

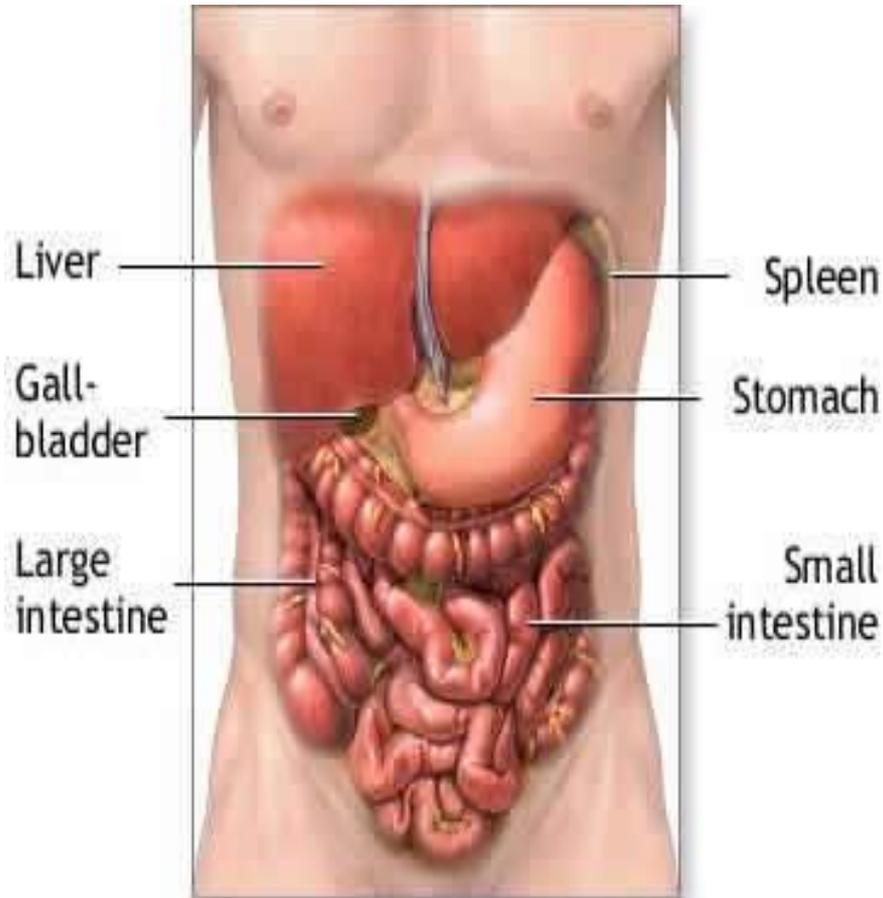


Anatomy of liver

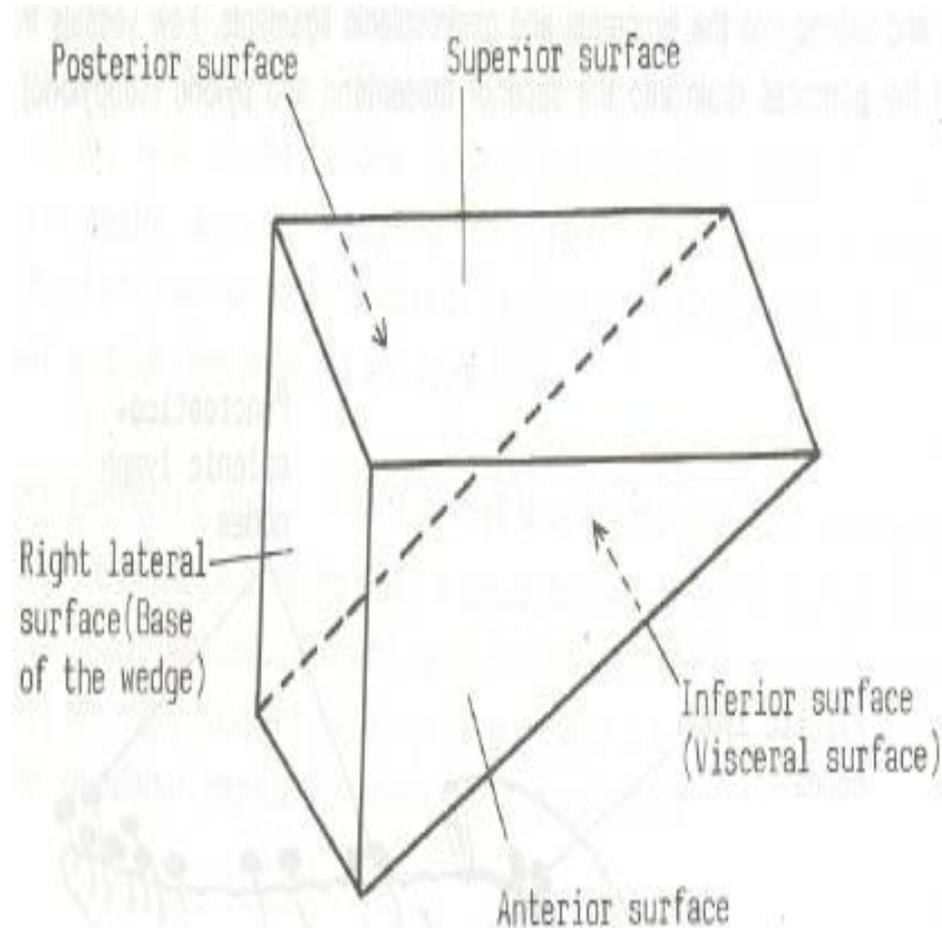
BY DR. DALIA M. BIRAM

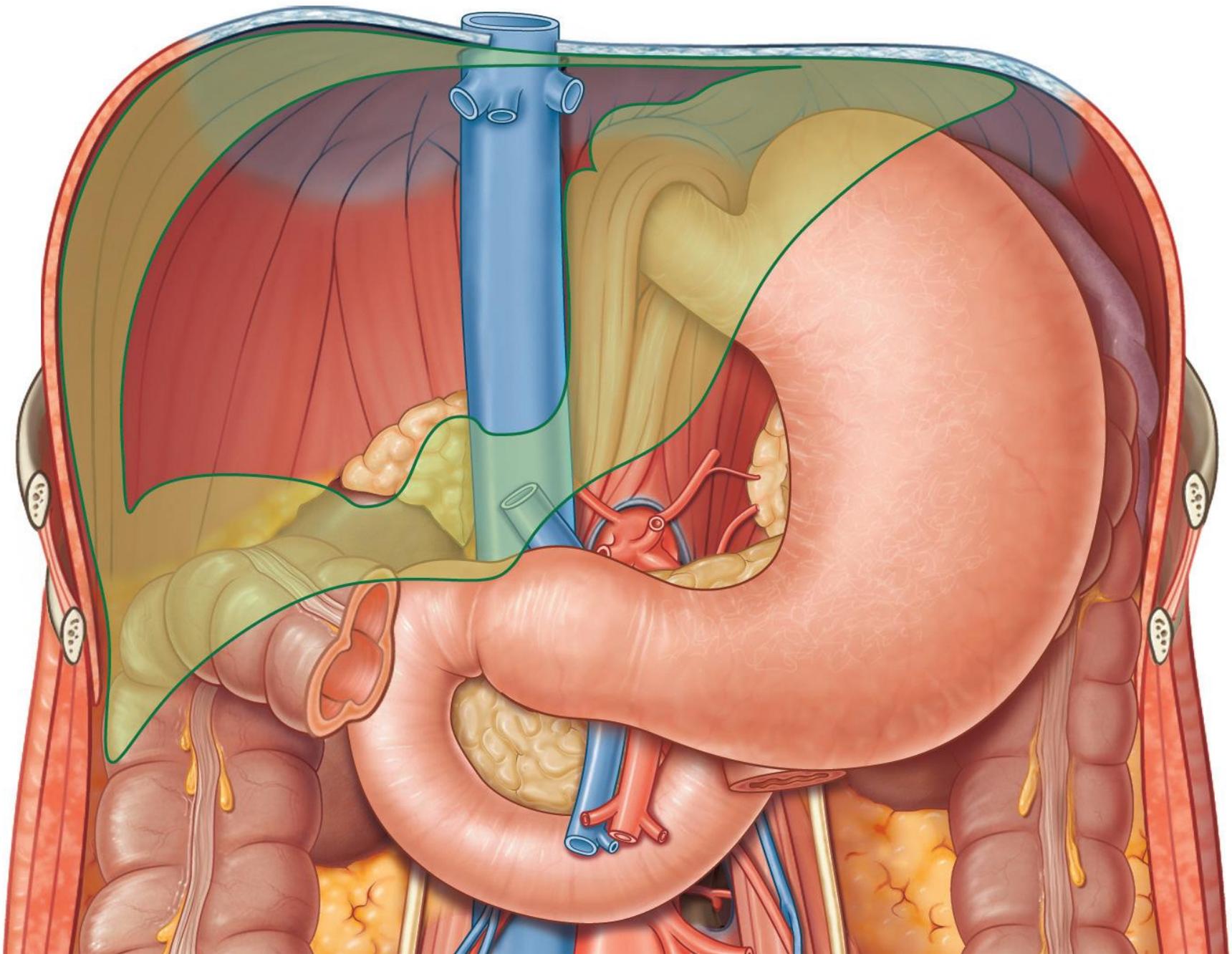
Site: It lies under the diaphragm, in the right hypochondrium, epigastrium and left hypochondrium.

Shape: It is wedge shaped. It has five surfaces: superior, inferior, anterior, posterior and right surfaces.



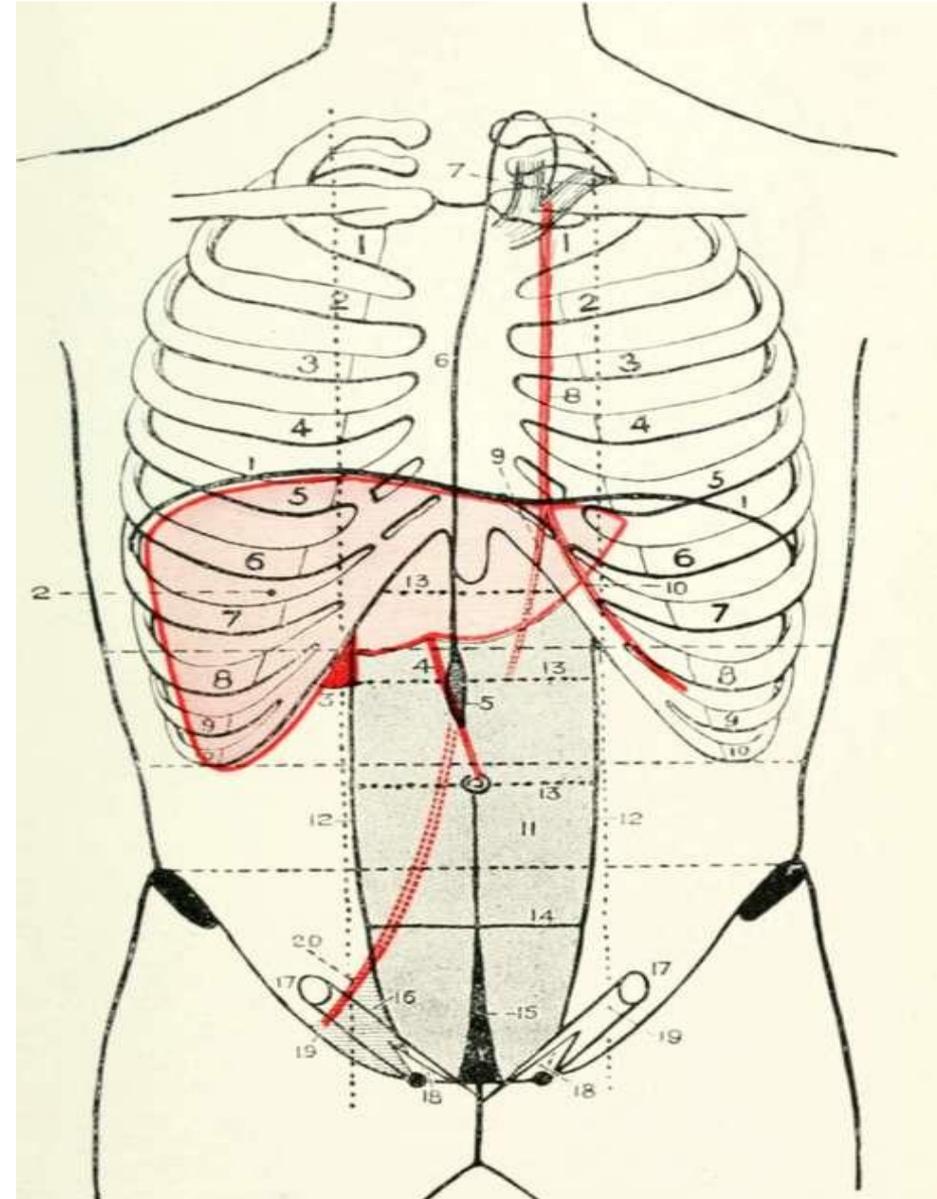
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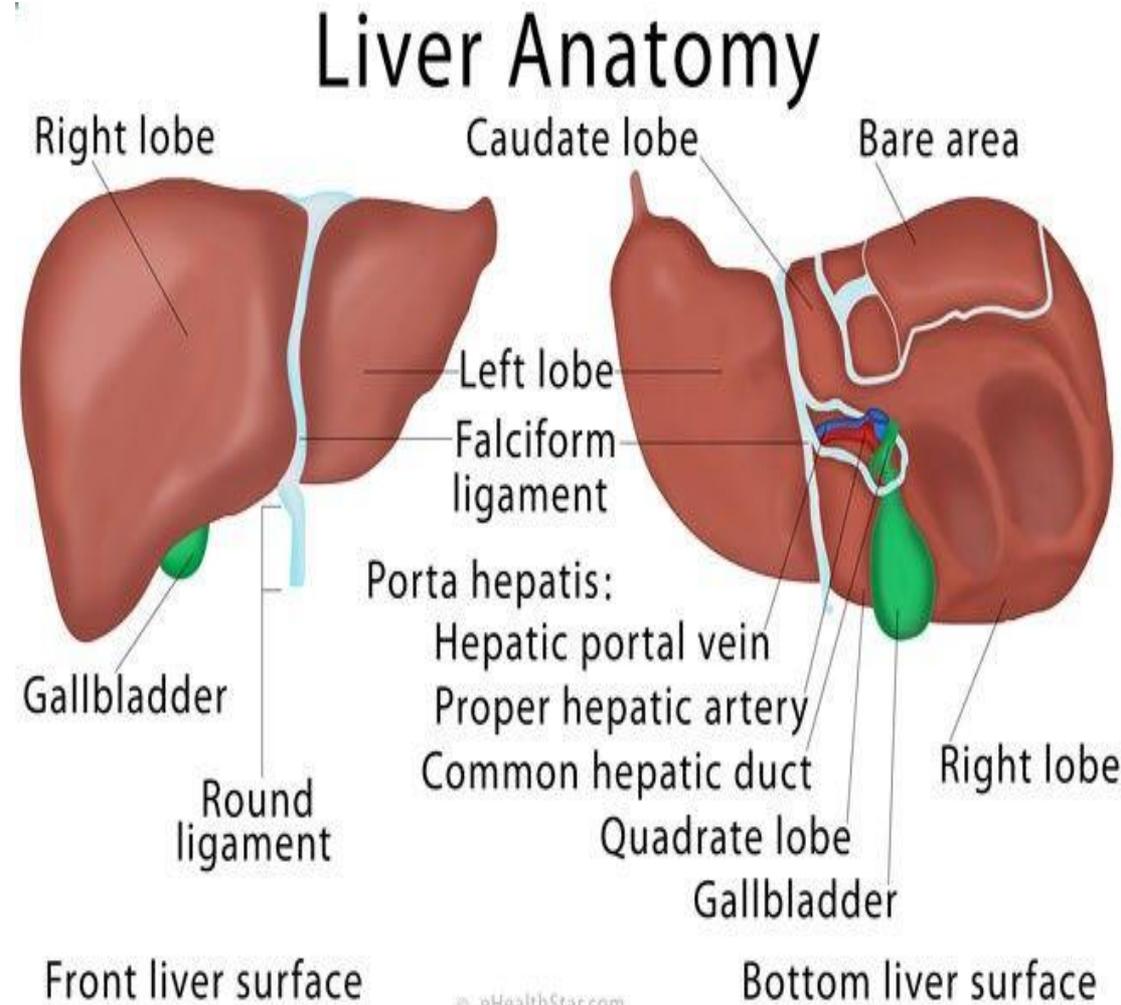
Surface anatomy of liver

- 1- Superior surface:** from the 5th left intercostal space in the mid clavicular line to the upper border of right 5th costal cartilages in right lateral plane, to the 7th rib in mid axillary line.
- 2- Right border:** from right 7th -11th ribs (mid axillary line).
- 3- Fundus of gallbladder:** tip of right 9th costal cartilage .



Lobes of the liver

- It is formed of right large and left small lobes by:
 - a. The attachment of falciform ligament on anterior and superior surfaces.
 - b. fissure for ligamentum Venosum on the posterior Surface
 - c. fissure for ligamentum teres on the inferior Surface.
- It also contains the caudate and quadrate lobes.



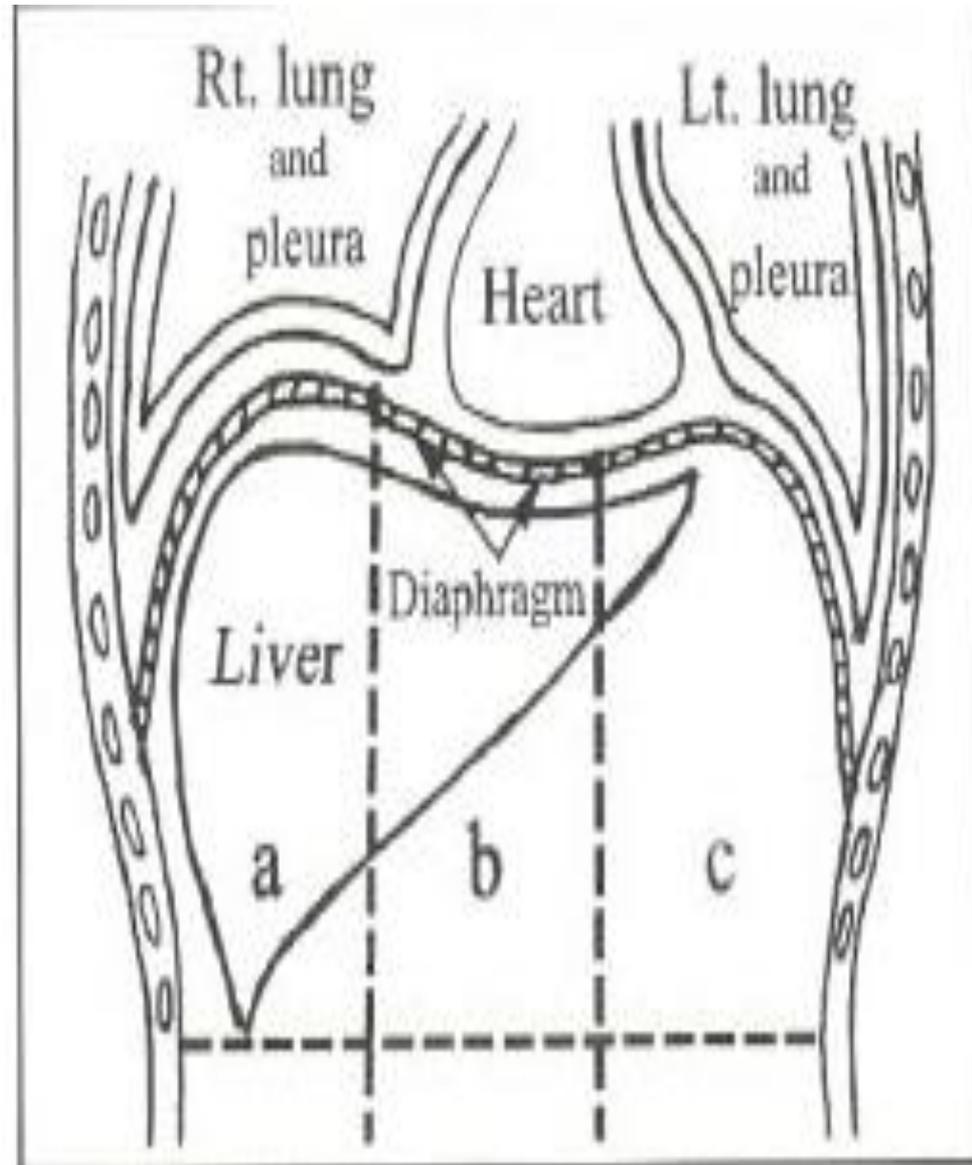
Relations of the liver

- The diaphragm and base of right lung and pleura are related to the superior, anterior and right surfaces.

1- Anterior surface is also related to Anterior Abdominal Wall.

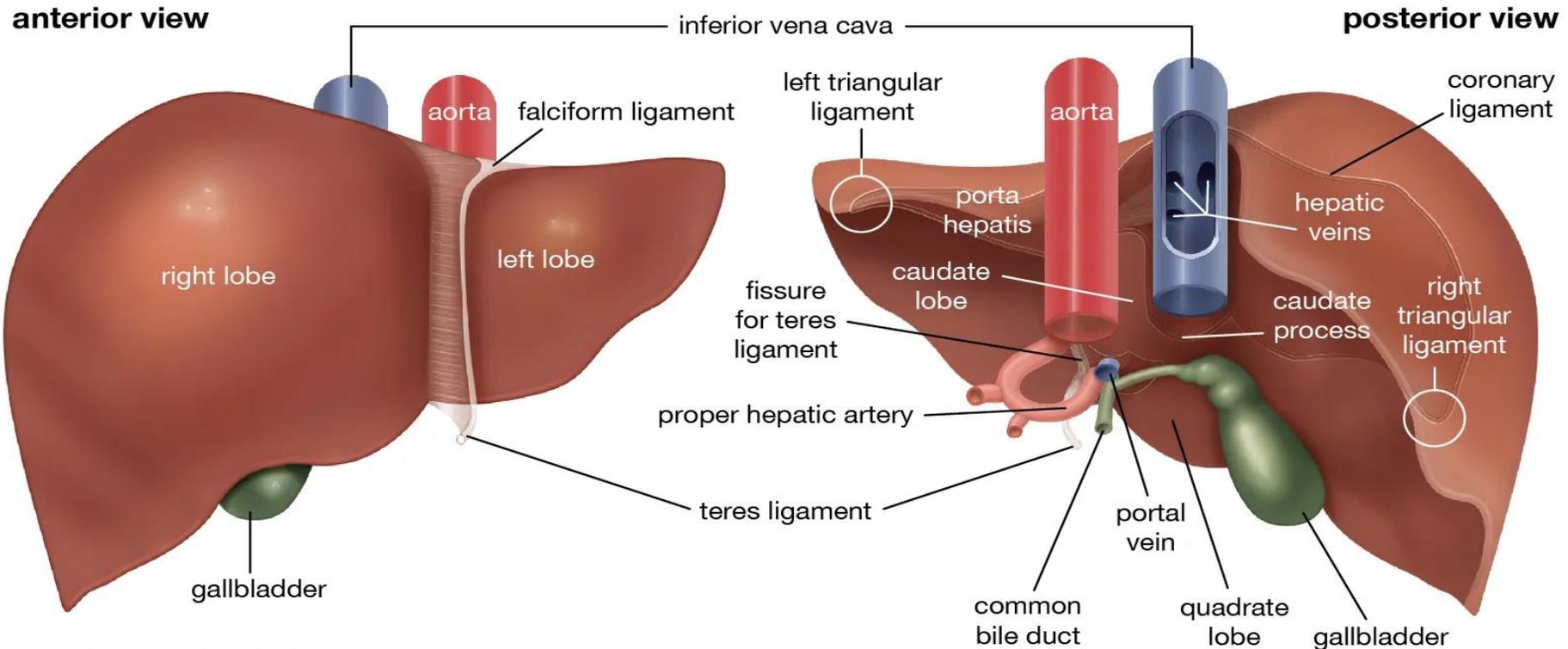
2- Superior surface is also related to heart, pericardium.

3- Right surface is also related to 7th to 11th ribs.



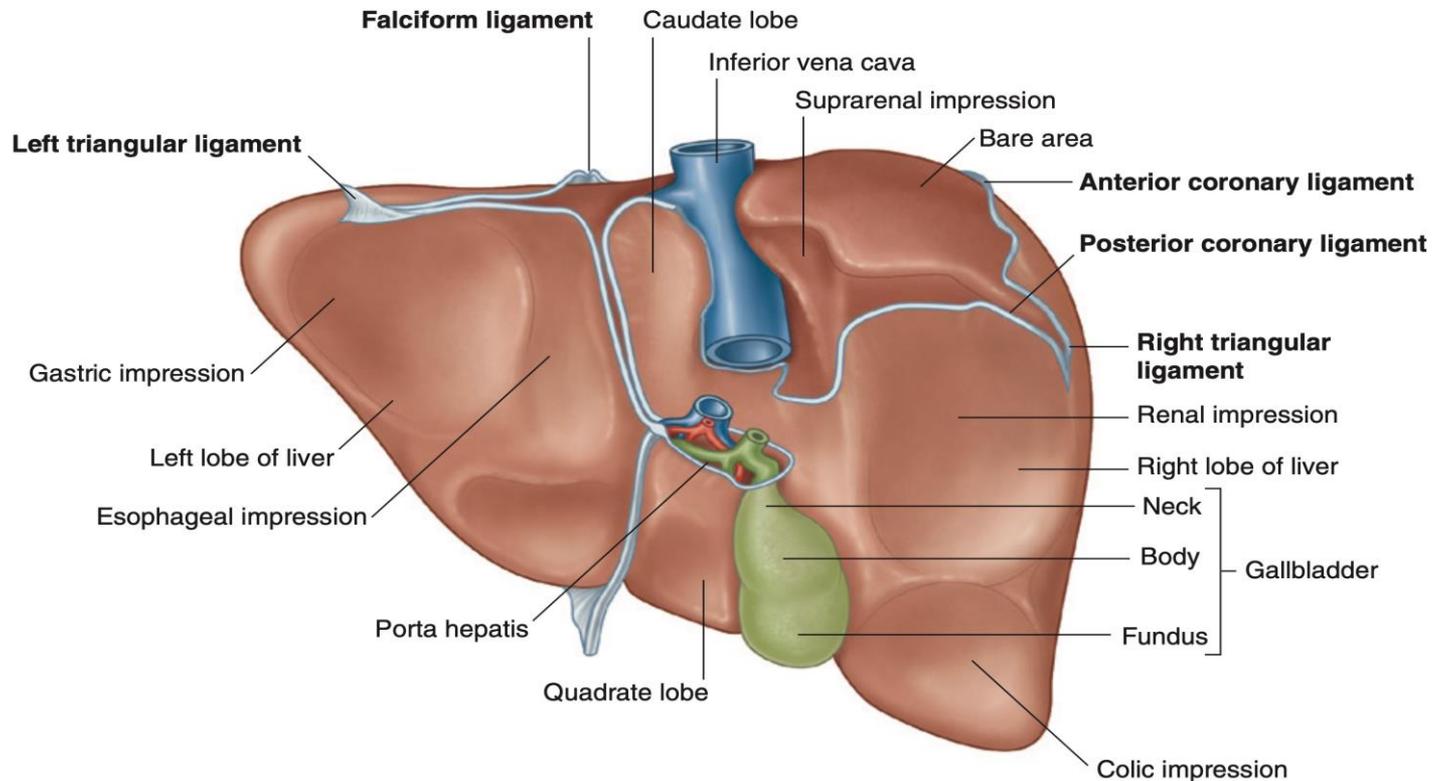
posterior surface is formed of: bare area, groove for IVC, caudate lobe, fissure for ligamentum venosum and esophageal notch.

Bare area of liver: a triangular area related directly to the diaphragm, its base is formed by the groove for IVC, its apex is formed by right triangular ligament, its sides are the upper and lower layers of coronary ligament.

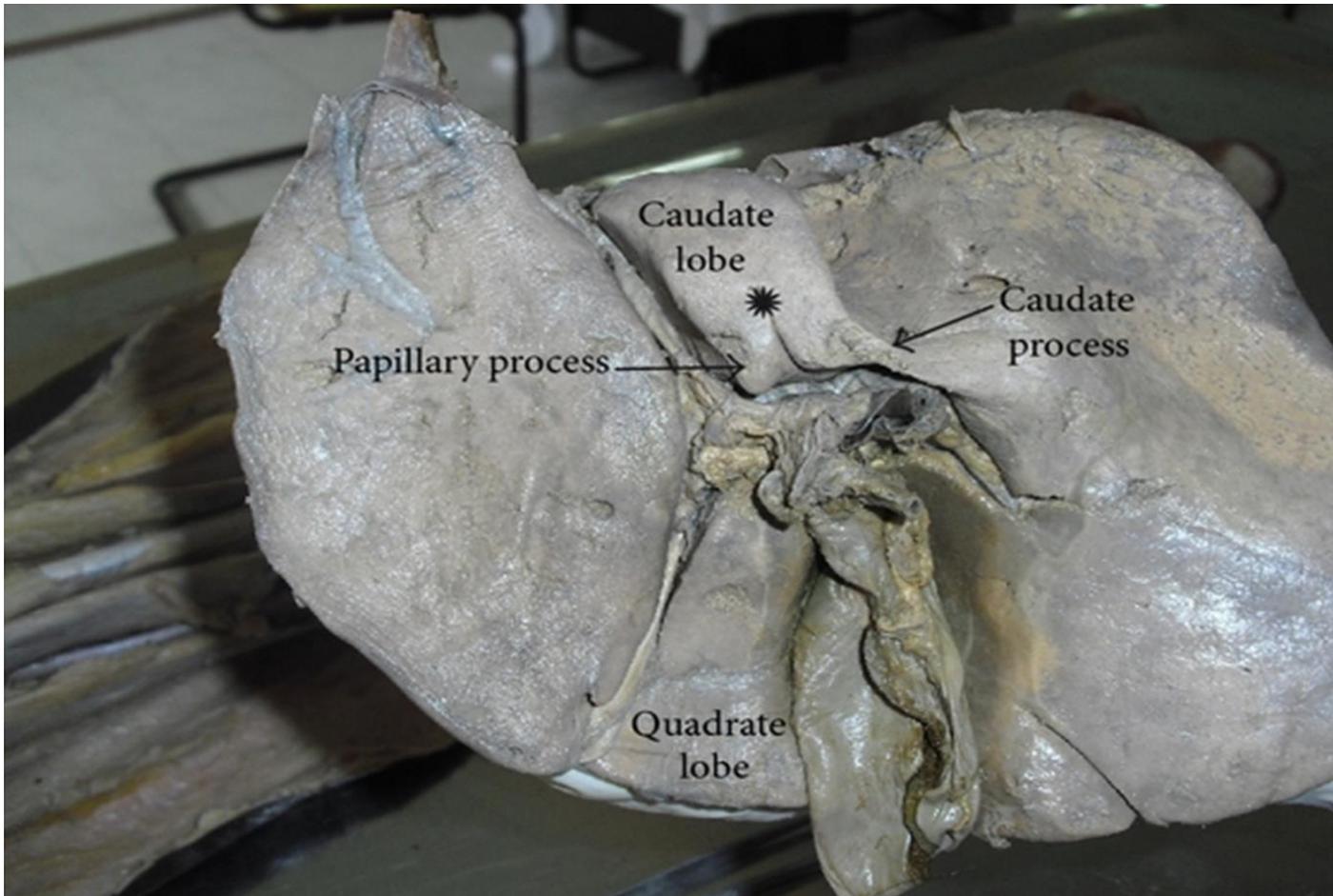


Caudate lobe

- It is related on the right side to groove for the IVC, On the left side to fissure for the ligamentum venosum superior to ligamentum venosum as it curves to join the IVC. it is related inferiorly to porta hepatis



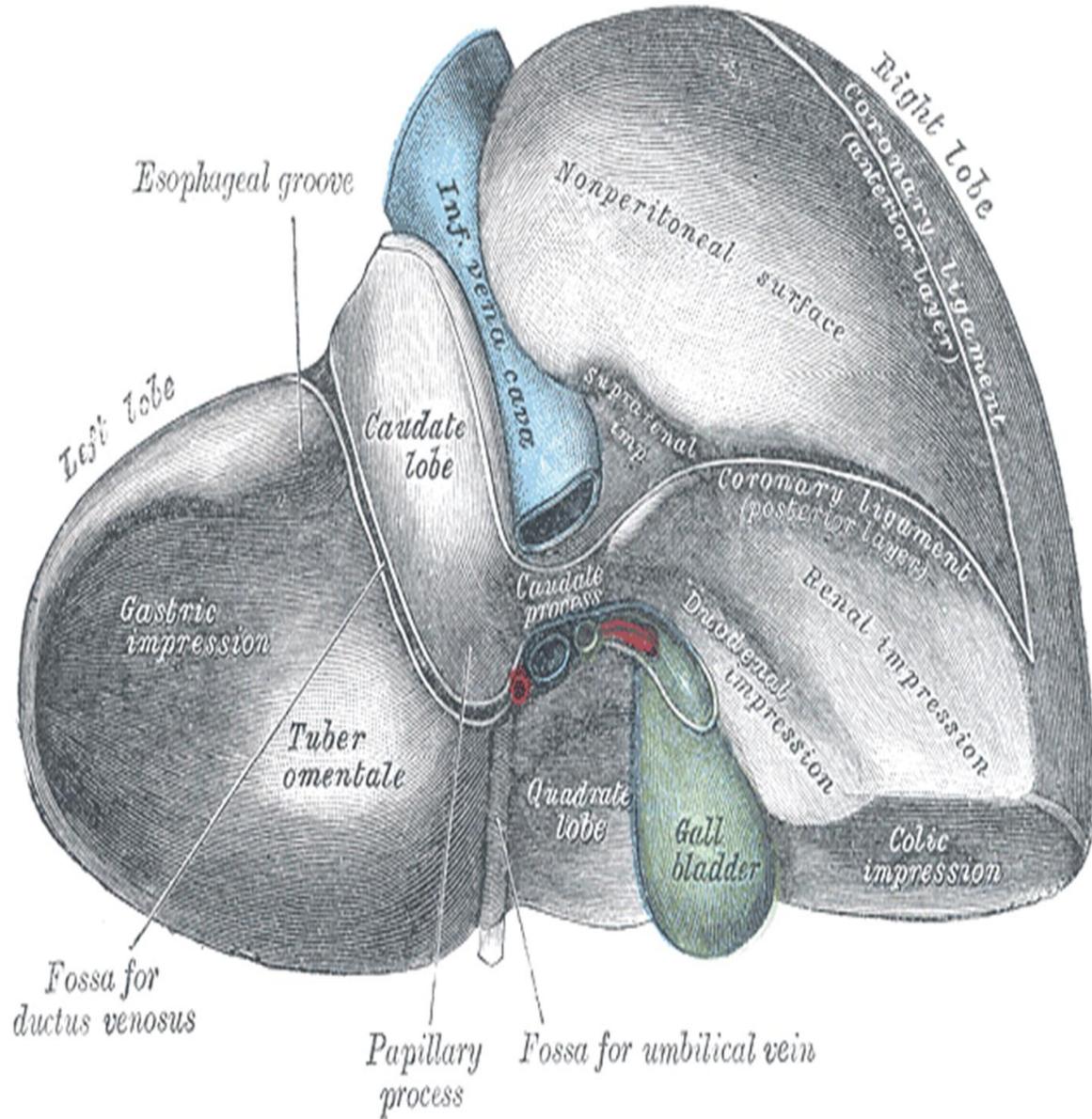
- The lower and right part of the caudate lobe forms a projection called the **caudate process** which forms the superior boundary of the epiploic foramen.
- The lower and left part of the caudate lobe forms a projection called the **papillary process**.
- - It is related posteriorly to lesser sac ,diaphragm , descending thoracic aorta and T. 12.

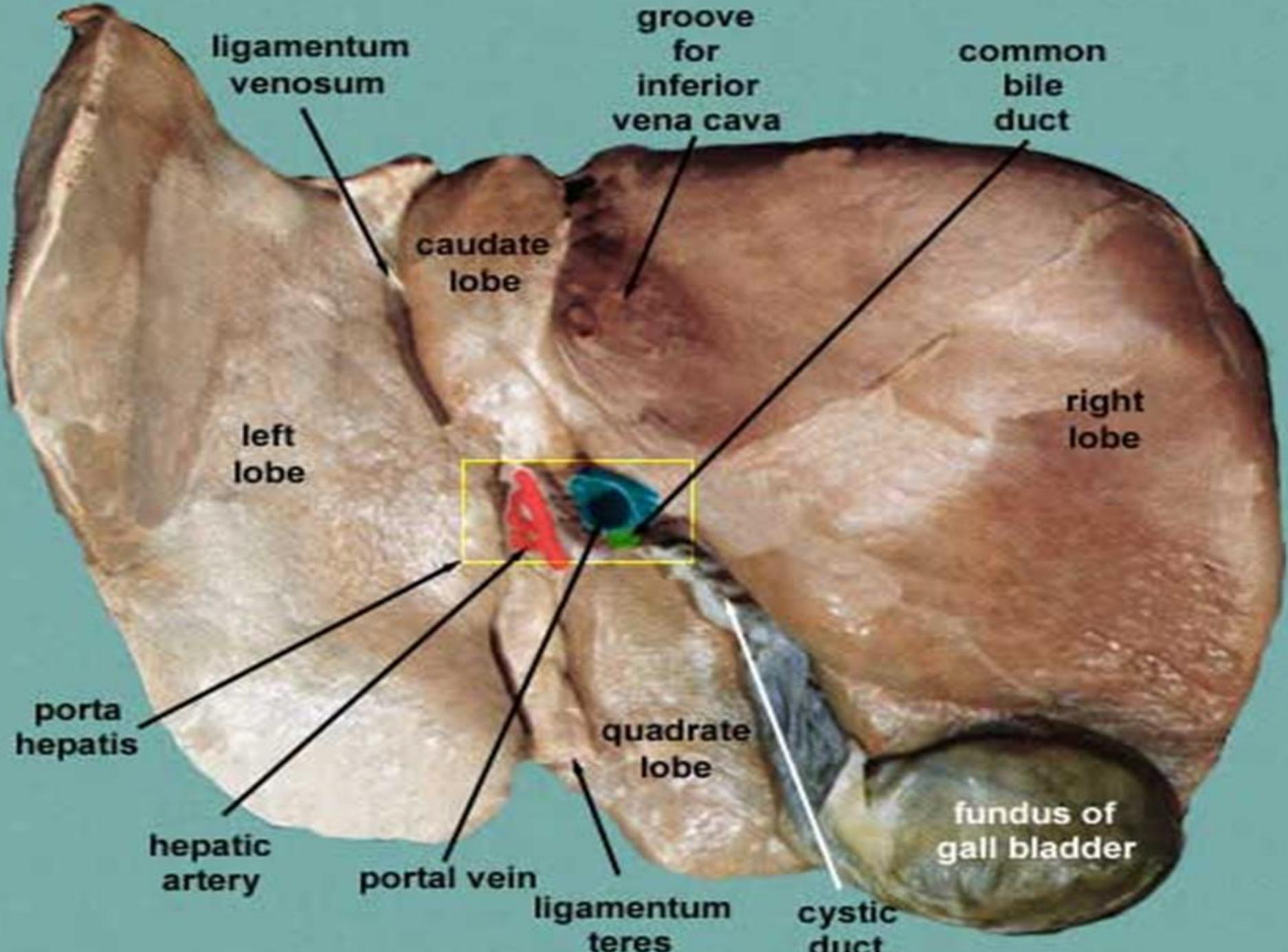


5- inferior surface

it shows the following features and impressions:

- a. Gastric impression
- B. Fissure for ligamentum teres
- c. Quadrate lobe
- d. Fossa for gall bladder
- e. Duodenal impression
- f. Renal impression
- g. Supra renal impression
- h. Colic impression





ligamentum
venosum

groove
for
inferior
vena cava

common
bile
duct

caudate
lobe

left
lobe

right
lobe

porta
hepatis

hepatic
artery

portal vein

quadrato
lobe

ligamentum
teres

cystic
duct

fundus of
gall bladder

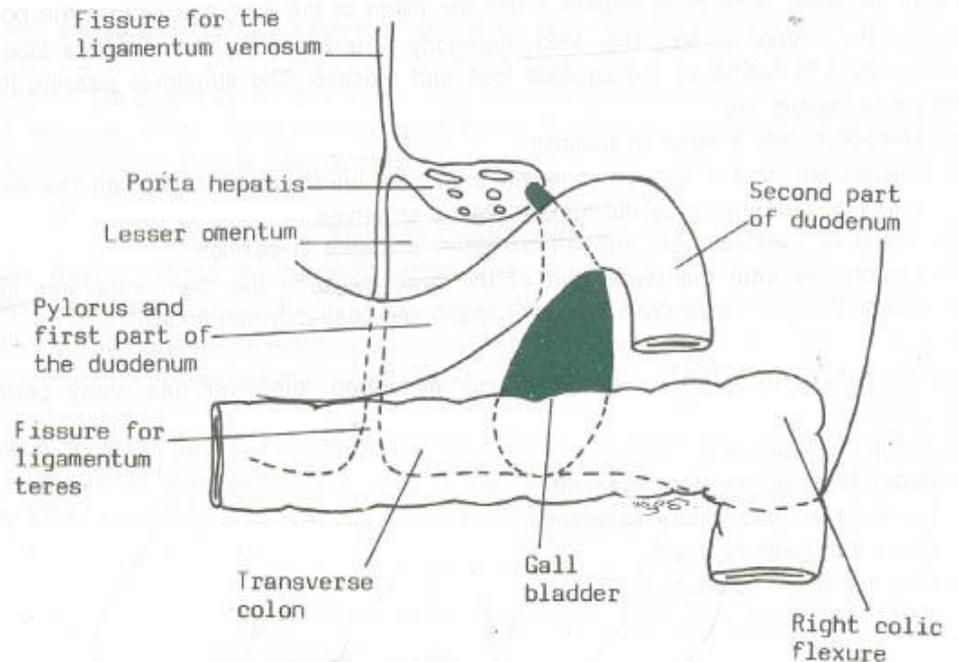
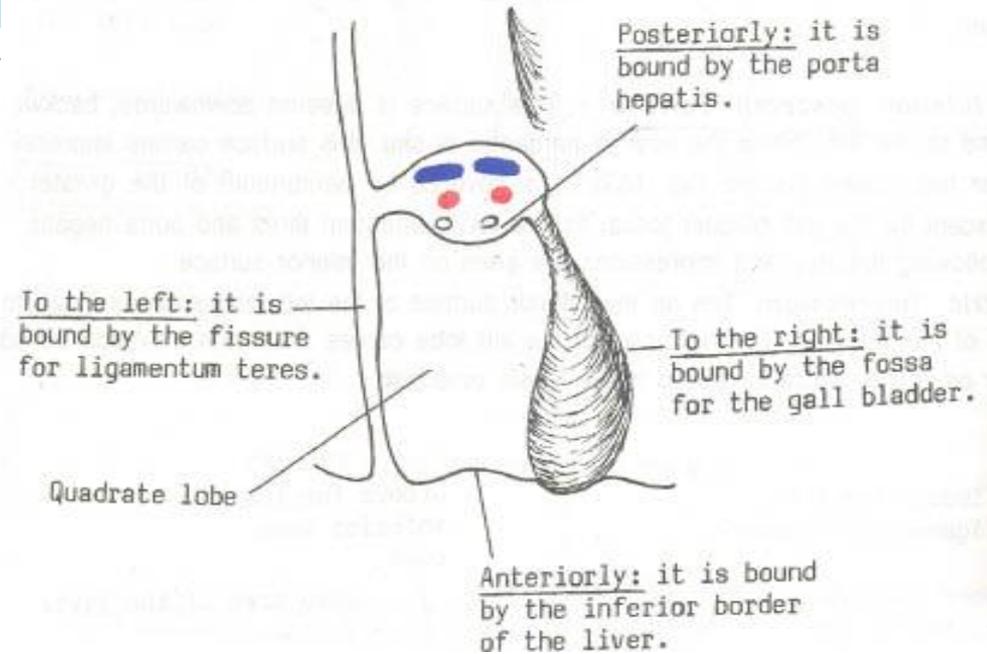
Quadrate lobe

It is a rectangular part of the inferior surface of liver. **It is bounded** by:

- 1-inferior border of liver (anteriorly).
- 2-porta hepatis (posteriorly)
- 3-gall bladder fossa (on the right)
- 4-fissure for ligamentum teres (on left side)

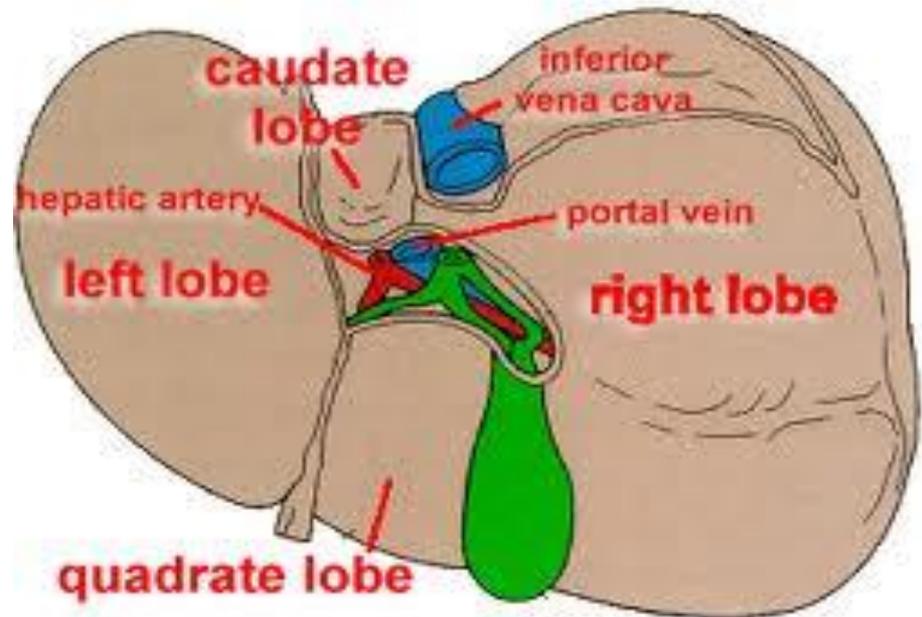
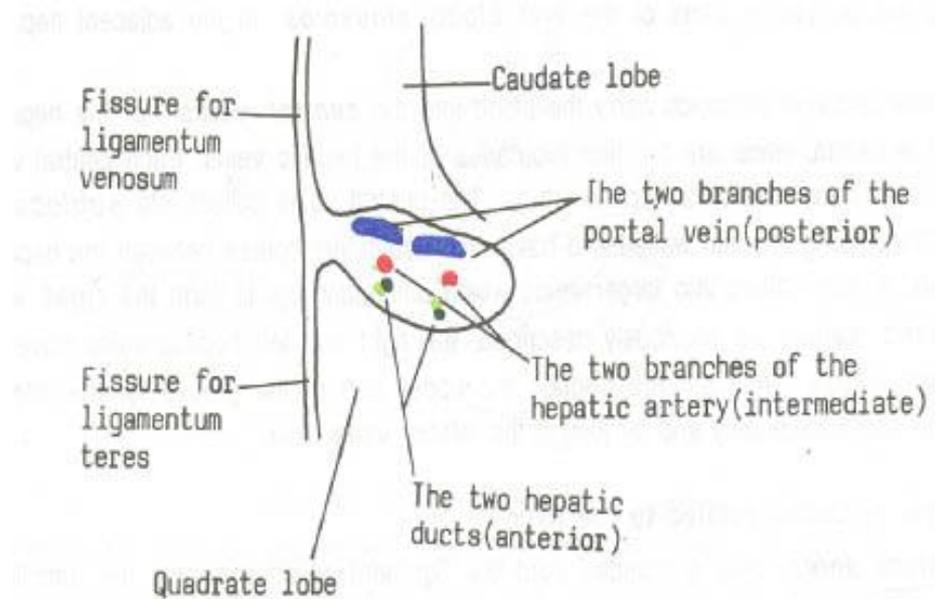
***It is related to:**

- 1- transverse colon (anteriorly),
- 2- pylorus & 1st part of duodenum (middle)
- 3- lesser omentum (posteriorly)



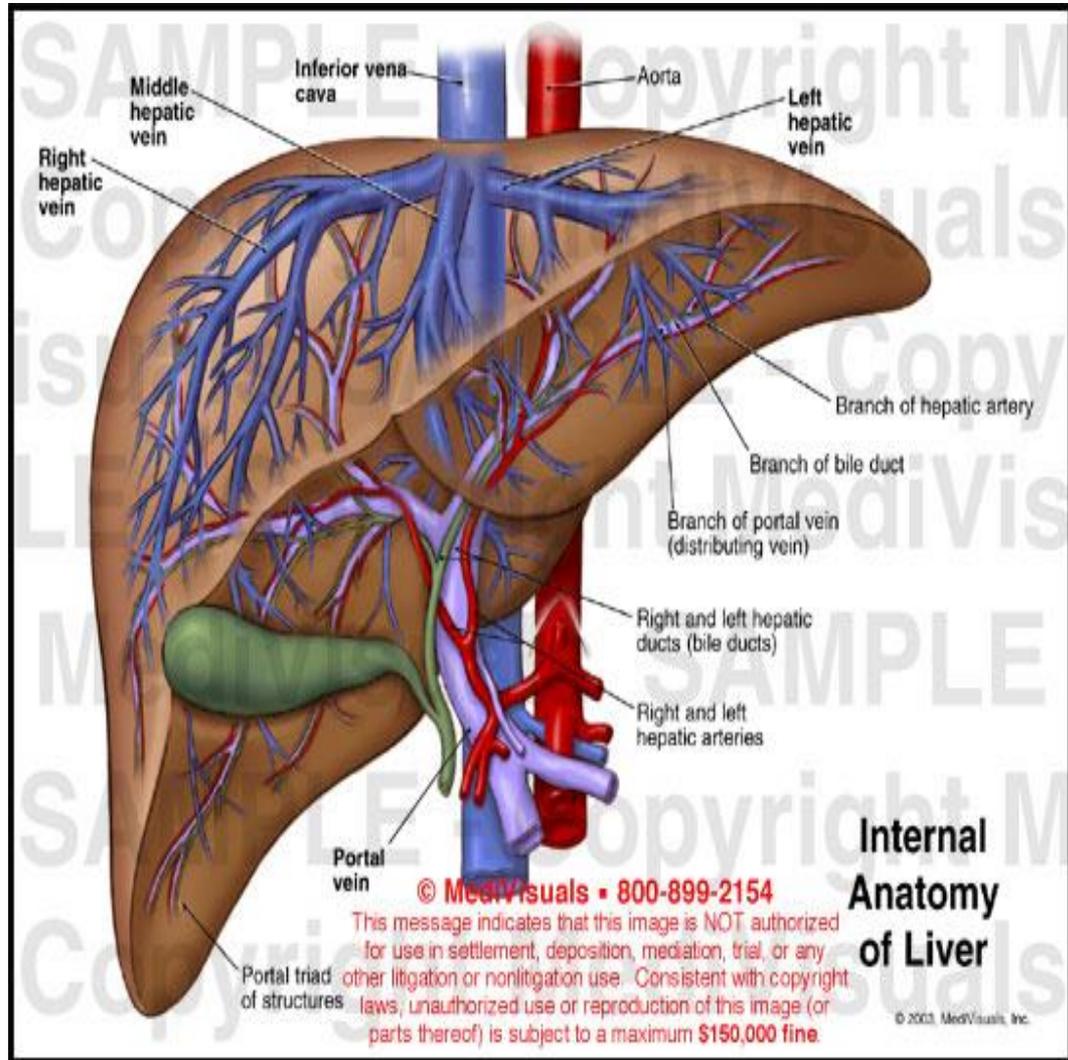
Porta hepatis

- It is the hilum of the liver. Anteriorly, it is bounded by quadrate lobe posteriorly, by caudate lobe and process.
- **Structures passing through it:**
 - a. Hepatic ducts: anterior In position.
 - b. Hepatic artery: intermediate in position.
 - c. Portal vein: posterior in position.
 - d. Lymphatics.
- **It gives attachment to lesser omentum with the fissure for lig. venosum**



Blood supply of liver

- It receives blood from two sources:
 - 1- **Hepatic arteries** which divides into right , left branches.
 - 2- **Portal vein:** which divides into right , left branches.
- The venous drainage is by **three hepatic veins** (right, left, middle). which terminate in the IVC



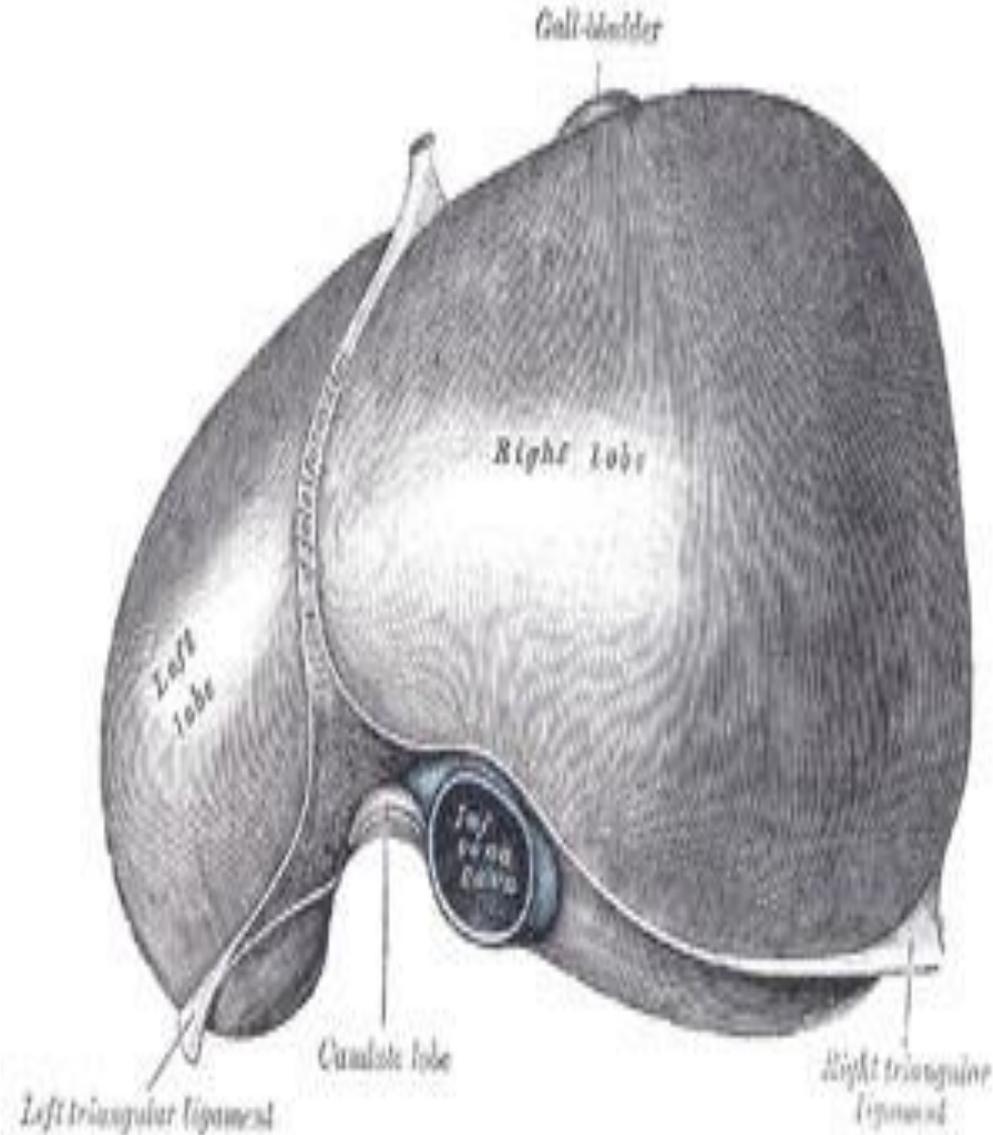
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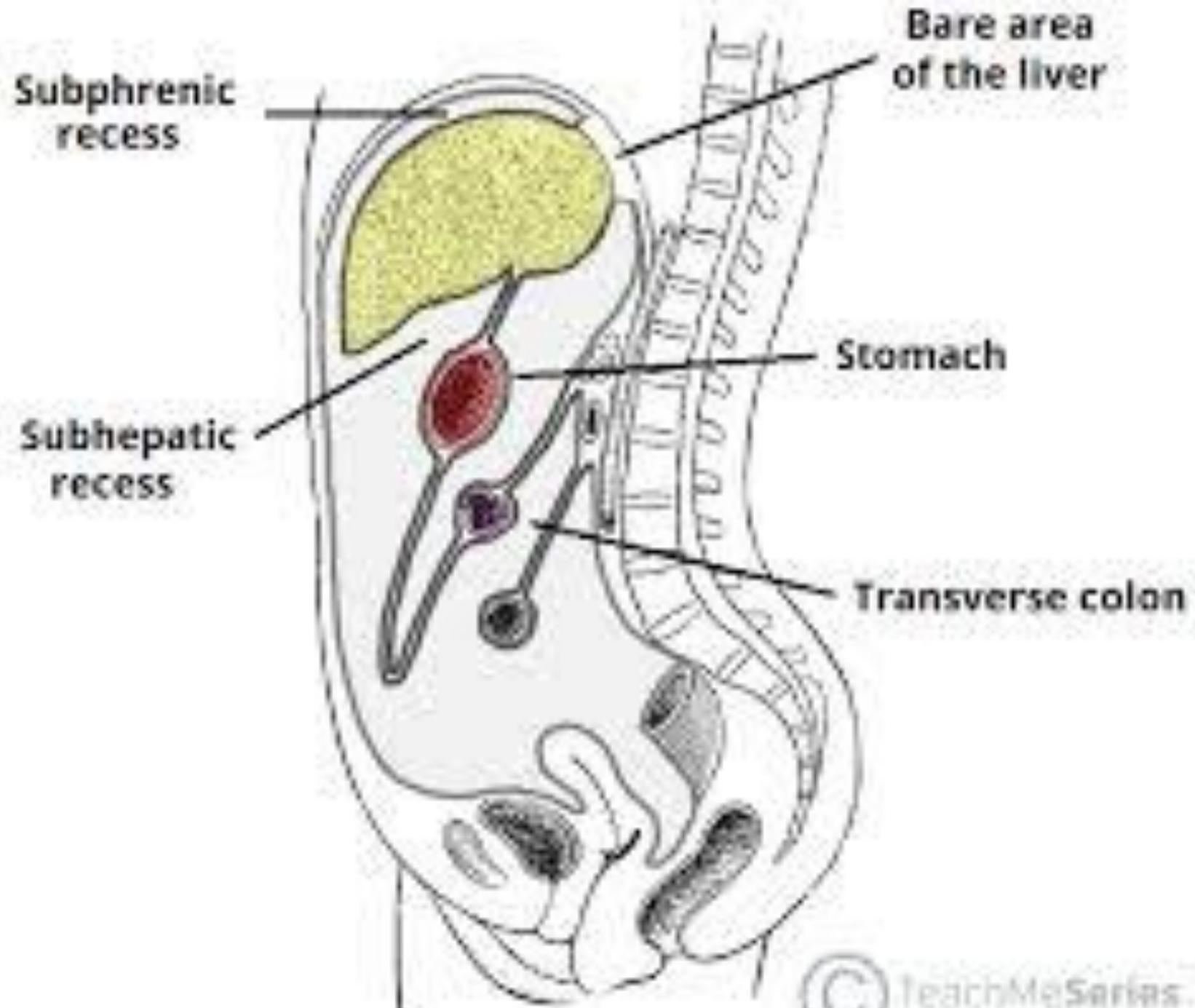
Peritoneal connections

The liver is attached to the anterior abdominal wall, diaphragm and

other viscera by several peritoneal ligaments:

- 1- falciform ligament.
- 2- upper layer of coronary ligament.
- 3- lower layer of coronary ligament.
- 4- right triangular ligament.
- 5- Left triangular ligament.
- 6- lesser omentum.



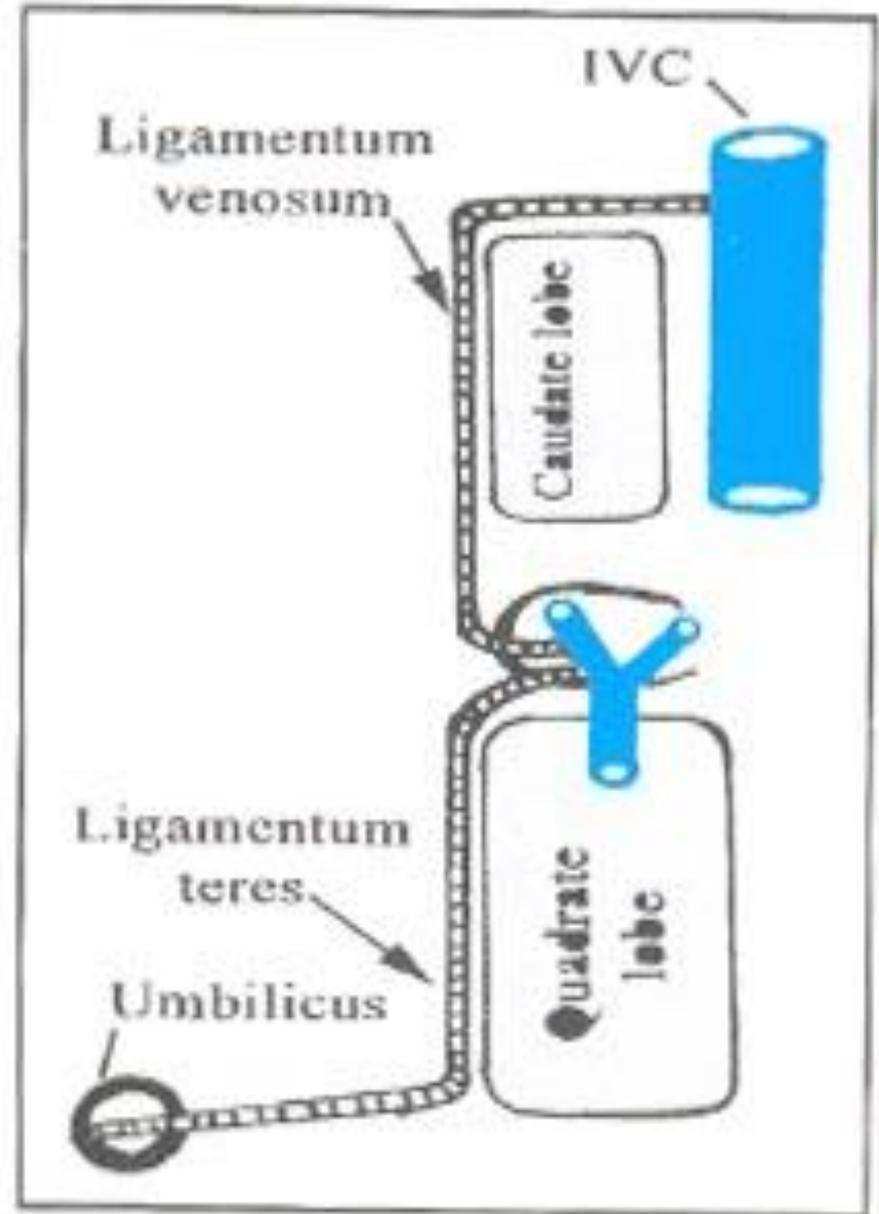


Embryonic remnants

1- Ligamentum teres:

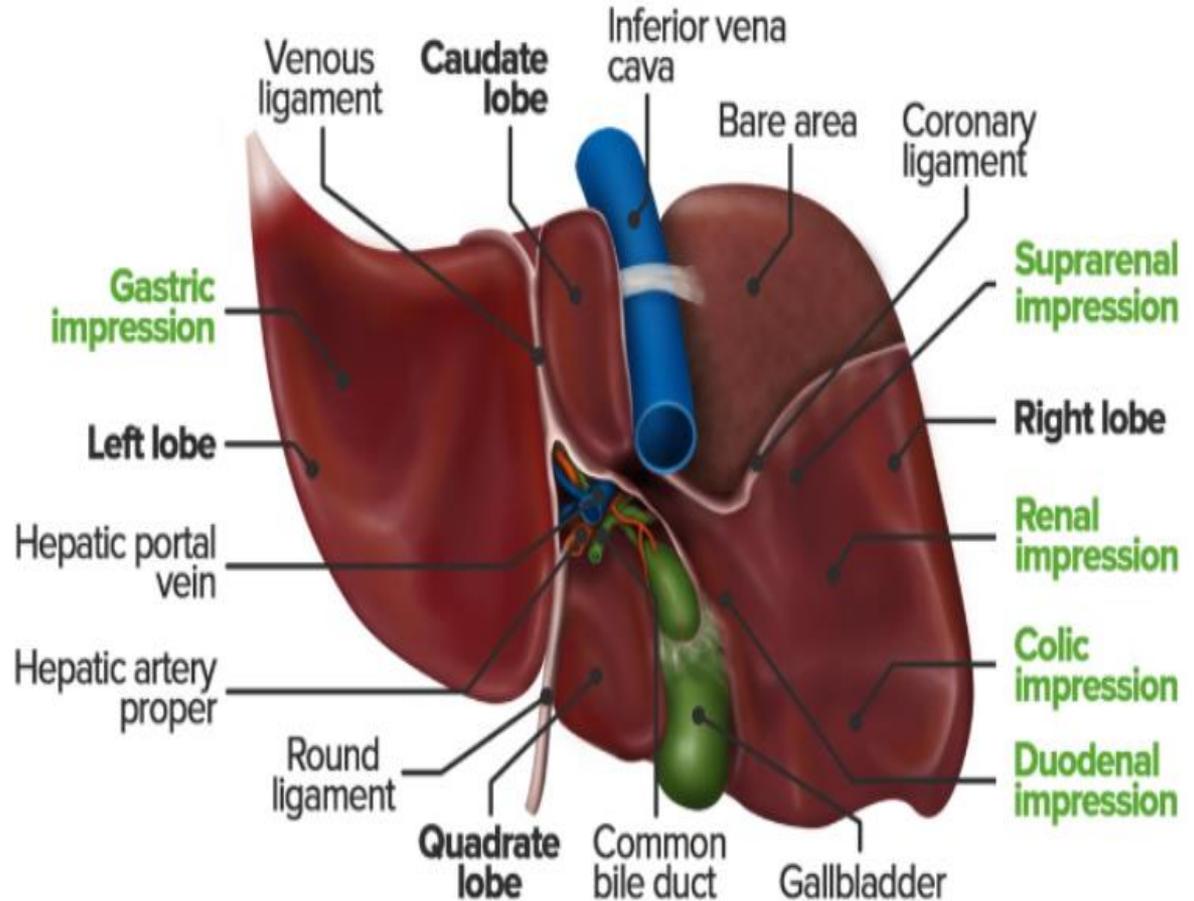
It connects the umbilicus with the left branch of portal vein. It represents the obliterated umbilical vein.

2- Ligamentum venosum: It connects the left branch of portal vein with the IVC. . It represents the obliterated ductus venosus.



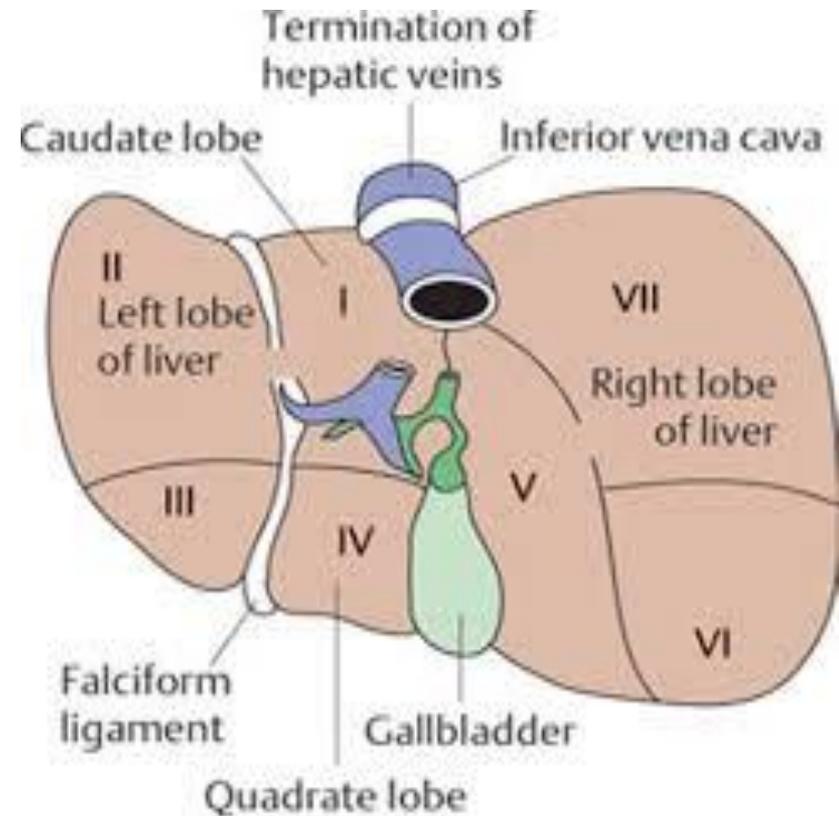
Areas of the liver do not covered by peritoneum

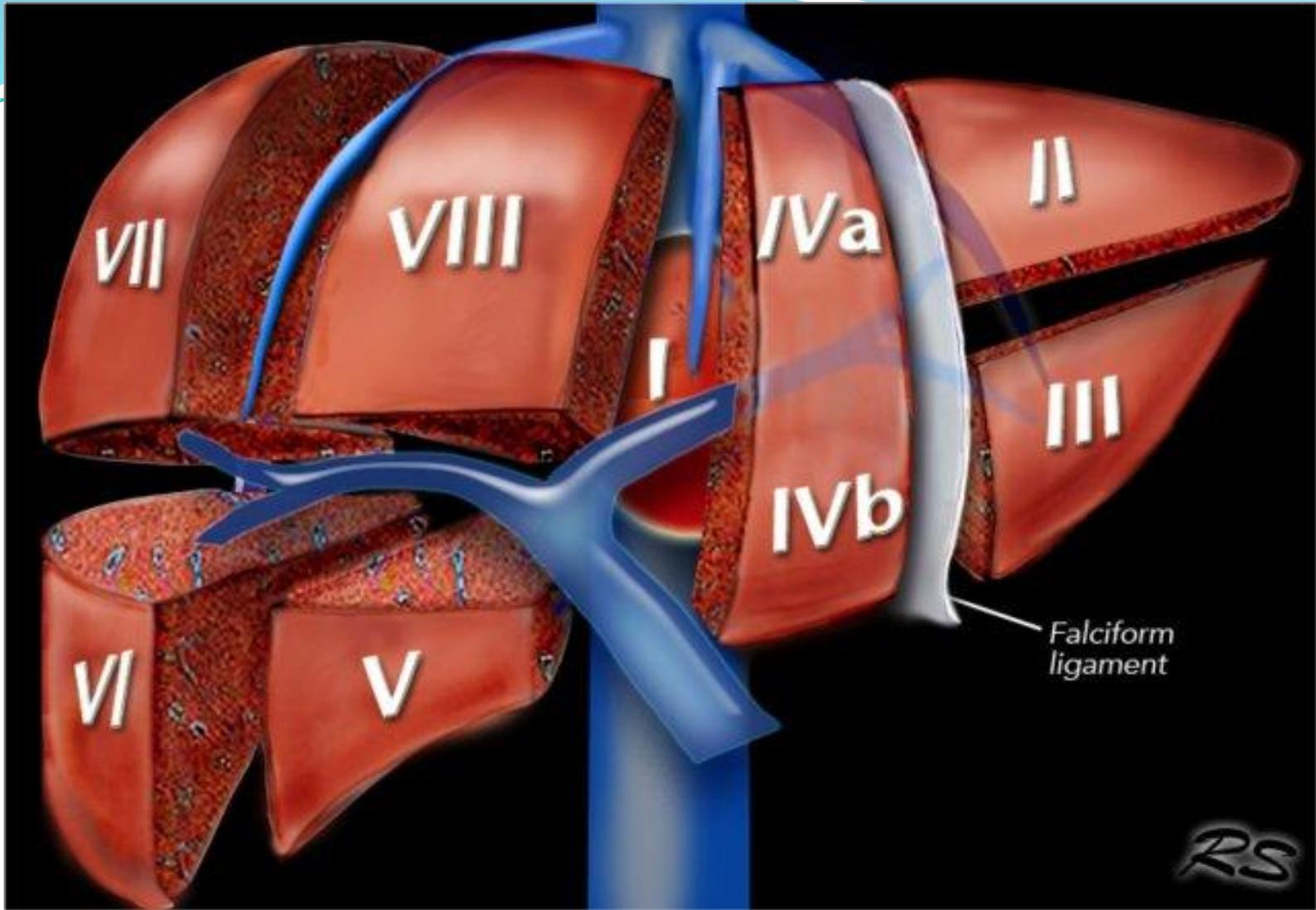
- 1- Bare area
- 2- Groove for IVC
- 3- Porta hepatic
- 4- Fossa of gall bladder
- 5- Fissure for ligamentum teres
- 6- Fissure for ligamentum venosum.



Hepatic segmentation

- It is the division of liver into 8 segments
- It depends on the vascular distribution to the liver.
- It is divided into right and left lobes by an imaginary line passing through IVC and fossa of gall bladder. This include caudate , quadrate lobes as parts of left lobe.
- Each part receives its own primary branch of the hepatic artery and hepatic portal vein and is drained by its own hepatic duct.







Thank You

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