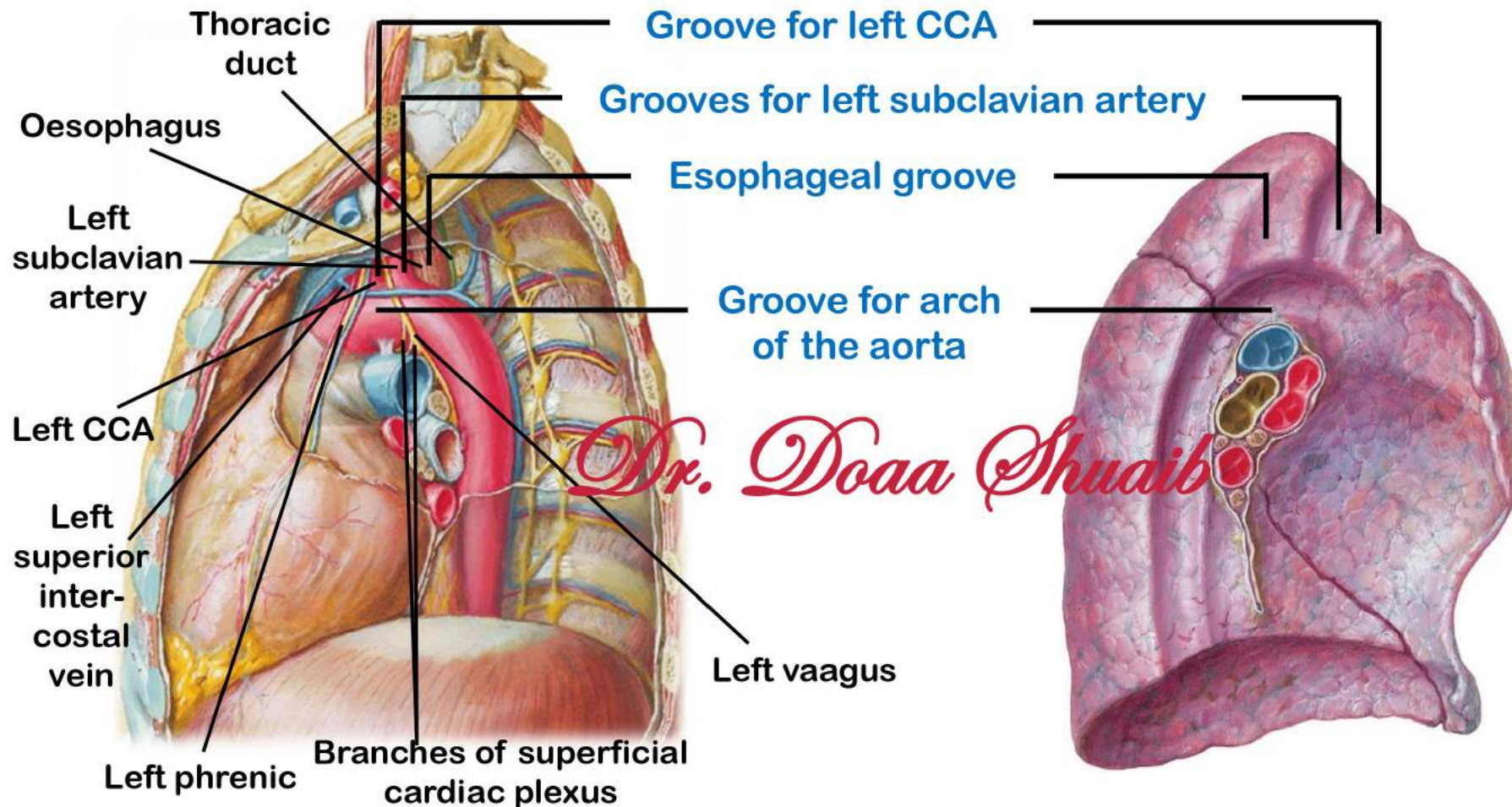
Left ventricle

Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

1- Cardiac impression: below and in front of the hilum and pulmonary ligament. It is related to the left ventricle, left atrium, greater part of right ventricle, pericardium and left phrenic nerve.

2- Impression for the pulmonary trunk: above cardiac impression, in front of the upper part of the hilum, close to the anterior border of the lung. It is related to the pulmonary trunk and infundibulum of right ventricle.

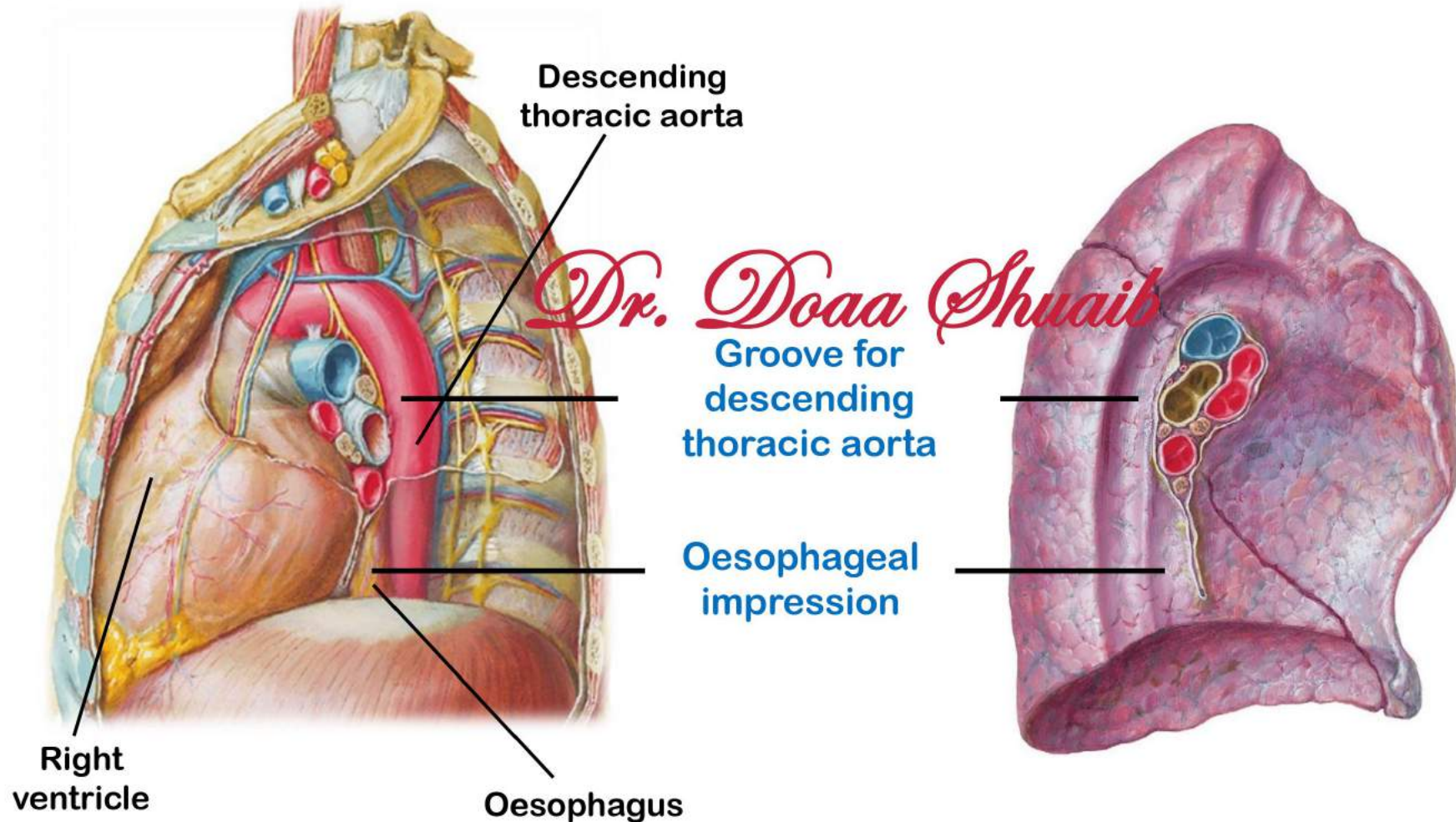
B- Grooves above the hilum



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

- 1- Groove for the arch of the aorta:** just above the hilum. It is continuous posteriorly with groove for descending thoracic aorta. It is related to arch of the aorta separated from it by: left phrenic and left vagus, 2 branches forming superficial cardiac plexus and left superior intercostal vein.
- 2- Grooves for the left common carotid and left subclavian arteries:** The grooves are related to the corresponding arteries, with the left phrenic and left vagus nerves in between.
- 3- Oesophageal groove:** just behind the left subclavian artery. It is related to the oesophagus and thoracic duct along its left border.

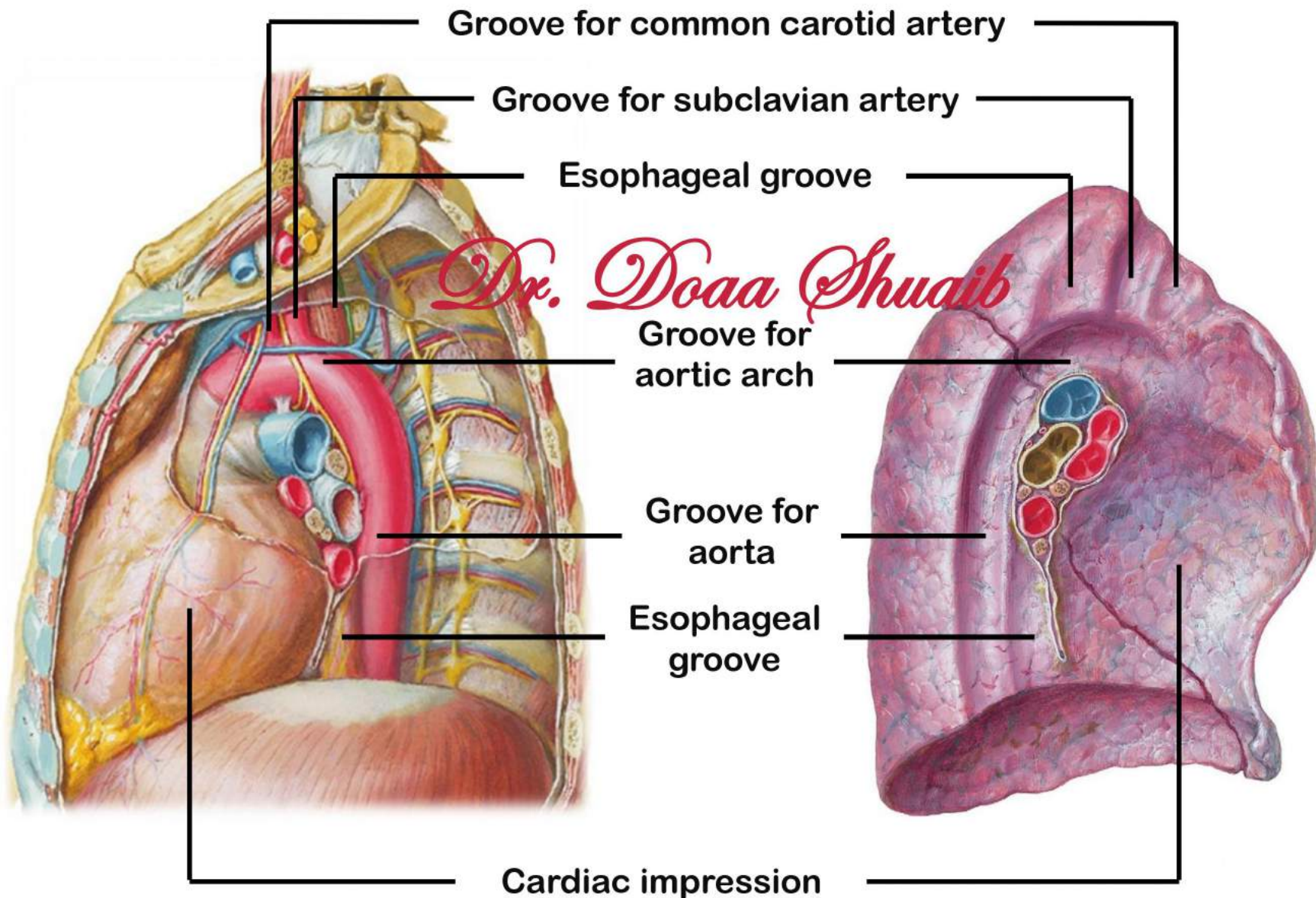
C- Grooves behind the hilum and pulmonary ligament

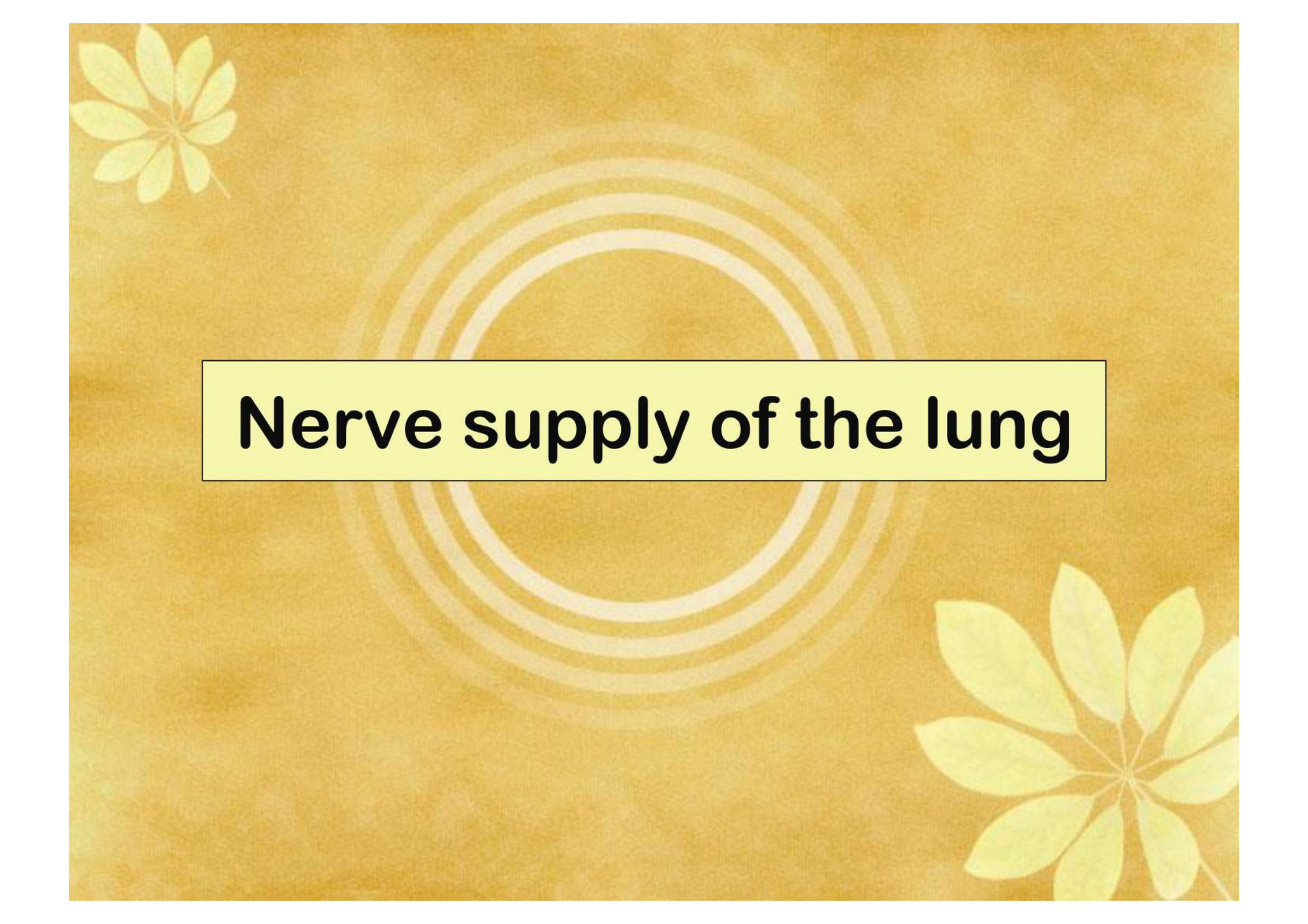


Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

- 1- **Groove for descending thoracic aorta:** descends just behind the hilum and the pulmonary ligament.
- 2- **Oesophageal impression:** a small triangular area just in front of the lower end of the groove for the descending aorta. It is related to the oesophagus where it deviates to the left.

Mediastinal surface of the left lung

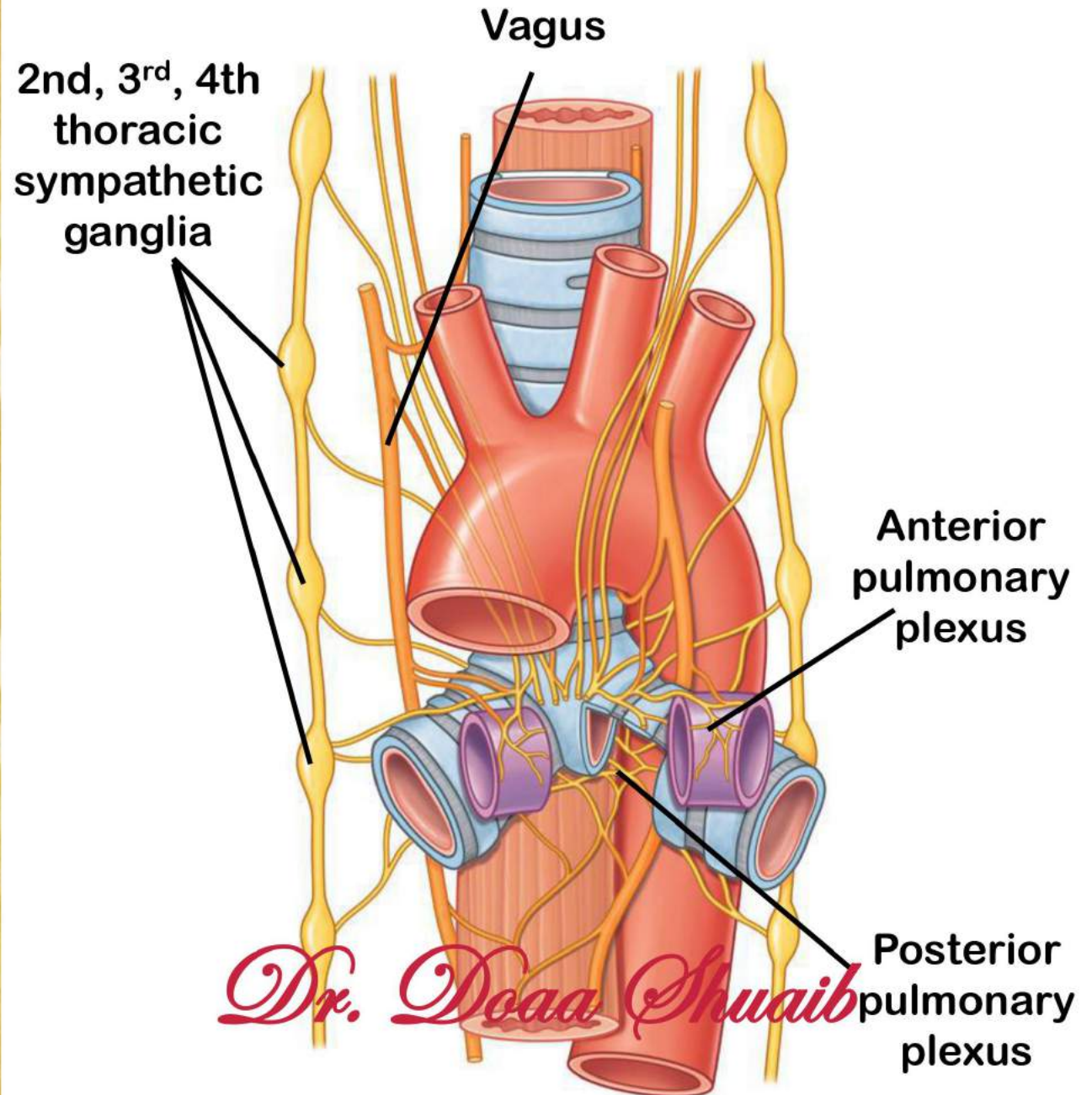


The background is a textured, golden-yellow surface. In the center, there are several concentric, light-colored circles that create a ripple effect. In the top-left and bottom-right corners, there are stylized, light-green floral motifs with multiple pointed petals.

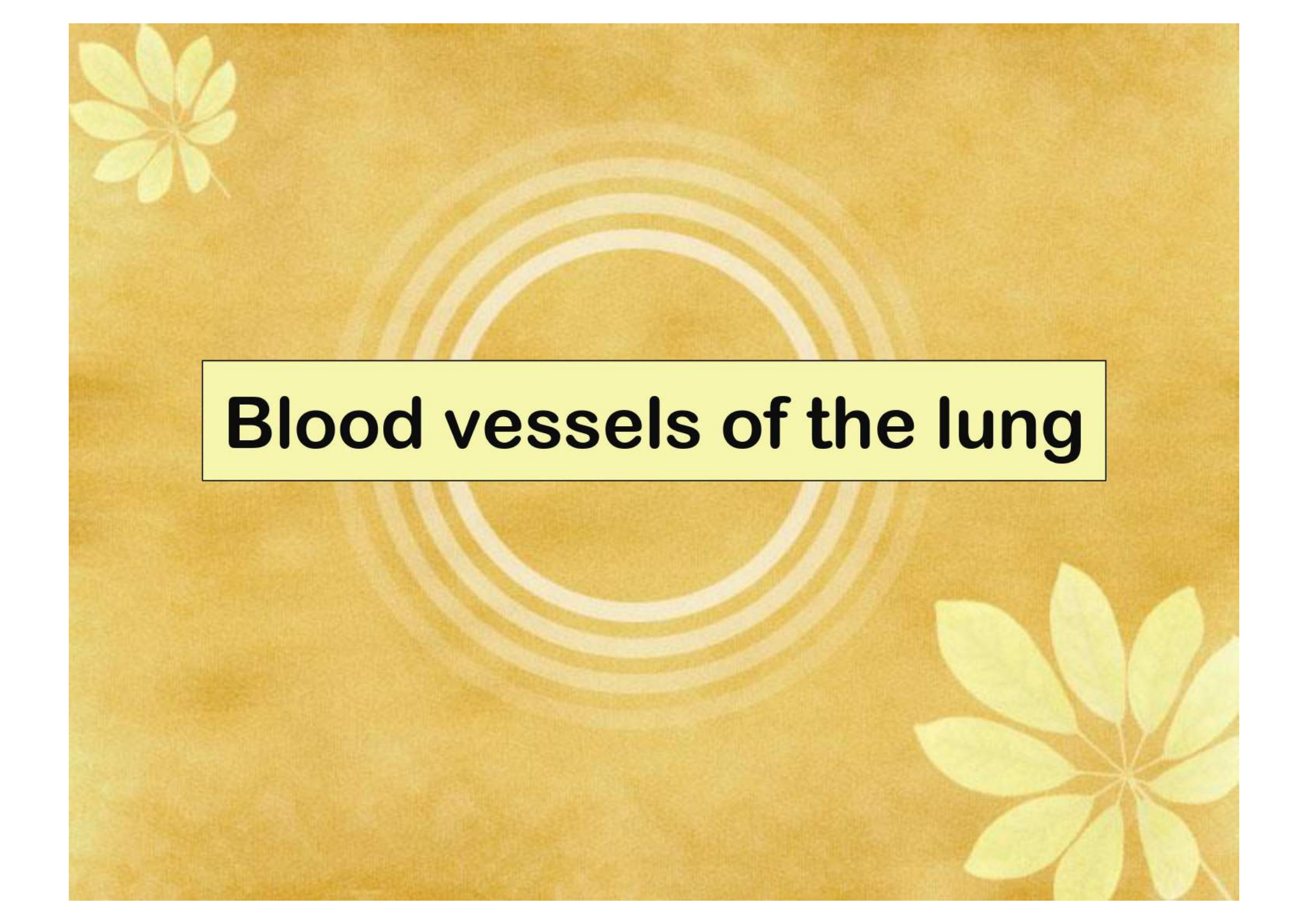
Nerve supply of the lung

Nerve supply

- The lungs are supplied by **autonomic fibres** from the anterior and posterior pulmonary plexuses situated in front of and behind the root of the lung.
- The **sympathetic fibres** are derived from the 2nd, 3rd and 4th thoracic sympathetic ganglia
- The **parasympathetic fibres** are derived from the two vagi

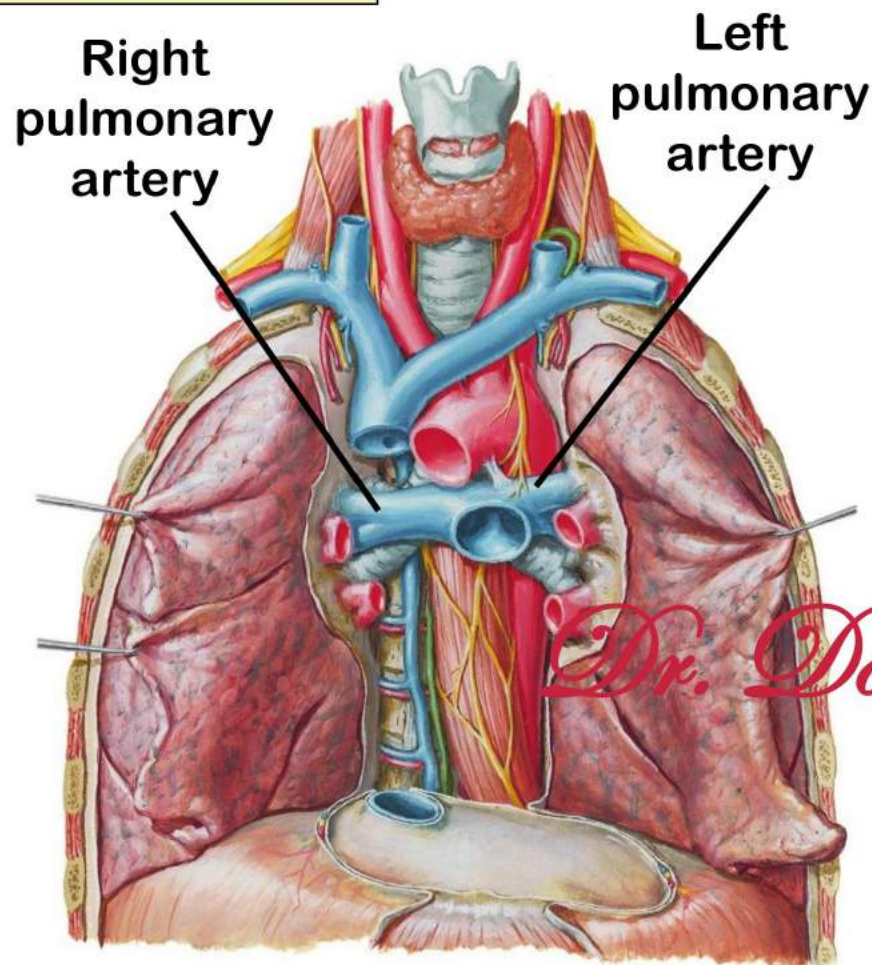


Source: Gray's Basic Anatomy - Richard L. Drake,
Wayne Vogl, Adam W.M. Mitchell

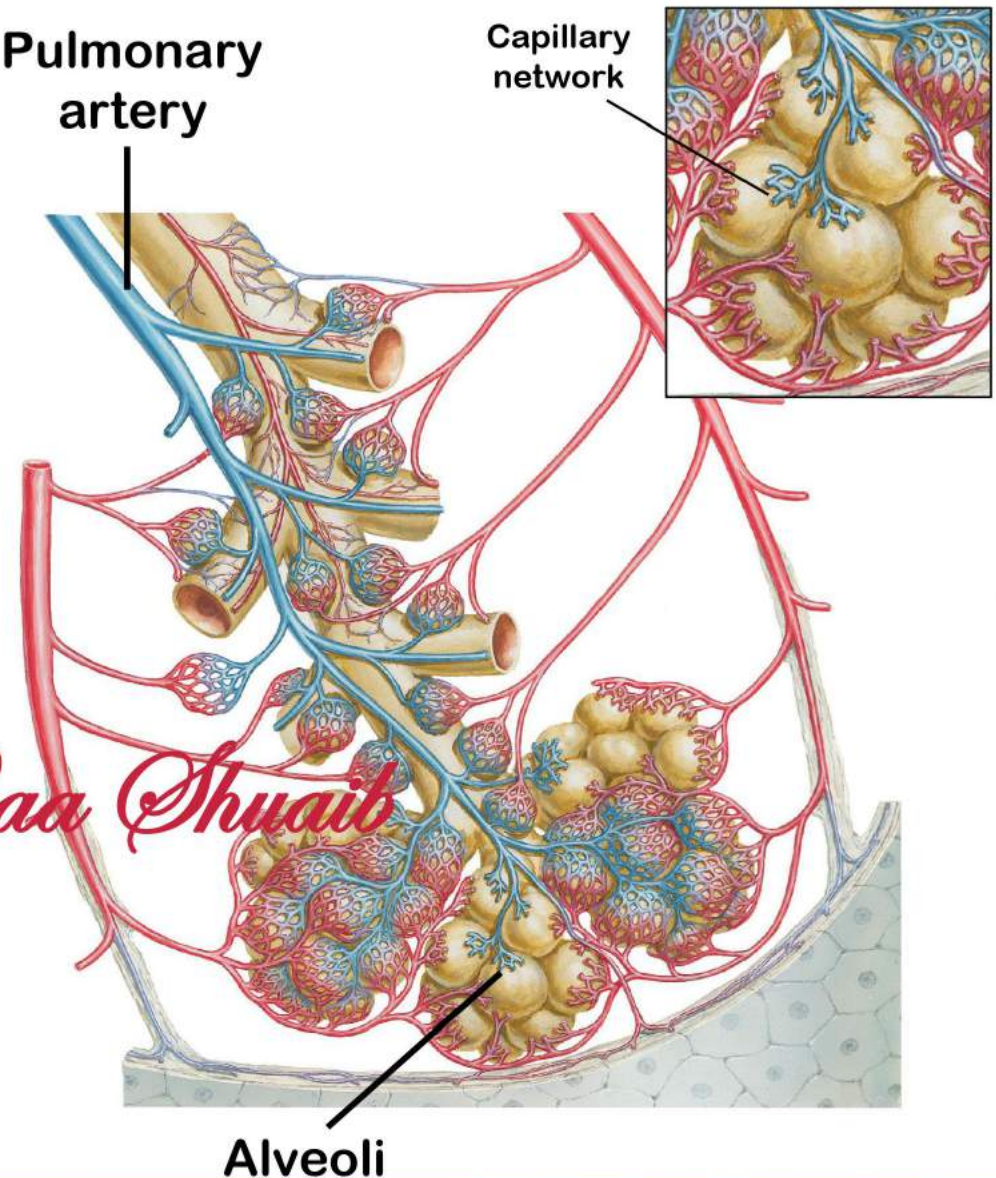
The background is a textured, golden-yellow color. In the center, there are several concentric, light-colored circles that create a ripple effect. In the top-left and bottom-right corners, there are stylized, light-green floral motifs with multiple pointed petals.

Blood vessels of the lung

1- Pulmonary vessels



Pulmonary artery



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

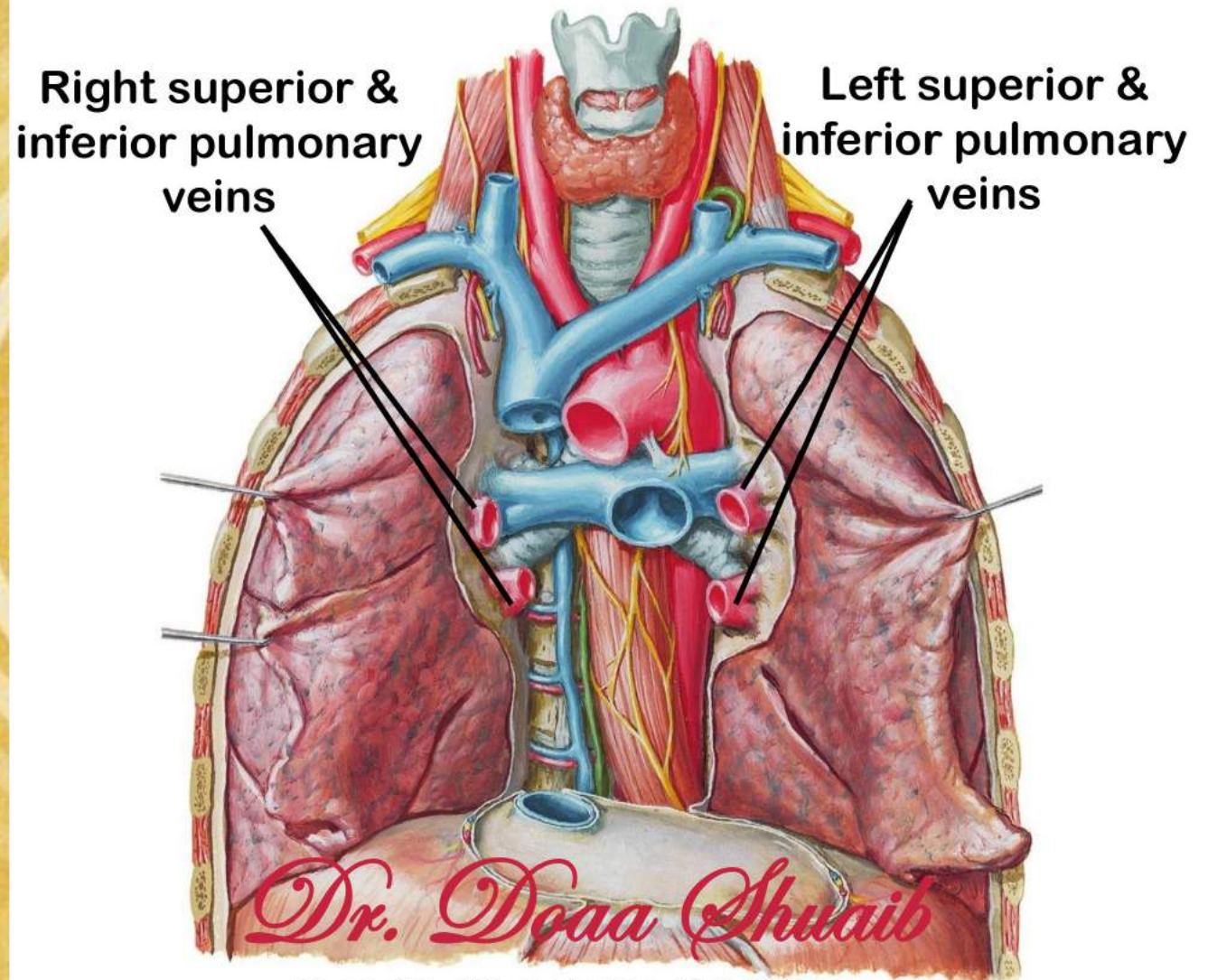
a) Pulmonary artery

- Each lung has **one pulmonary artery** which carries deoxygenated blood to the lung to be oxygenated.
- In the lung, it gives off branches which run alongside the divisions of the bronchial tree as far as the bronchopulmonary segments.
- The segmental arteries are **end arteries**.
- They ends by dividing into a capillary network in the walls of the alveoli.

1- Pulmonary vessels

b) Pulmonary veins

- Each lung is drained by **two pulmonary veins**, superior and inferior
- They convey oxygenated blood to the heart.

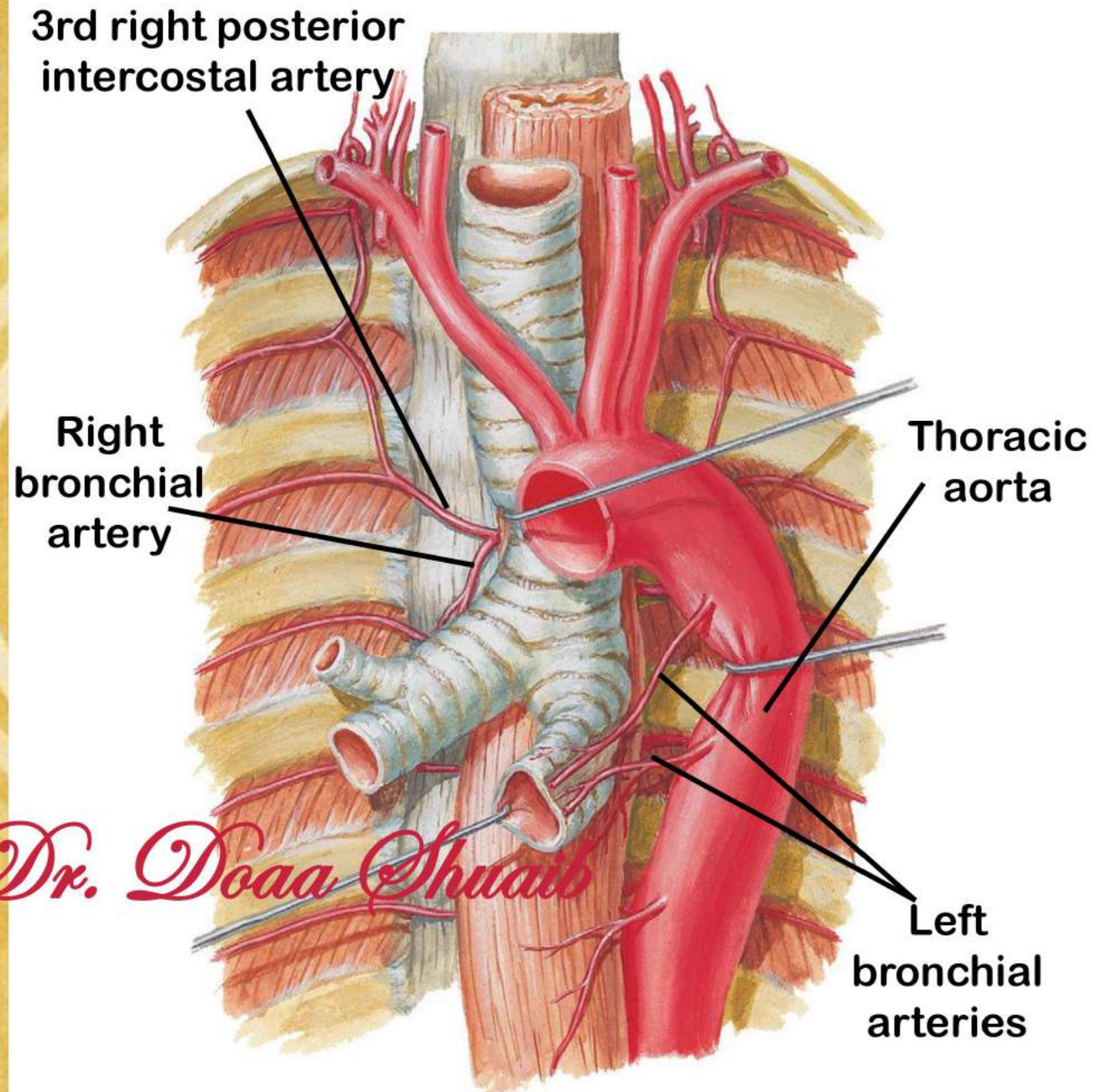


Source: Atlas of Human Anatomy, Sixth Edition-
Frank H. Netter, M.D

2- Bronchial vessels

a) Bronchial arteries

- They run along the posterior aspect of the principal bronchus and its divisions as far as the respiratory bronchioles.
- **The right lung:**
 - Has one bronchial artery
 - IT arises from the 3rd right posterior intercostal artery or from the upper left bronchial artery.
- **The left lung**
 - Has two left bronchial arteries
 - IT arise from descending thoracic aorta.

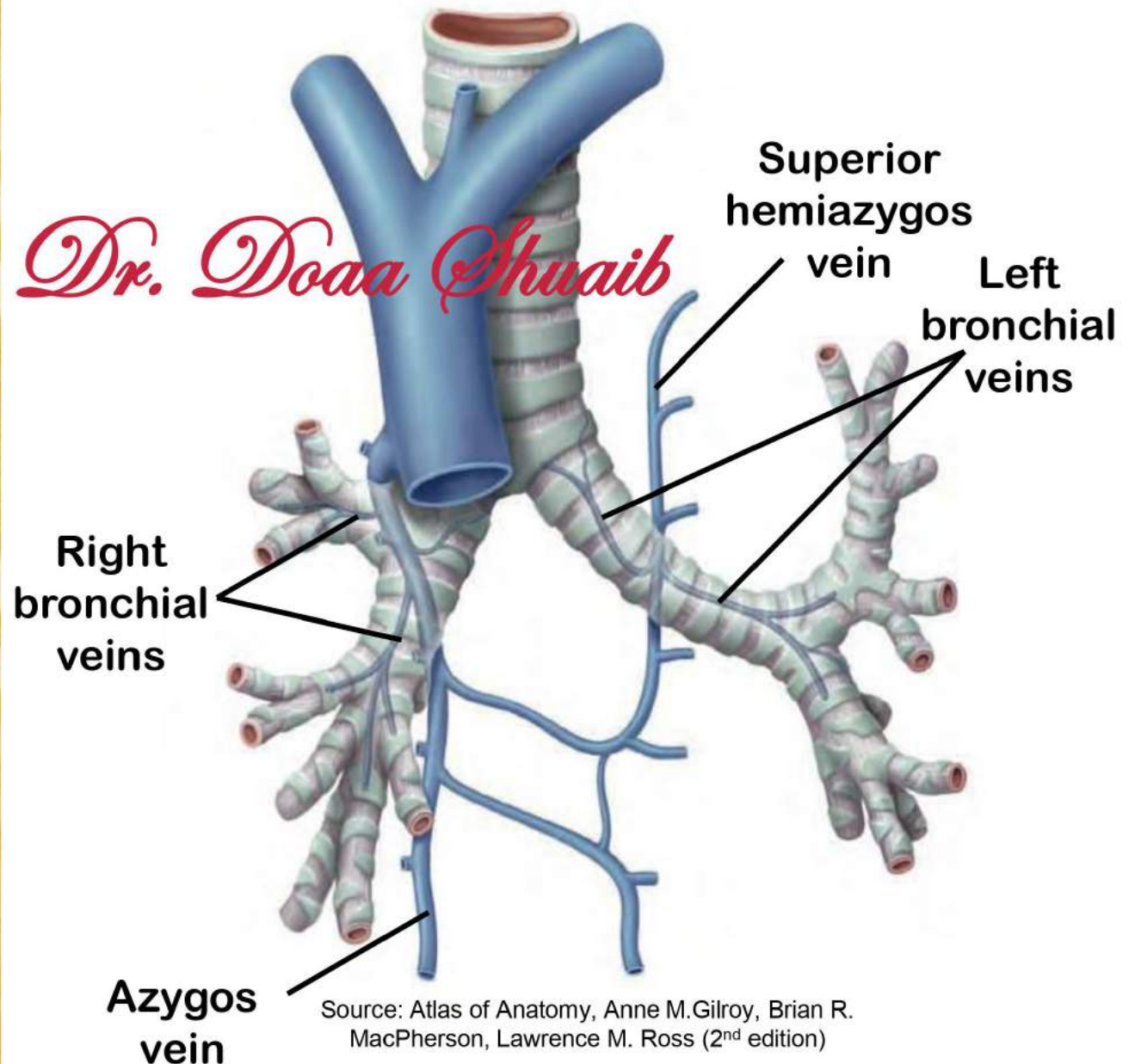


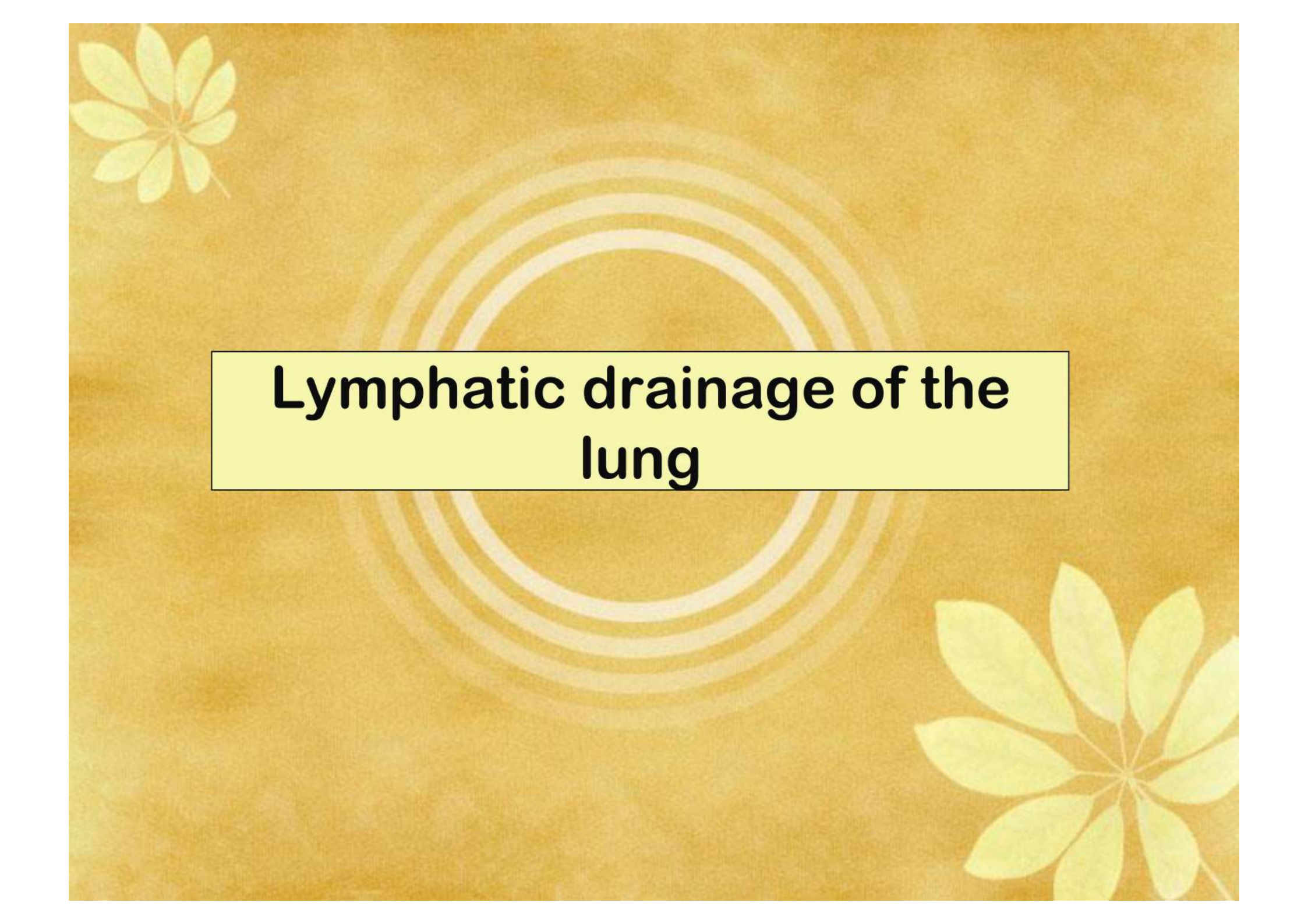
Source: Atlas of Human Anatomy, Sixth Edition-
Frank H. Netter, M.D

2- Bronchial vessels

b) Bronchial veins

- Each lung is drained by two bronchial veins
- The right bronchial veins open into the azygos vein
- The left veins end into the superior hemiazygos vein

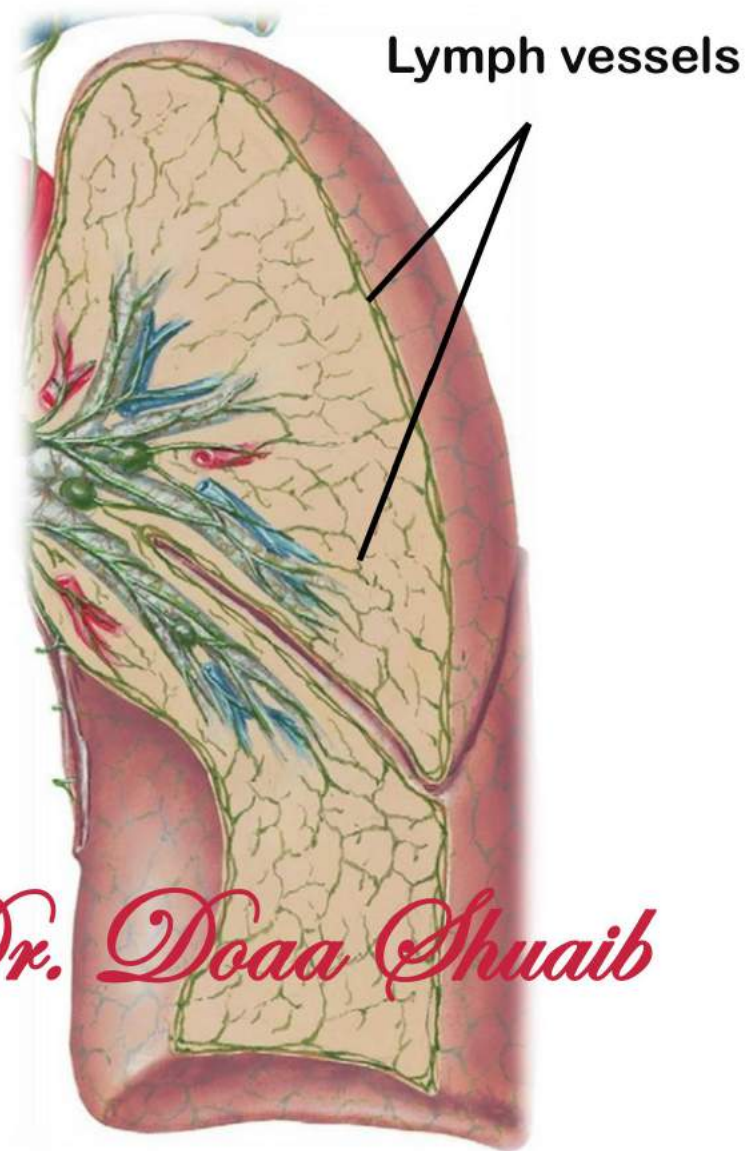


The background is a solid mustard yellow color. In the center, there are several concentric circles in a lighter, cream-colored shade. In the top-left and bottom-right corners, there are stylized floral motifs with multiple pointed petals in a pale yellow-green color.

Lymphatic drainage of the lung

Lymphatic drainage

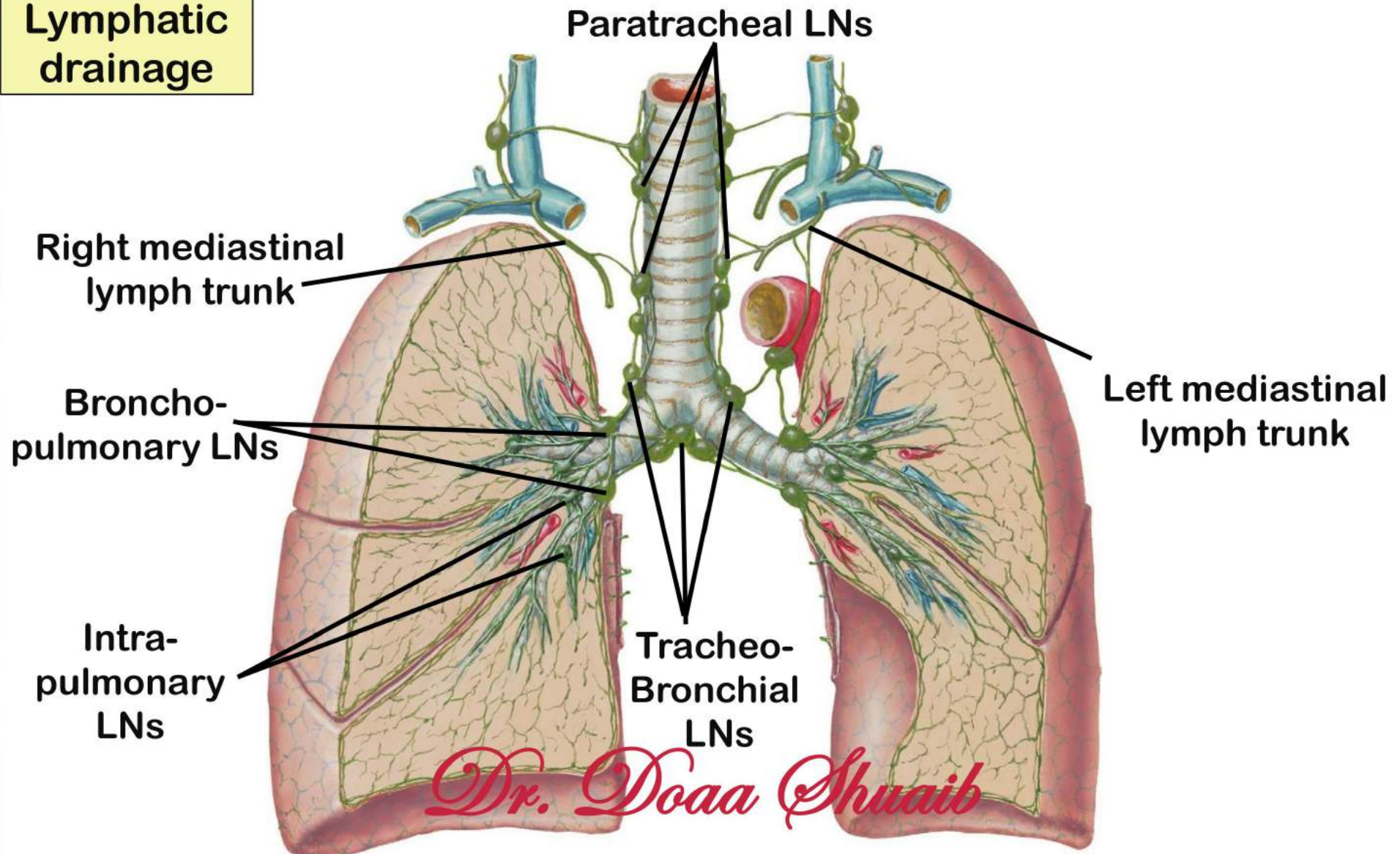
- The walls of the alveoli are devoid of lymph vessels.
- Interstitial lymphatics drain from periphery (visceral pleura) to centre (hilum of lung).
- Lymph vessels starting in walls of bronchioles pass alongside the segmental then the lobar bronchi to reach the hilum.



Dr. Doaa Shuaib

Source: Atlas of Human Anatomy, Sixth Edition-
Frank H. Netter, M.D

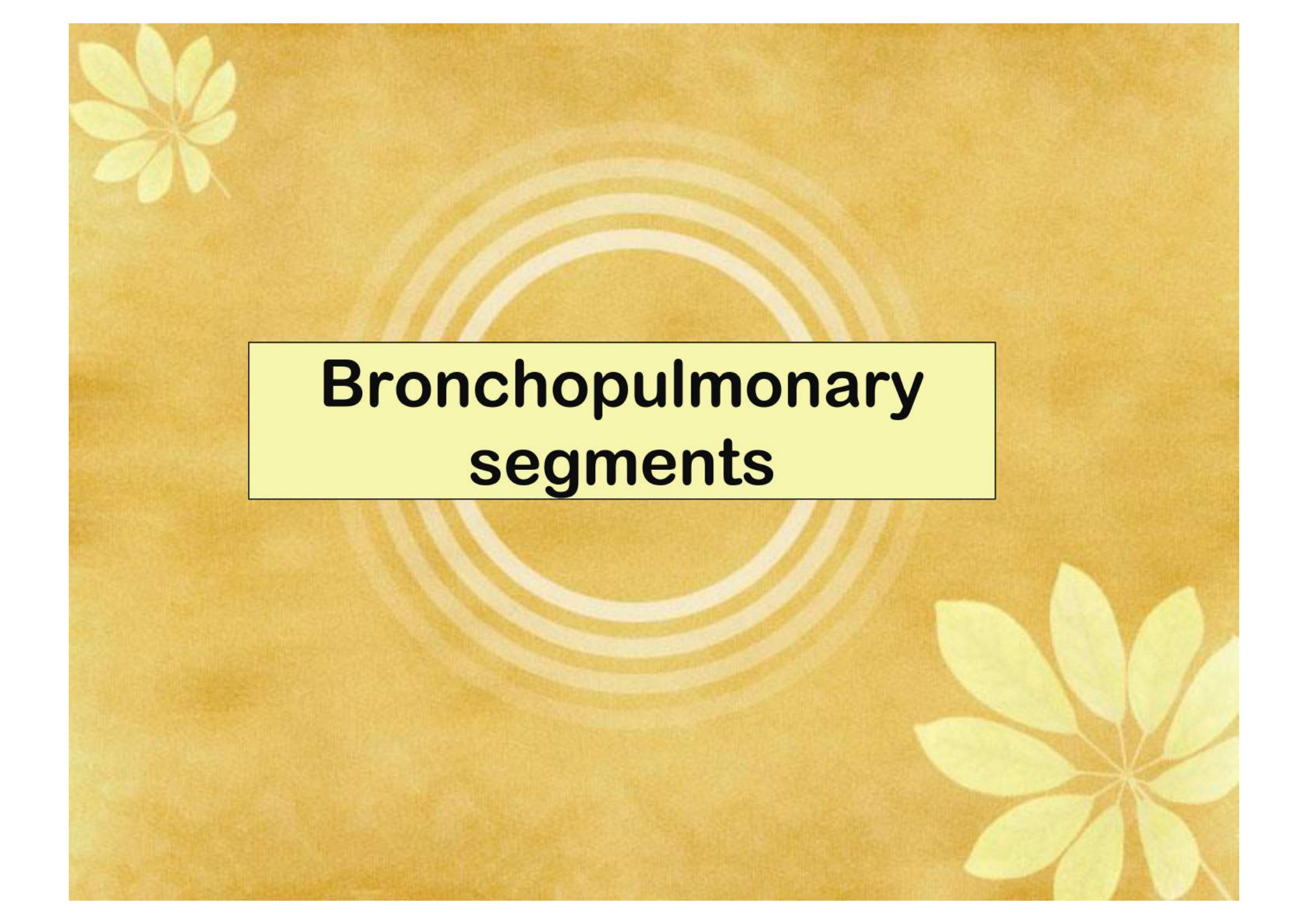
Lymphatic drainage



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Lung parenchyma

Intrapulmonary LNs => **bronchopulmonary LNs** (in the root of the lung) => **tracheobronchial LNs** (at the bifurcation of the trachea) => **paratracheal LNs** => **mediastinal lymph trunk** => opens into the right brachiocephalic vein (on the right side) and into the thoracic duct (on the left side).

The background is a textured, golden-yellow color. In the center, there are several concentric, light-colored circles that fade out towards the edges. In the top-left and bottom-right corners, there are stylized, light-green floral motifs with multiple pointed petals.

Bronchopulmonary segments

Formation of the bronchial tree

1- Primary bronchi:

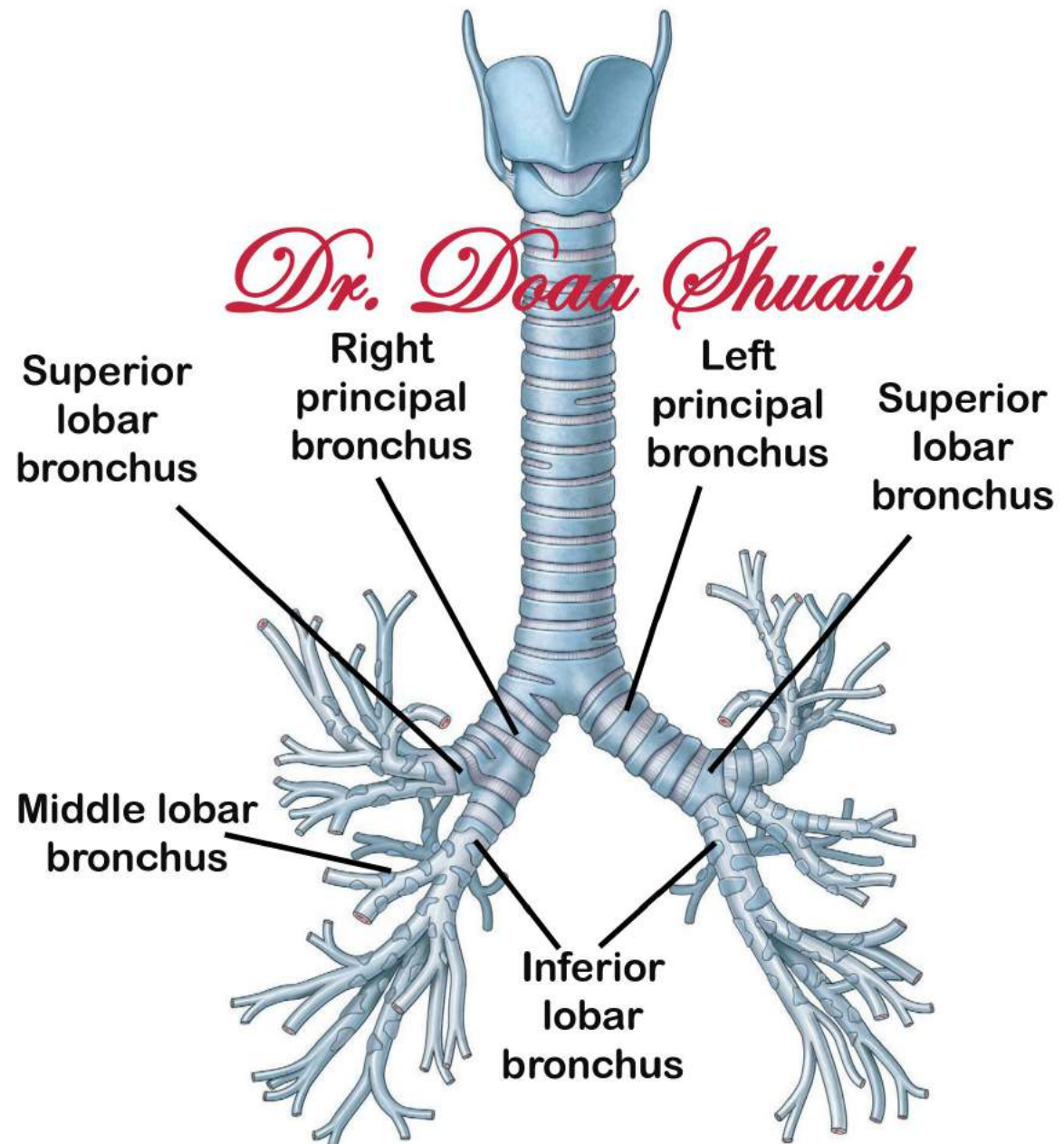
The trachea divides at the level of the sternal angle into two main (primary) bronchi, right and left

2- Secondary bronchi:

The right main (primary) bronchus divides into three lobar (secondary) bronchi. While the left main bronchus divides into two lobar bronchi.

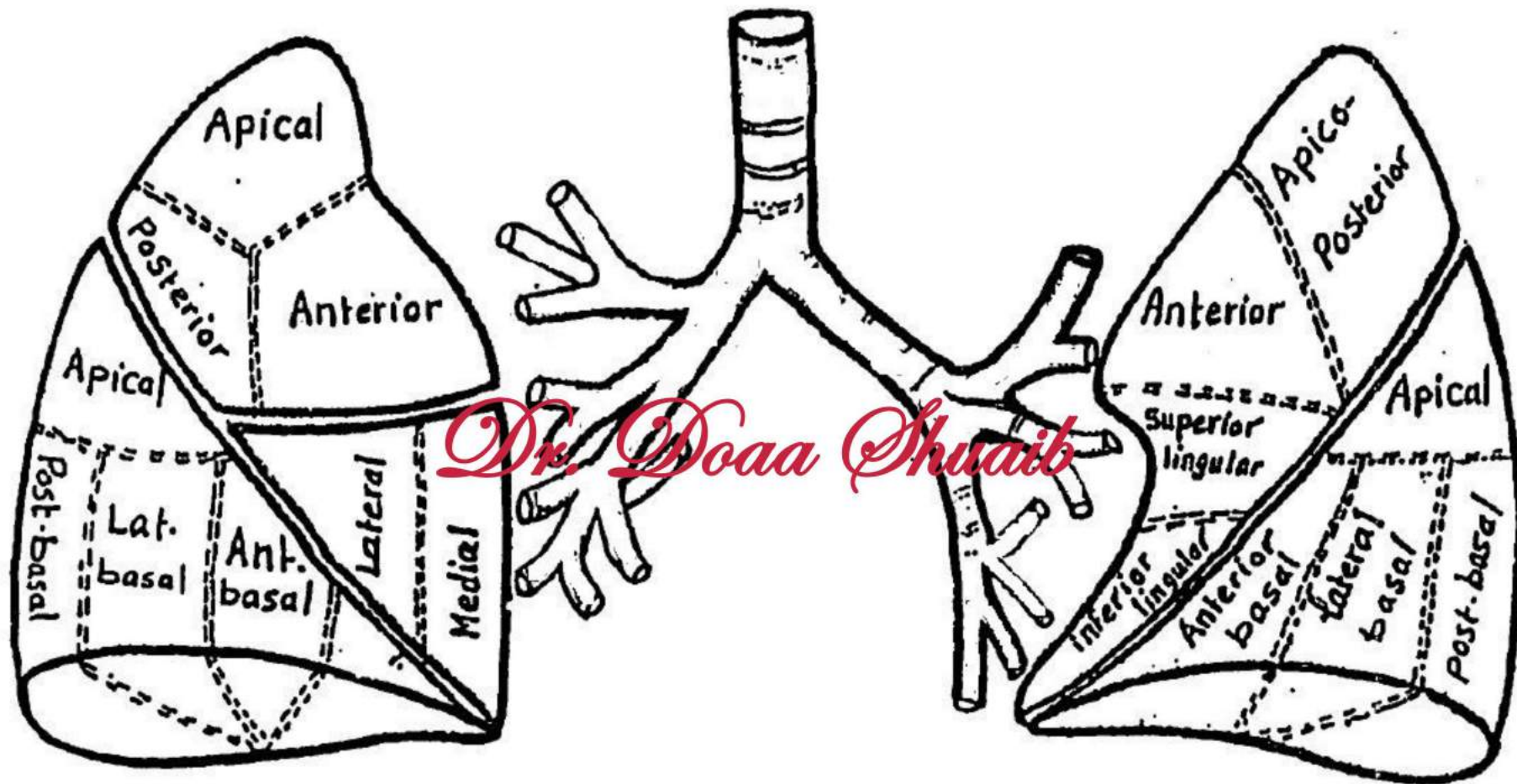
3- Tertiary (segmental) bronchi:

From the three right lobar (secondary) bronchi arise ten segmental (tertiary) bronchi. From the two left lobar bronchi arise eight segmental bronchi.



Source: Gray's Basic Anatomy - Richard L. Drake,
Wayne Vogl, Adam W.M. Mitchell

Bronchopulmonary Segments

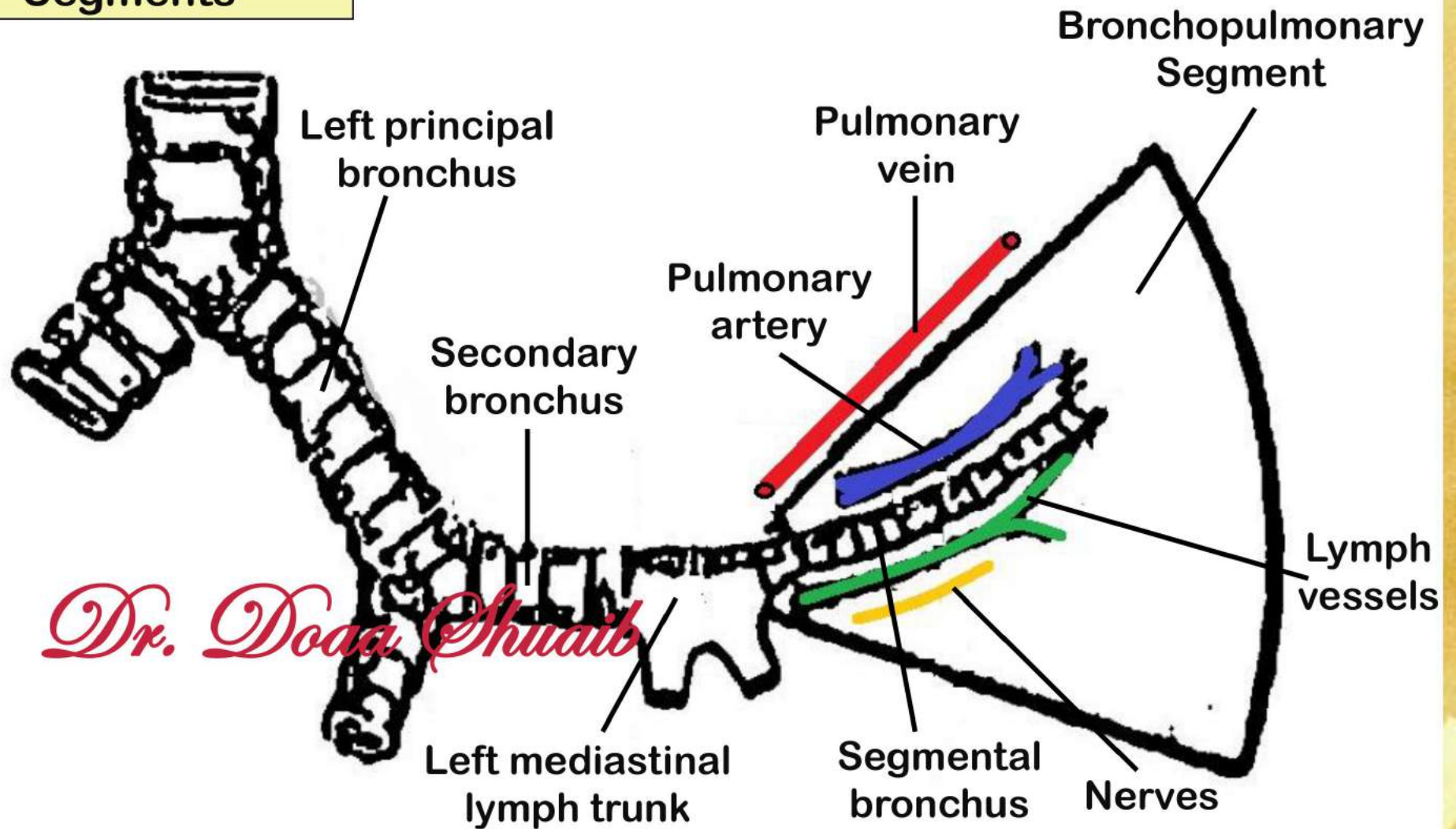


Source: Dr. Sameh Doss, Handout of thorax, Faculty of medicine, Cairo University

Definition

- A bronchopulmonary segment is a functionally independent unit of lung tissue
- It is supplied by a **segmental bronchus**, accompanied by a branch of the pulmonary artery, and has its own lymphatics and innervation.

Bronchopulmonary Segments

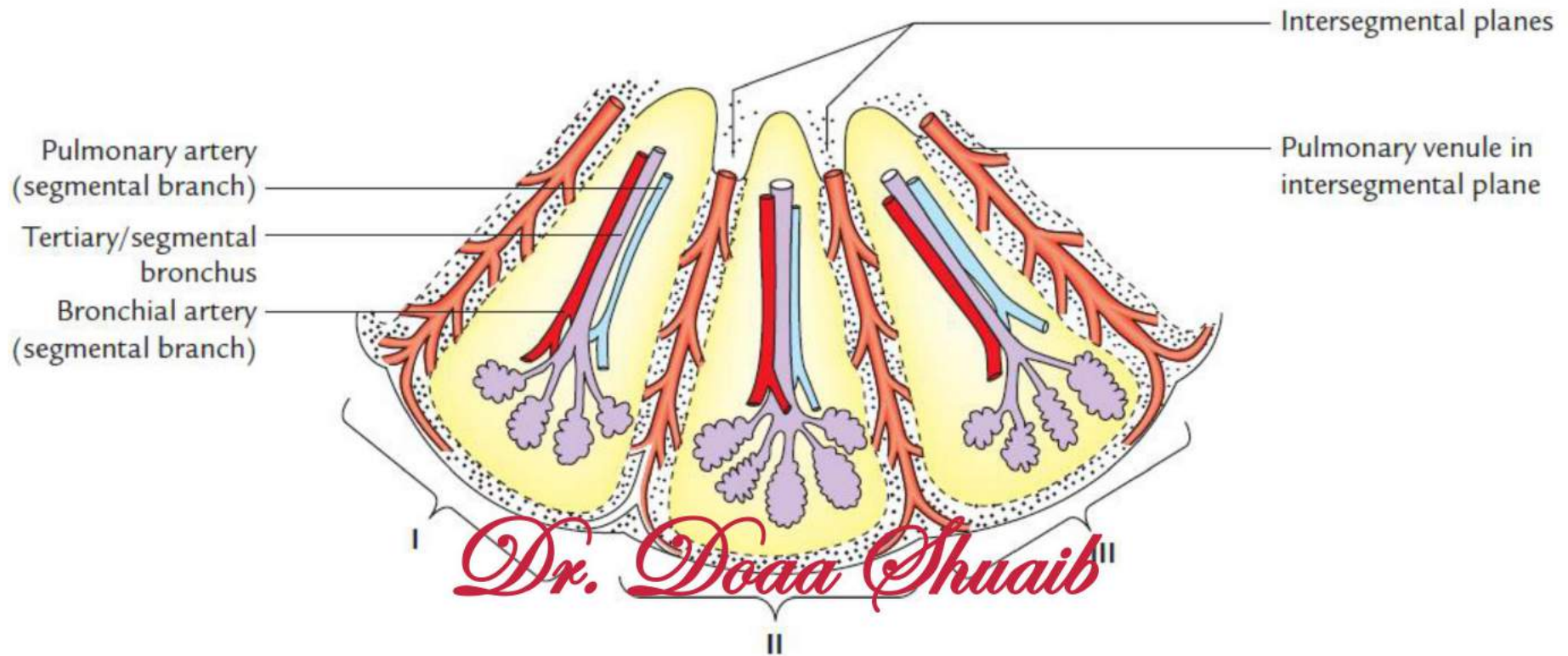


Source: Dr. Sameh Doss, Handout of thorax, Faculty of medicine, Cairo University

Shape

- Each segment is wedge shaped having an apex at the hilum (towards the centre) and a base at the surface of the lung.
- Adjacent segments are separated by connective tissue septa which lodge the radicles of the pulmonary veins

Bronchopulmonary Segments

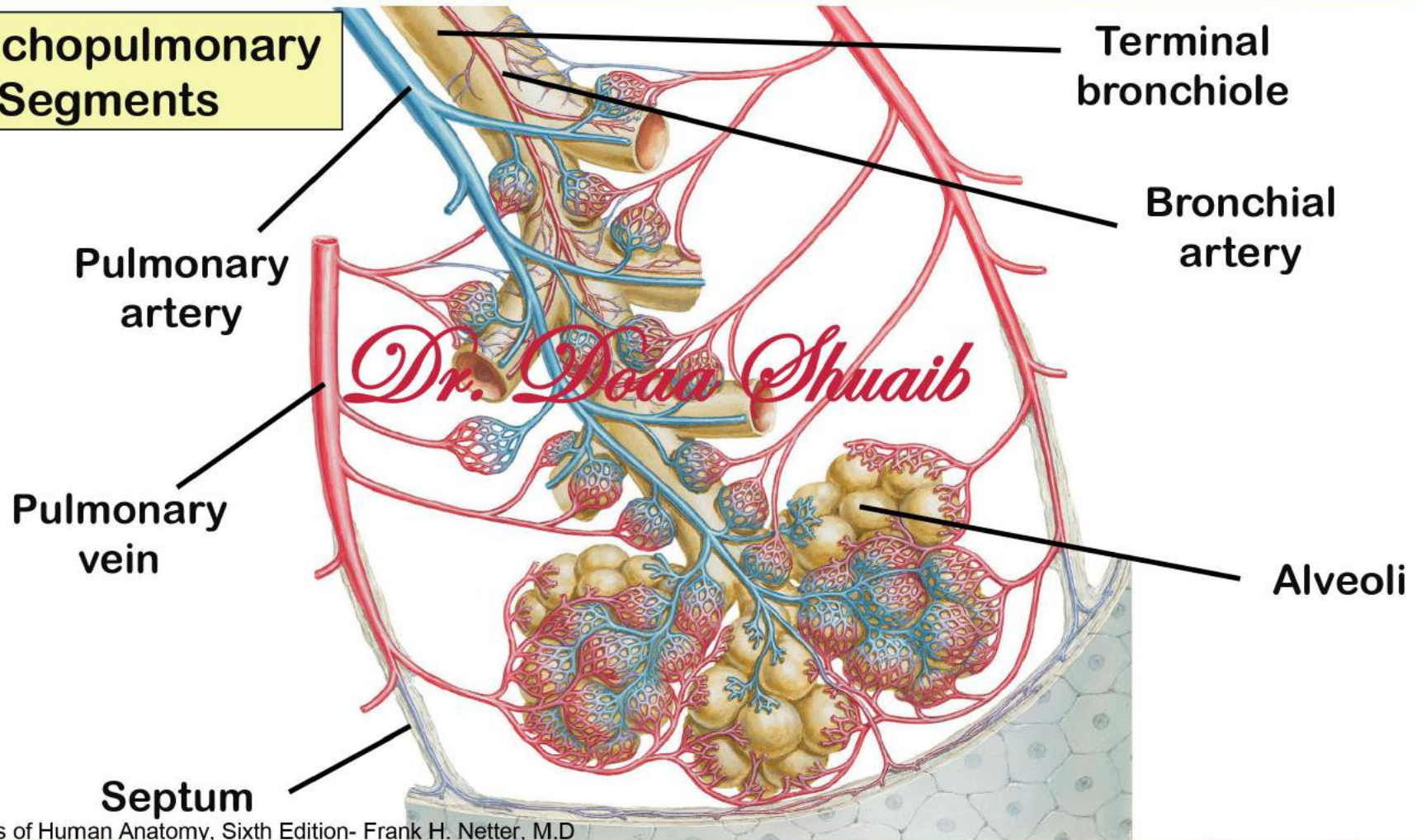


Source: Textbook of Anatomy, upper limb & thorax, Vishram Singh, 2nd edition

Constituents

- 1- **A segment of respiratory tissue:** consists of a segmental bronchus, respiratory bronchioles, alveolar duct and alveoli.
 - 2- **Segmental branches of pulmonary artery:** These are end arteries. They break up into capillary networks in the walls of the alveoli.
 - 3- **Nerves, blood and lymph vessels:**
 - a- **Autonomic innervation:** to the smooth muscles of BVs and bronchioles
 - b- **Bronchial vessels:** supply the walls of the air passages.
 - c- **Lymphatic vessels:** start in the walls of the bronchioles & pass alongside the segmental and lobar bronchi towards the hilum.
- N.B.: The radicles of the pulmonary veins are intersegmental.

Bronchopulmonary Segments

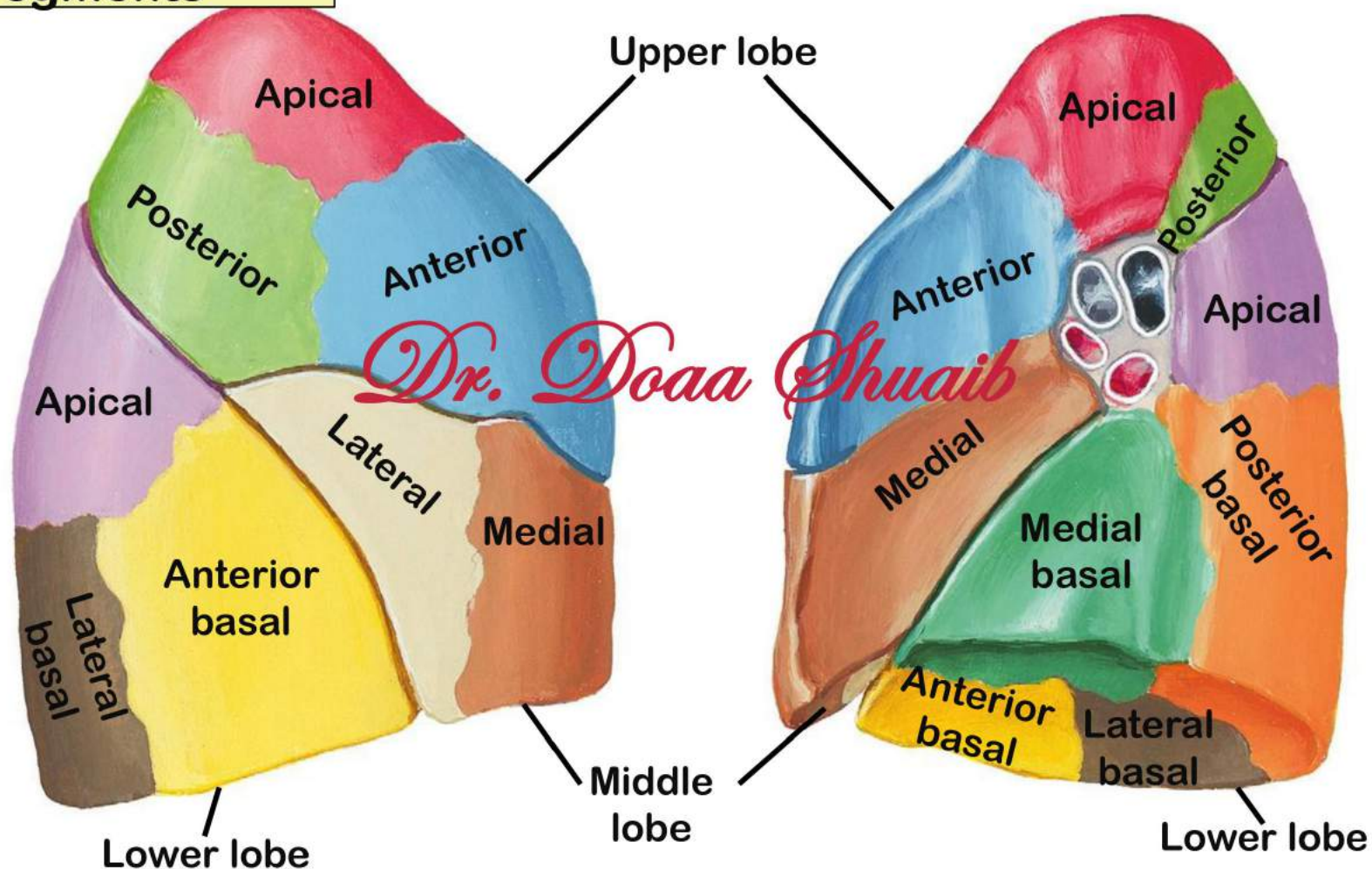


Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

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Distribution of the Bronchopulmonary Segments



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

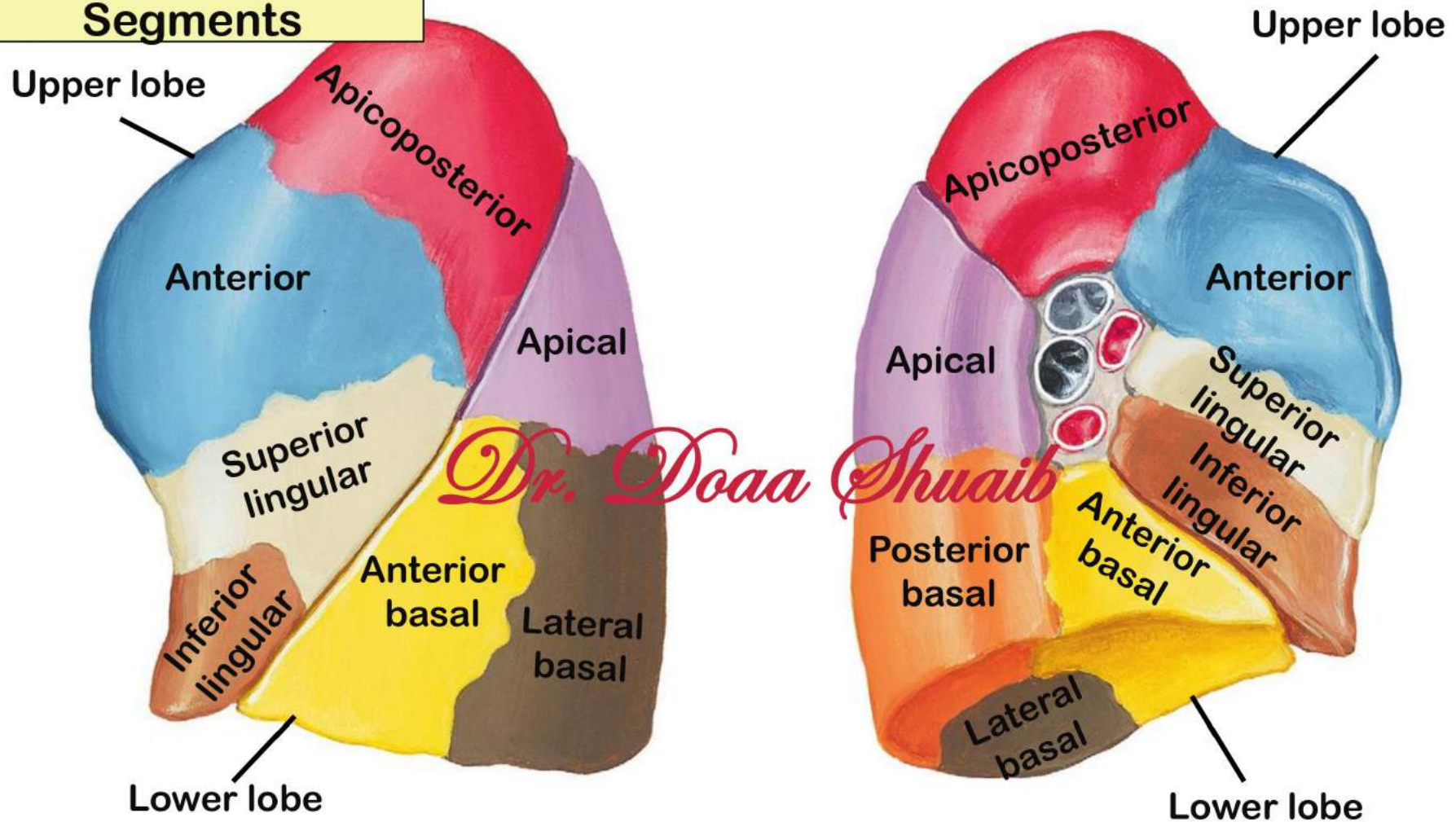
I. In the right lung (10 segments)

A- The upper lobe has 3 segments: (1) apical (2) posterior (3) anterior

B- The middle lobe has 2 segments: (4) lateral (5) medial

C- The lower lobe has 5 segments: (6) apical (superior basal) (7) medial basal (on medial aspect below hilum) (8) anterior basal (9) lateral basal (10) posterior basal

Distribution of the Bronchopulmonary Segments



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

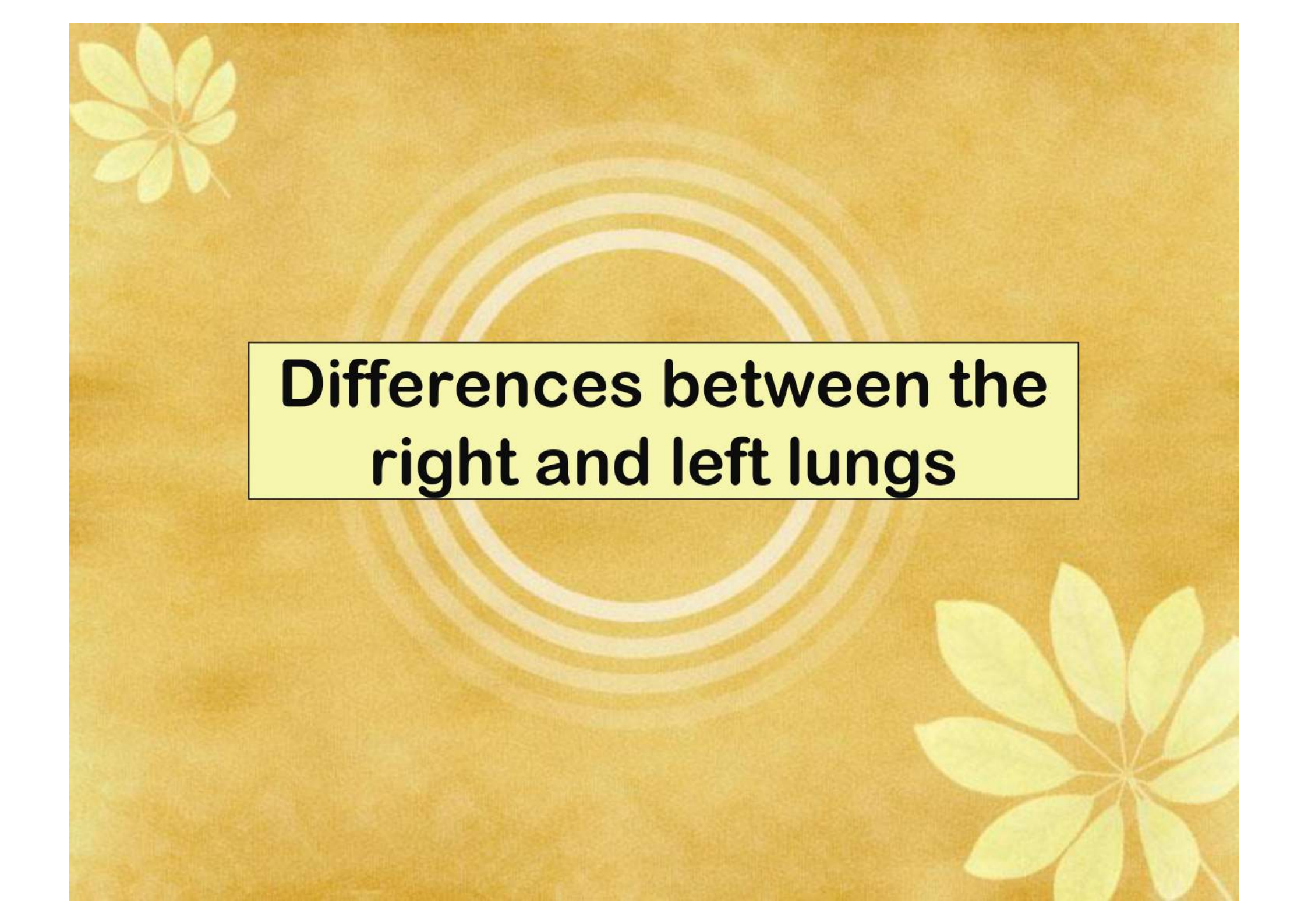
II. In the left lung (8 segments)

A- The upper lobe has 4 segments:

(1) and (2): apicoposterior (3) anterior (4) superior lingular (5) inferior lingular.

B- The lower lobe has 4 segments:

(6) apical (superior basal) (7) anterior basal (8) Lateral basal (9) Posterior basal

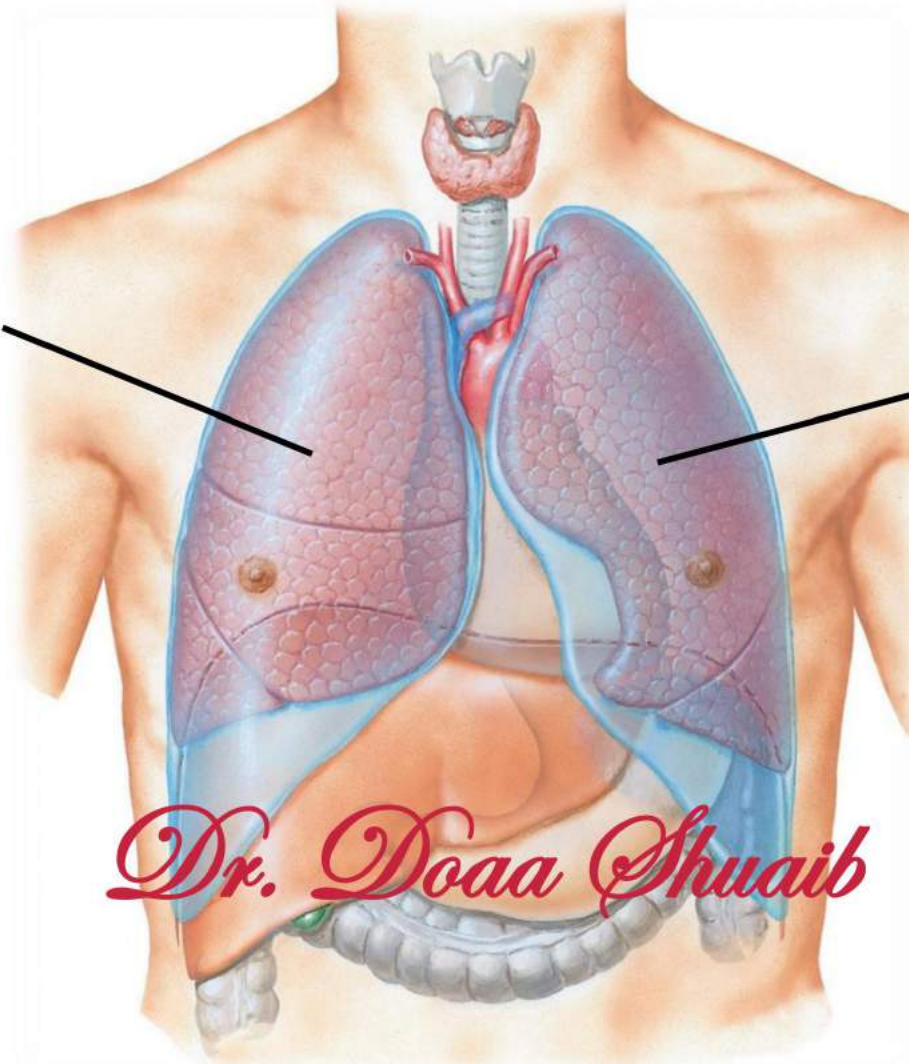


Differences between the right and left lungs

A- Shape, size and weight

Right lung

Left lung



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

Right lung

- Shorter due to the higher right cupola of the diaphragm
- Broader because of the projection of the heart to the left side.
- Heavier and has a greater capacity

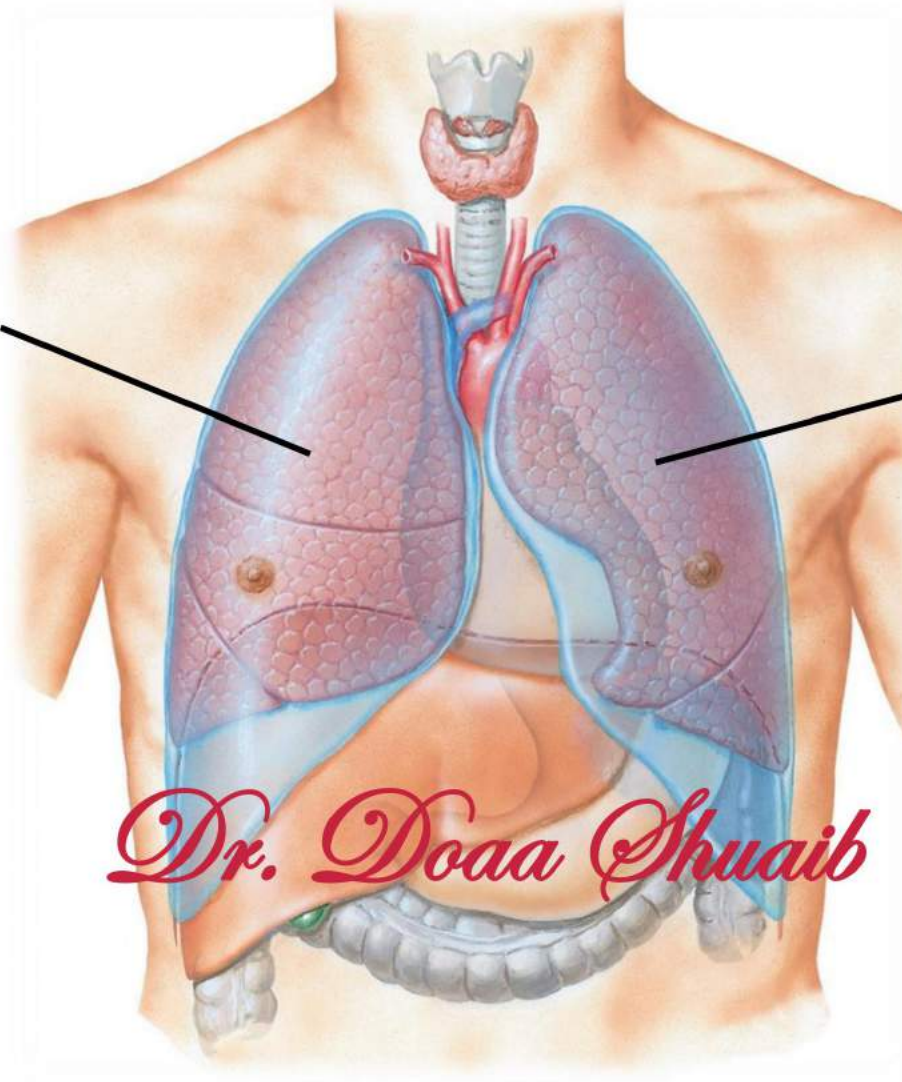
Left lung

- Longer than the right lung
- Thinner
- Smaller
- Lighter

B- Borders and surfaces

Right lung

Left lung



Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

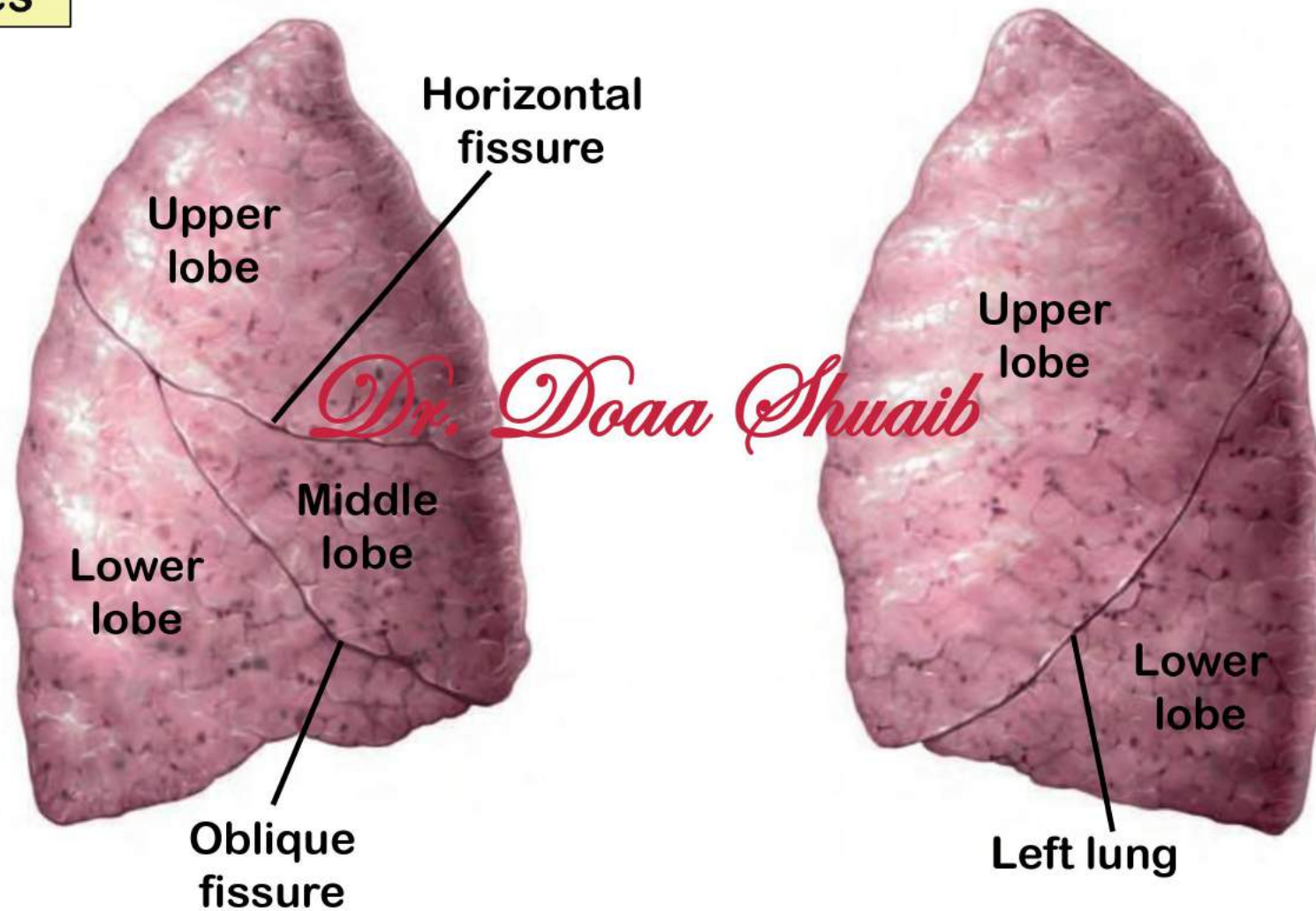
Right lung

- The anterior border is straight
- The base is more concave due to the bulging right lobe of the liver.

Left lung

- The anterior border shows cardiac notch and lingula
- The base is less concave

C- Fissures and lobes



Right lung

- Two fissures: oblique & horizontal
- Three lobes: upper, middle & lower

Left lung

- One fissure: oblique
- Two lobes: upper & lower

D- Hilum and root

Right pulmonary artery

Eparterial bronchus

Bronchial artery



Two bronchial arteries

Left pulmonary artery



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Source: Atlas of Human Anatomy, Sixth Edition- Frank H. Netter, M.D

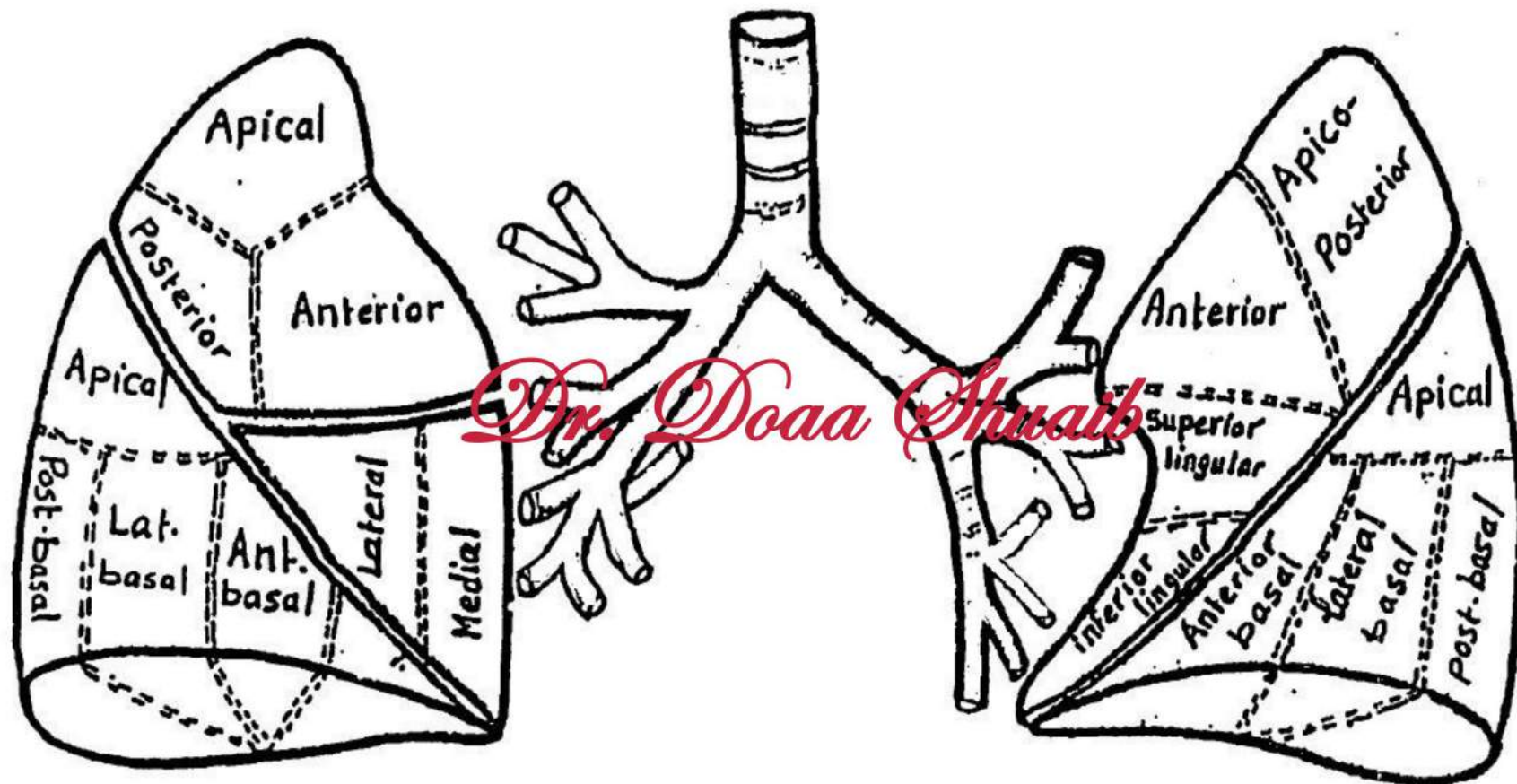
Right lung

- The right superior lobar bronchus arises outside the lung (eparterial)
- The right pulmonary artery lies in front of the principal bronchus
- It has one bronchial artery

Left lung

- The left superior lobar bronchus arises inside the lung tissue.
- The left pulmonary artery lies above and in front of the principal bronchus.
- It has two bronchial arteries

E- Bronchopulmonary segments



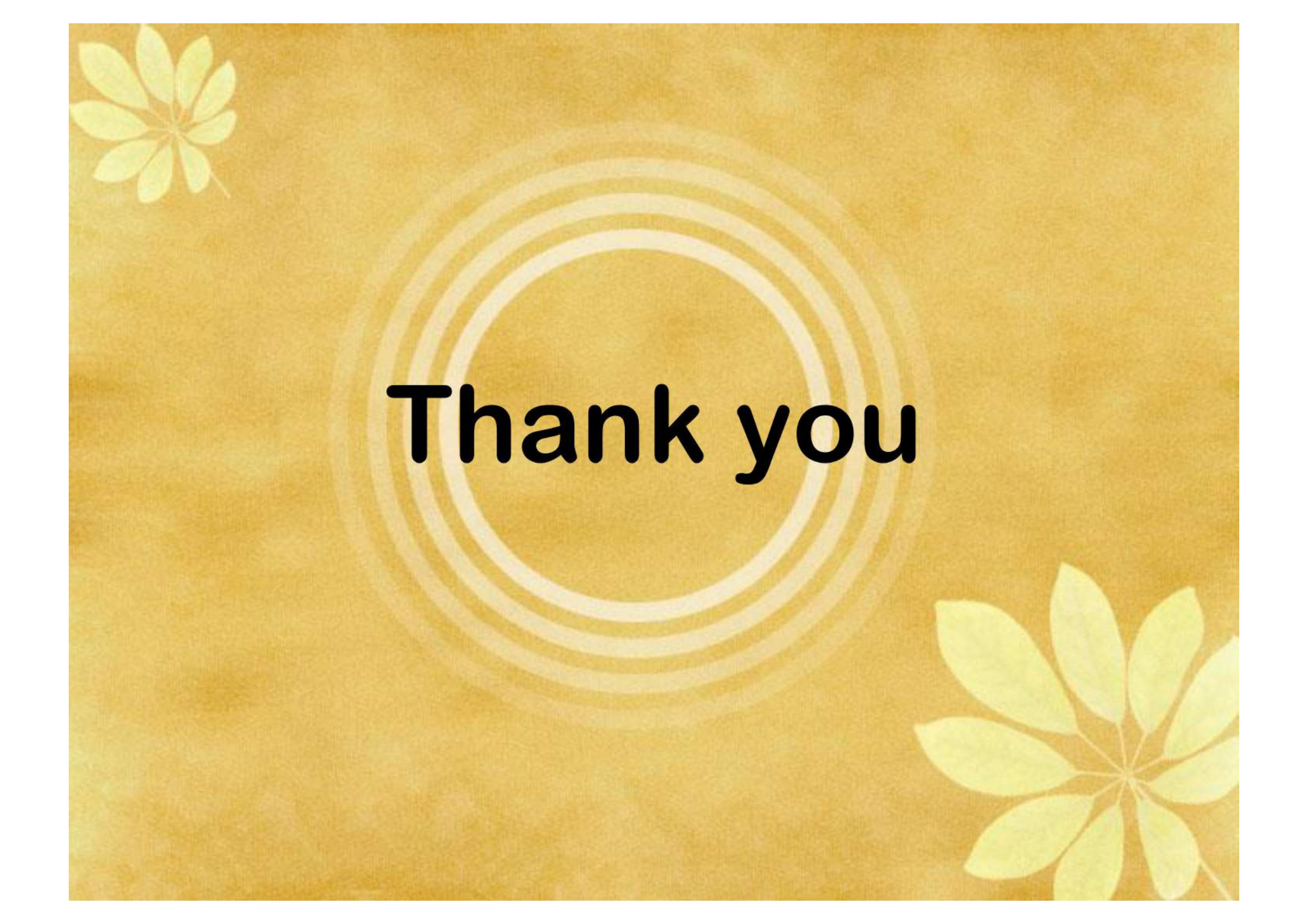
Source: Dr. Sameh Doss, Handout of thorax, Faculty of medicine, Cairo University

Right bronchopulmonary segments

- It has 10 bronchopulmonary segments
- The middle lobe has medial & lateral bronchopulmonary segments

Left bronchopulmonary segments

- It has 8 bronchopulmonary segments
- The lingula has superior and inferior lingular segments.



Thank you