

OMENTUM

ANATOMY DEPARTMENT

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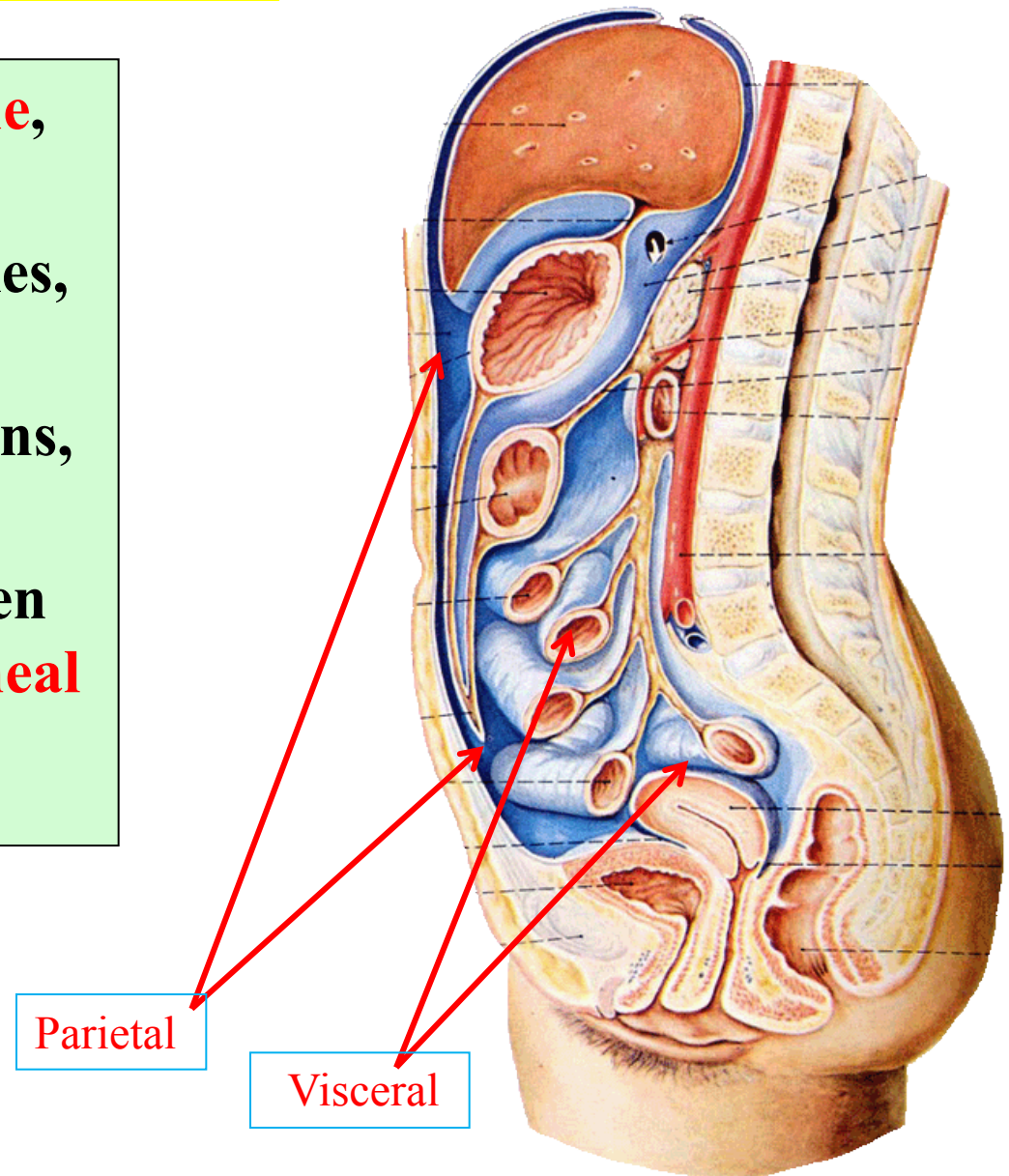
Dr. Essam Eldin Salama

OBJECTIVES

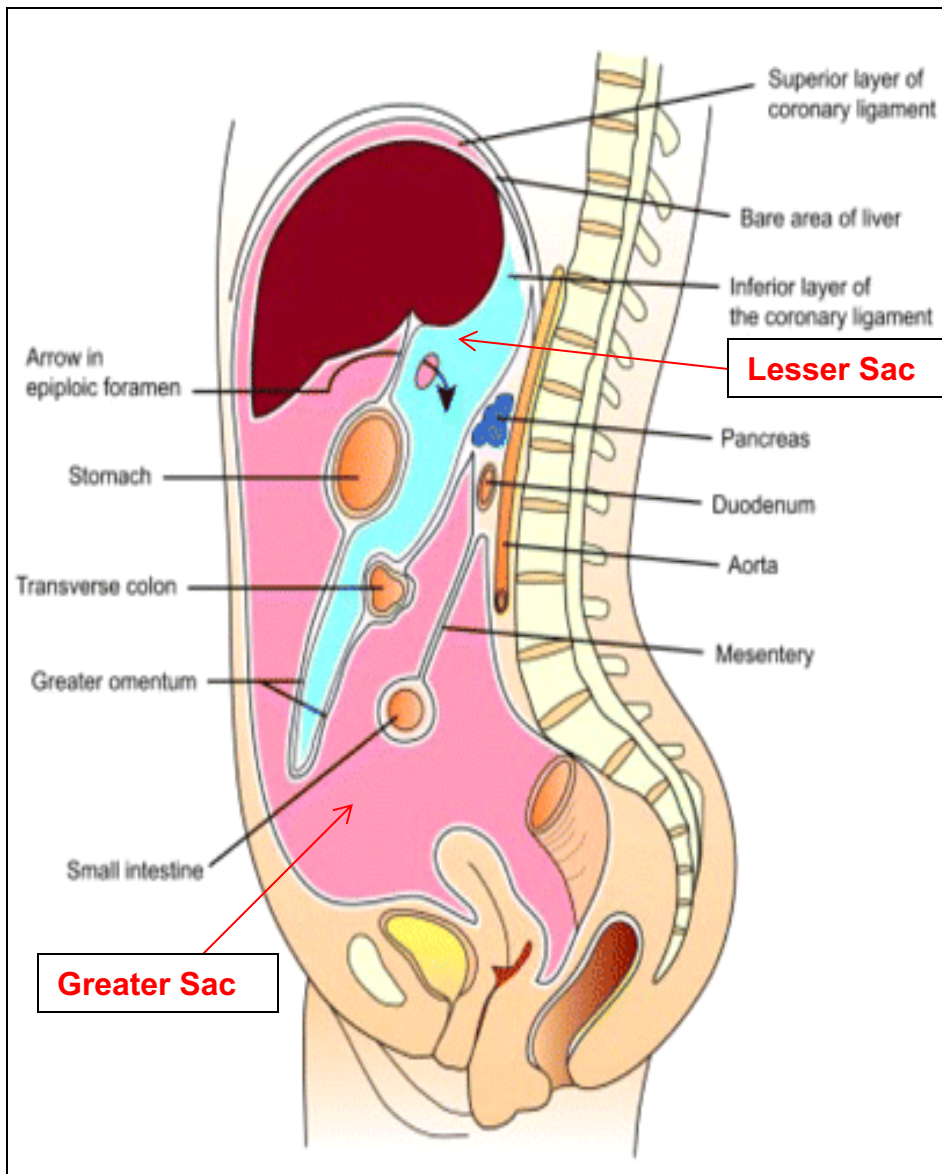
- *At the end of the lecture the students must know:*
- Brief knowledge about **peritoneum** as a thin serous membrane and its main parts; **parietal** and **visceral**.
- The **peritoneal cavity** and its parts the **greater sac** and the **lesser sac** (Omental bursa).
- **The peritoneal folds** :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

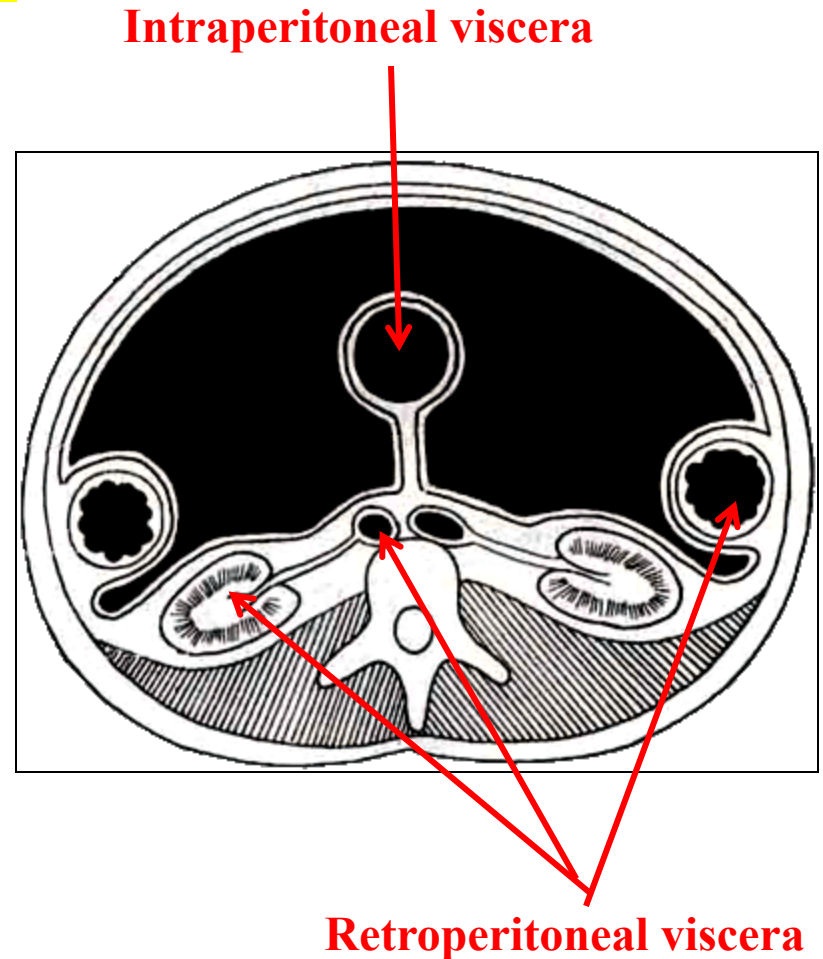
▪ Both cavities are interconnected through the **epiploic foramen**.

▪ 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.



Intraperitoneal organ :

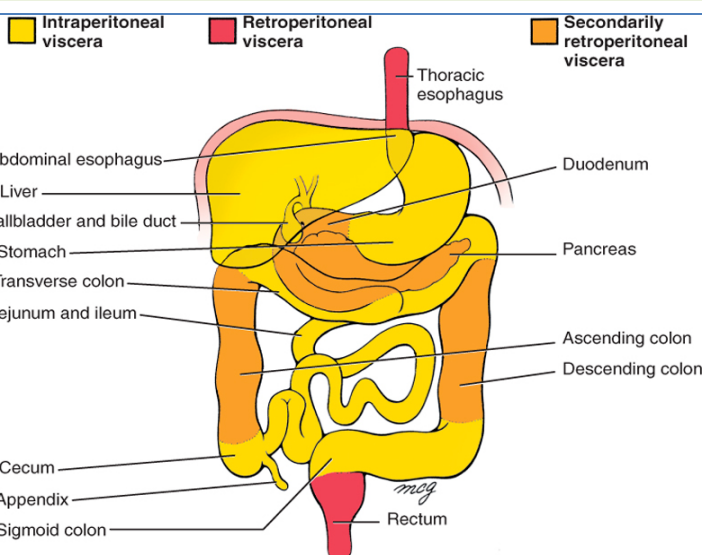
Is entirely surrounded by the peritoneum and has a supporting mesentery : stomach & 1st part of duodenum, liver, gall bladder, spleen, jejunum, ileum, transverse colon, sigmoid colon, uterus, and ovaries.

Extraperitoneal or retroperitoneal organ :

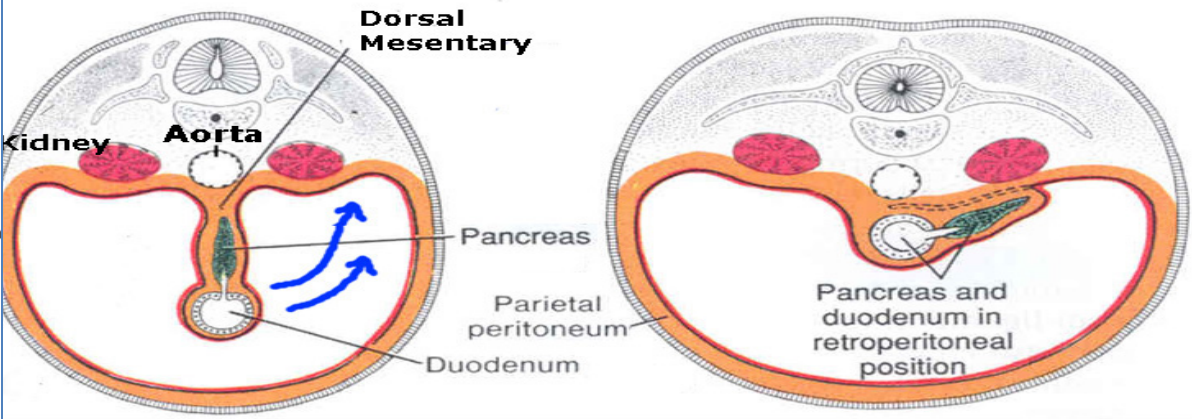
Structure that lies behind the peritoneum or partially covered by the peritoneum and has no supporting mesentery.

Primary retroperitoneal organs: Aorta, Inferior vena cava, kidneys, Suprarenal glands, urinary bladder, vagina, and rectum.

Secondary retroperitoneal organs: develop in mesenteries, but get pushed against the body wall (parietal peritoneum) during growth so that only half of their surface is covered by peritoneum : duodenum, pancreas, ascending and descending colon.



Secondary Retroperitoneal organs: Pancreas & Duodenum

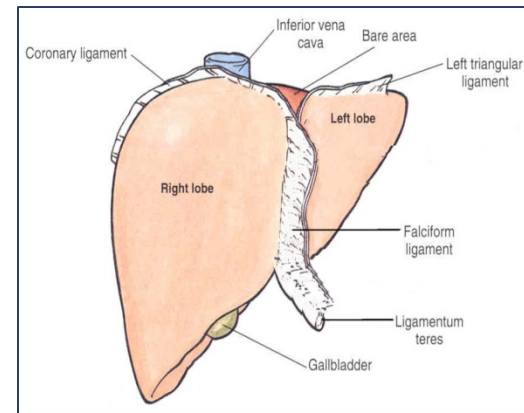
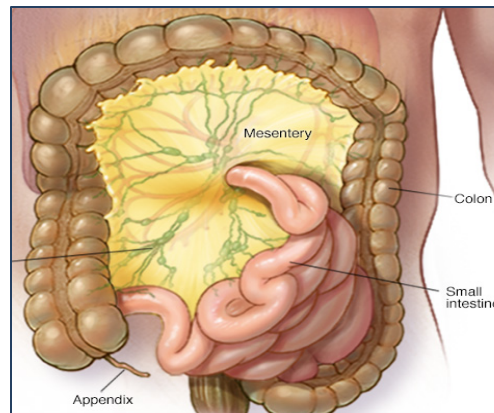
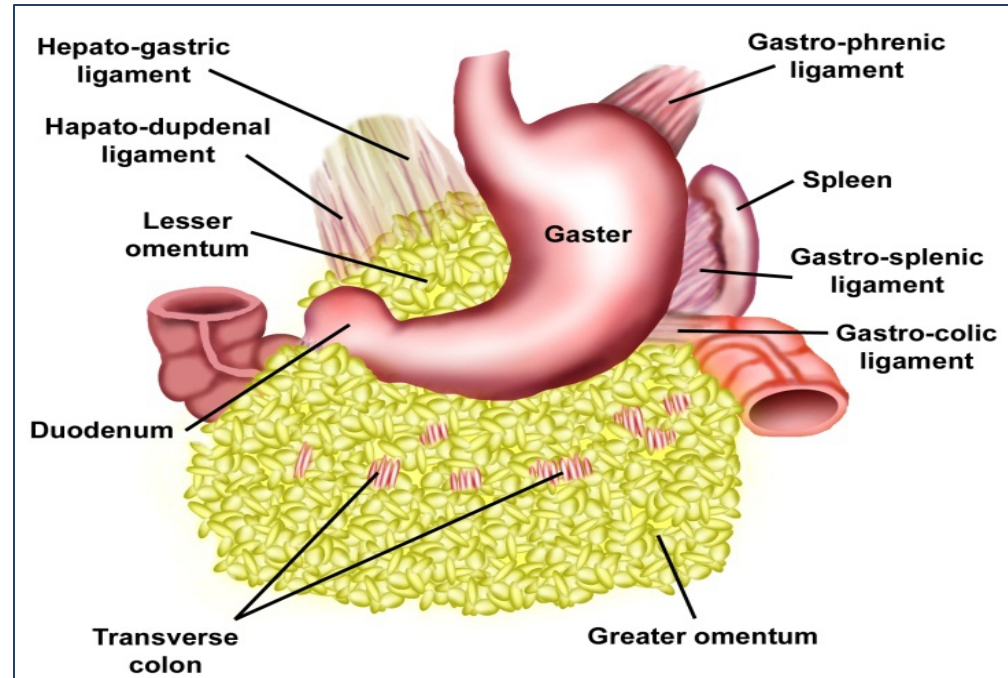


Folds of the peritoneum

□ Types of peritoneal folds :

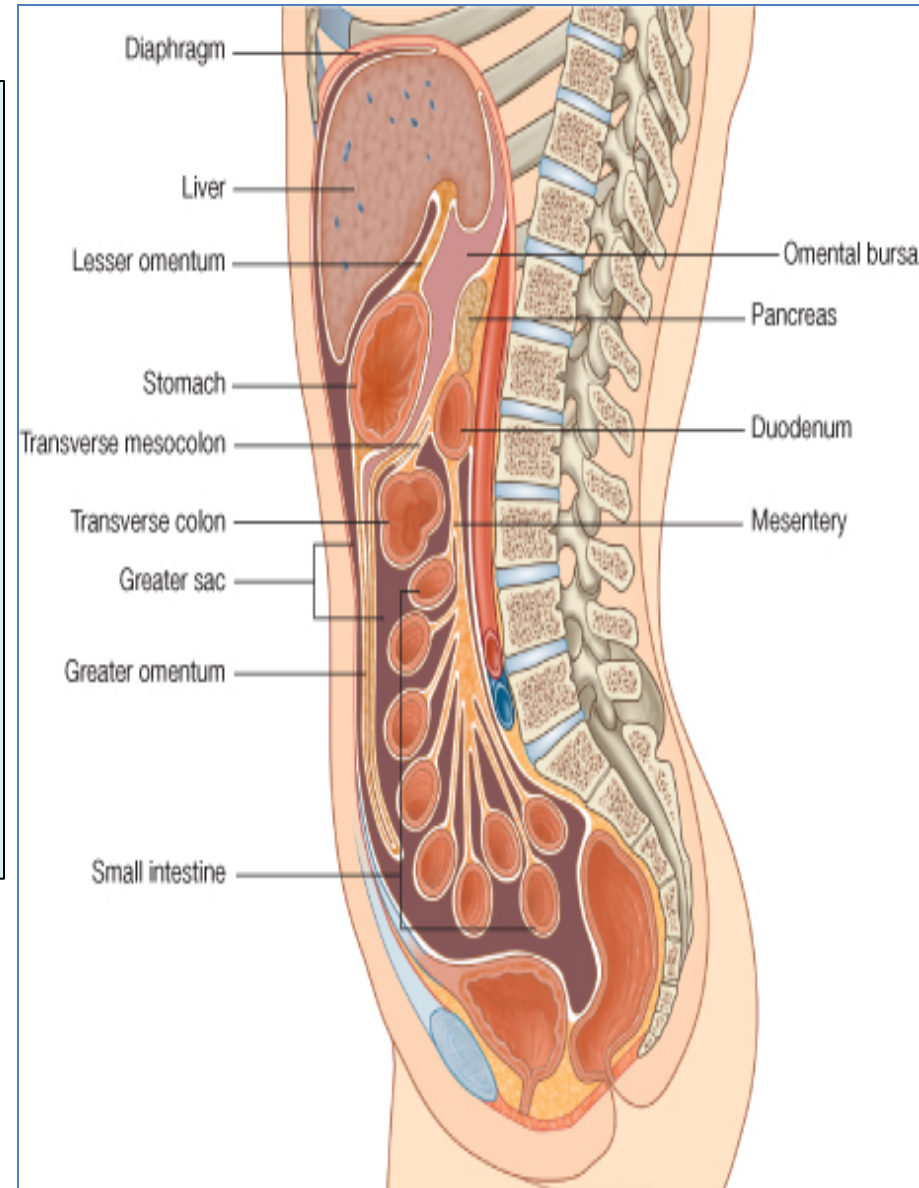
- **Omenta.**
- **Mesenteries.**
- **Ligaments.**

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

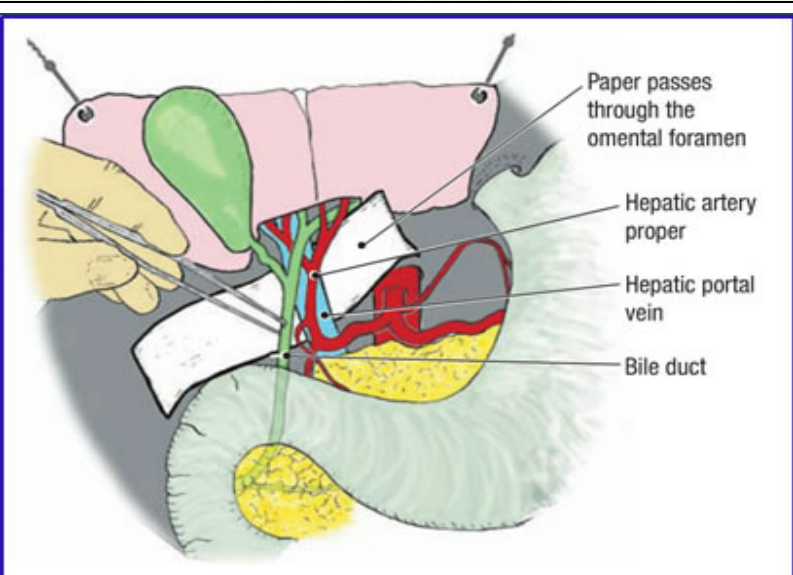
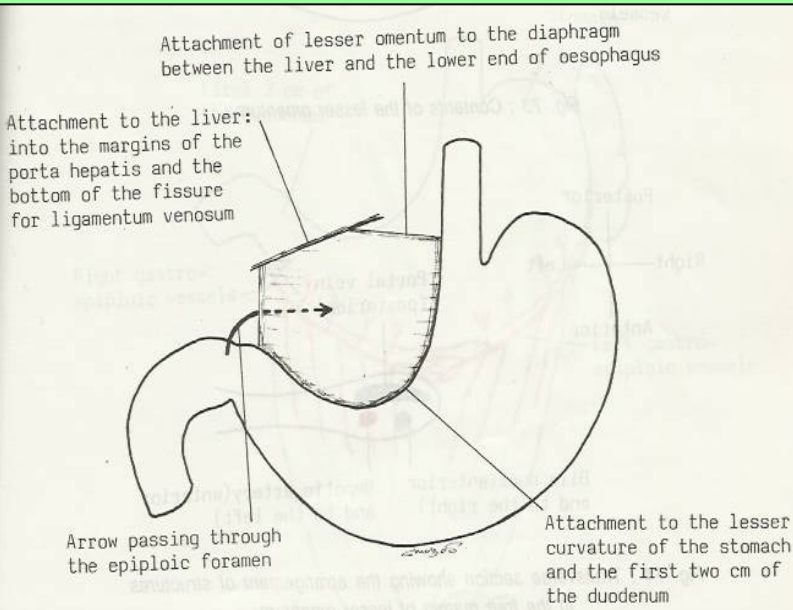


Omenta

- ❖ **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.**

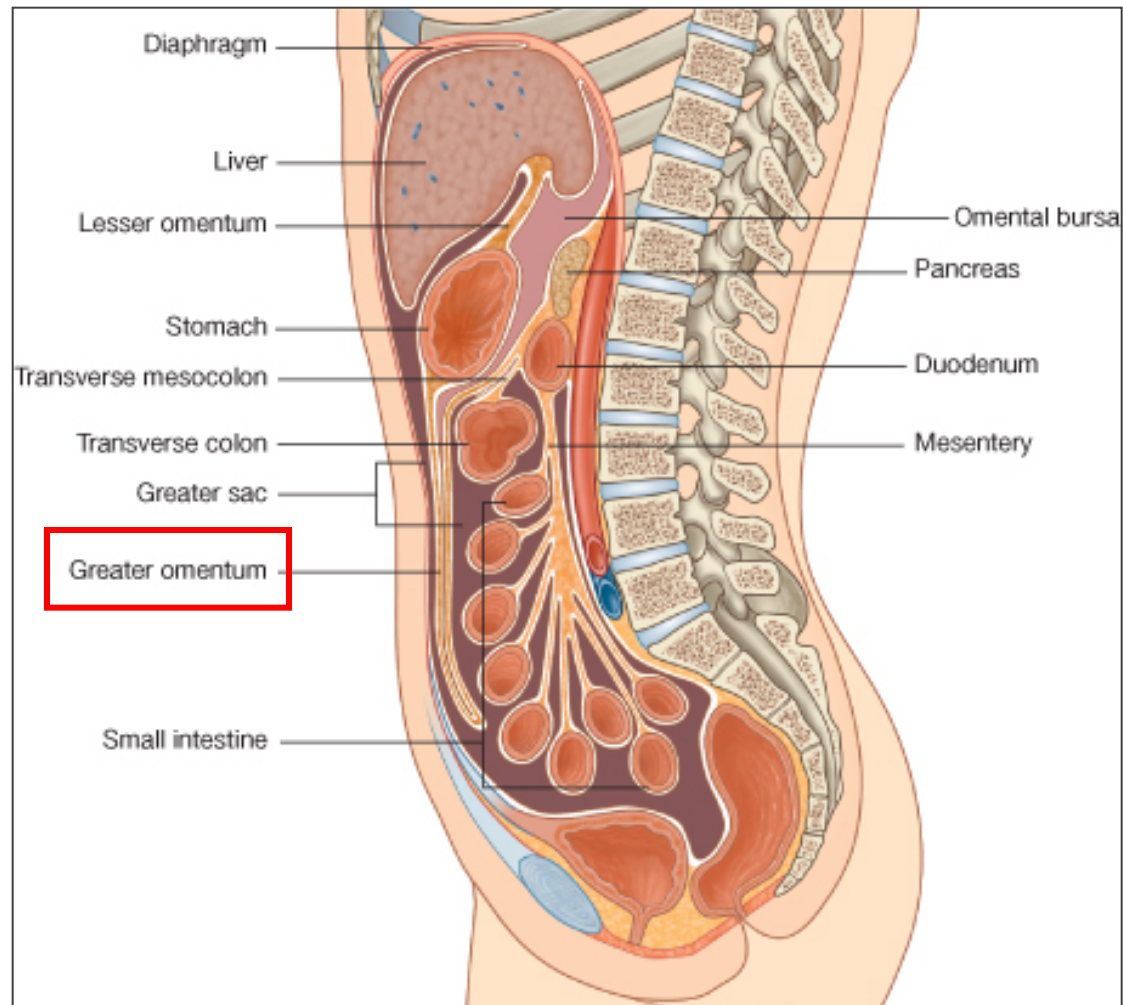
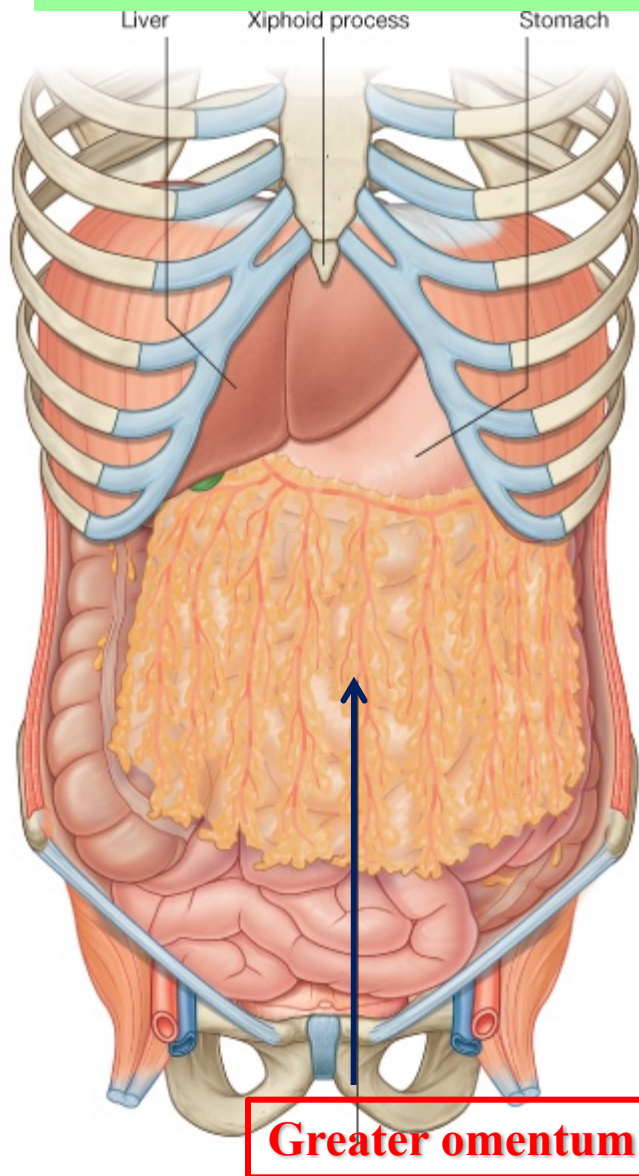


Lesser omentum

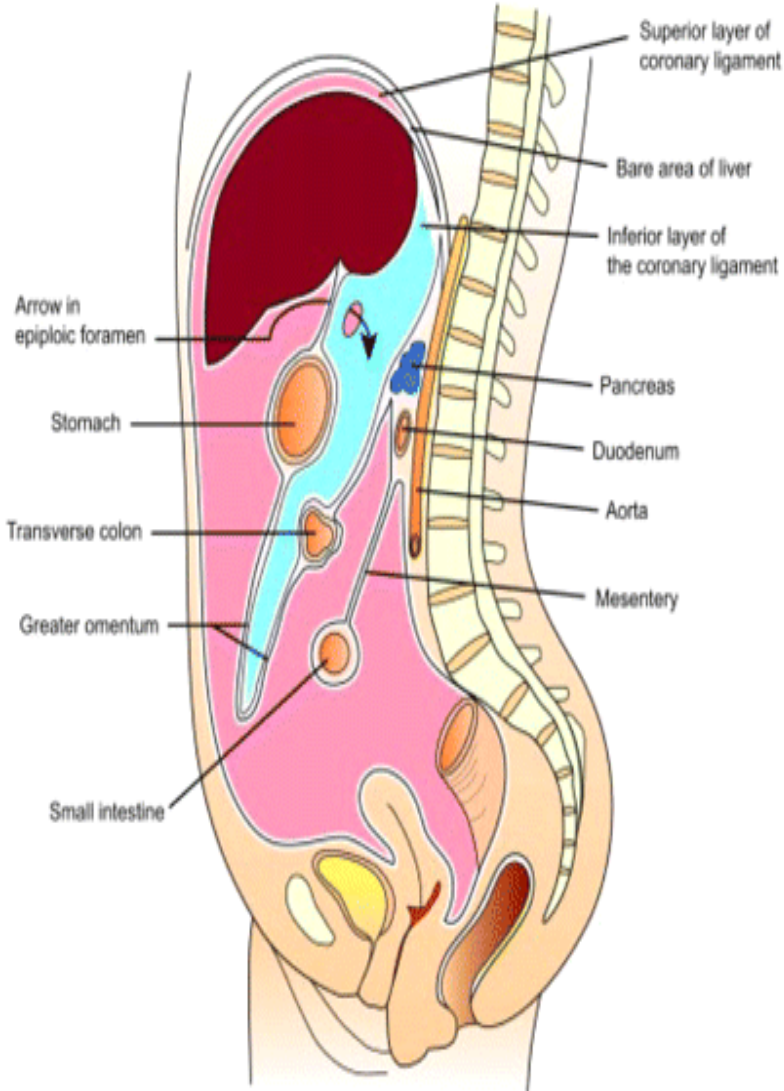


- ❑ Extends between the **liver** and the **lesser curvature of the stomach+1st part of duodenum**.
- It is continuous with the two layers of **peritoneum** which cover the anterior & posterior surfaces of stomach and 1st part of the duodenum.
- Ascends as a **double fold** to the **porta hepatis of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

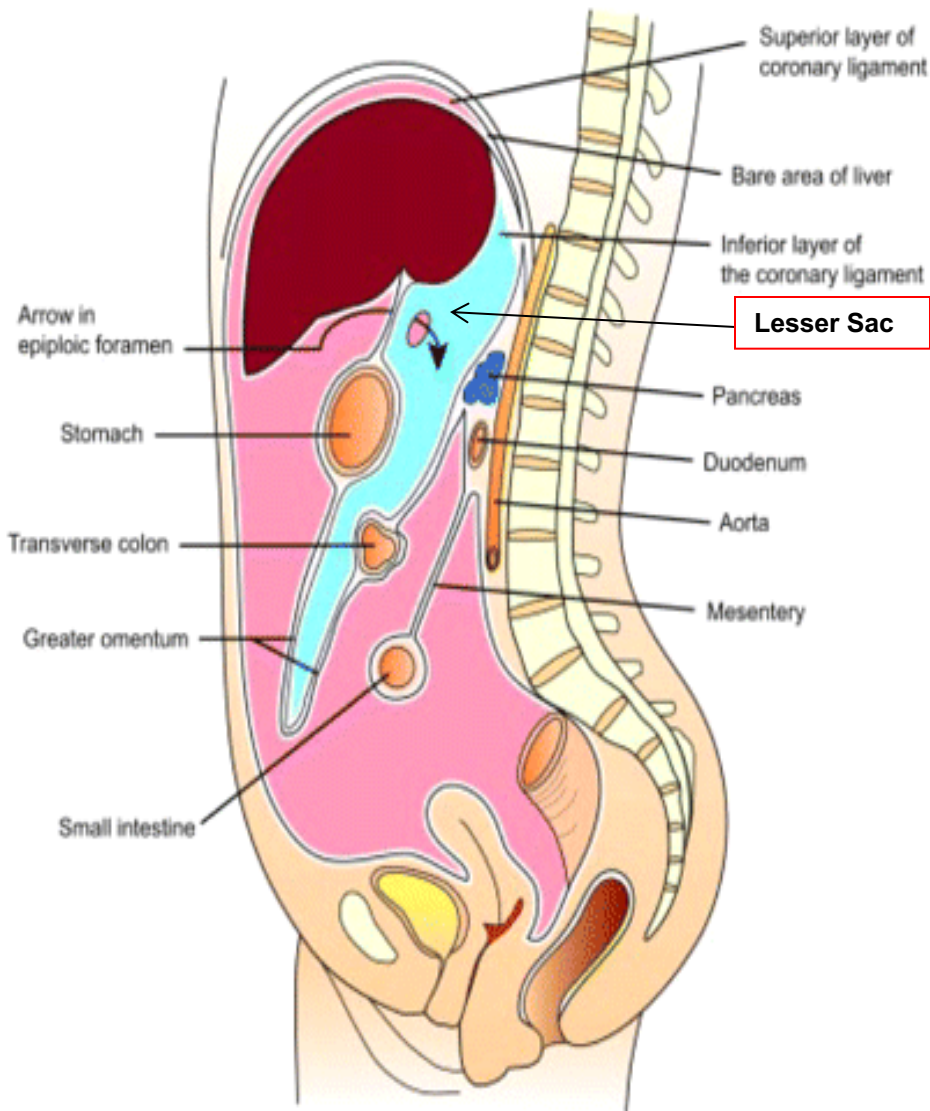


Greater omentum



- **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)



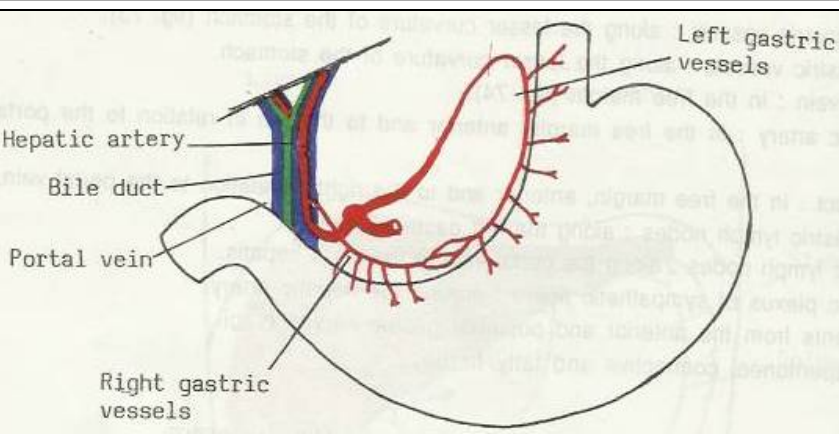
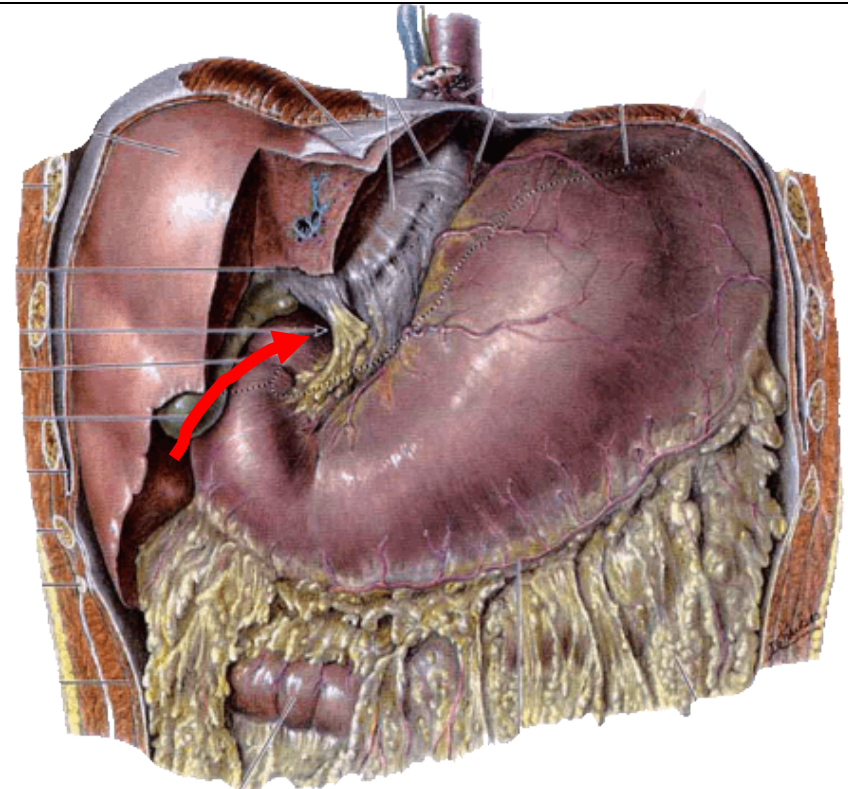
❑ It is a part of the peritoneal cavity behind the stomach.

❑ 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**.

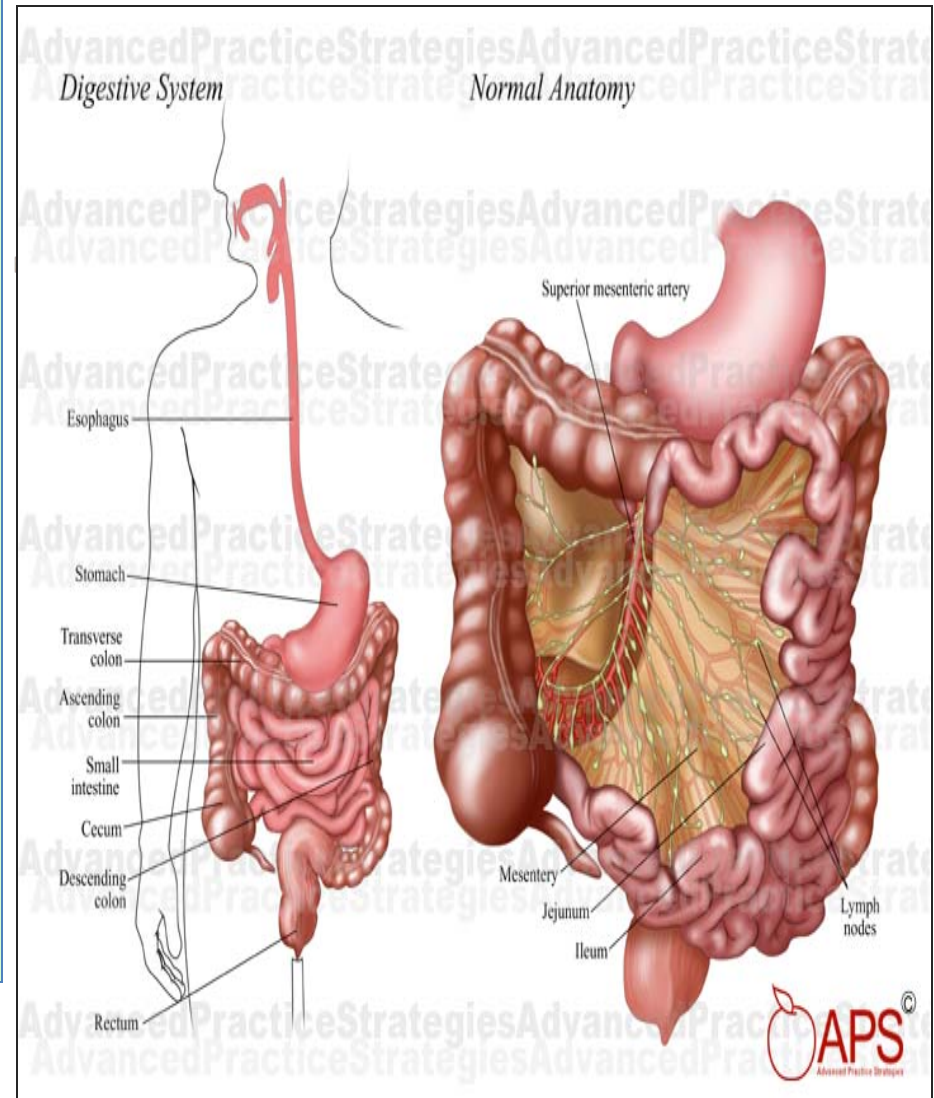
Epiploic foramen



- 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, 7 m 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.**

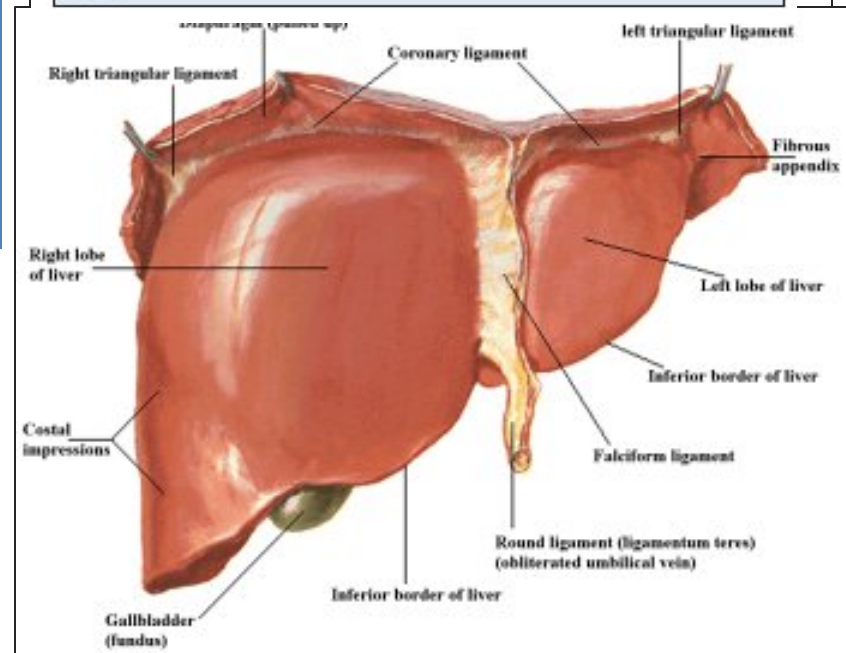
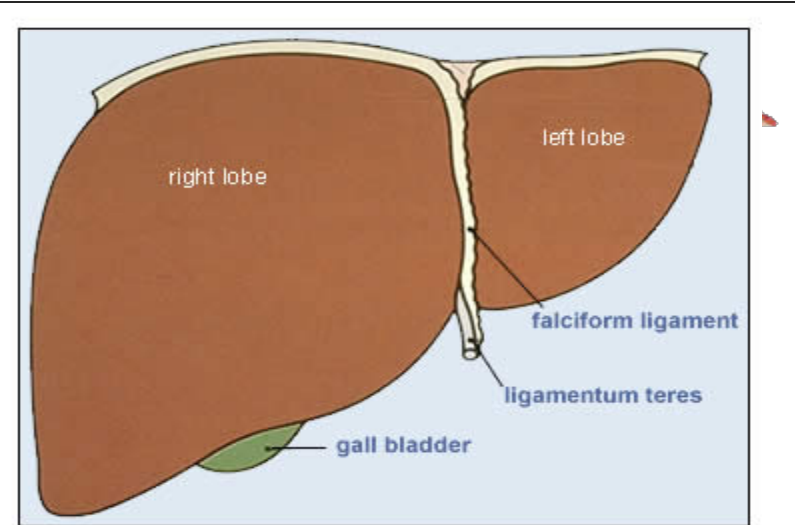


Ligaments

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) and first lumbar nerves.**
- 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 originating from the parietal peritoneum is therefore of the somatic type, it is usually severe, and can be accurately localized.

From the **Visceral Peritoneum**, including the mesenteries, 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.

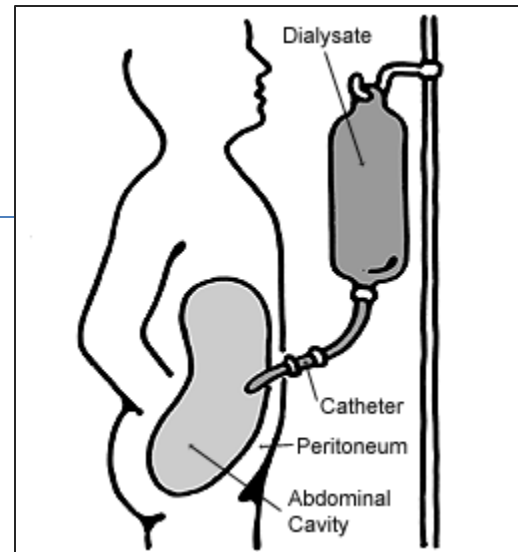
[leading to abdominal pain; poorly localized, poorly characterized pain. (dull, unclear, cramping)]

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.

Folds of the peritoneum : Omenta, Mesenteries, and Ligaments.

- **Omenta**: are folds of peritoneum.
- **Lesser omentum** connects the lesser curvature of 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 :**
 - right & left gastric vessels.
 - 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** :
 - Right & left gastroepiploic vessels.
 - Lymph nodes, vessels & fats.
- **Lesser sac of peritoneum (Omental Bursa)** :
 - **Boundaries** :
 - **Opening to lesser sac (epiploic foramen)** :
 - **Contents in the free margin of lesser omentum.**

SUMMARY

Mesentery: two-layered fold of peritoneum

suspends the small intestine from the posterior abdominal wall.

Ligaments: two-layered folds of peritoneum that attach solid viscera to the abdominal wall.

Function of peritonuem: *The peritoneal ligaments, omenta, and mesenteries permit blood, lymph vessels, and nerves to reach the viscera.*

Nerve Supply of the Peritoneum :

parietal peritoneum: lower six thoracic and first lumbar nerves and the phrenic nerves.

visceral peritoneum: autonomic nerves that supply the viscera.

Clinical aspects :

- Peritoneal Pain.
- Peritoneal Dialysis.