

# OMENTUM

*ANATOMY DEPARTMENT*

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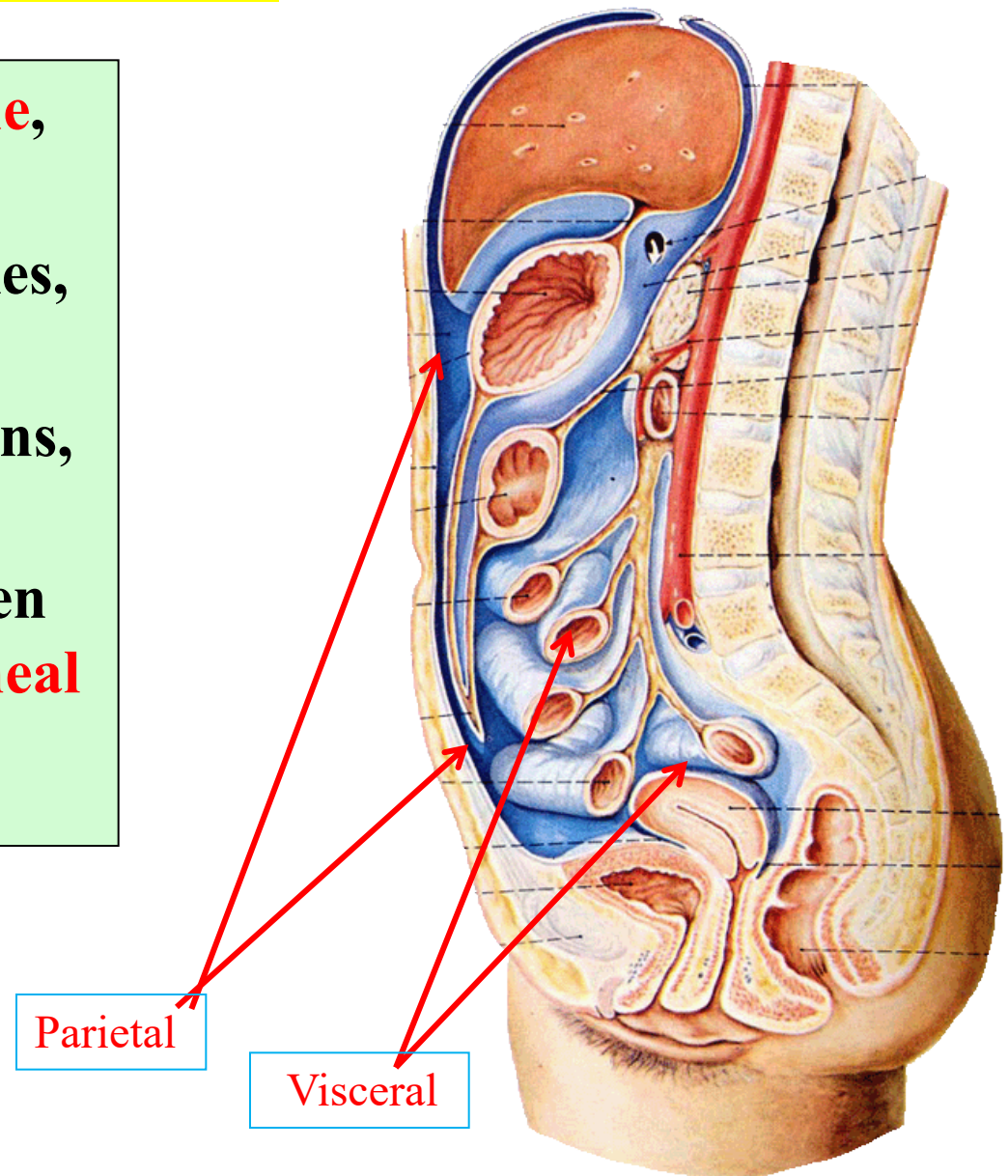
*DR. ESSAM ELDIN SALAMA*

# OBJECTIVES

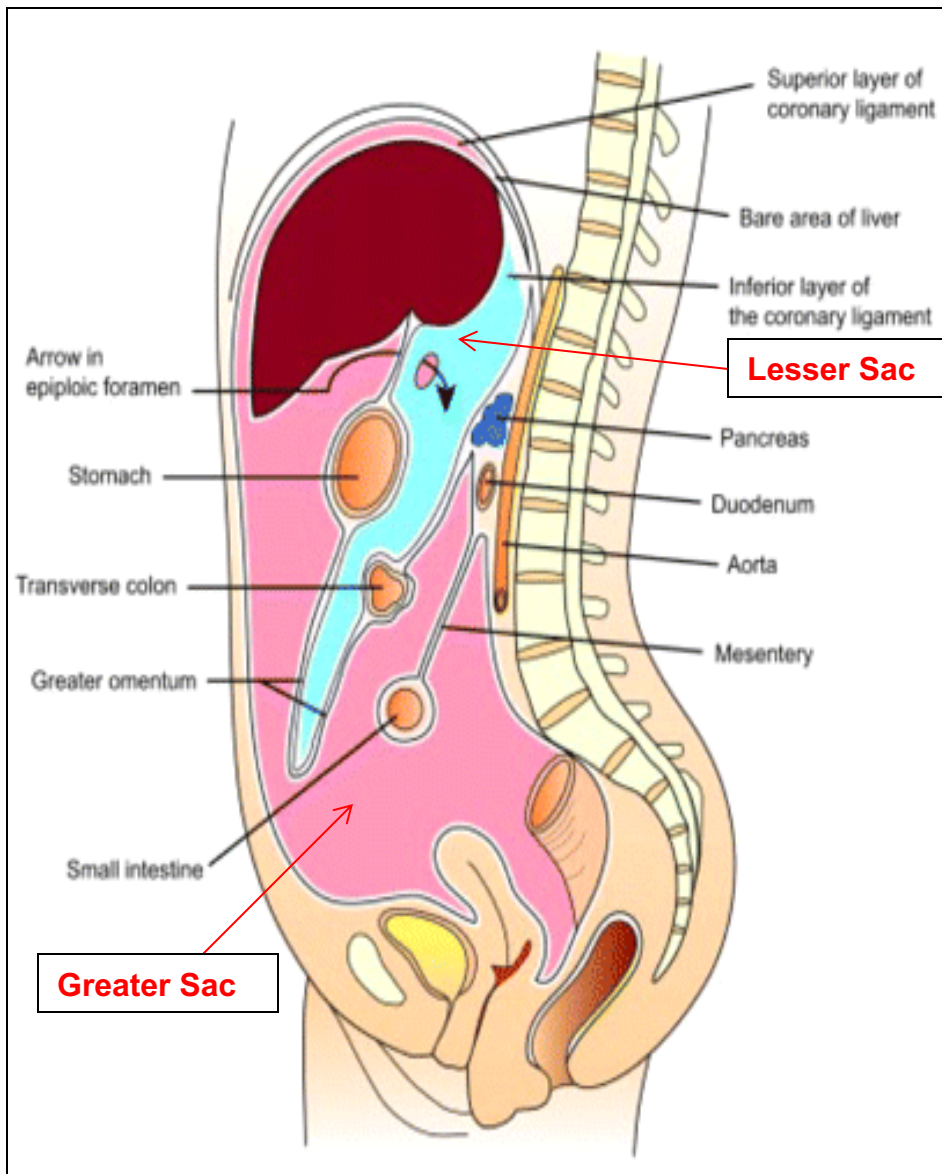
- *At the end of the lecture the students must know:*
- Brief knowledge about **peritoneum** as a thin serous membrane and its main parts; **parietal** and **visceral**.
- The **peritoneal cavity** and its parts the **greater sac** and the **lesser sac** (Omental bursa).
- **The peritoneal folds** : omenta, mesenteries, and ligaments.
- The **omentum**, as one of the peritoneal folds
- The **greater omentum**, its boundaries, and contents.
- The **lesser omentum**, its boundaries, and contents.
- The **omental bursa**, its boundaries.
- The **Epiploic foramen**, its boundaries.
- **Mesentery** of the small intestine, and **ligaments** of the liver.
- **Nerve supply of the peritoneum.**
- **Clinical points.**

# The peritoneum

- ❖ Is a **thin serous membrane**,
- Lining the wall of the abdominal and pelvic cavities, (the **parietal peritoneum**).
- Covering the existing organs, (the **visceral peritoneum**).
- The potential space between the two layers is the **peritoneal cavity**.



# The peritoneal Cavity



❖ The **peritoneal cavity** is the largest one in the body.

## ❖ Divisions of the peritoneal cavity :

▪ **Greater sac**; extends from diaphragm down to the pelvis.

▪ **Lesser sac**; lies behind the stomach.

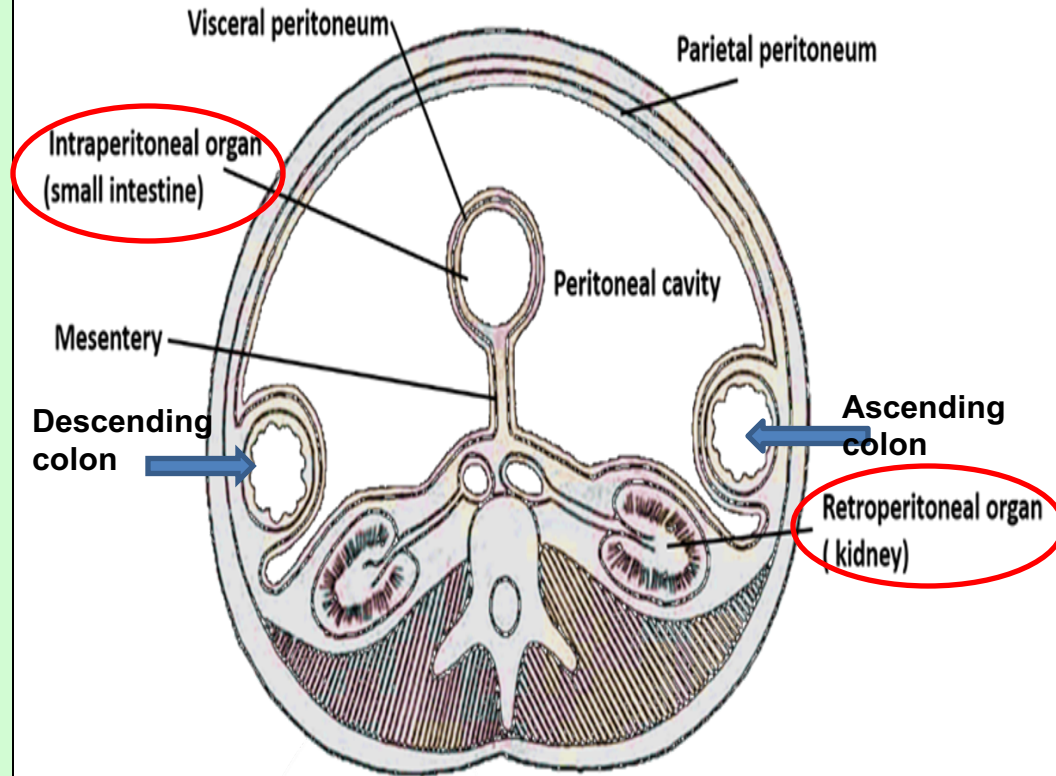
▪ Both cavities are interconnected through the **epiploic foramen**.

▪ In male : the peritoneum is a closed sac .

▪ In female : the sac is not completely closed because it communicates with the exterior through the uterine tubes, uterus and vagina.

# The peritoneum

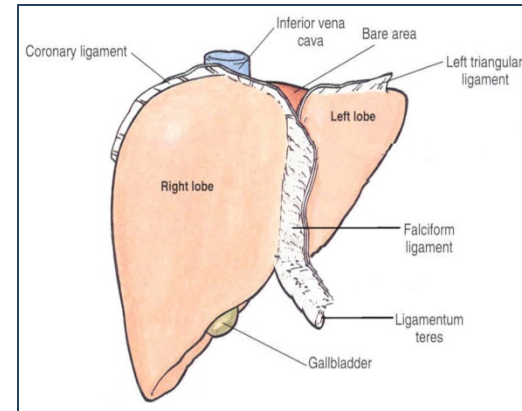
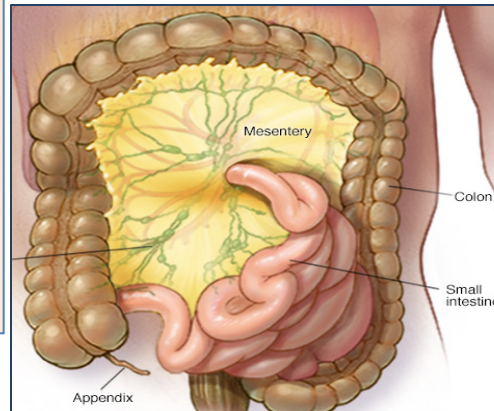
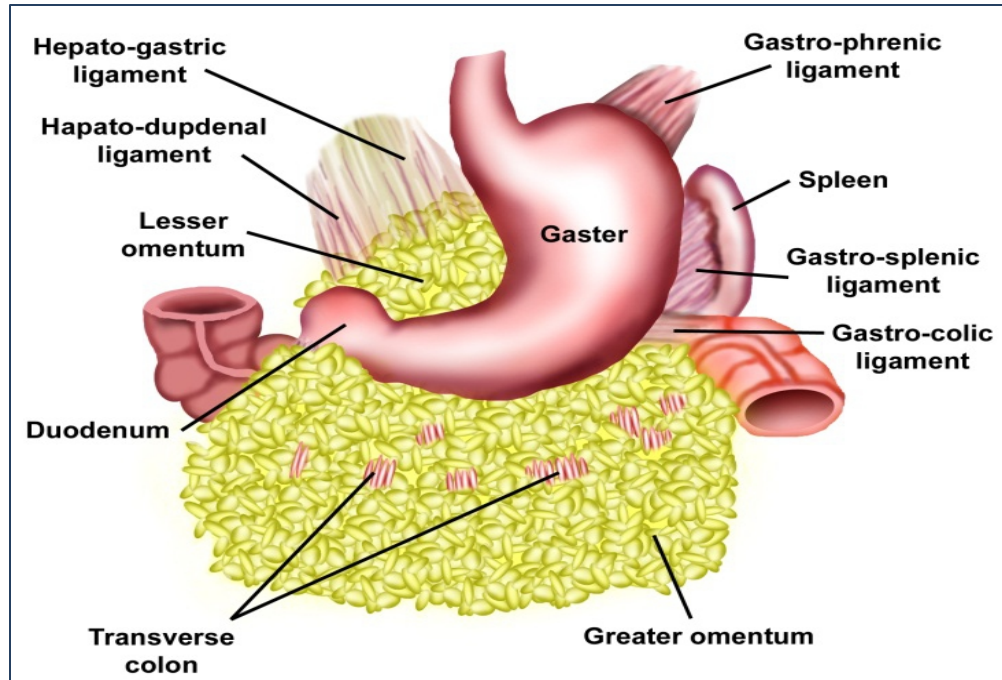
- **Intraperitoneal and retroperitoneal organs;** describe the relationship between various organs and their peritoneal covering;
- **Intraperitoneal structure;** which is nearly totally covered by visceral peritoneum.
- **Retroperitoneal structure;** lies behind the peritoneum, so partially covered by peritoneum (fixed on the post.abd.wall).



# Folds of the peritoneum

## □ Types of peritoneal folds :

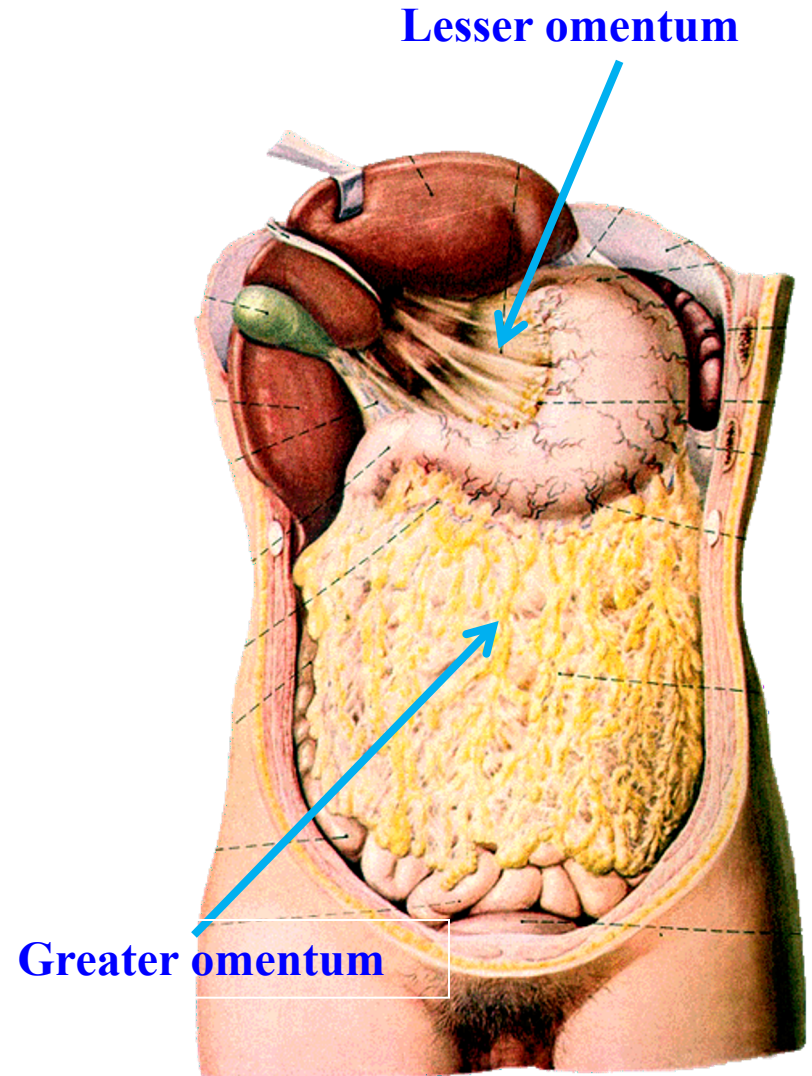
- **Omenta.**
- **Mesenteries.**
- **Ligaments.**



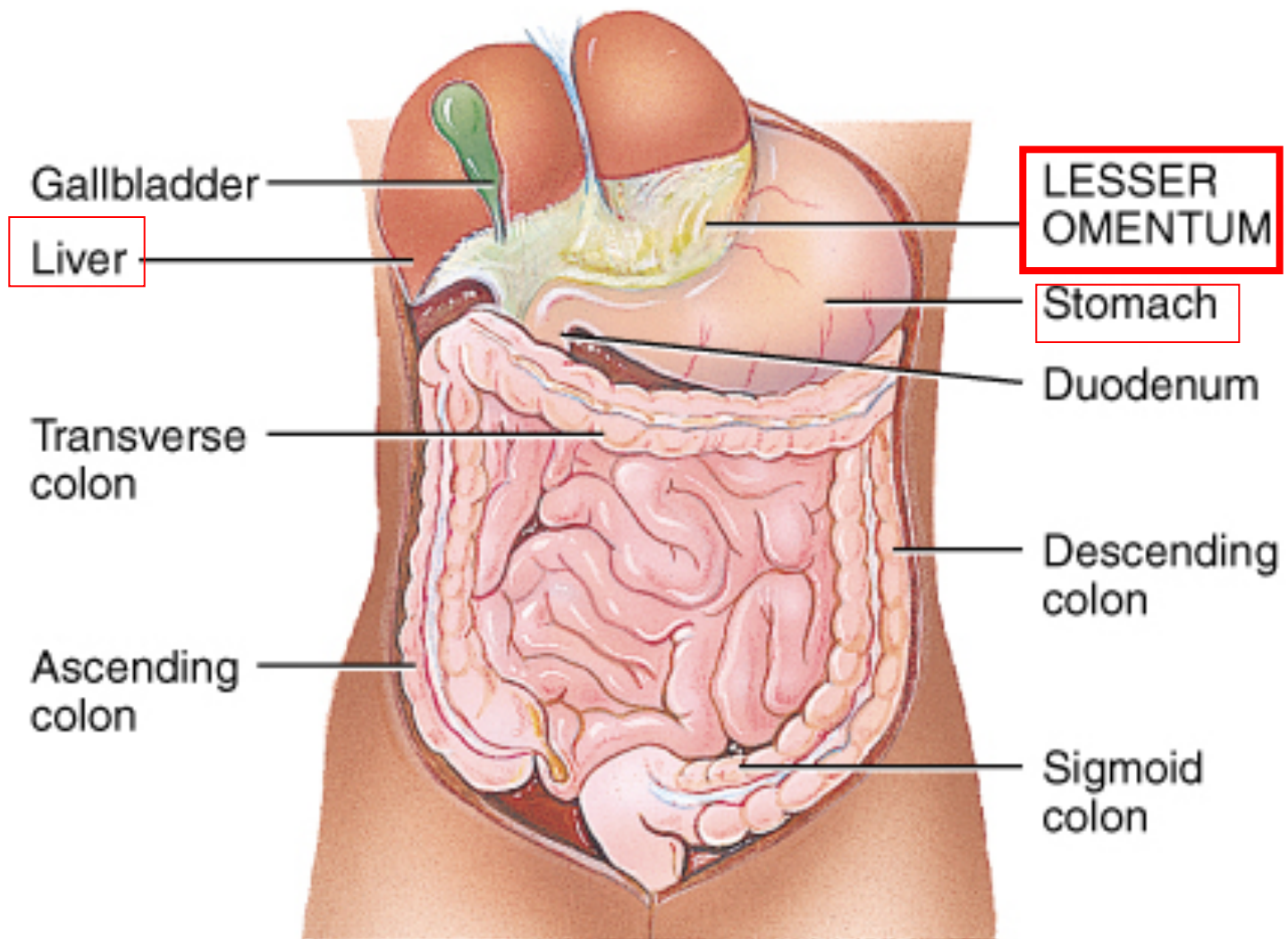
*The peritoneal omenta, mesenteries and ligaments, permit blood, lymph vessels, and nerves to reach the viscera*

# Omenta

- ❖ **Two-layered fold of peritoneum connecting the stomach to another viscus.**
- The **lesser omentum** attaches the lesser curvature of the stomach to the liver.
- The **greater omentum** connects the greater curvature of the stomach to the transverse colon.

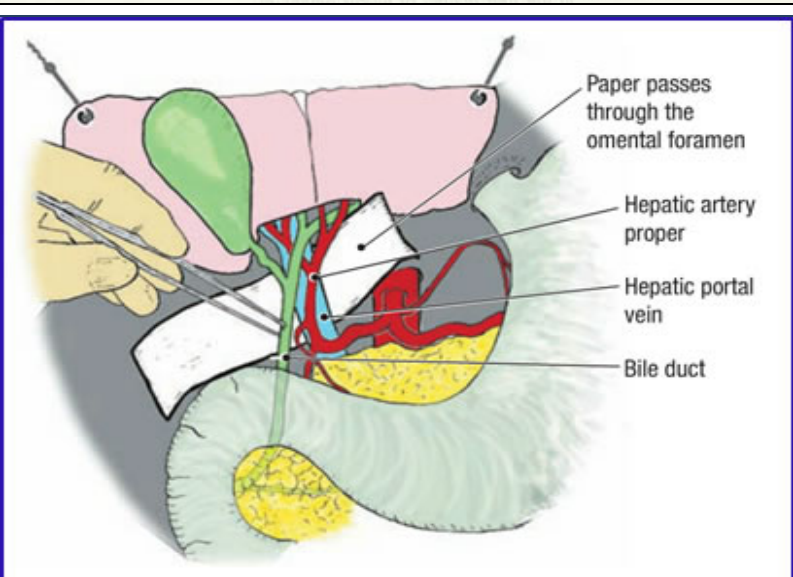
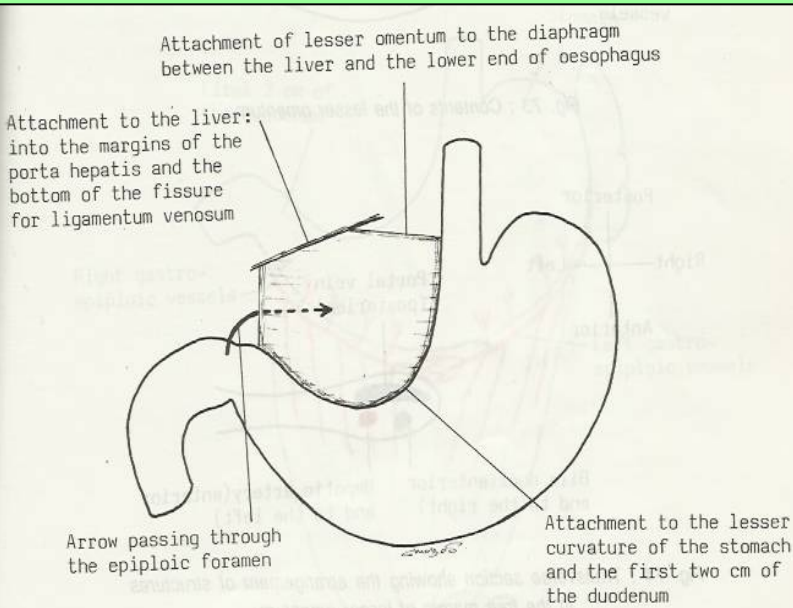


# Lesser omentum



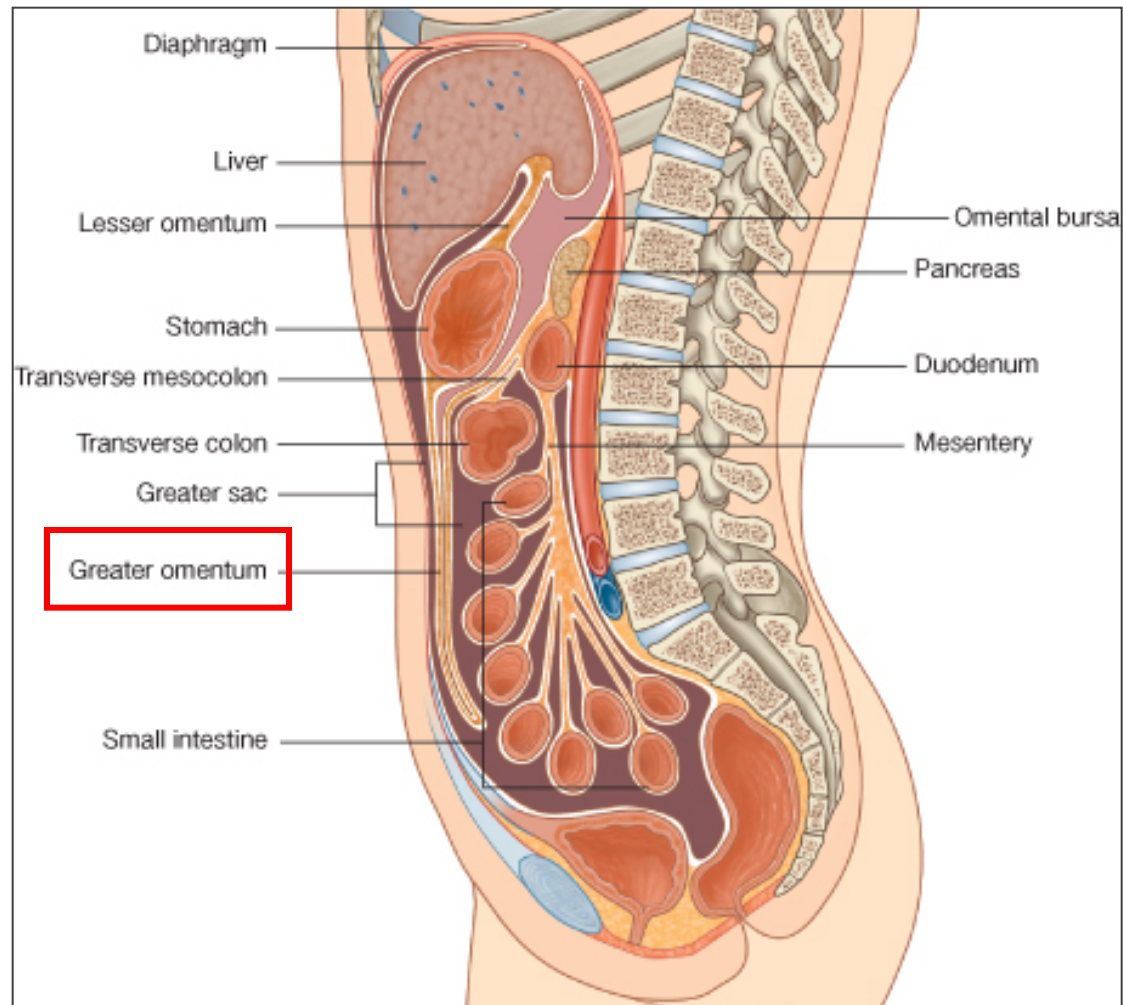
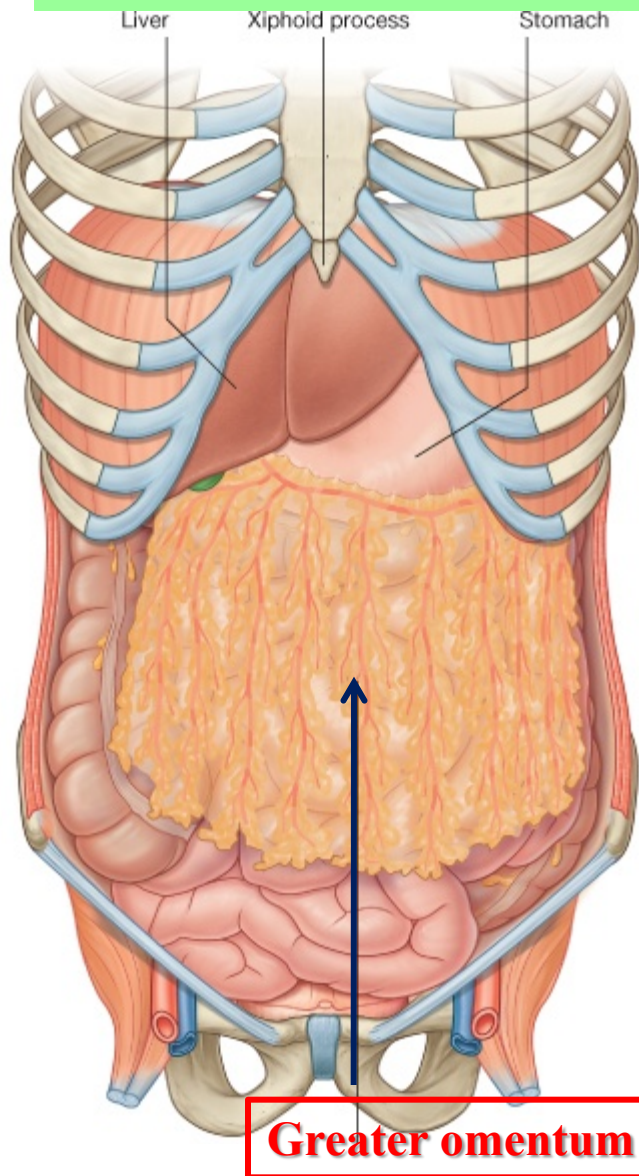


# Lesser omentum

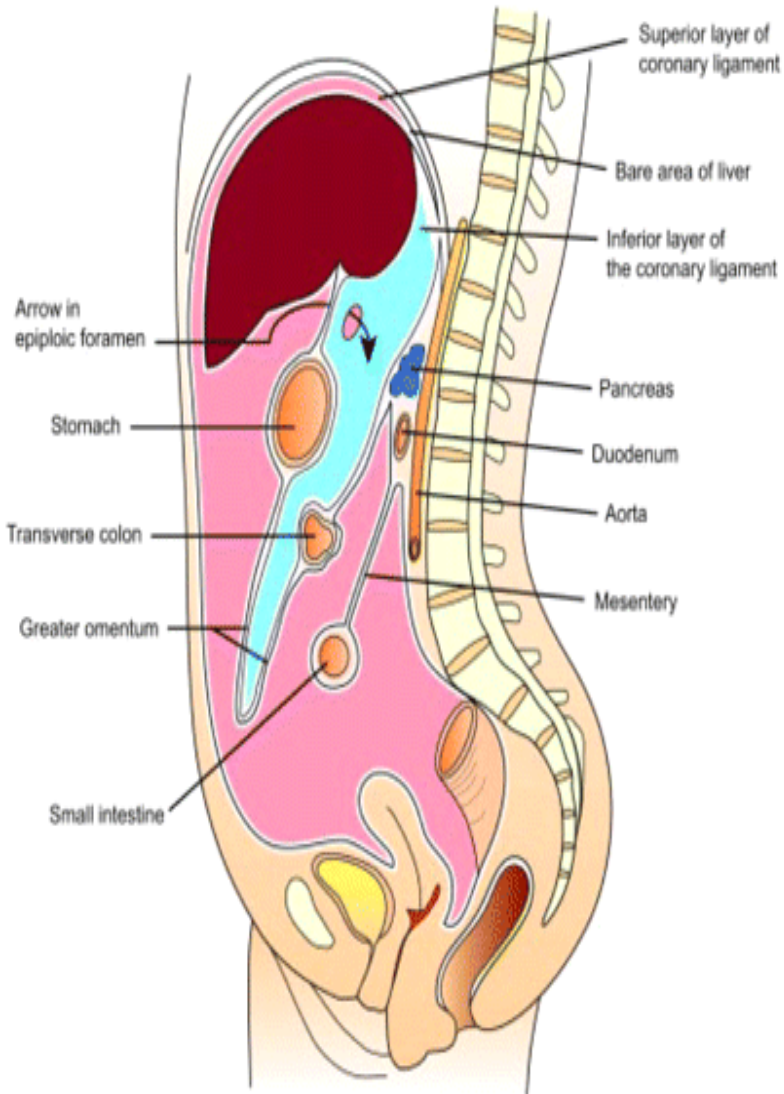


- ❑ Extends between the **liver** and the **lesser curvature of the stomach+1<sup>st</sup> part of duodenum**.
- It is continuous with the two layers of **peritoneum** which cover the anterior & posterior surfaces of stomach and 1<sup>st</sup> part of the duodenum.
- Ascends as a **double fold** to the **porta hepatis of liver**, and **fissure for ligamentum venosum**.
- To the **left** of porta hepatis it is **carried to** the **diaphragm**.
- Its **right** border is a **free margin**; constitutes the **anterior boundary of the epiploic foramen**.
- ❑ Contents between the two layers of the lesser omentum :
  - **Close to the right free margin**, are the **hepatic artery, common bile duct, portal vein, lymphatics, and hepatic plexus of nerves**.
  - **At the attachment to the stomach**, run the **right and left gastric vessels**.

# Greater omentum

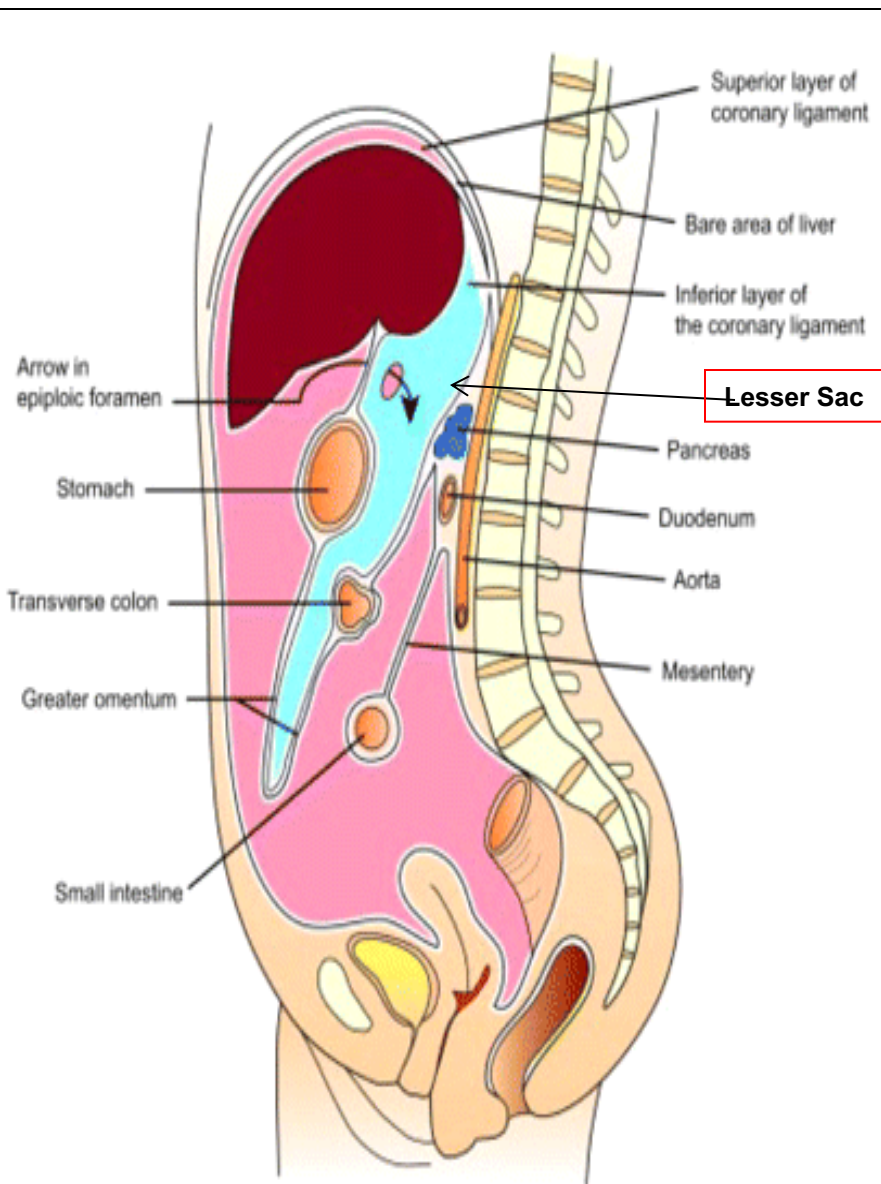


# Greater omentum



- **The largest peritoneal fold**, with cribriform appearance, contains some adipose tissue.
- **It consists of** a double sheet of peritoneum, folded on itself so that it is made up of four layers (anterior 2 layers + posterior 2 layers).
- **The two layers** which descend from the greater curve of the **stomach** and commencement of the duodenum, pass downward in front of the small intestines, **then turn upon themselves**, and ascend to the **transverse colon**, where they separate and enclose it.
- **Its left border** is continuous with the **gastrosplenic ligament**.
- **Its right border** extends as far as the commencement of the duodenum.
- **Contents** : the **anastomosis** between the **right and left gastroepiploic vessels**.

# Omental bursa, (Lesser Sac)



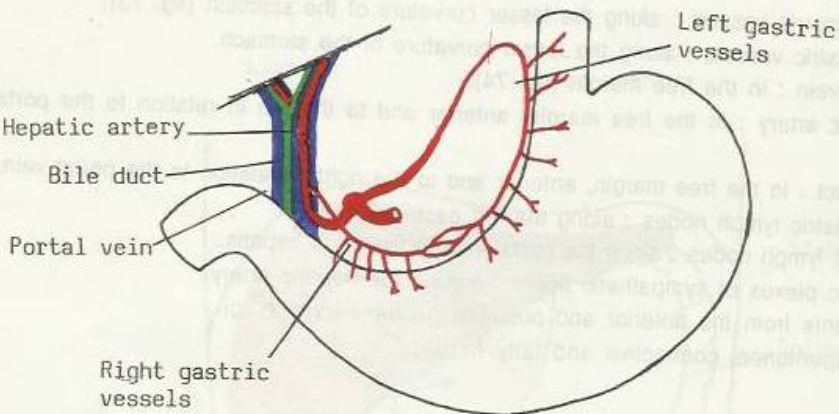
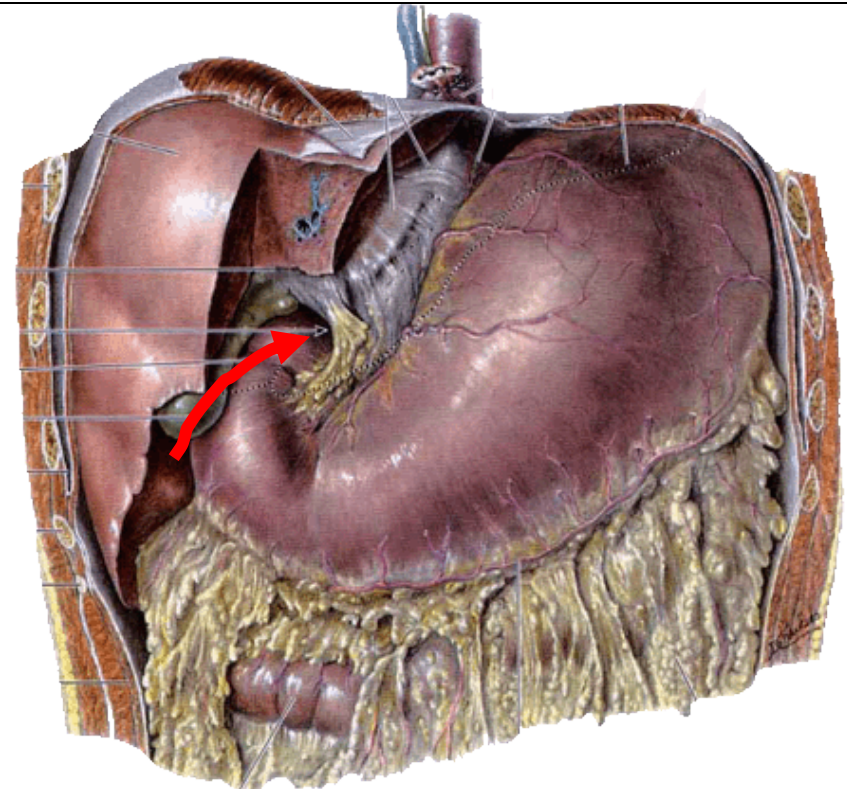
□ It is a part of the peritoneal cavity behind the stomach.

□ Boundaries of the *omental bursa* ;

▪ Anterior wall, from above downward, by the **caudate lobe** of the liver, the **lesser omentum**, back of the **stomach**, and the **anterior two layers of the greater omentum.**

▪ Posterior wall, from below upward, by the posterior two layers of the **greater omentum**, the **transverse colon**, and the ascending layer of the **transverse mesocolon**, the upper surface of the **pancreas**, the **left suprarenal gland**, and the upper end of the **left kidney.**

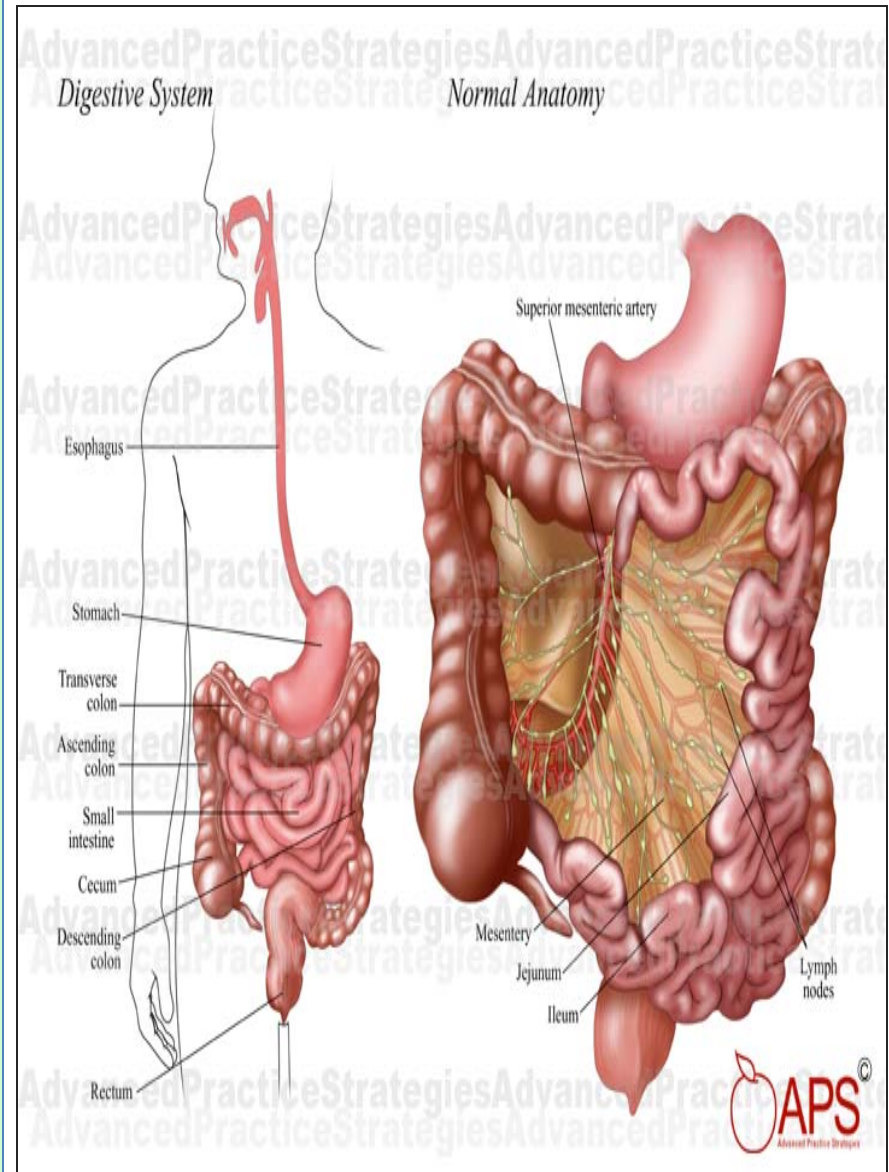
# Epiploic foramen



- It is the communication between the greater and lesser sacs .
- It is bounded by :
- In front by the **free border** of the **lesser omentum**, with its contents : **hepatic artery, common bile duct, and portal vein** between its two layers.
- Behind by the **peritoneum** covering the **inferior vena cava**.
- Above (roof) by the **peritoneum** on the **caudate process** of the liver.
- Below (floor) by the **peritoneum** covering the commencement of the **duodenum** and the **hepatic artery**, before ascending between the two layers of the lesser omentum.

# Mesentery

- Two-layered fold of peritoneum suspends the small intestine from the posterior abdominal wall
- Broad and a fan-shaped
- Intestinal border: folded, 7m long
- Root of mesentery :
  - 15 cm long
  - Directed obliquely from duodenojejunal flexure at the level of left side of **L2** to the ileocecal junction in the right iliac fossa at the level of right **sacroiliac joint**.

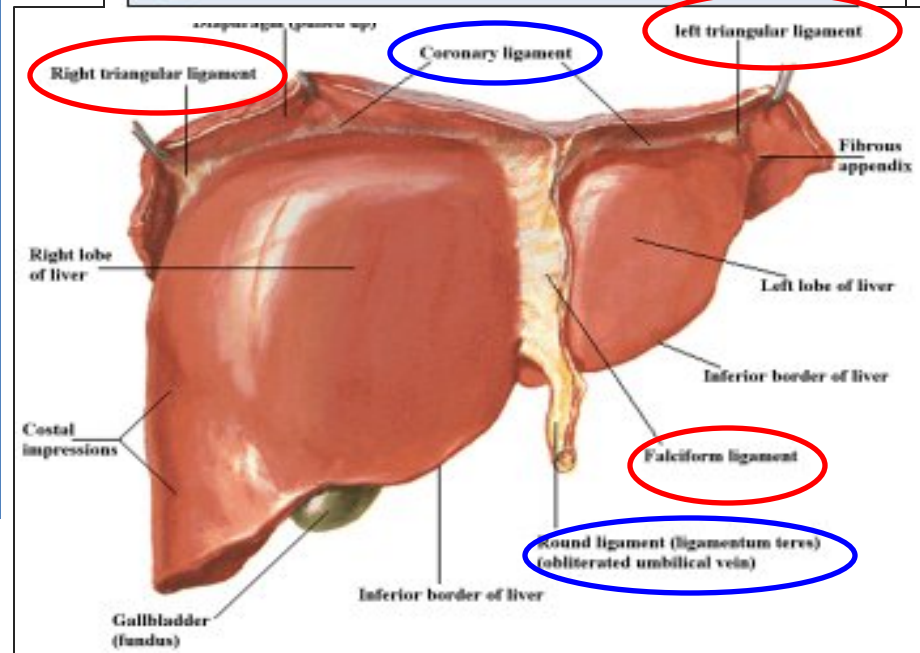
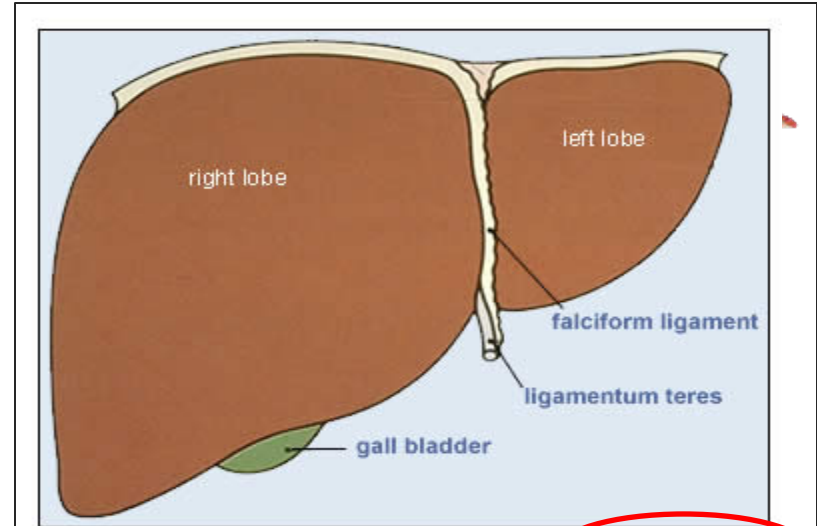


# Ligaments

**Two-layered folds of peritoneum that attach solid viscera to the abdominal wall and diaphragm.**

## Ligaments of liver

- Falciform ligament of liver
- Coronary ligament
- Right & Left triangular ligaments
- Ligamentum teres



# Nerve Supply of the Peritoneum

- **The parietal peritoneum** is sensitive to pain, temperature, touch & pressure.

**The parietal peritoneum lining the anterior abdominal wall is supplied by :**

- **lower six thoracic (lower 6 intercostal Ns.) and L1 (iliohypogastric) nerve.**
- The central part of the diaphragmatic peritoneum is supplied by the **phrenic nerves.**

- **The visceral peritoneum** is sensitive only to stretch and tearing.

**It is supplied by :**

- **autonomic nerves** that supply the viscera or traveling in the mesenteries.



# Clinical points

## □ Peritoneal Pain (as in Peritonitis) :

### From the Parietal Peritoneum:

Abdominal pain is somatic type,  
It is usually severe, and can be accurately well localized.

### From the Visceral Peritoneum:

Including the mesenteries, which is **innervated by autonomic nerves**.

**It is due to Stretch** caused by **over distension of a viscus**  
and **pulling on a mesentery** That gives rise to the  
sensation of pain.

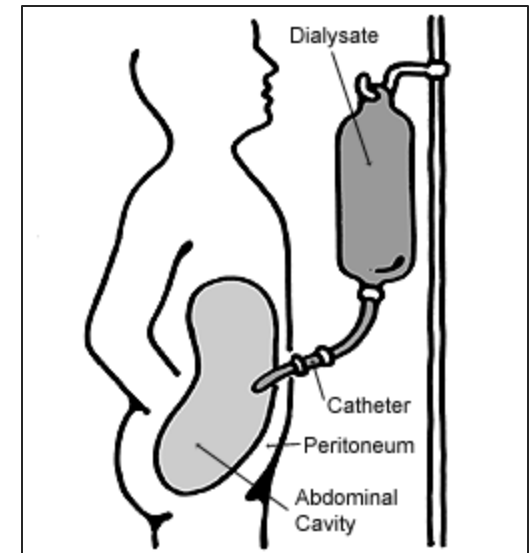
[leading to abdominal pain; poorly localized, poorly characterized pain. (dull ,unclear, cramping )]

# Clinical points

## □ Peritoneal Dialysis:

Because the **peritoneum** is a **semi permeable membrane** :

- It allows transfer of substances (glucose solution) across itself to remove the waste products.
- It is used in patients with acute renal insufficiency.



*THANK YOU*

# SUMMARY

- **The peritoneum** is divided into 2 layers :
  - Parietal layer, lines the abdominal and pelvic walls.
  - Visceral layer, covers the abdominal and pelvic organs.
- **Omenta** are folds of peritoneum.
- **Lesser omentum** connects the stomach and 1<sup>st</sup> part of duodenum to the liver.
  - Right border of lesser omentum is free and it forms the anterior boundary of epiploic foramen.
- **Contents of lesser omentum** :
  - **Along lesser curvature of stomach** : right & left gastric vessels.
  - **At the right free border** :
    - Hepatic artery.
    - Bile duct.
    - Portal vein.
    - Nerves, lymph vessels & fat.

# SUMMARY

- **Greater omentum** : connects the greater curvature of stomach with the transverse colon.
- **Contents of greater omentum** :
  - Along the greater curvature of stomach :
    - Right & left gastroepiploic vessels.
    - Lymph nodes, vessels & fats.
- **Lesser sac of peritoneum (Omental Bursa)** :
  - **Boundaries** :
    - Anterior wall.
    - Posterior wall.
  - **Opening to lesser sac (epiploic foramen)** :
    - It is a slit-like opening which connect lesser sac with greater sac.
    - Lies behind the lesser omentum.
    - Epiploic foramen is bounded **anteriorly** by right free margin of lesser omentum.

## Intraperitoneal vs. Retroperitoneal

- Stomach
- Part 1 of duodenum
- Jejunum, Ileum
- Cecum, Appendix
- Transverse colon
- Sigmoid colon
- Liver, Gallbladder
- Tail of pancreas
- Spleen

- Parts 2,3,4 duodenum
- Ascending, Descending colon
- Rectum
- Head, neck, body of pancreas
- Kidneys, ureters
- Suprarenal gland
- Abdominal Aorta
- Inferior vena cava

\*\*\*D. L. of Thromb...

➤ **Intraperitoneal organs :**

Are suspended by a mesentry and  
Completely covered by visceral peritoneum.

➤ **Retroperitoneal organs :**

Are partially covered on one side  
with parietal peritoneum and  
Immobile or fixed organs.