

OMENTUM

ANATOMY DEPARTMENT

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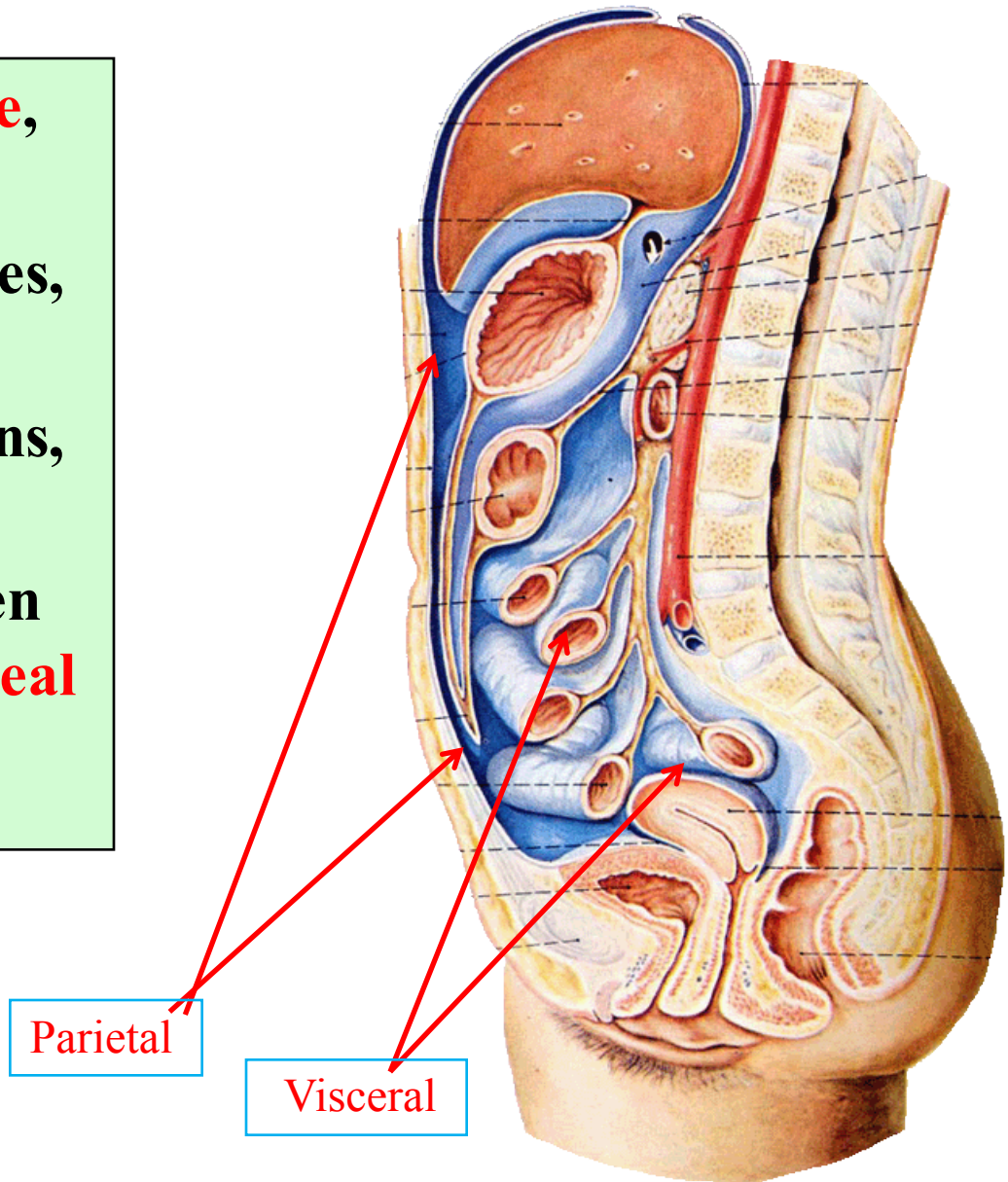
Dr. Essam Eldin Salama

OBJECTIVES

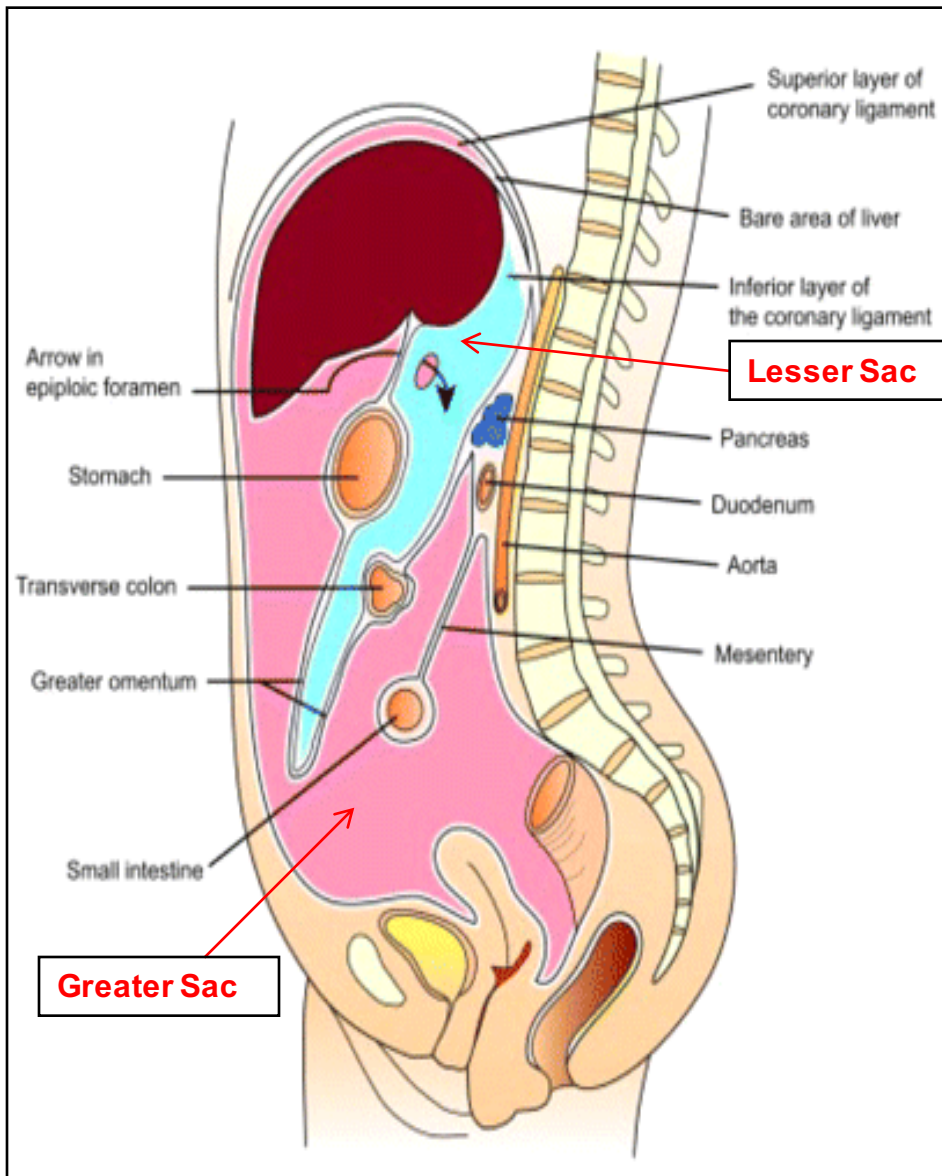
- *At the end of the lecture the students must know:*
- Brief knowledge about **peritoneum** as a thin serous membrane and its main parts; **parietal** and **visceral**.
- The **peritoneal cavity** and its parts the **greater sac** and the **lesser sac** (Omental bursa).
- **The peritoneal folds** : 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.

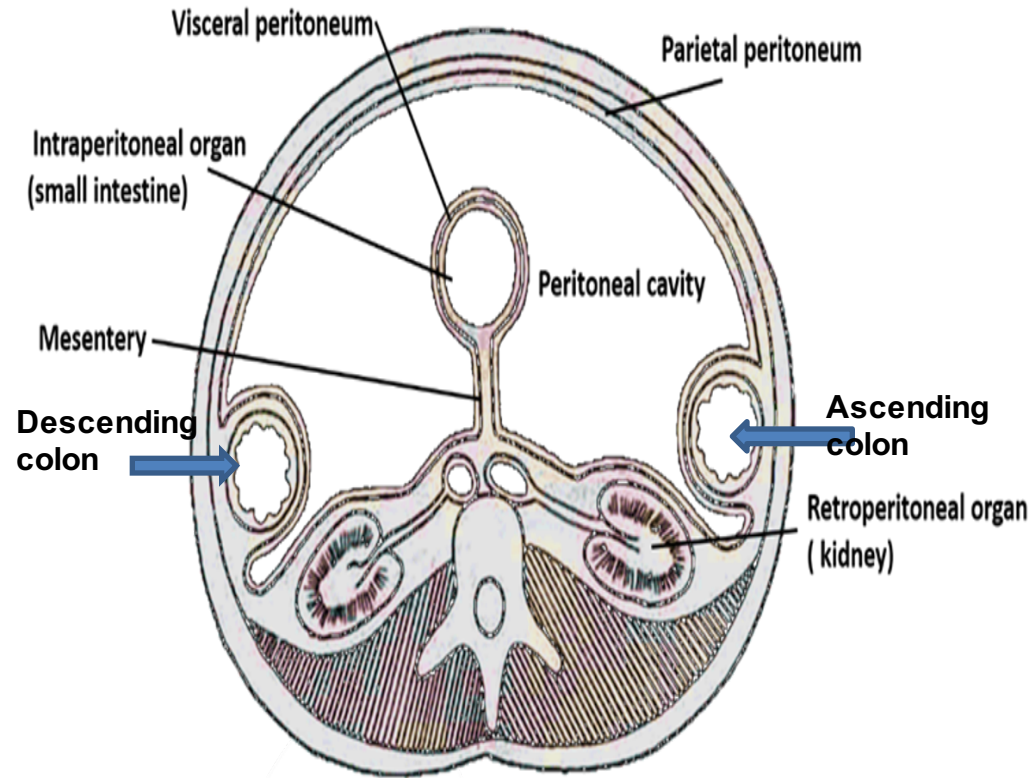
▪ Both cavities are interconnected through the **epiploic foramen**.

▪ 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

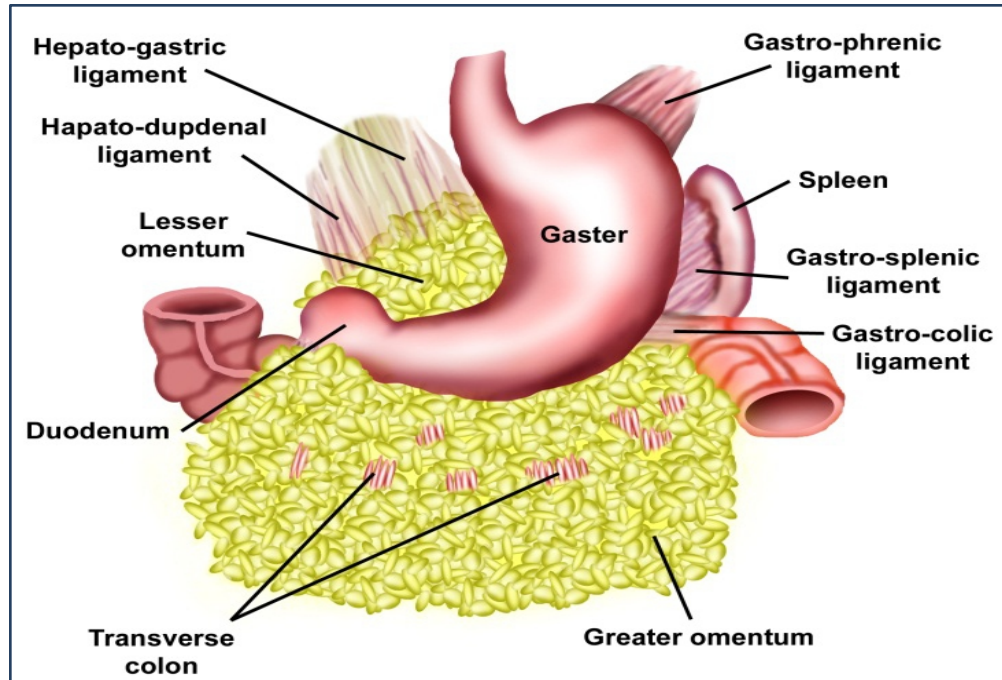
- **Intraperitoneal and retroperitoneal organs;** describe the relationship between various organs and their peritoneal covering;
- **Intraperitoneal structure;** which is nearly totally covered by visceral peritoneum.
- **Retroperitoneal structure;** lies behind the peritoneum, and partially covered by visceral peritoneum.



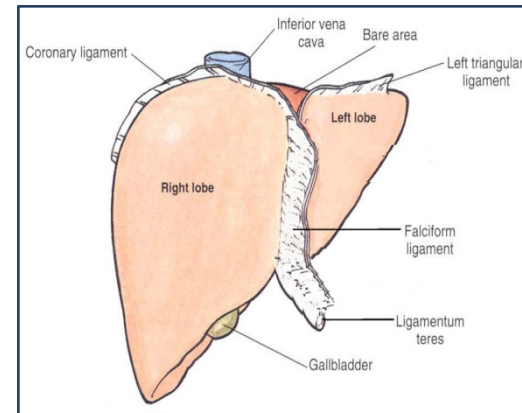
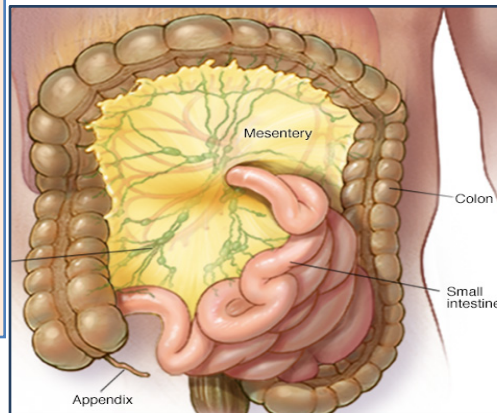
Folds of the peritoneum

□ Types of peritoneal folds :

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

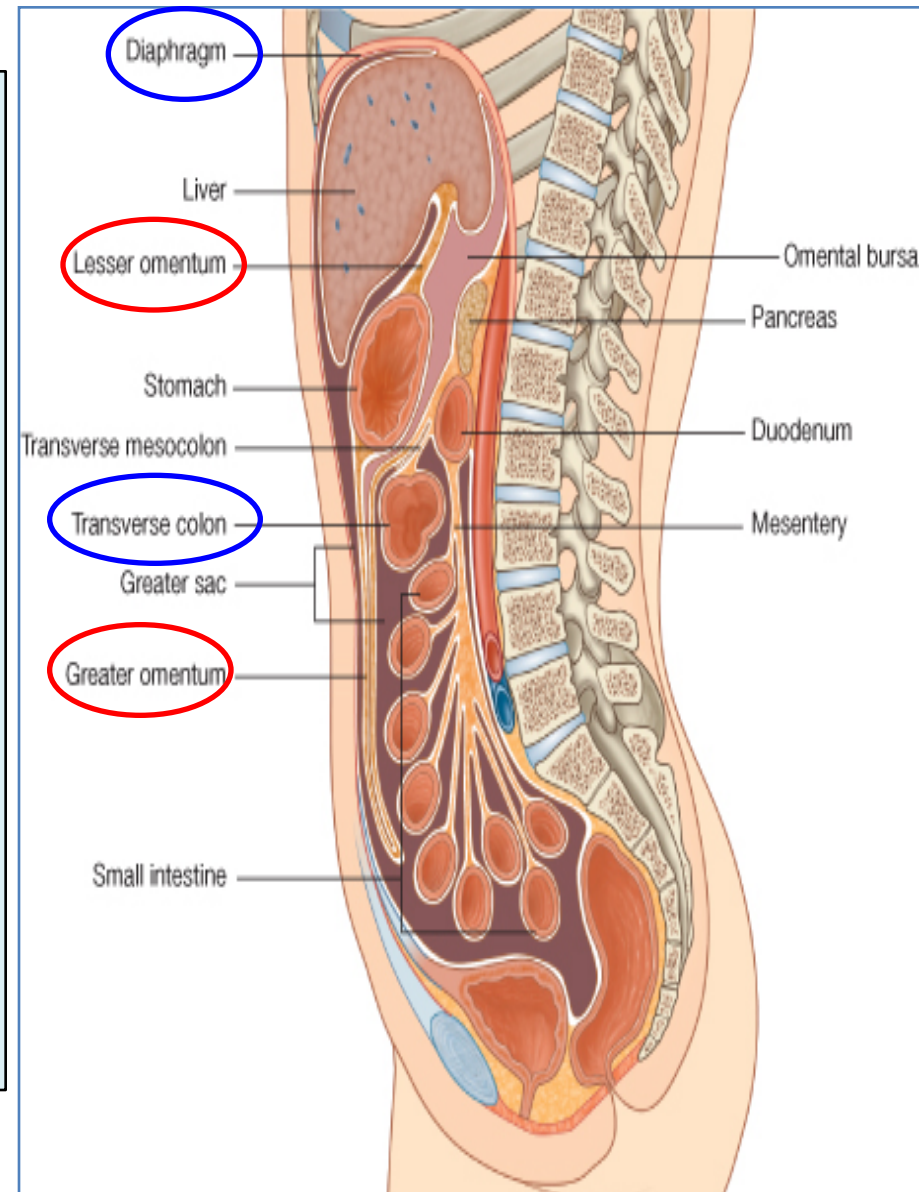


The peritoneal omenta; mesenteries and ligaments, permit blood, lymph vessels, and nerves to reach the viscera

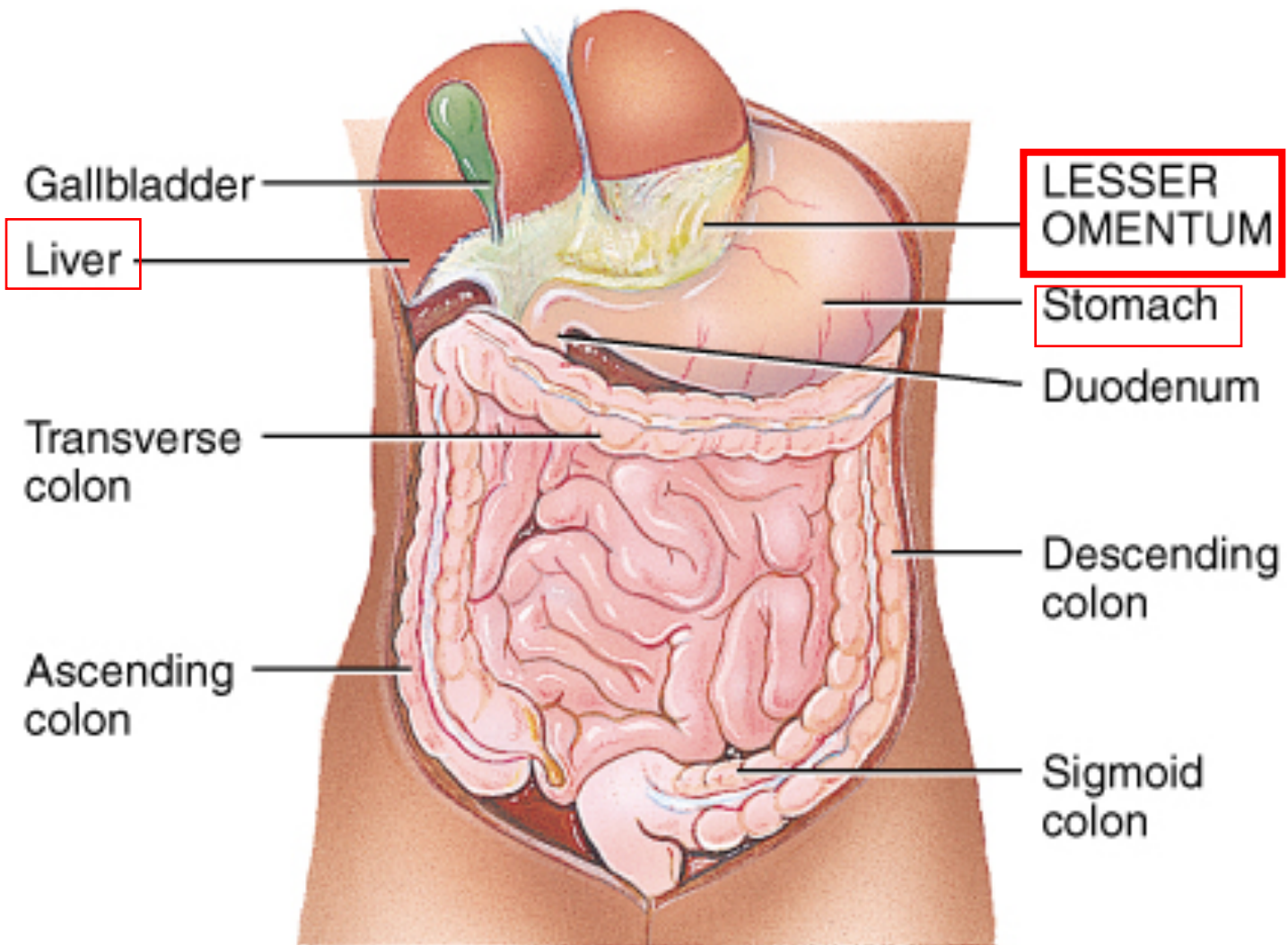


Omenta

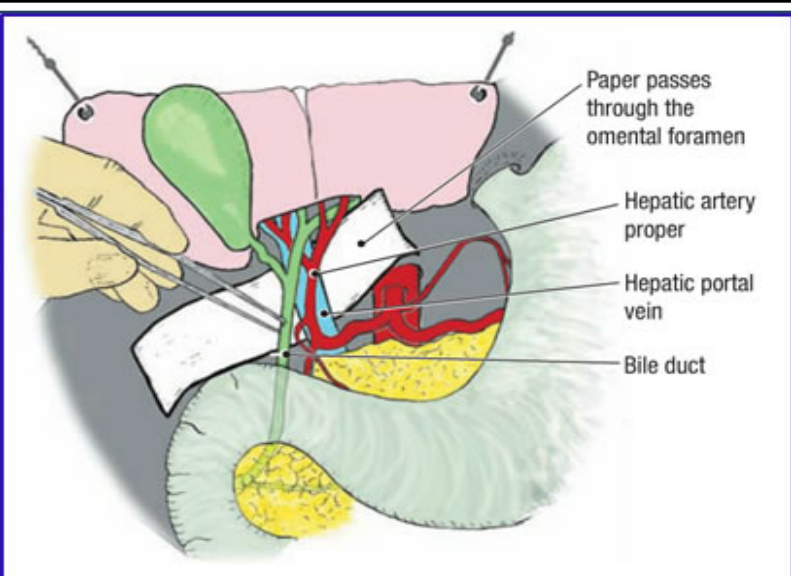
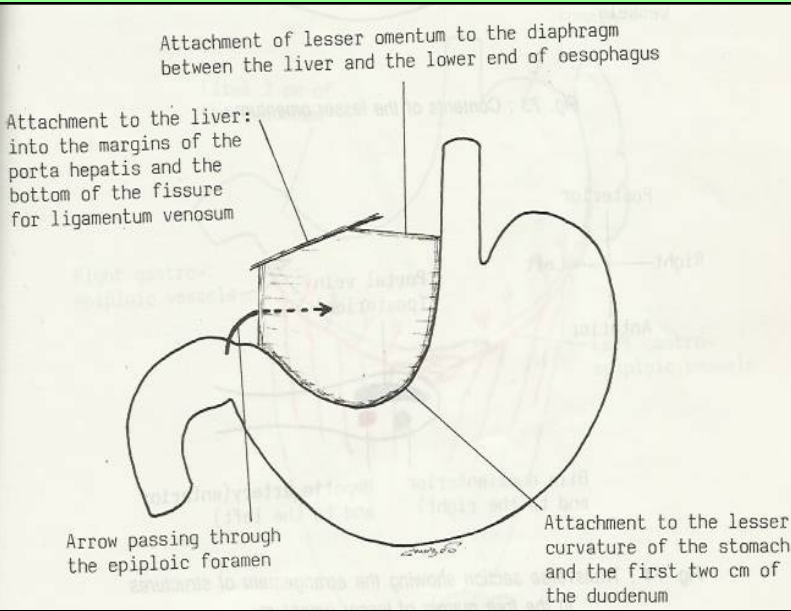
- ❖ **Two layered fold of peritoneum connecting the stomach to another viscus.**
- **The lesser omentum attaches the lesser curvature of the stomach to the liver.**
- **The greater omentum connects the greater curvature of the stomach to the transverse colon.**



Lesser omentum

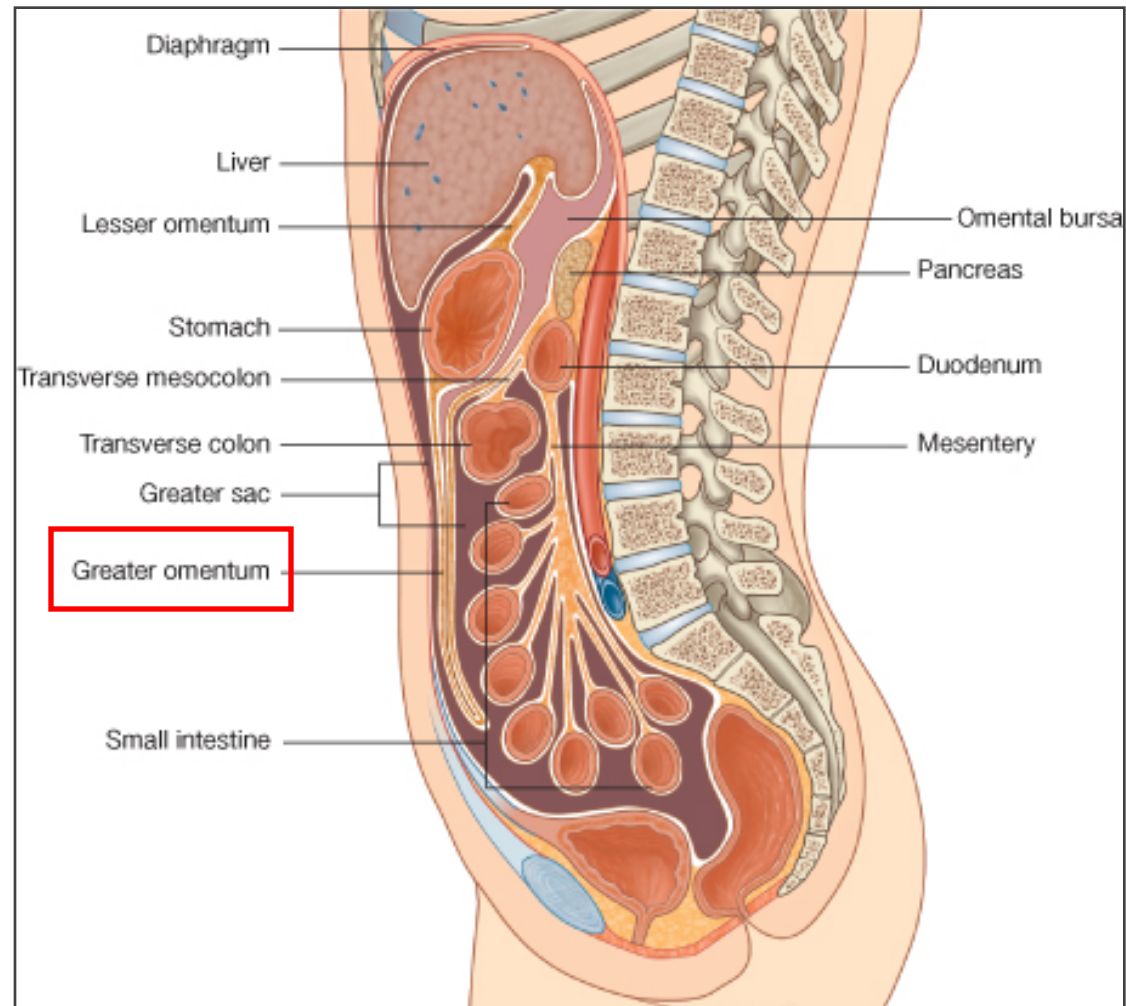
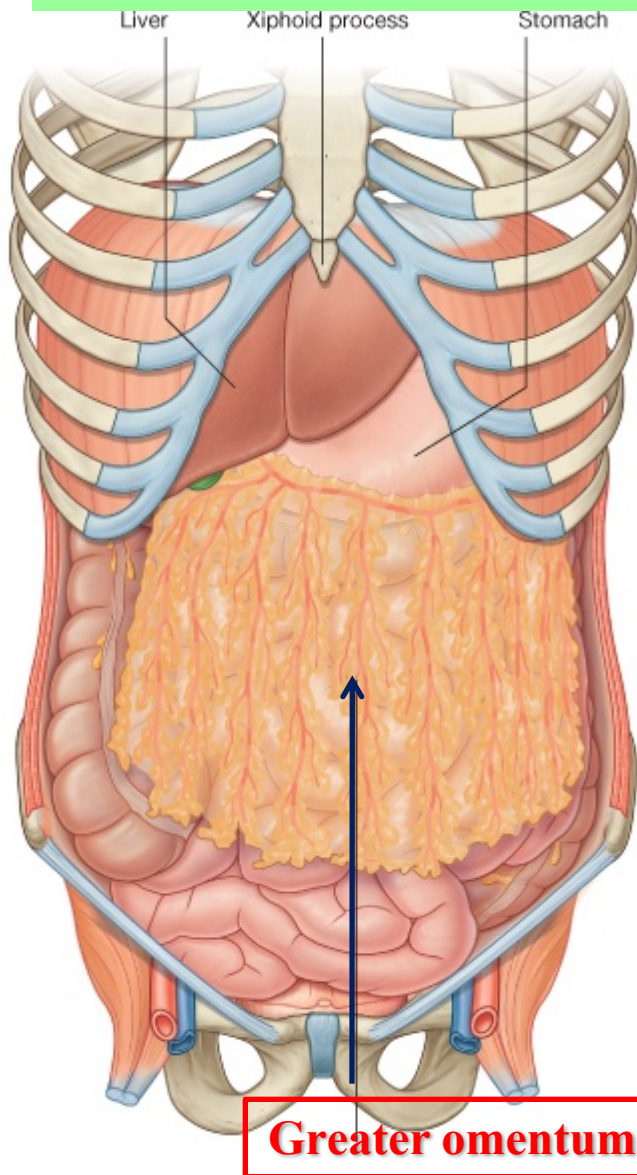


Lesser omentum

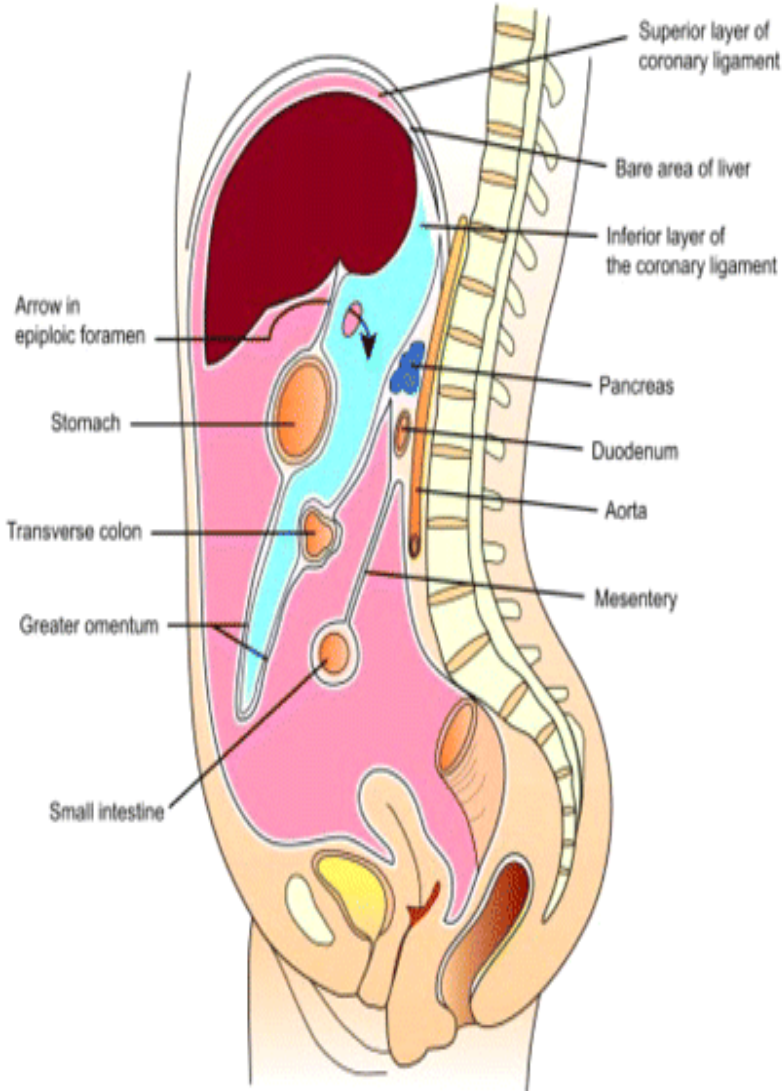


- ❑ Extends between the **liver** and the **lesser curvature of the stomach+1st part of duodenum**.
- It is continuous with the two layers of **peritoneum** which cover the anterior & posterior surfaces of stomach and 1st part of the duodenum.
- Ascends as a **double fold** to the **porta hepatis of 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

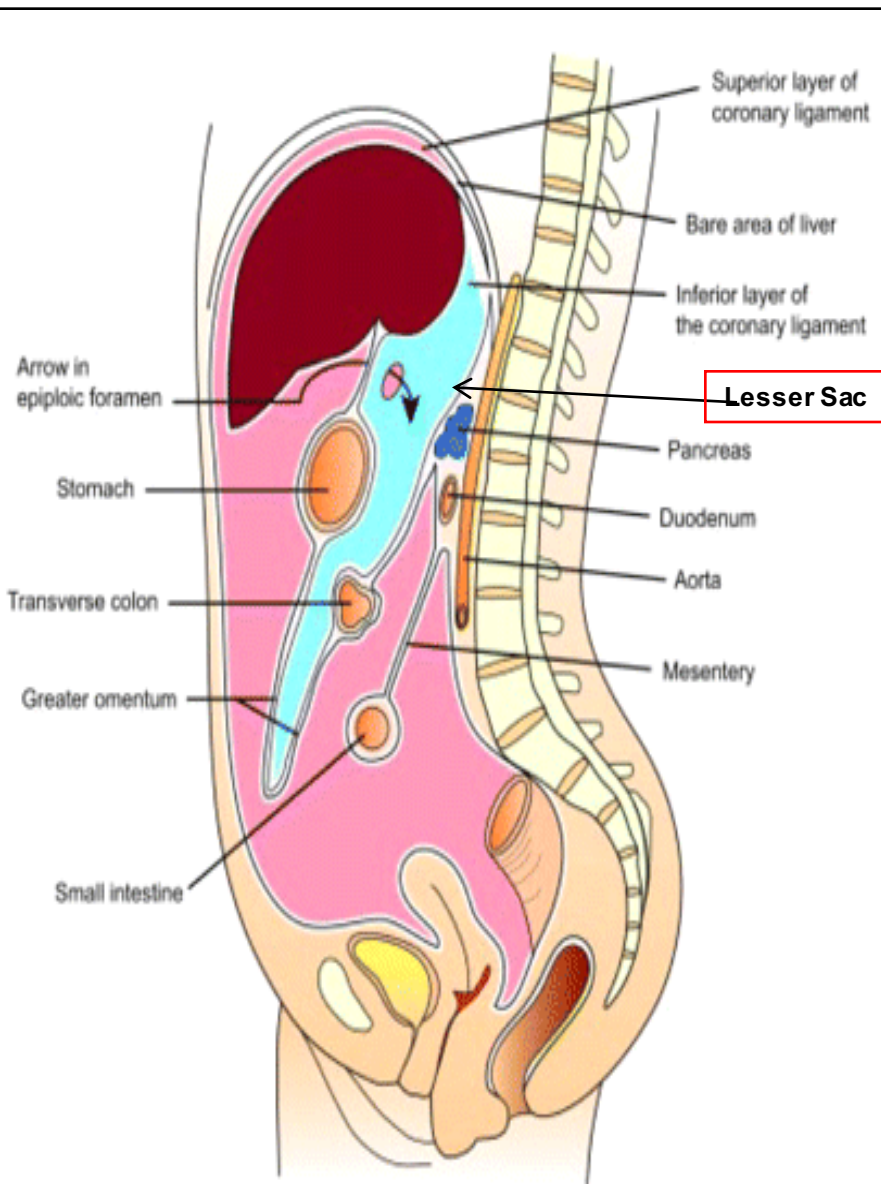


Greater omentum



- **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)



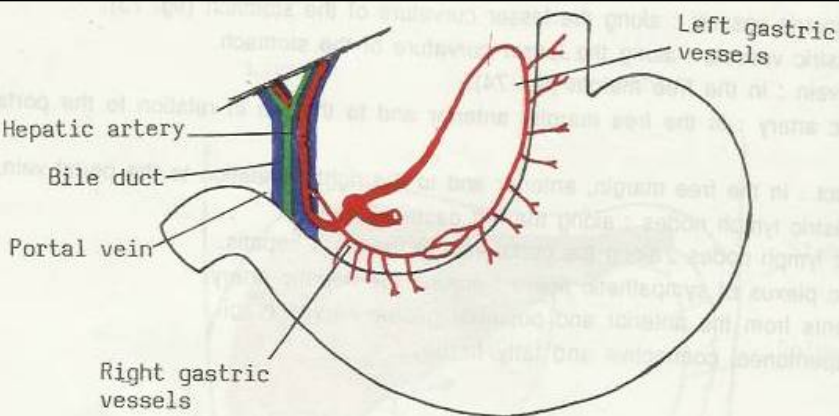
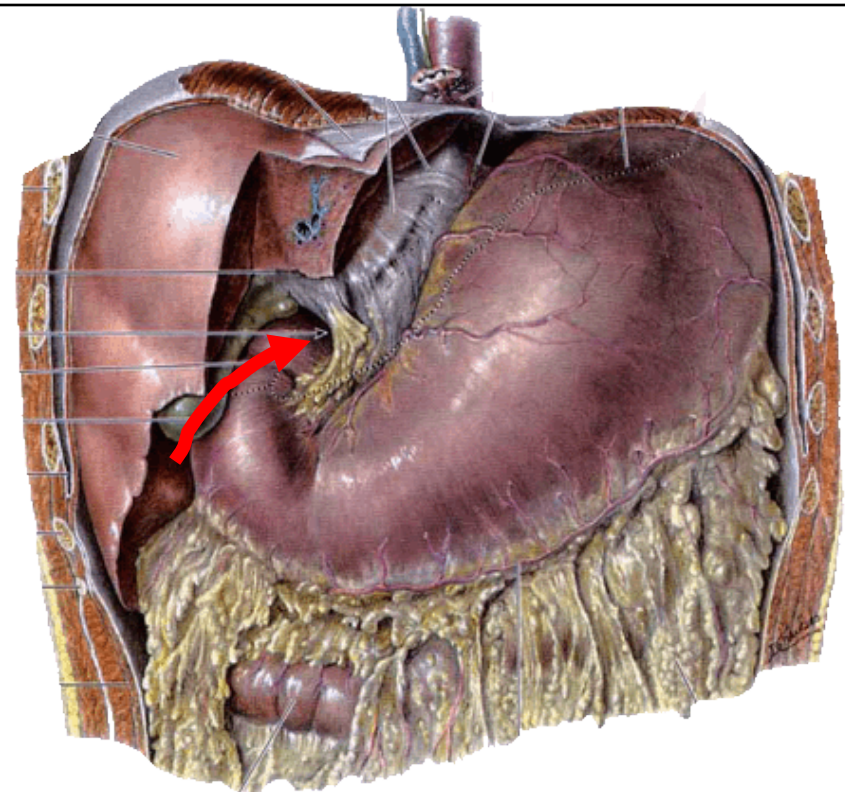
□ It is a part of the peritoneal cavity behind the stomach.

□ 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.**

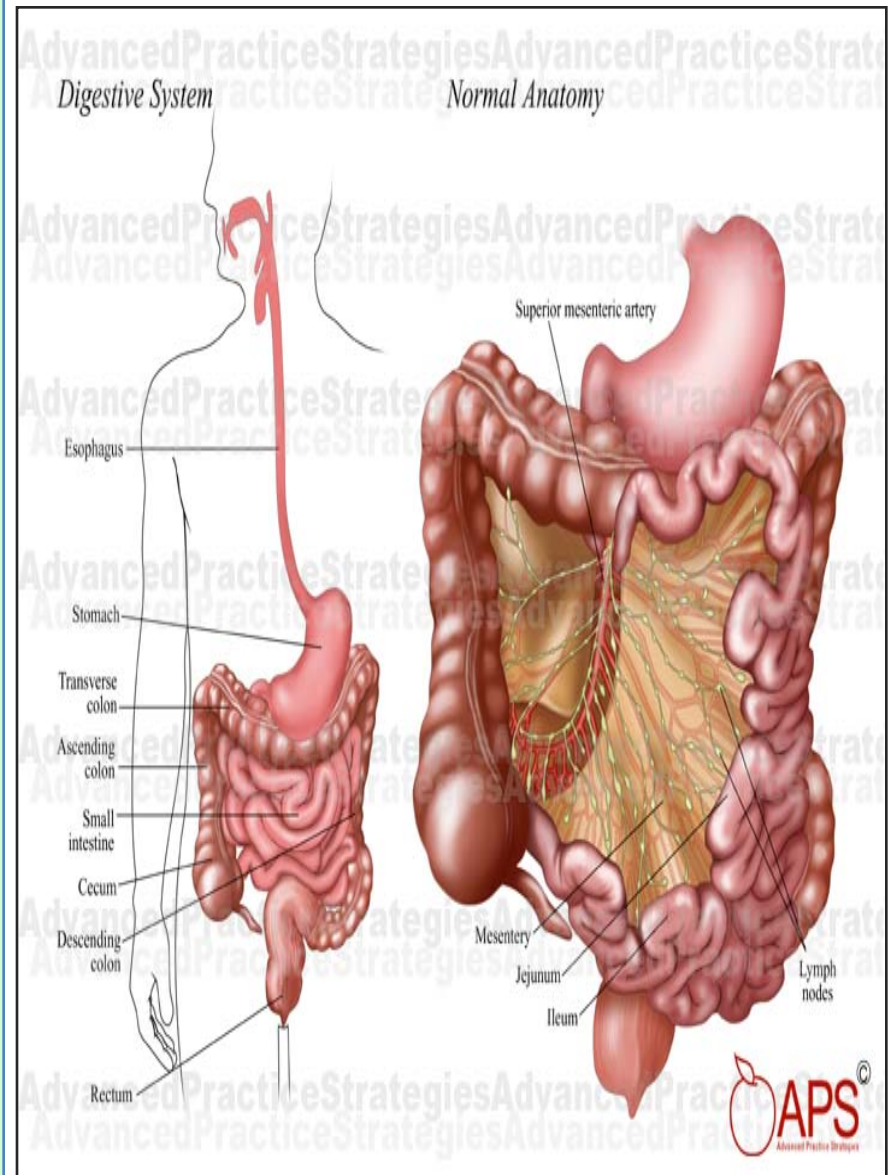
Epiploic foramen



- 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**.

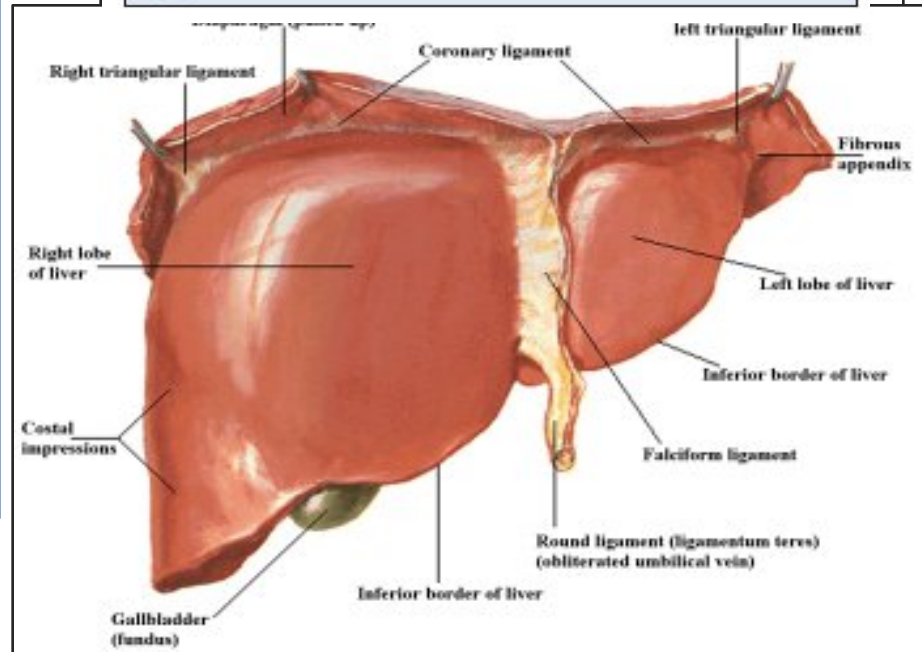
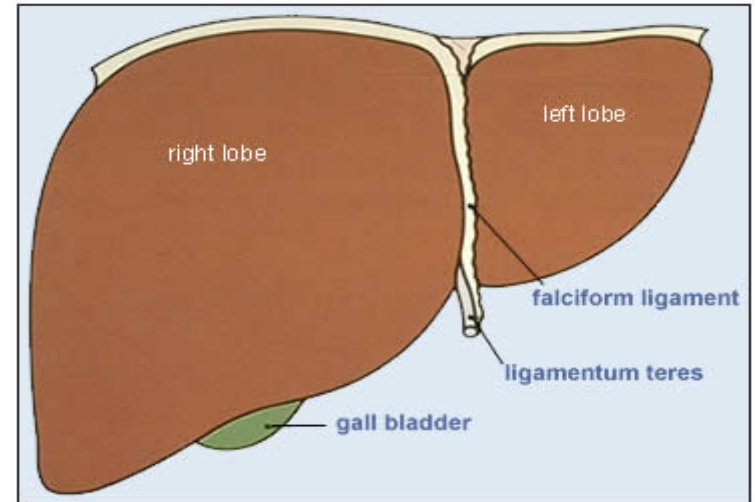


Ligaments

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, and 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 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.

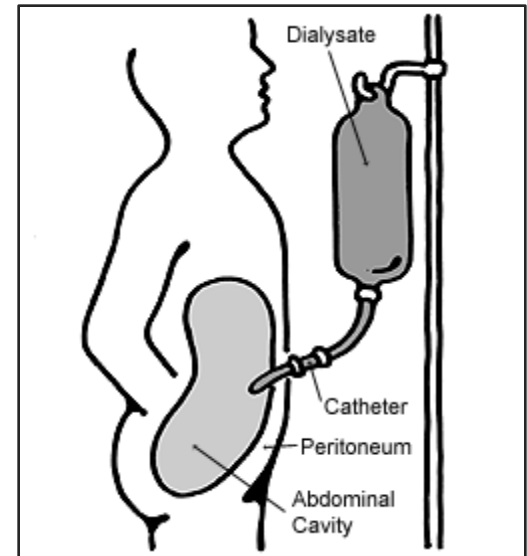
[leading to abdominal pain; poorly localized, poorly characterized pain. (dull, unclear, cramping)]

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 has been used of 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 1st 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