

وسهلا



أهلا

يُمنع أخذ السلايدات بدون  
إذن المحرر واي اجراء  
يخالف ذلك يقع تحت طائلة  
المسؤولية القانونية  
جميع المعلومات للاستخدام  
التعليمي فقط

الأستاذ الدكتور يوسف حسين

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

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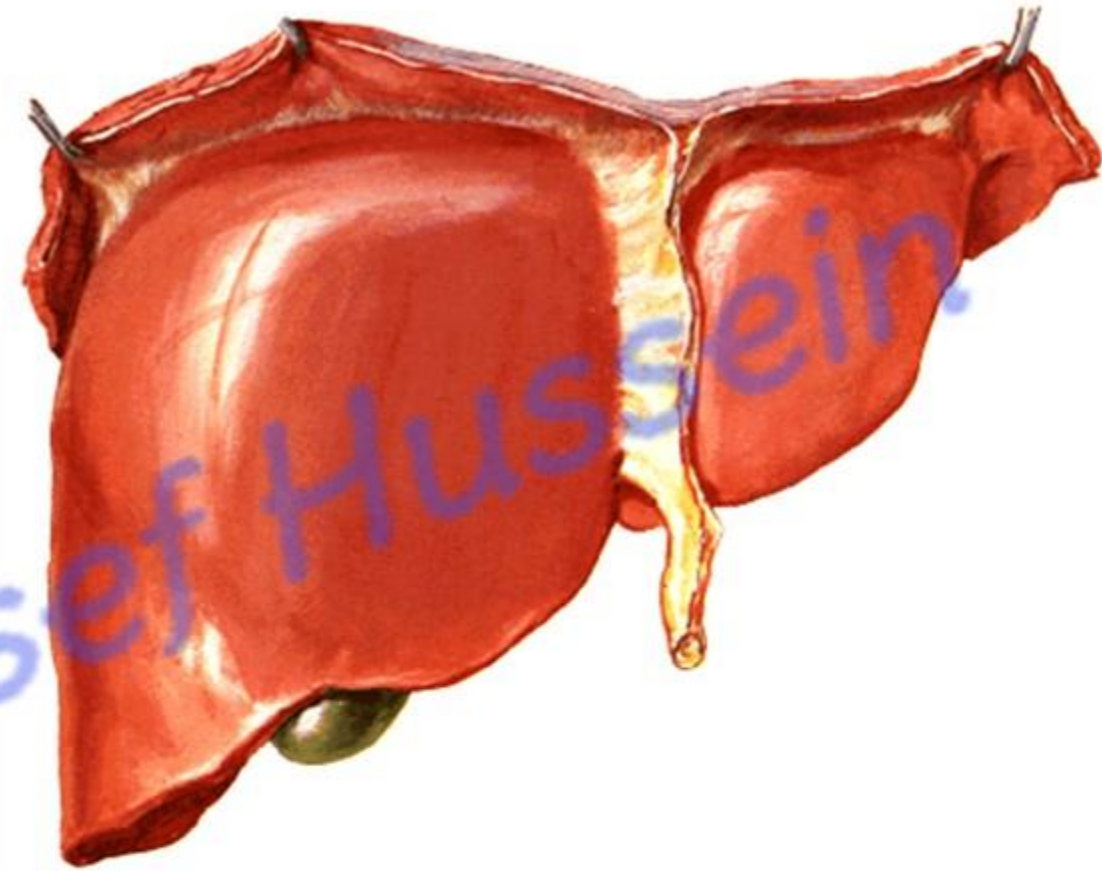
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# Liver

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- Liver is the largest visceral organ and is the largest gland of the body
- Its **weight** in the male about 1.5 kg, in the female about 1.3 kg
- **Highly vascular organ**
- **Easily lacerated in the living subjects with severe hemorrhage**



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# Regions of Abdominal Area

Right hypochondriac region

Epi-gastric region

Left hypochondriac region

Right lumbar region

Umbilical region

Left lumbar region

Right iliac region

Hypo-gastric region

Left iliac region

Subcostal plane L3

Intertubercular plane L5

- Position of the liver
- The whole of the right hypochondrium
- parts of the epigastrium and left hypochondrium

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# Surfaces of Liver

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Superior surface

**Wedge-shaped**

**\*\* Surfaces:**

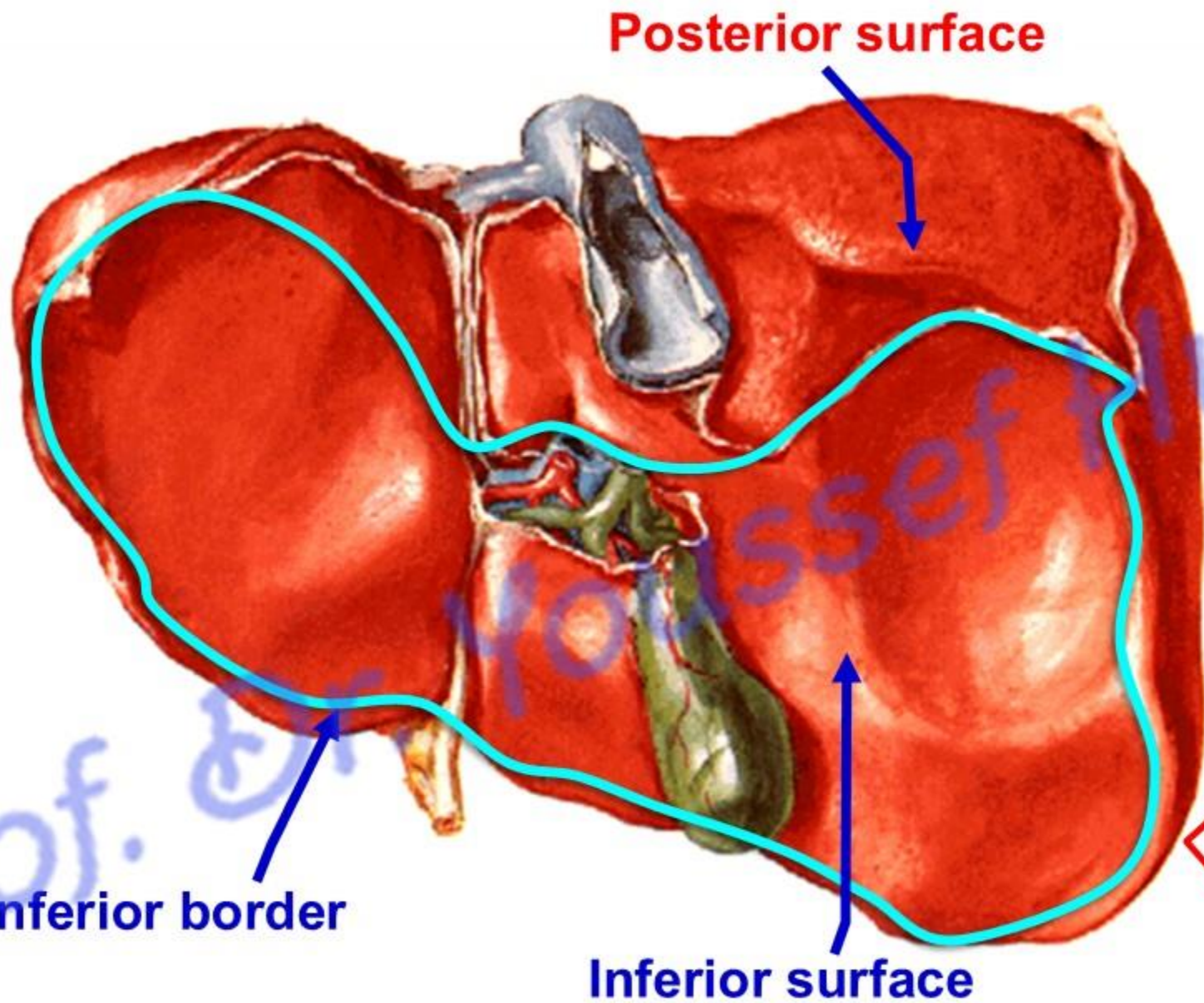
- It has 5 surfaces
- No sharp borders between them

Right surface

Anterior surface

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Posterior surface

Sharp inferior border

Inferior surface

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# Surfaces anatomy of Liver

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xiphisternal  
junction in  
median plane

Right 5<sup>th</sup> CC in right  
midclavicular line

Right 7<sup>th</sup> rib In right  
midaxillary line

1 cm below costal  
margin right  
midaxillary line

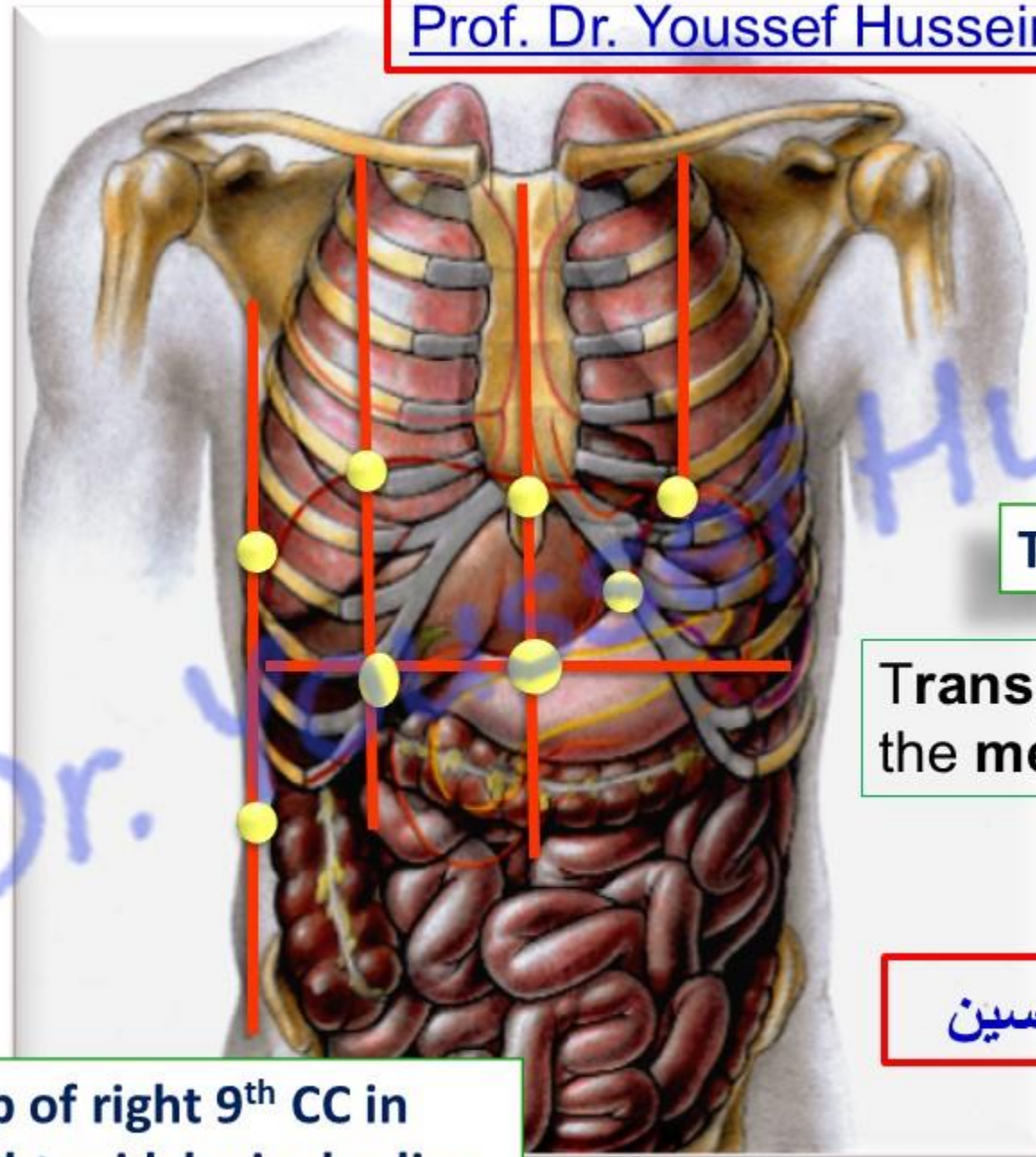
Tip of right 9<sup>th</sup> CC in  
right midclavicular line

Left 5<sup>th</sup> ICS in left  
midclavicular line

Tip of Left 8<sup>th</sup> CC

Transpyloric plane in  
the median plane

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- **Surface anatomy**

**1- Superior border of the liver:** represented by a **line** joining the following points directed to the right

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- 1- A point in the left **5th intercostal space** (in the left mid-clavicular line).
- 2- A point at the **xiphisternal junction** (in the median plane).
- 3- A point on the right **5th costal cartilage** (the right mid-clavicular line).
- 4- A point on the right **7th rib** (in the right midaxillary line).

**2- Right border:** represented by a line convex to the right between the right 7th rib to 1 cm below the costal margin in the right midaxillary line

**3- Inferior border:** represented by a **line** joining the following points directed to the right

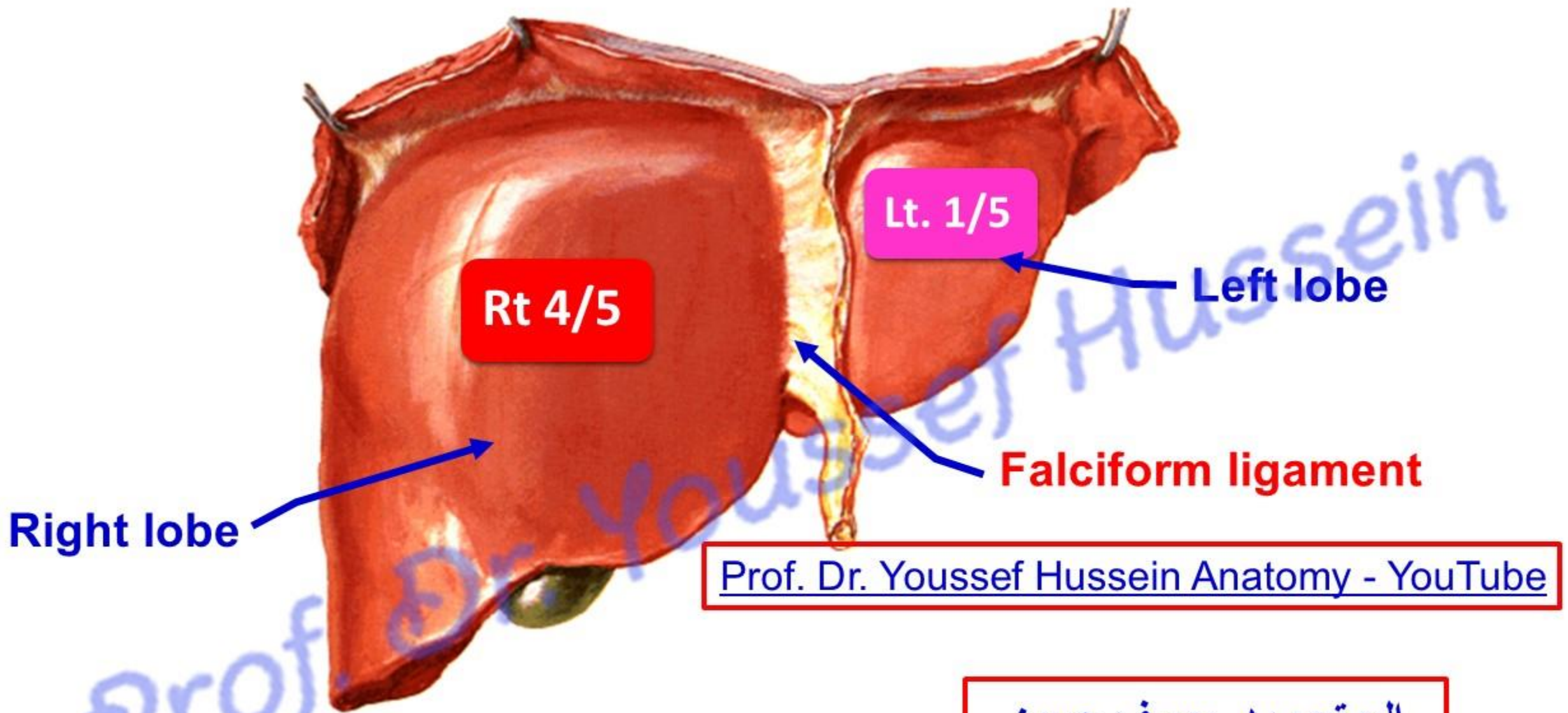
- 1- A point in the **left 5th intercostal space** (left mid-clavicular line).
- 2- The tip of the **left 8th costal cartilage**.
- 3- The **transpyloric plane** in the **median plane** (midway between the umbilicus and xiphisternal junction).
- 4- The tip of the **right 9th costal cartilage** (right midclavicular line).
- 5- 1 cm below the costal margin at the right midaxillary line.

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# Anatomical Lobes of Liver

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Right lobe

Rt 4/5

Lt. 1/5

Left lobe

Falciform ligament

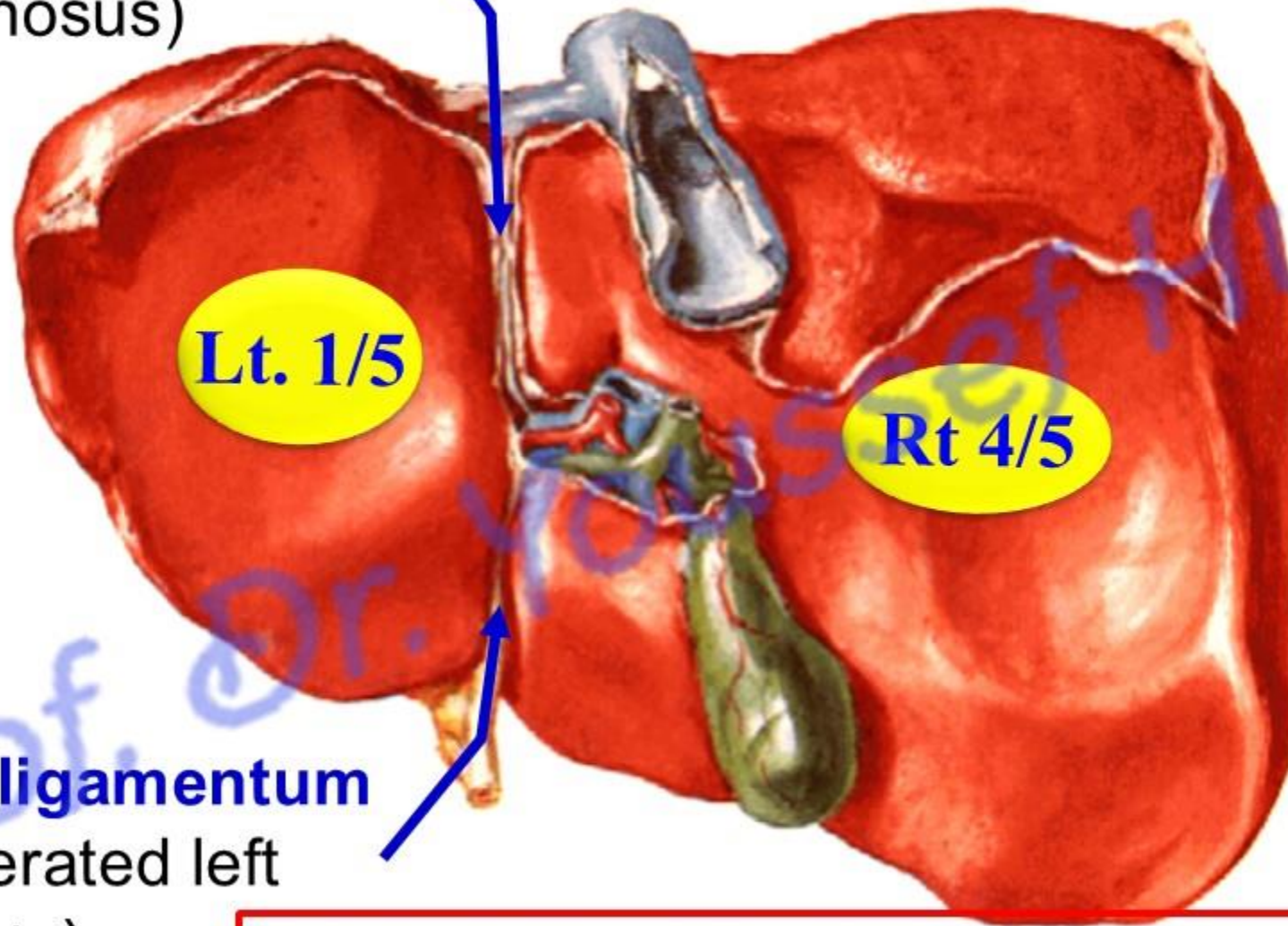
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Anterior and superior view

**Fissure of ligamentum venosum (obliterated ductus venosus)**

**Posteroinferior view**



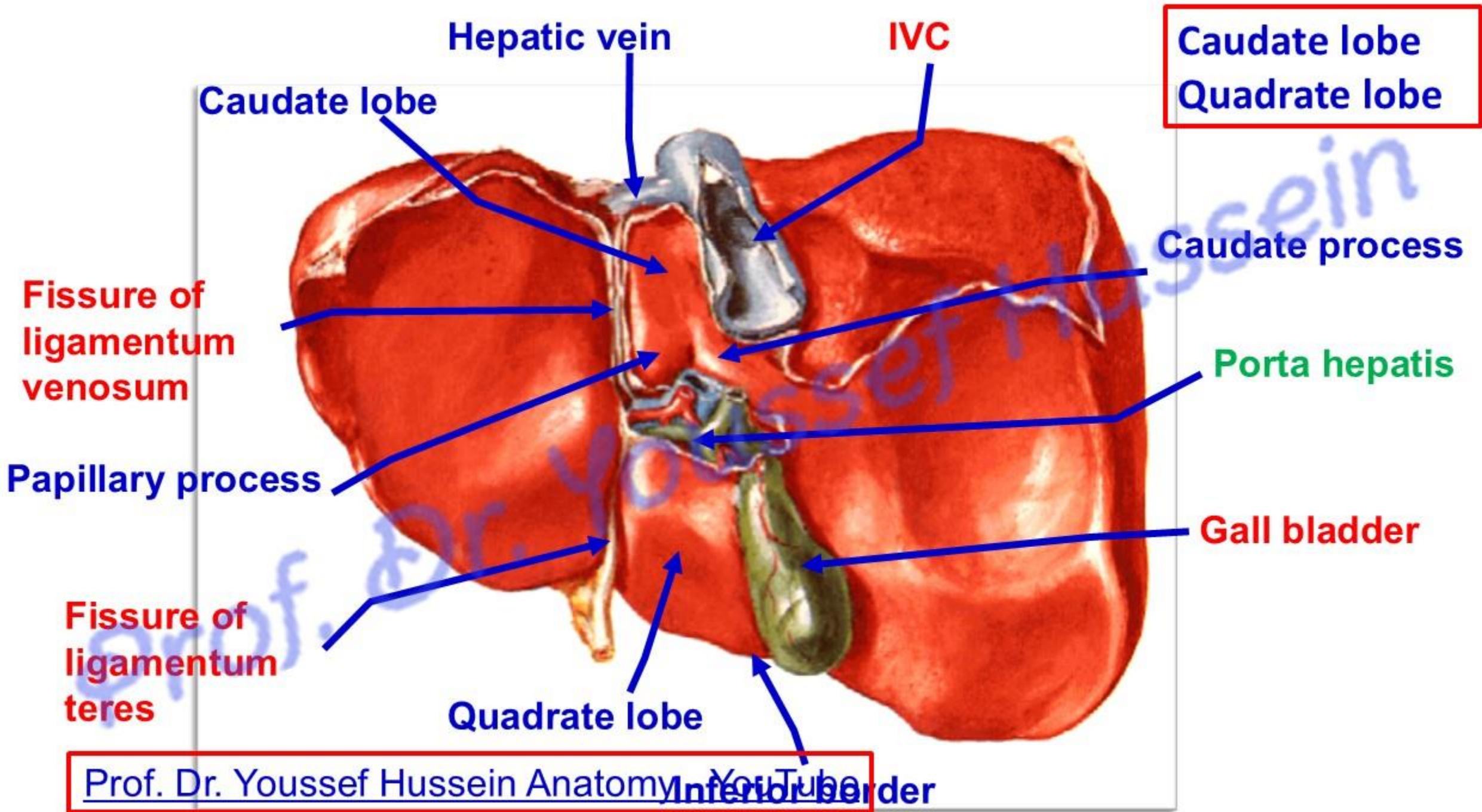
**Lt. 1/5**

**Rt 4/5**

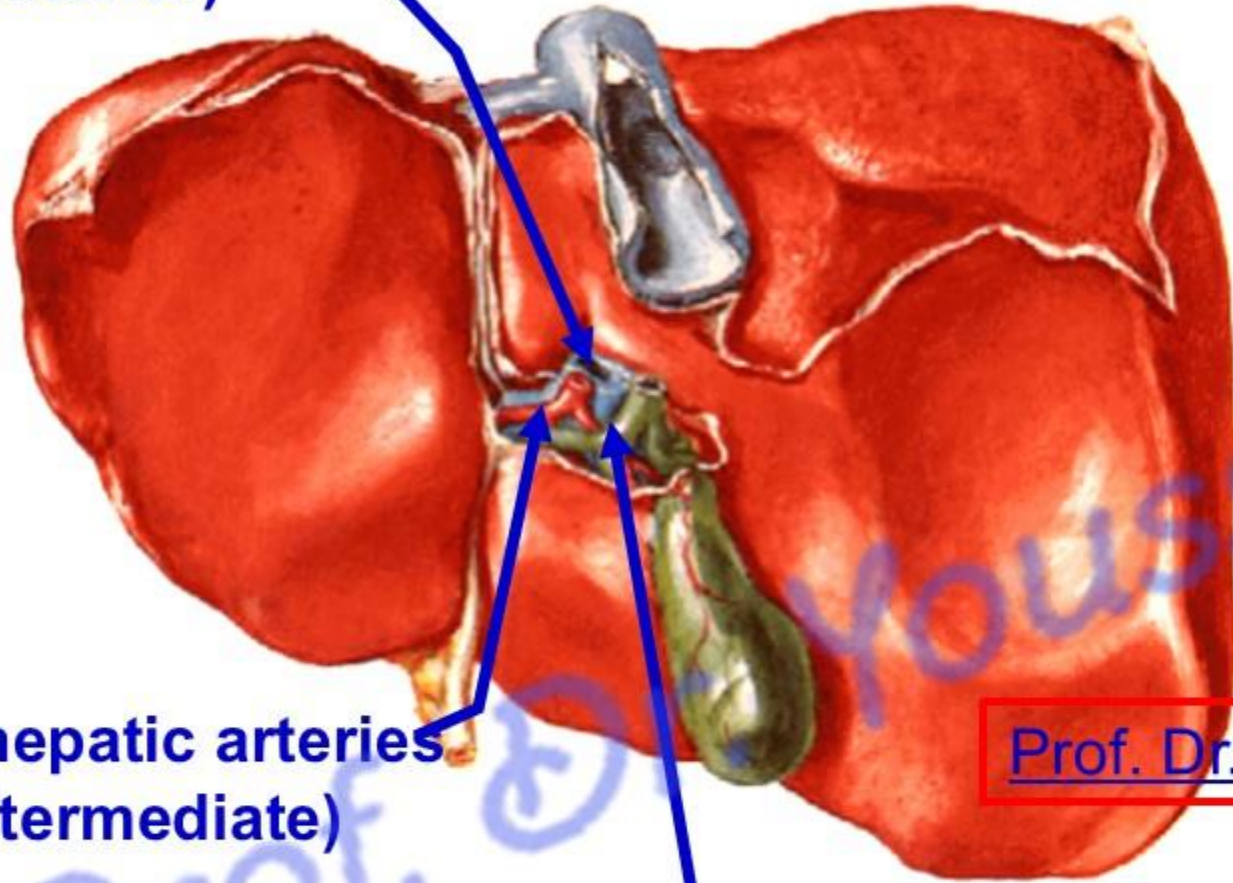
**Fissure of ligamentum teres (obliterated left umbilical vein)**

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2 portal veins  
(posterior)



2 hepatic arteries  
(intermediate)

2 hepatic ducts  
(anterior)

- **Porta hepatis** (hilum of the liver) contains **VAD**
- **Portal veins (posterior)**
- **Hepatic arteries (intermediate)**
- **Hepatic ducts (anterior)**
- **Sympathetic plexus around artery**

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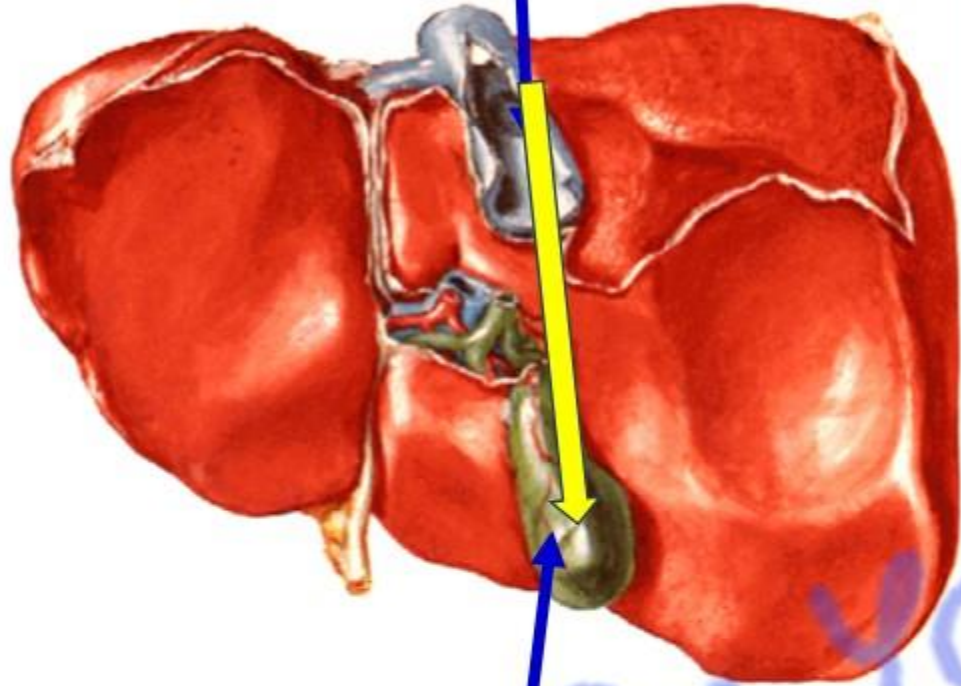
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# Physiological Lobes and segmentations of Liver

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IVC



Gall bladder

- The liver is divided into right and left lobes according to the pattern of the **portal triad (VAD)**: portal vein, hepatic artery and common hepatic duct.

- The **Cantlie line of demarcation** between the right and left lobes **extending from the gall bladder to the inferior vena cava**.

- **Caudate and quadrate lobes** **physiologically** related to left lobe

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- Each of left and right lobe is divided into lateral and medial division

1- Caudate lobe of left lobe

2- Left **lateral posterior segment**

3- Left **lateral anterior segment**

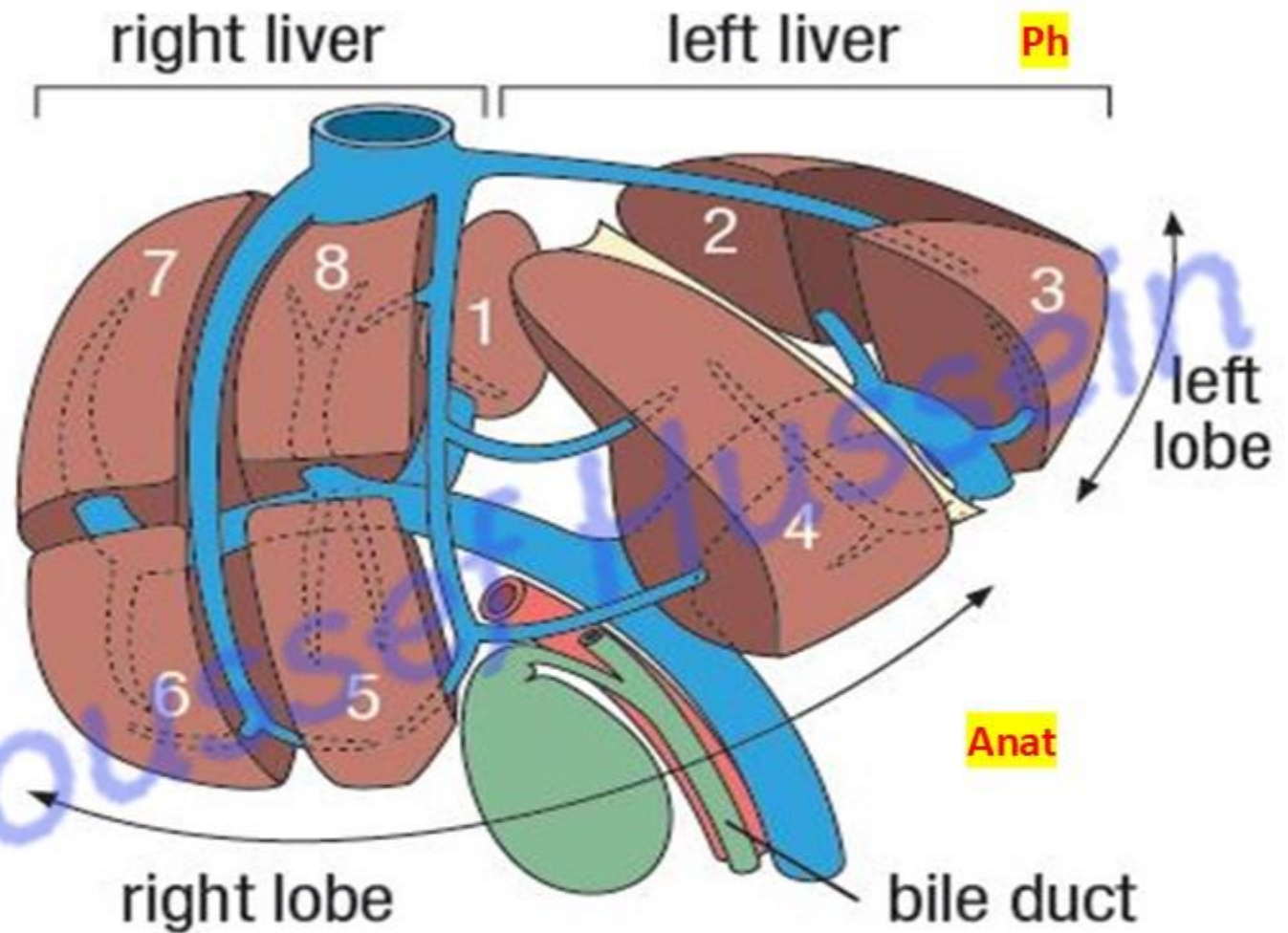
4- Left medial segment includes the quadrate lobe, divided into 4a (superior) and 4b (inferior)

5- Right medial **anterior segment**

6- Right **lateral anterior segment**

7- Right **lateral posterior segment**

8- Right medial **posterior segment**



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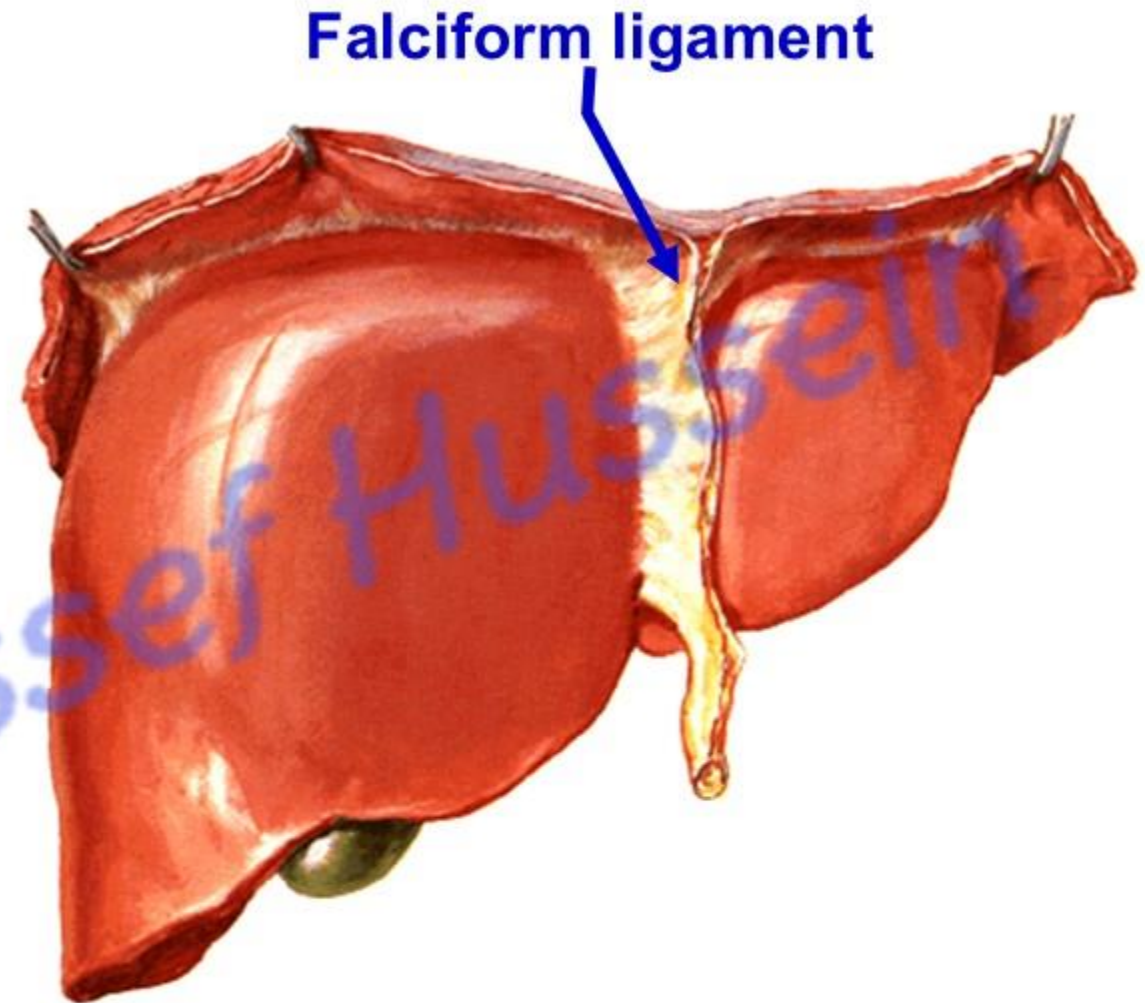
# Ligaments of Liver

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- **Falciform ligament:** sickle-shaped.
- **Borders,**
  - a- Convex border** attached to the diaphragm and anterior abdominal wall.
  - b- A concave border** attached to the superior and anterior surfaces of liver.
  - c- A straight free border** which extends from the umbilicus to the liver.

It contains ligamentum teres and paraumbilical vein.



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Upper layer of left triangular ligament

Upper layer of coronary ligament

Left triangular ligament

Lower layer of left triangular ligament

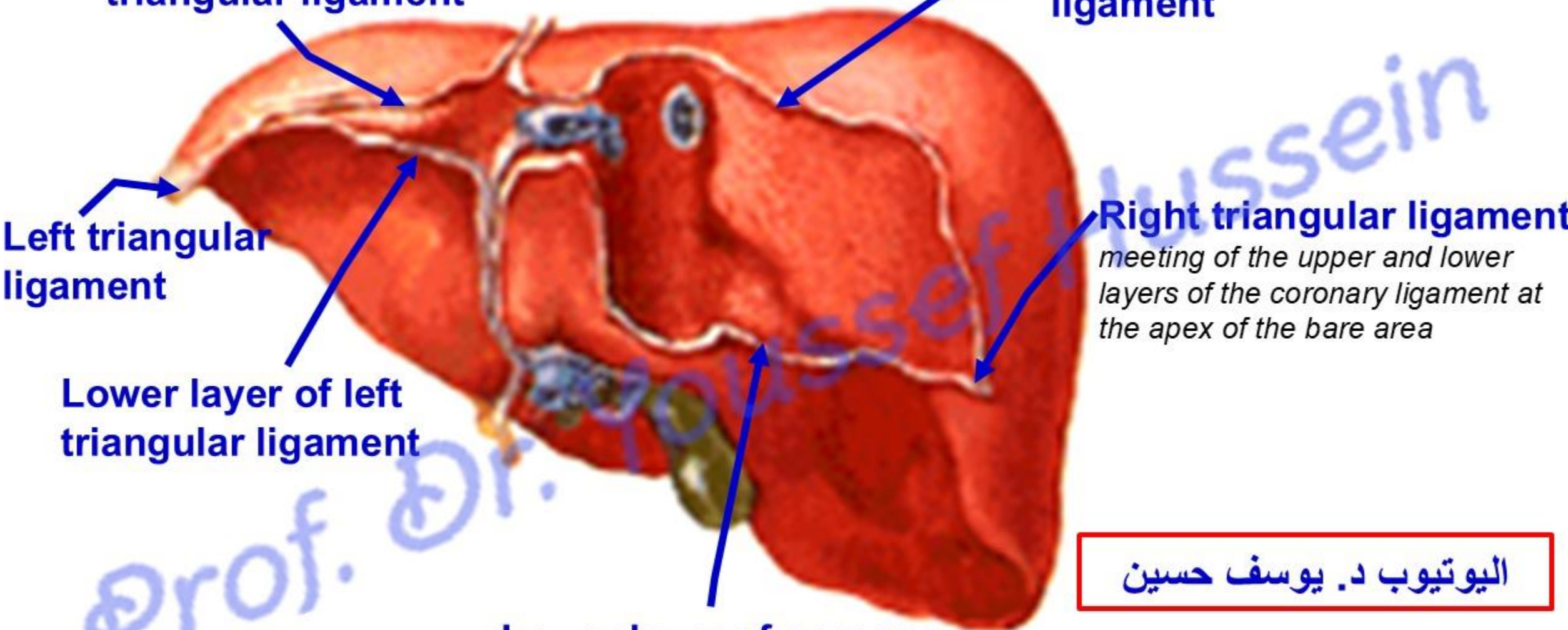
Right triangular ligament

*meeting of the upper and lower layers of the coronary ligament at the apex of the bare area*

Lower layer of coronary ligament

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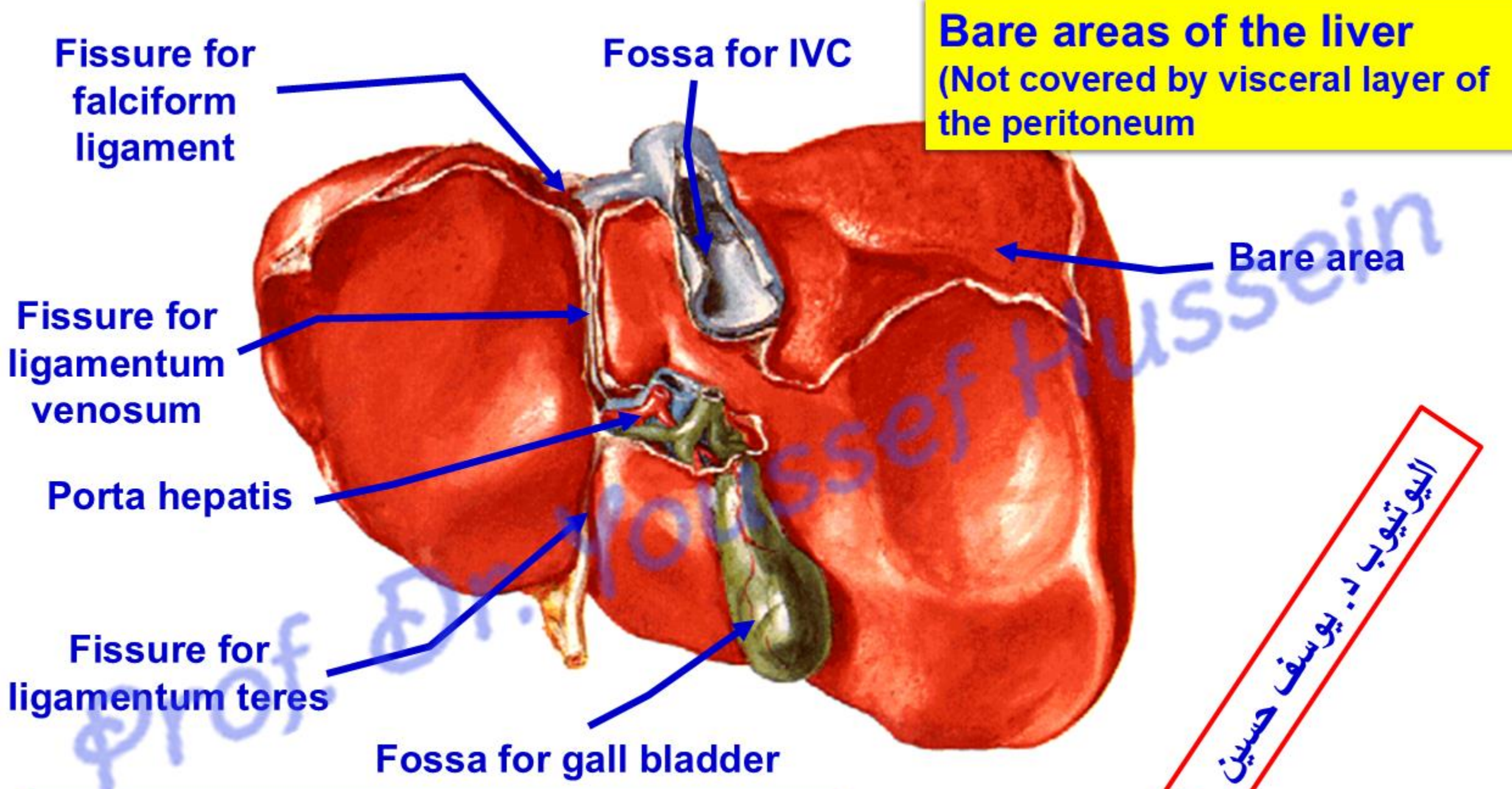


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Lesser omentum between  
port hepatis and lesser  
curvature of stomach

In the right free  
margin of lesser  
omentum (**VAD**)

- 1- Portal vein (post).
- 2- Hepatic artery.
- 3- Bile duct.



Fissure for falciform ligament

Fossa for IVC

**Bare areas of the liver**  
(Not covered by visceral layer of the peritoneum)

Fissure for ligamentum venosum

Bare area

Porta hepatis

Fissure for ligamentum teres

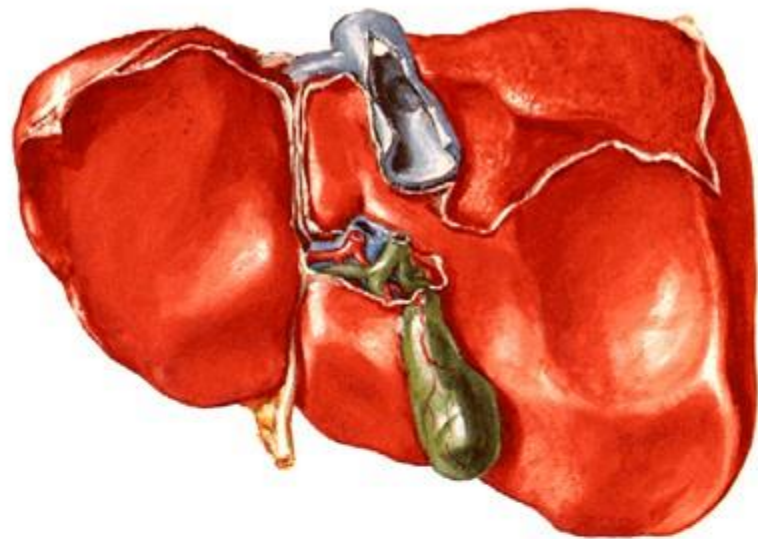
Fossa for gall bladder

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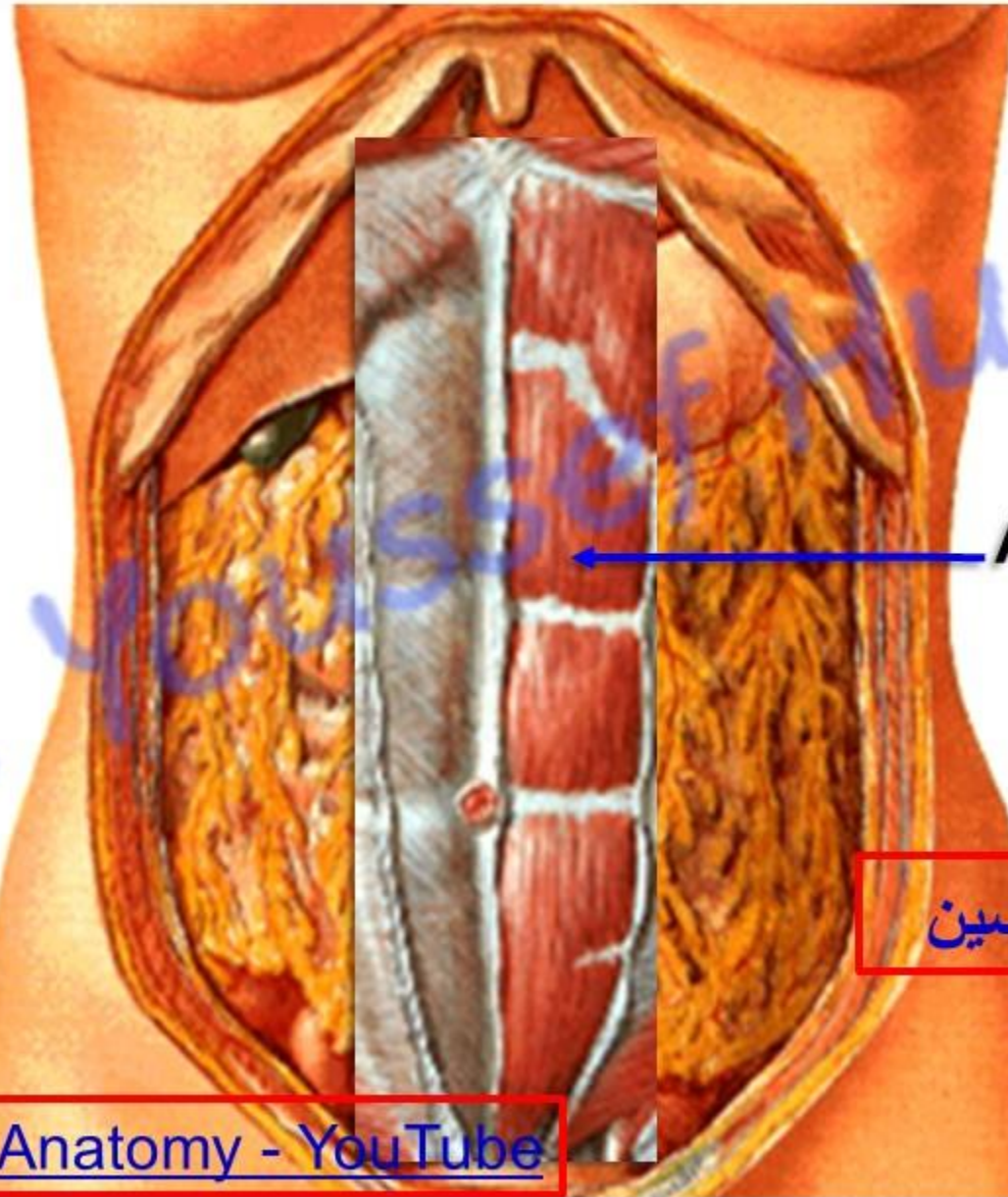
## Bare area of the liver

- **It** is a triangular area of the posterior surface
- Its **base**, groove for Inferior vena cava.
- **Superiorly**, upper layer of coronary ligament.
- **Inferiorly**, lower layer of coronary ligament
- Its **apex**, right triangular ligament.
- The coronary ligaments of the liver are peritoneal reflections connecting the liver to the diaphragm. The liver is attached to the diaphragm in this area by loose connective tissue
- **Anatomical Relations of bare area**
- The bare area is in direct contact with the **diaphragm**, which separates it from the right suprarenal gland, the upper pole of the right kidney, and the inferior vena cava (IVC).
- It is a site where infection can spread from the abdominal cavity to the thoracic cavity.



## Anterior relations of liver

- Anterior abdominal wall.
- Diaphragm separates the liver from the pleura, lungs, and pericardium.
- Xiphoid process
- **Right** 7<sup>th</sup> to 11<sup>th</sup> ribs and their corresponding costal cartilages.
- **Left** 7<sup>th</sup> and 8<sup>th</sup> costal cartilages.

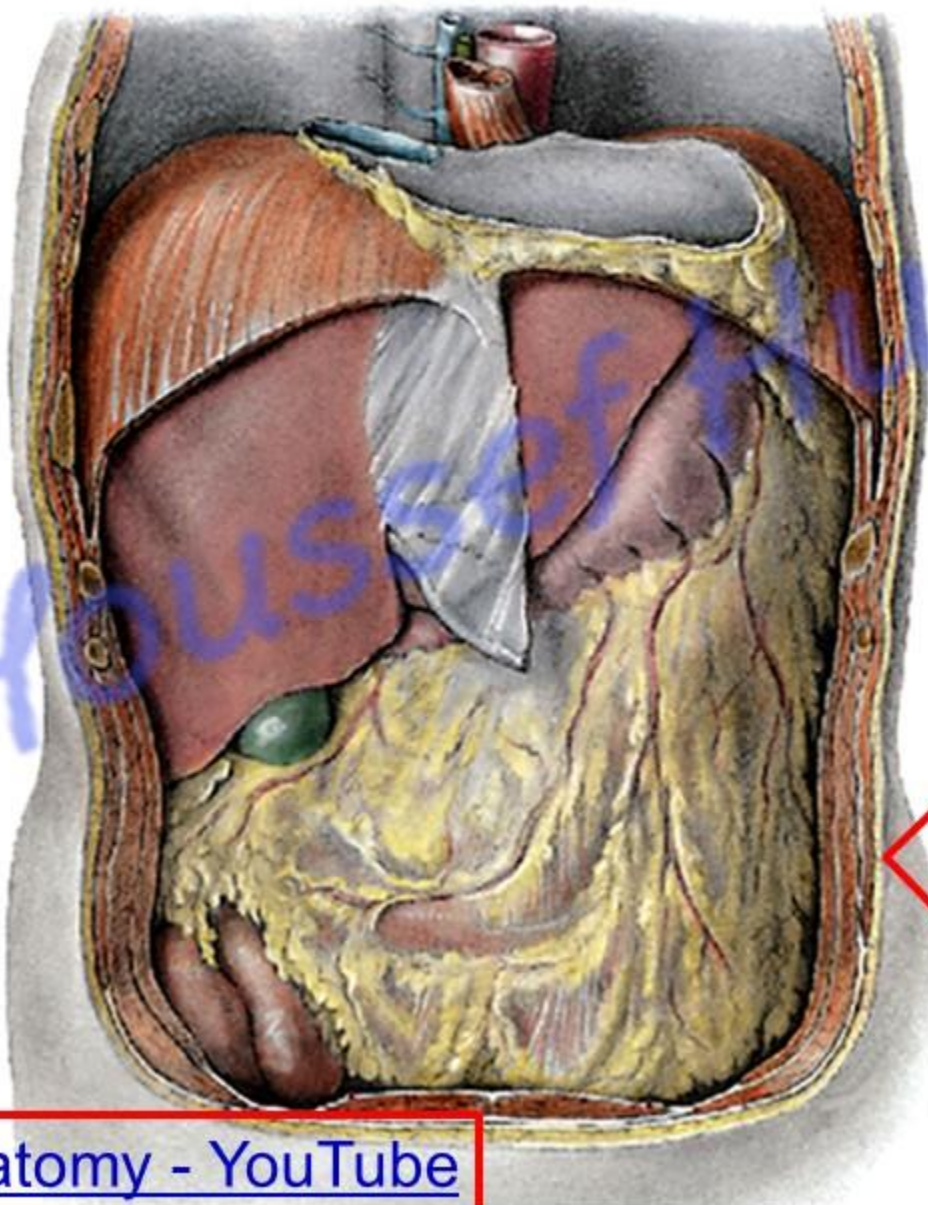


Anterior abdominal wall

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## Superior relations of liver

- **Superior surface** related to **diaphragm** which separates the liver from
- a- The pleura and base of the lung on **each side**.
- b- The pericardium and heart in the **middle**.



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## Posterior relations of liver

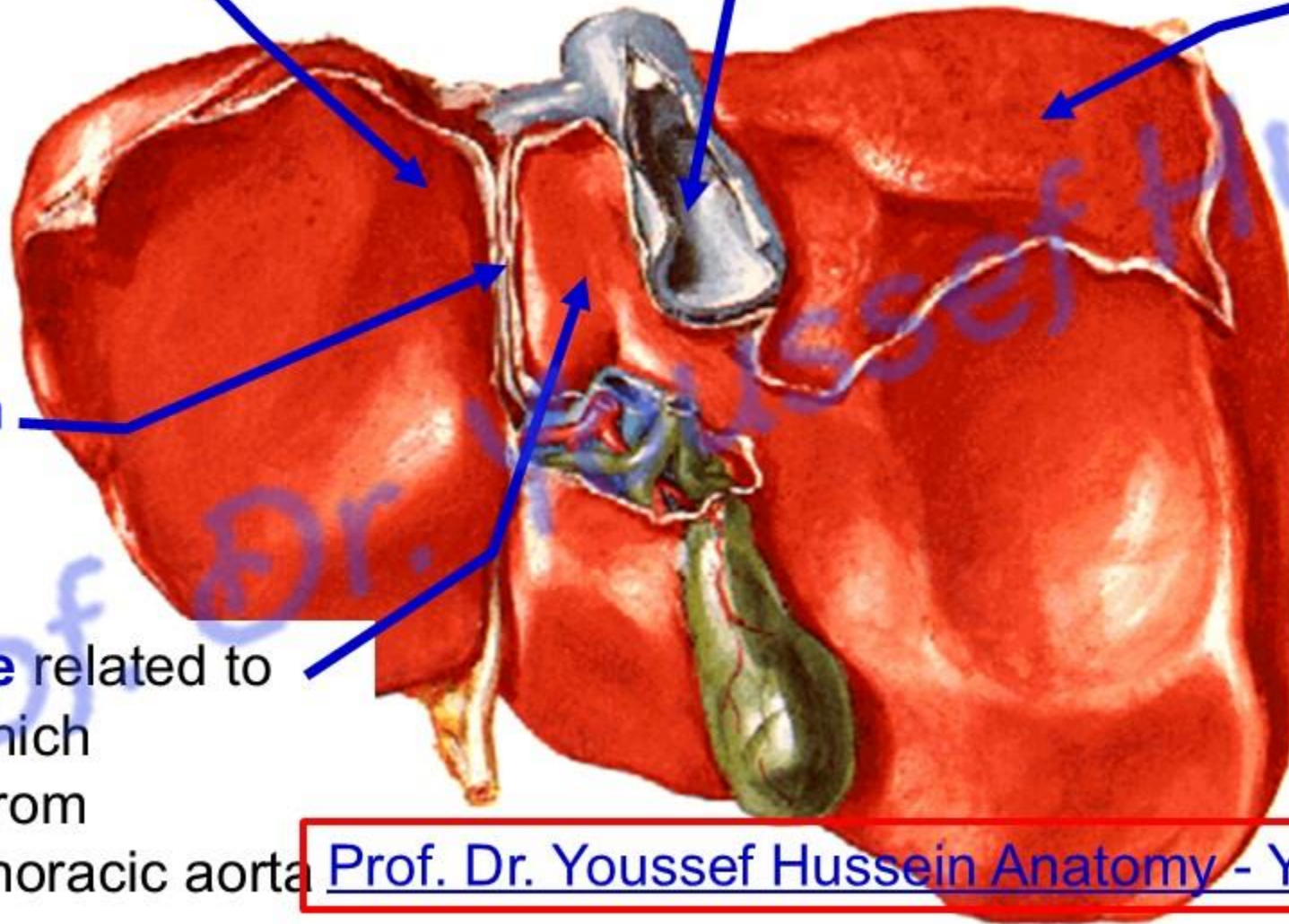
Esophageal  
impression

IVC

Bare area

Fissure for  
ligamentum  
venosum

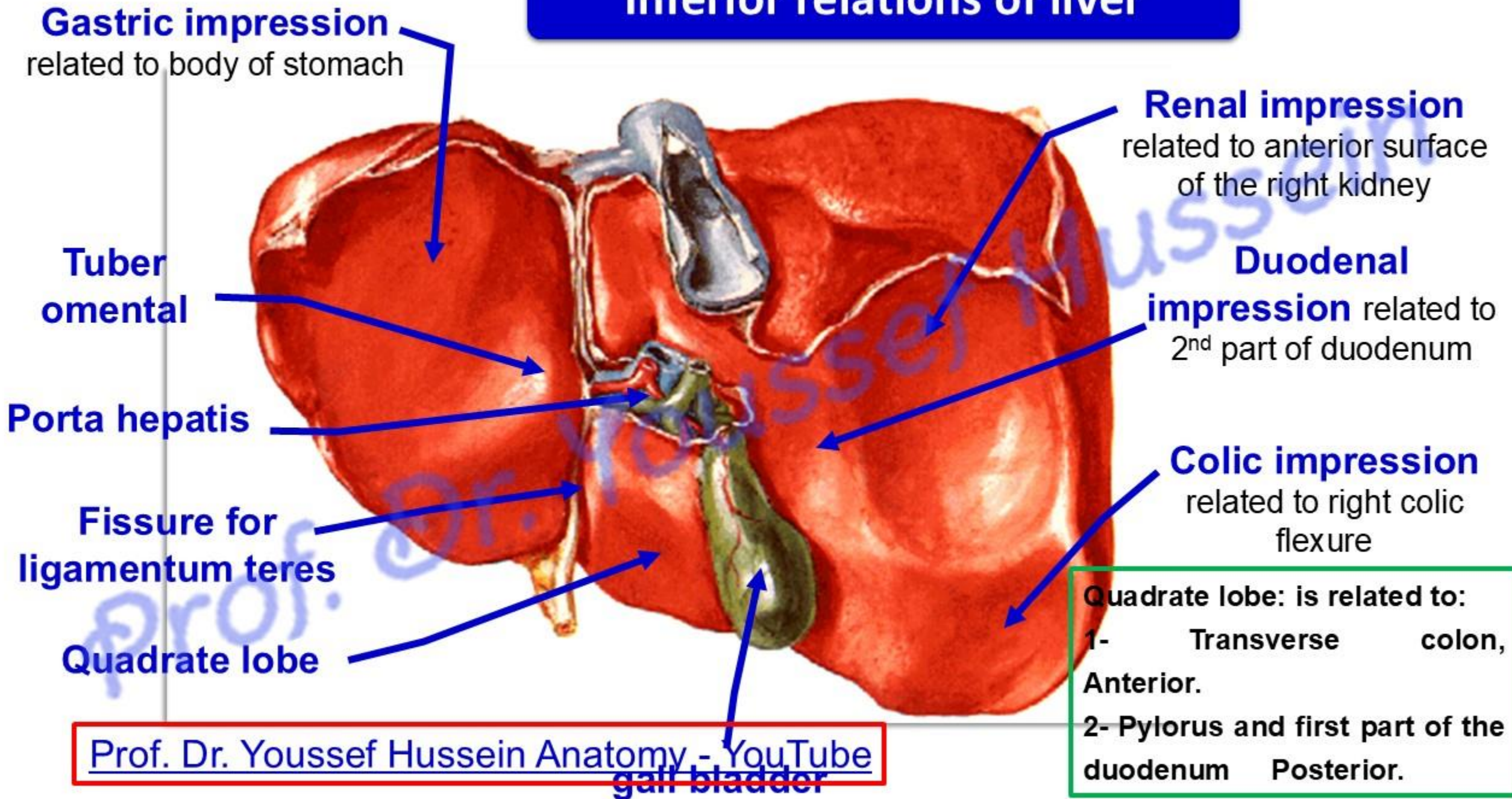
**Caudate lobe** related to  
diaphragm which  
separated it from  
descending thoracic aorta



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# Inferior relations of liver



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- Blood supply

1- Hepatic artery from coeliac trunk (left and right branches).

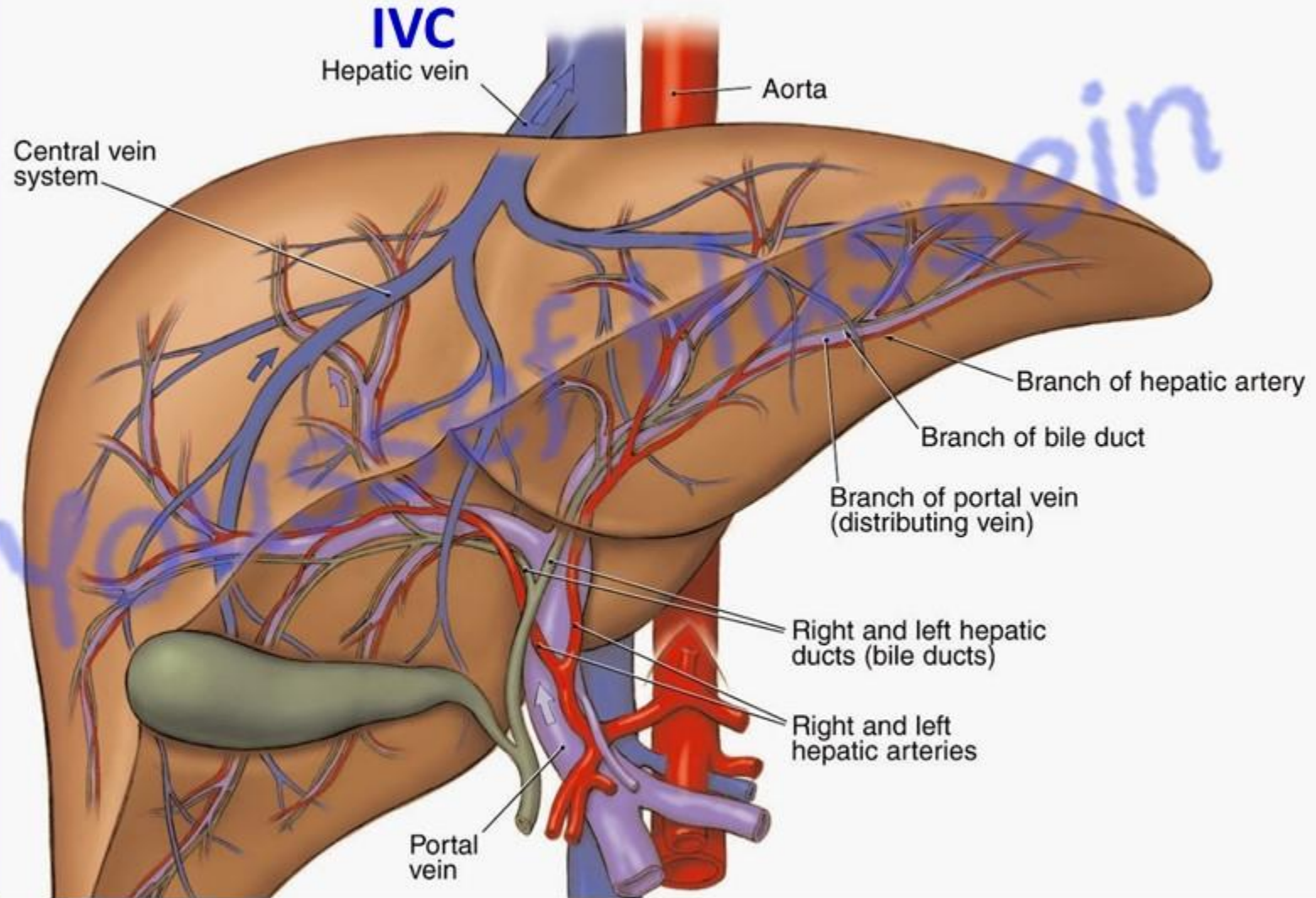
It carries oxygenated blood.

2- Hepatic veins → into the inferior vena cava.

2- Portal vein carries venous blood from the gastrointestinal tract. **Metastasis or infection from intestine may reach liver**

N.B;- Blood is mixed in the liver sinusoids.

## blood supply to liver



## • Lymphatic drainage

- The lymphatic drainage of the liver consists of two major pathways:

### 1- Superficial lymphatic end into:

- a- The lymph nodes **around the I.V.C.**
- b- The lymph nodes **in the porta hepatis.**
- c- Para-cardiac nodes **around the lower part of esophagus**
- d- Coeliac lymph nodes **around the coeliac trunk.**



### 2- Deep lymphatic: divided into ascending and descending trunks

- a- **Ascending trunk** end in the lymph nodes **around the I.V.C.**
  - b- **Descending trunk** drain into hepatic lymph nodes **in porta hepatis.**
- These lymph nodes end in the **intestinal trunk to cisterna chyli.**

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[https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd\\_cn0PQ](https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ)

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Thank You  
Questions

<https://www.youtube.com/@ProfDrYoussefHusseinAnatomy/playlists>