OMENTUM

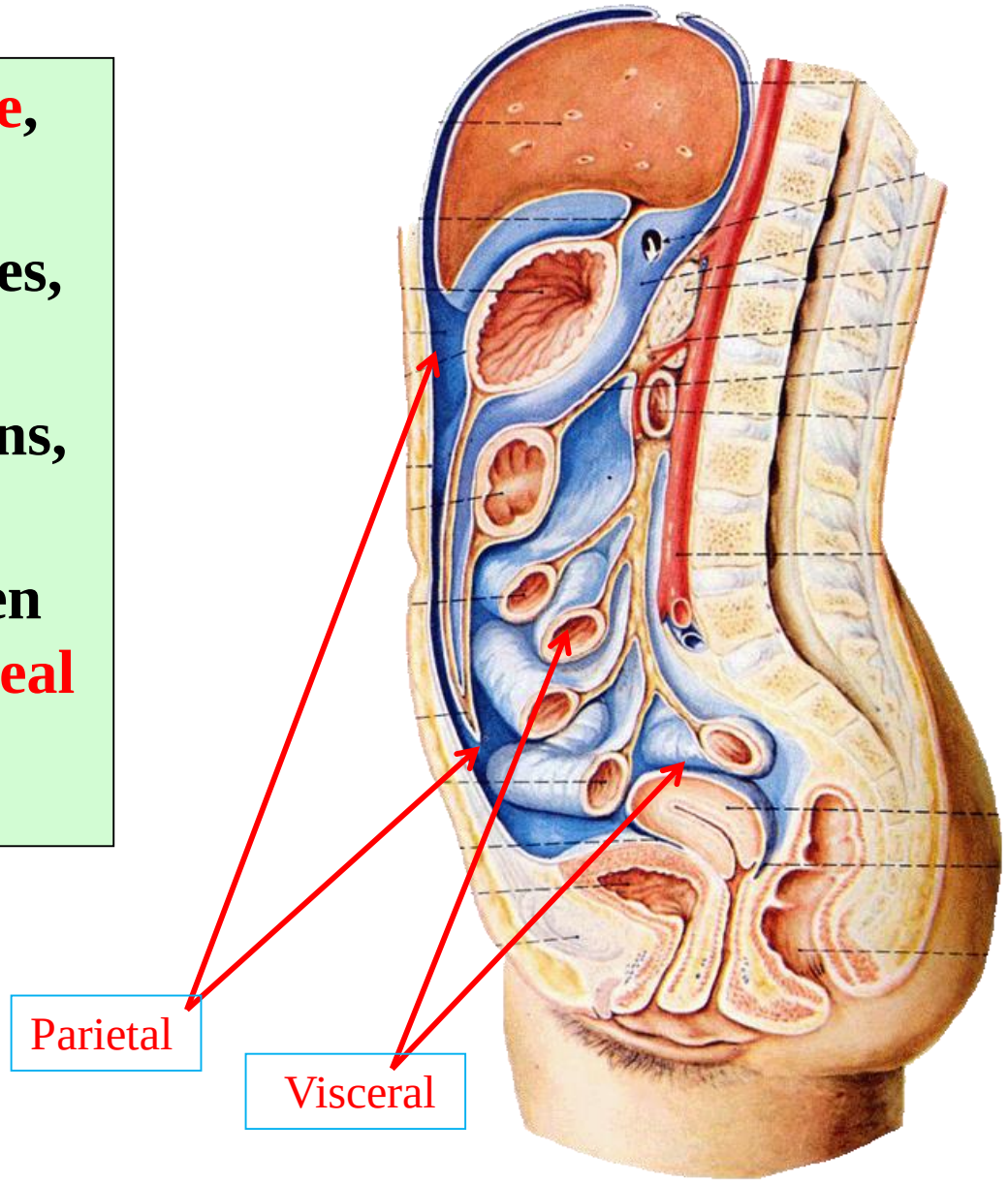
DR.SANAA AL-SHARAWY DR. ESSAM ELDIN SALAMA

OBJECTIVES

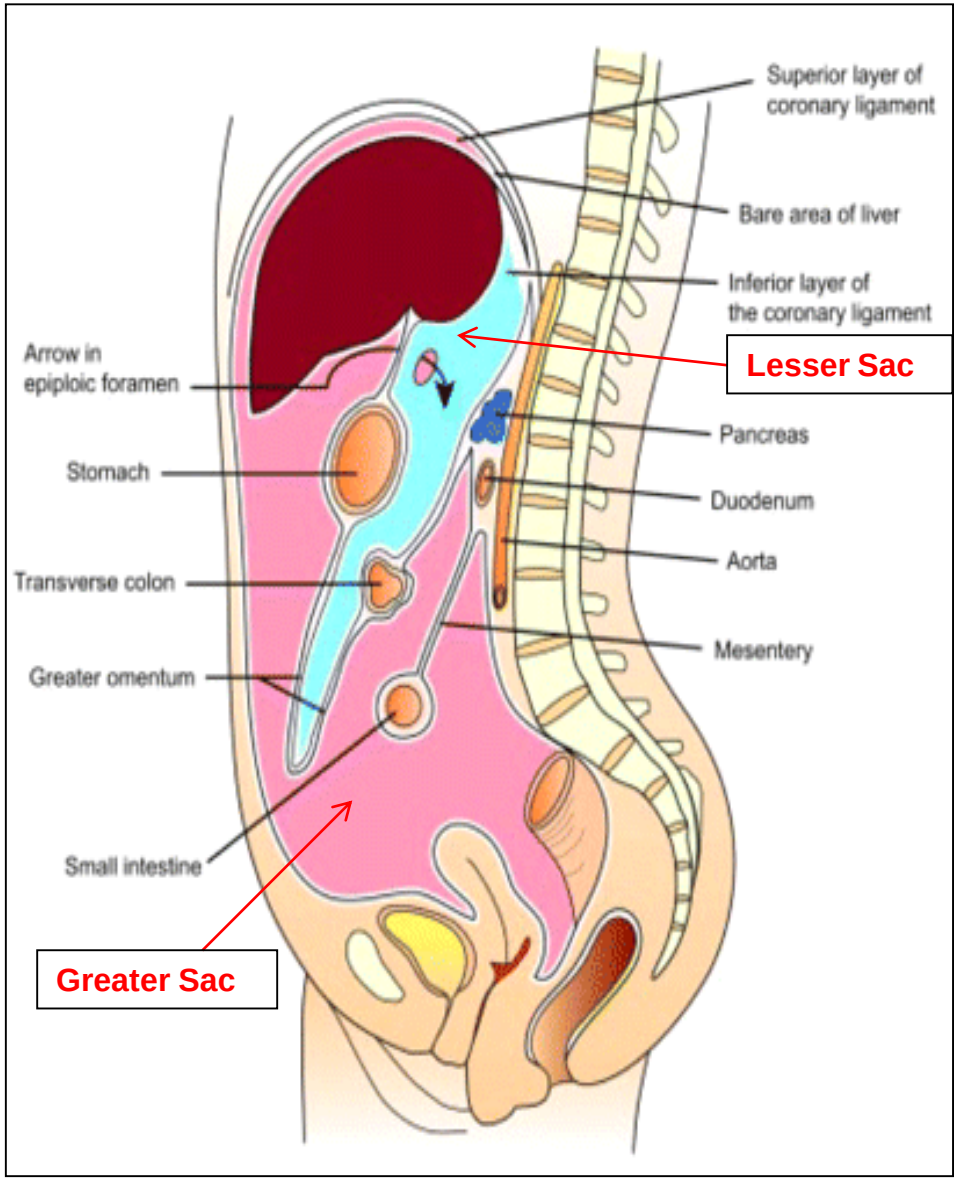
- ***At the end of the lecture the students must know:***
- Brief knowledge about **peritoneum** as a thin serous membrane and its main parts; parietal and visceral.
- The **peritonial cavity** and its parts the greater sac and the lesser sac (Omental bursa).
- **The peritoneal folds :** omenta, mesenteries,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



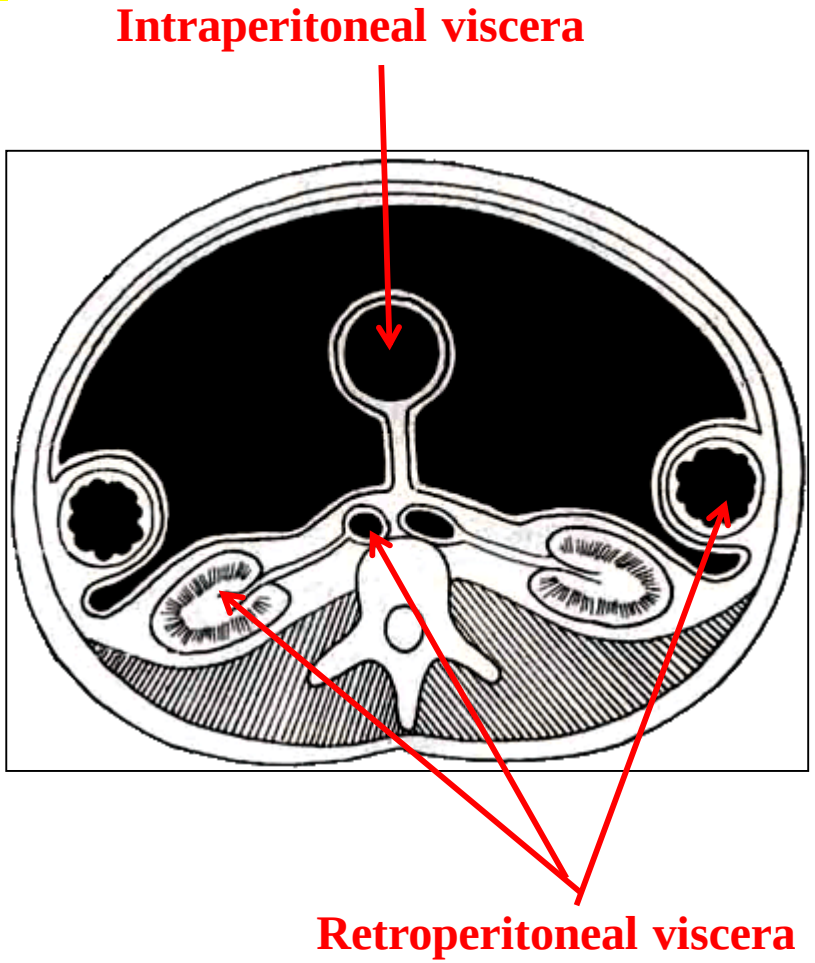
❖The **peritoneal cavity** is the largest one in the body.

❖**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

- **Intraperitonial and retroperitonial; describe the relationship between various organs and their peritoneal covering;**
- **Intraperitonial structure; which is nearly totally covered by visceral peritoneum.**
- **Retroperitonial 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.**

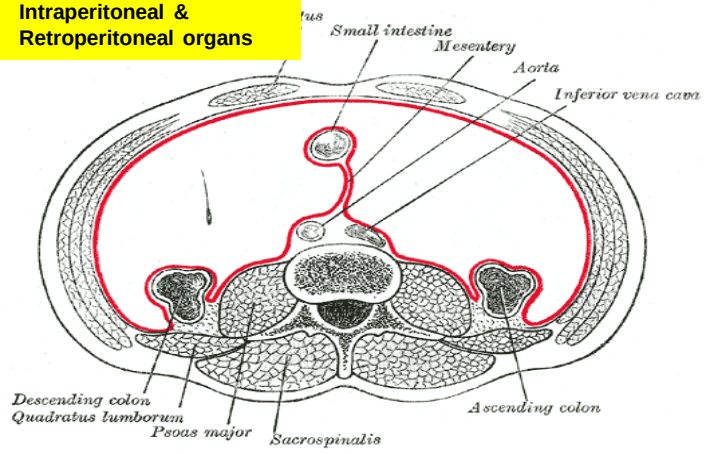
Extraperitoneal or retroperitoneal organ :

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

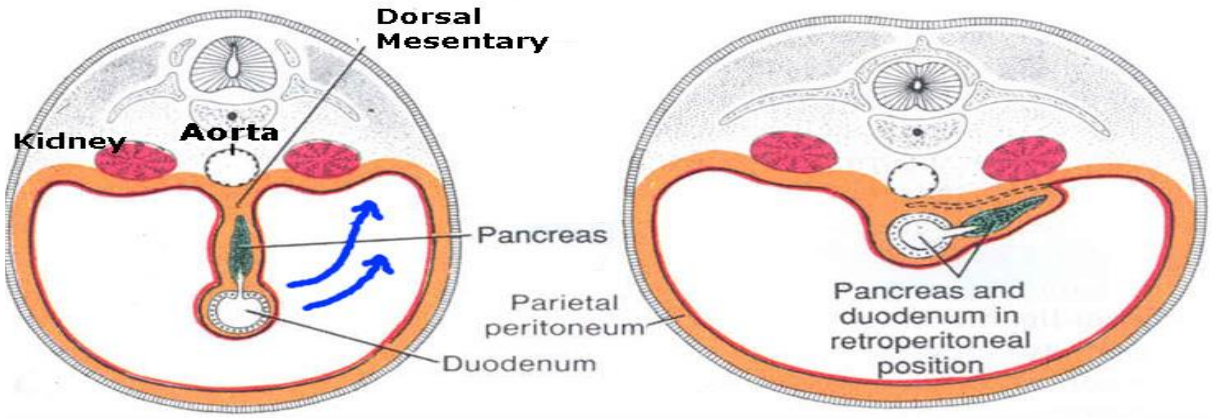
Primary retroperitoneal organs: Aorta, Inferior vena cava, kidneys, Suprarenal glands, urinary bladder, vagina, and rectum.

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 : **pancreas, duodenum, ascending and descending colon.**

Intraperitoneal & Retroperitoneal organs



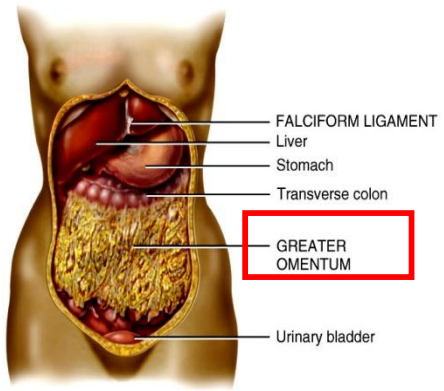
Secondary Retroperitoneal organs: Pancreas&Duodenum



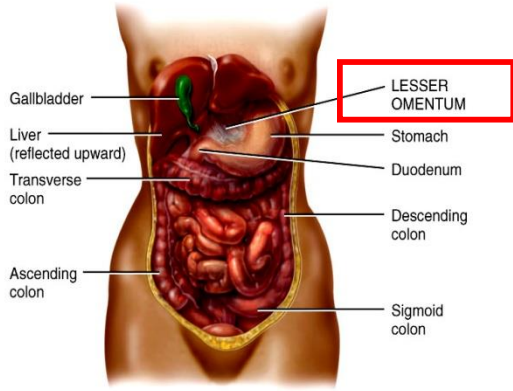
Folds of the peritoneum

- **Types of peritoneal folds :**
  - **Omenta.**
  - **Mesenteries.**
  - **Ligaments.**

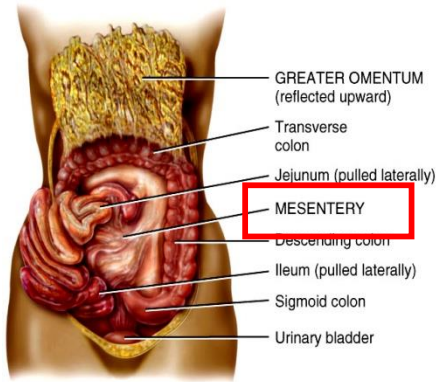
The peritoneal ligaments, omenta, and mesenteries permit blood, lymph vessels, and nerves to reach the viscera



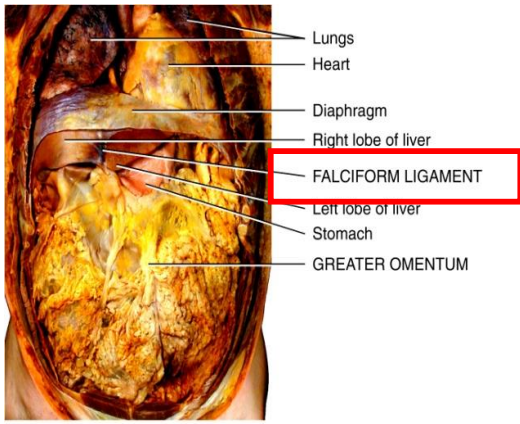
(b) Anterior view



(c) Lesser omentum, anterior view (liver and gallbladder lifted)



(d) Anterior view (greater omentum lifted and small intestine reflected to right side)

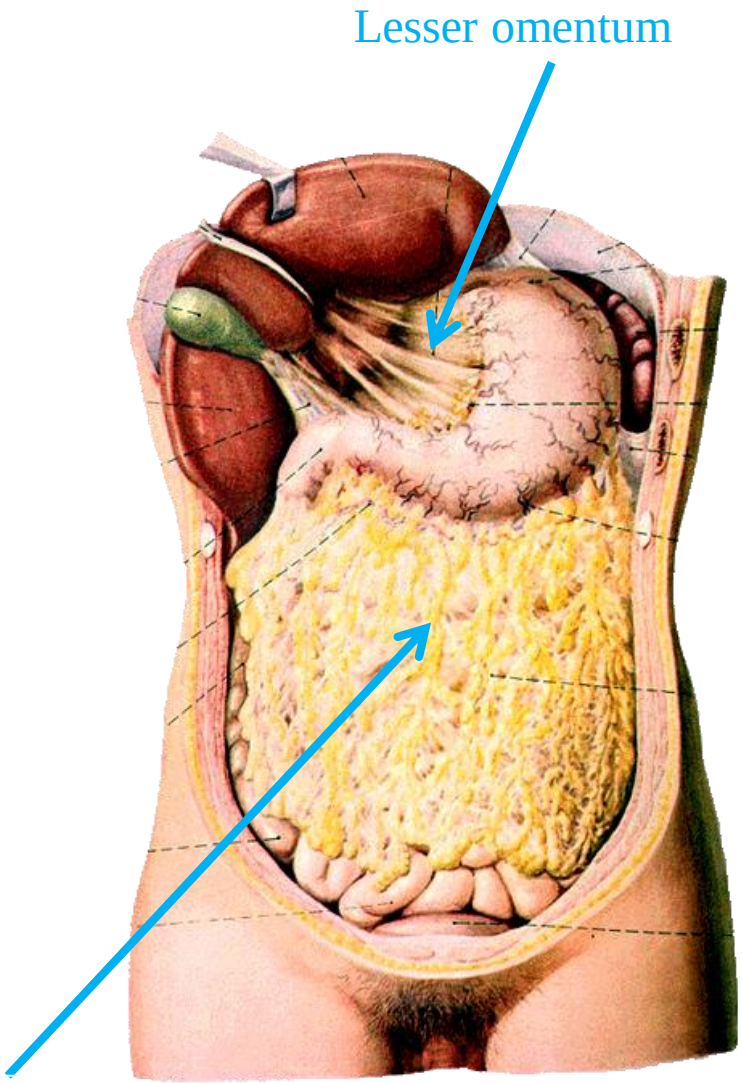


(e) Anterior view

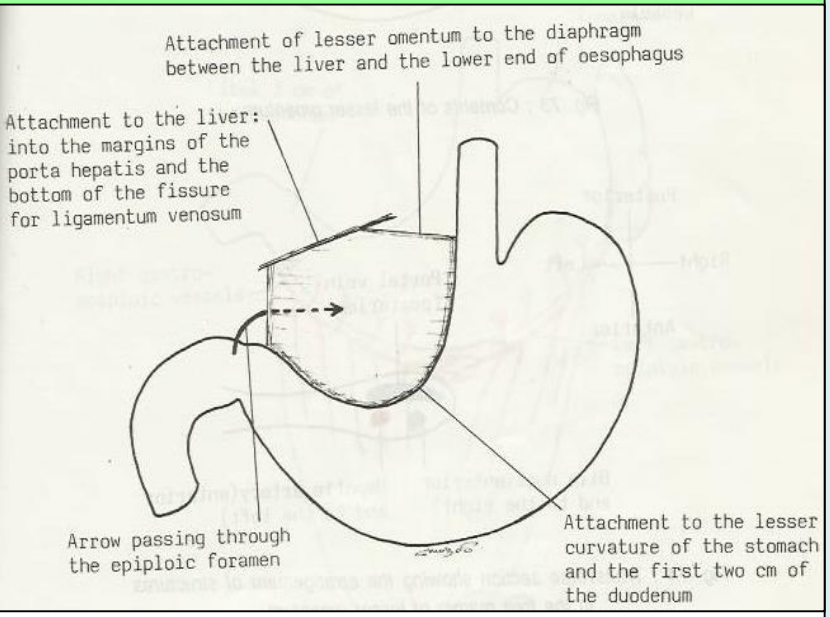
Figure 24.04bcd Tortora - PAP 12/e

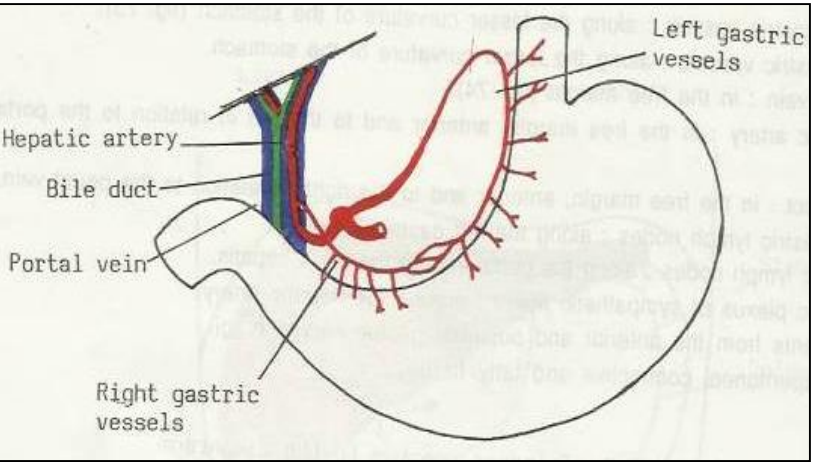
Omenta

- 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.
- The gastrosplenic omentum; connects the stomach to the spleen.



Lesser omentum



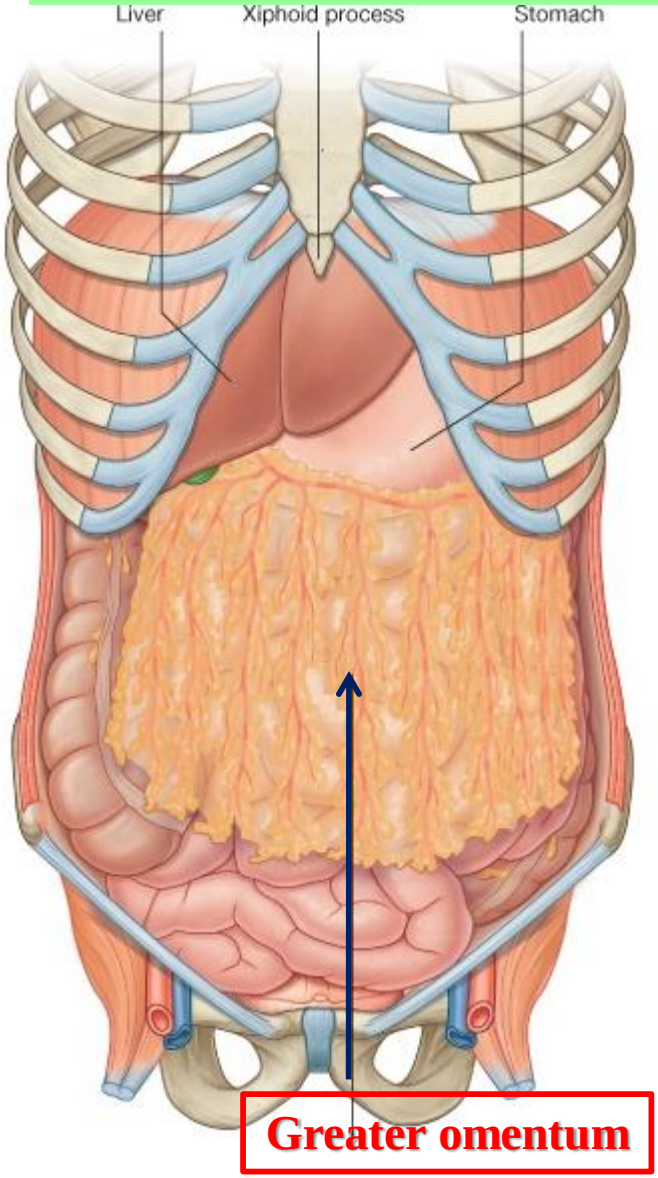


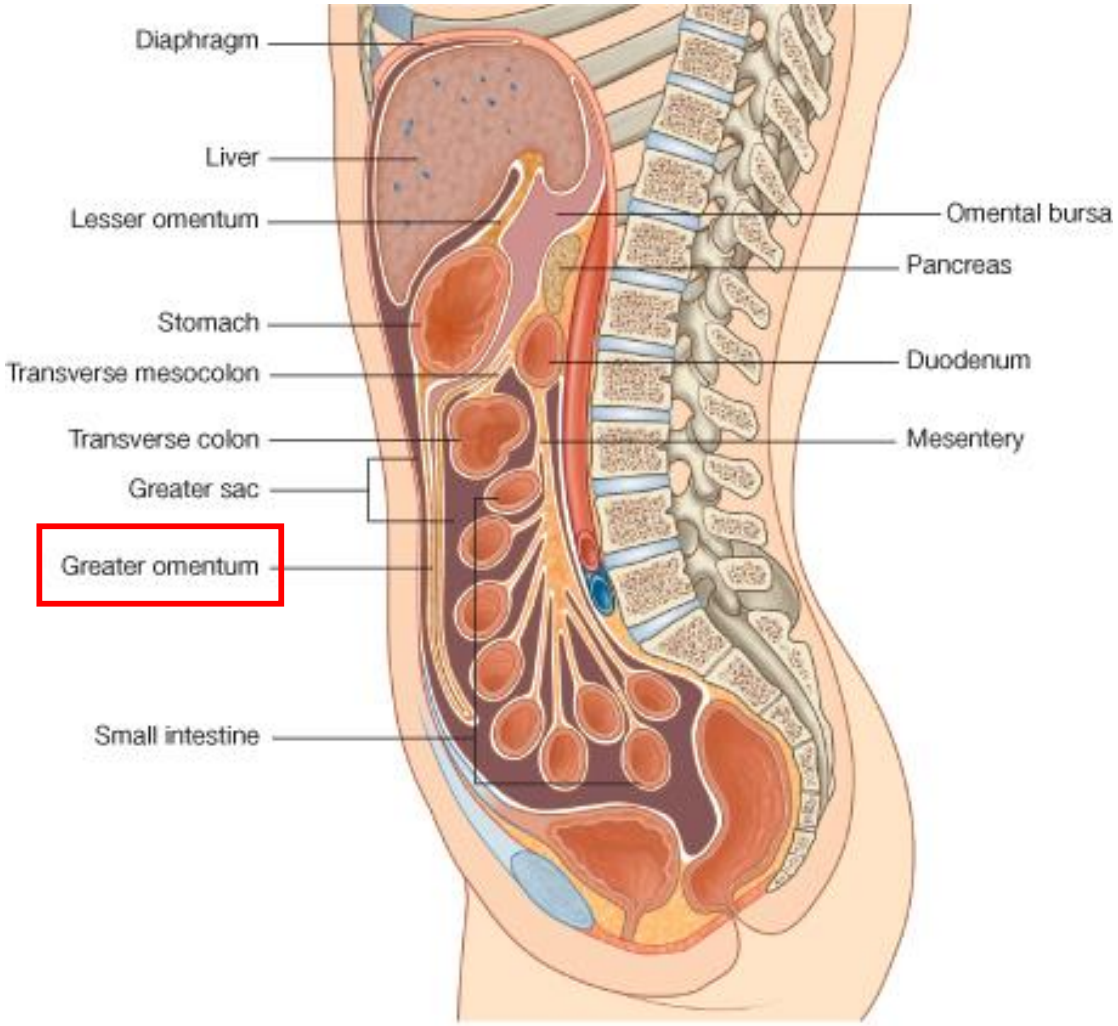
- **Extends between** the **liver** and the **lesser curvature of the stomach.**
- **It is continuous with the two layers of peritoneum** which cover the anterior & posterior surfaces of stomach and 1st part of the duodenum.
- Ascend as a **double fold** to the **porta hepatis of liver**, and fissure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

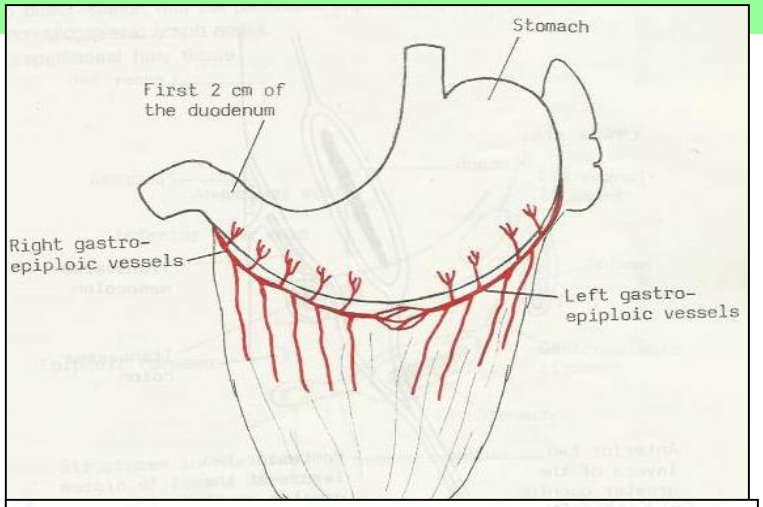
- Close to the right free margin, are the **hepatic artery**, **common bile duct**, **portal vein**, **lymphatics**, and **hepatic plexus of nerves.**
- At the attachement to the stomach, run the **right and left gastric vessels.**

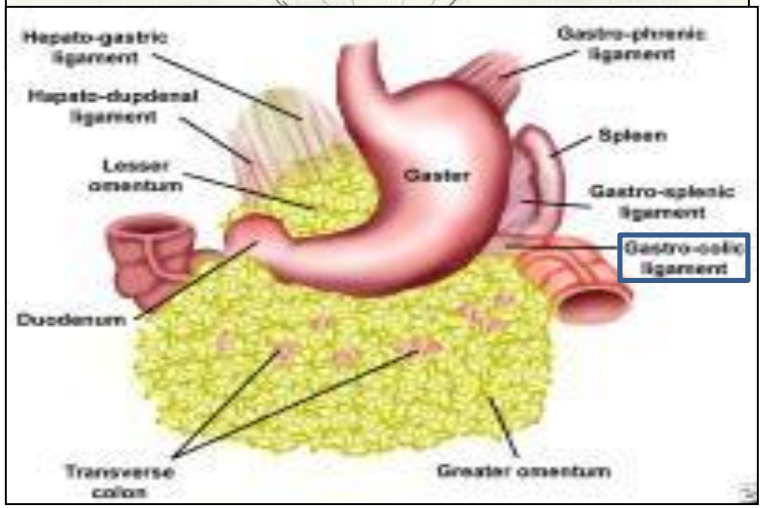
Greater omentum





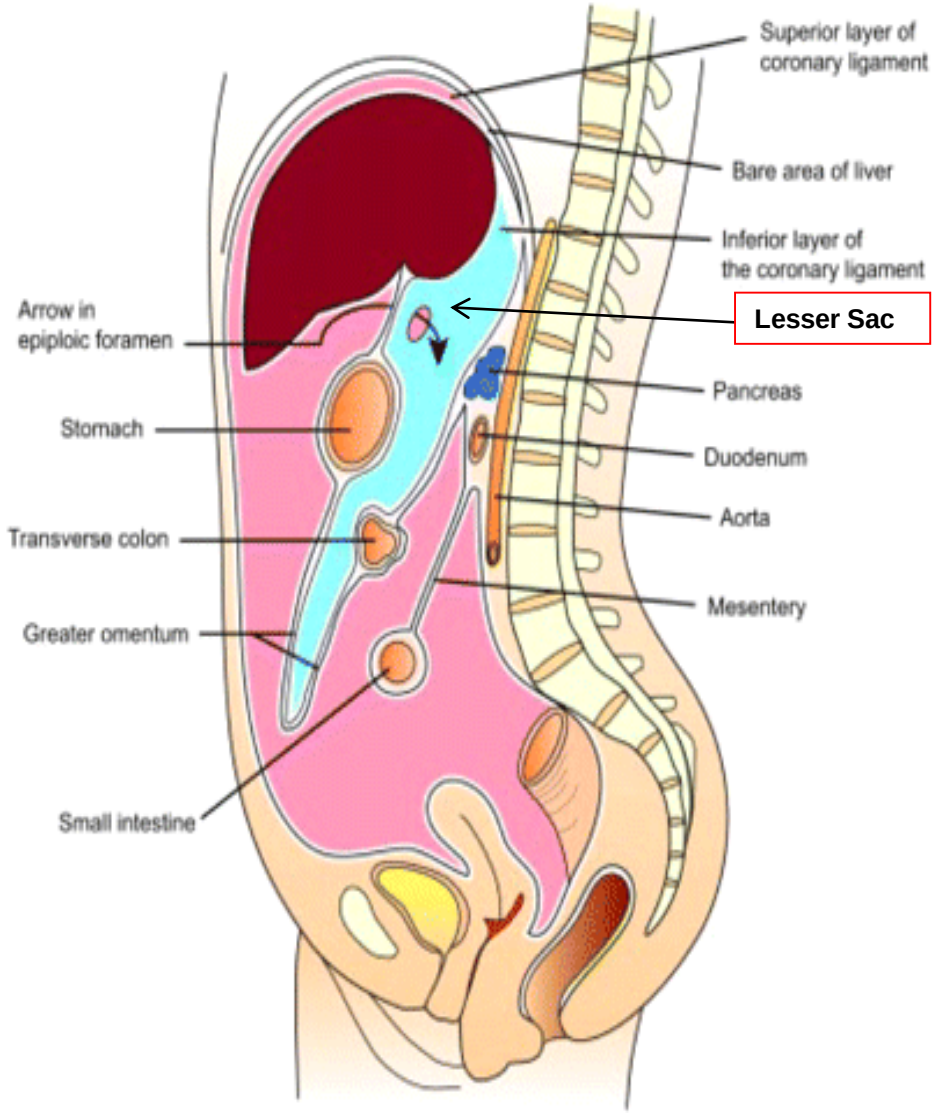
Greater omentum





- **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** of the greater omentum 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)

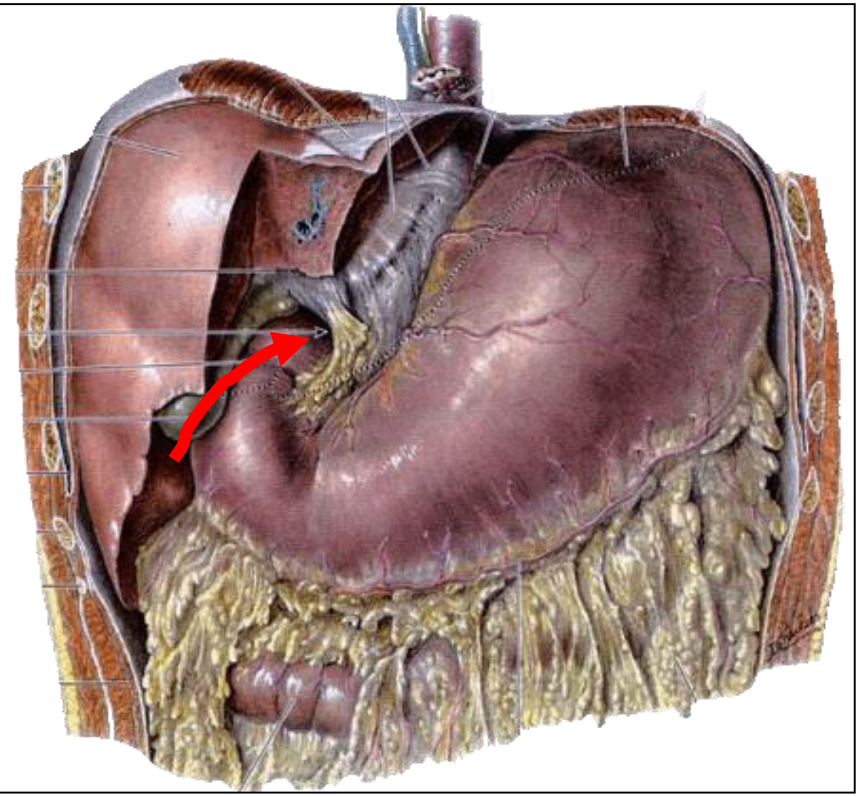


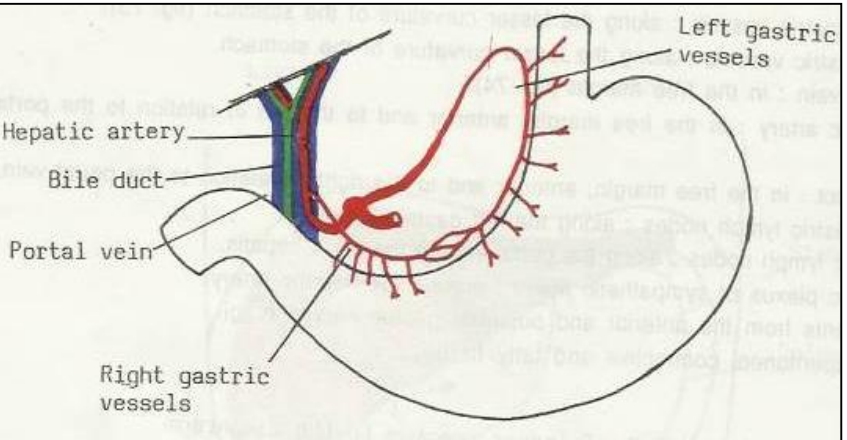
❑**It is a part of the peritonial cavity behind the stomach.**

❑**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





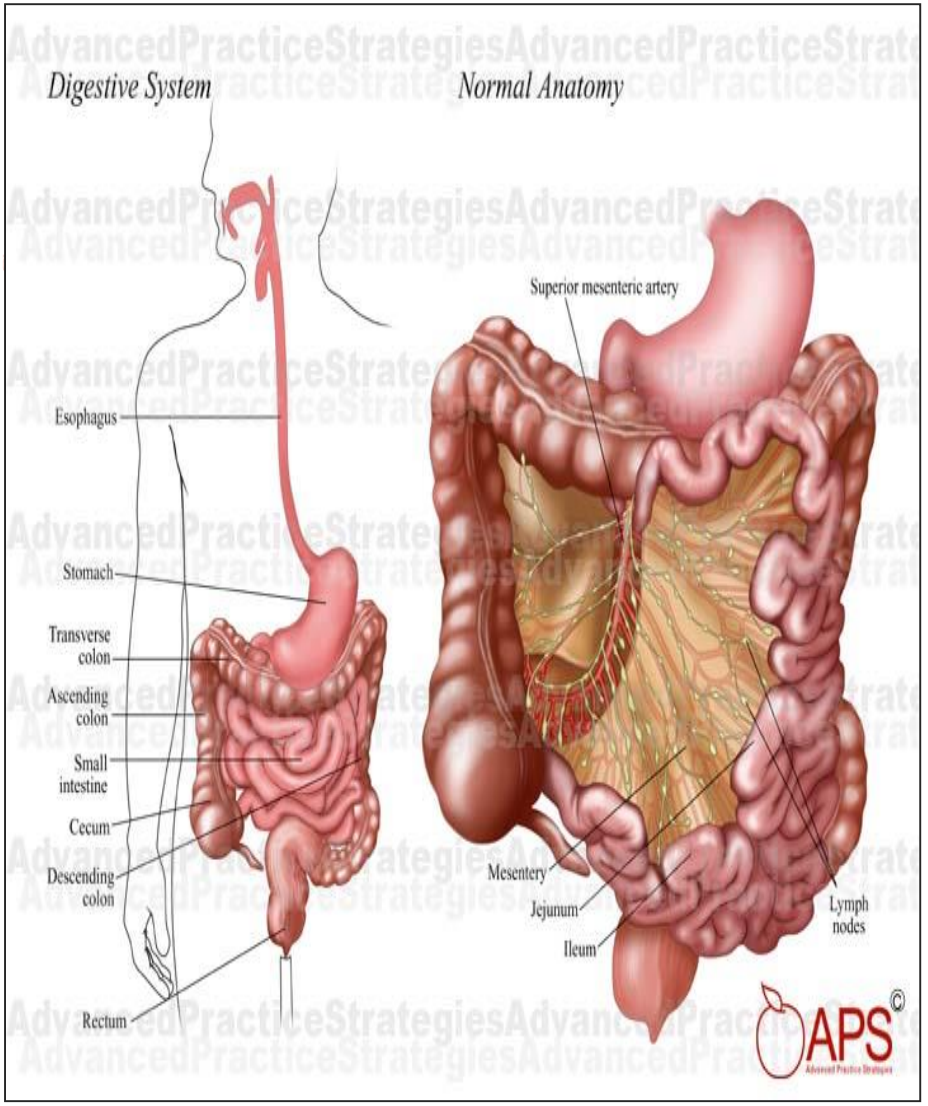
- **It is the communication between the greater and lesser sacs .**
- **It is *bounded by;***
- **In front by the free border of the lesser omentum, with its contents : hepatic artery, common bile duct, and portal vein between its two layers.**
- **Behind by the peritoneum covering the inferior vena 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.

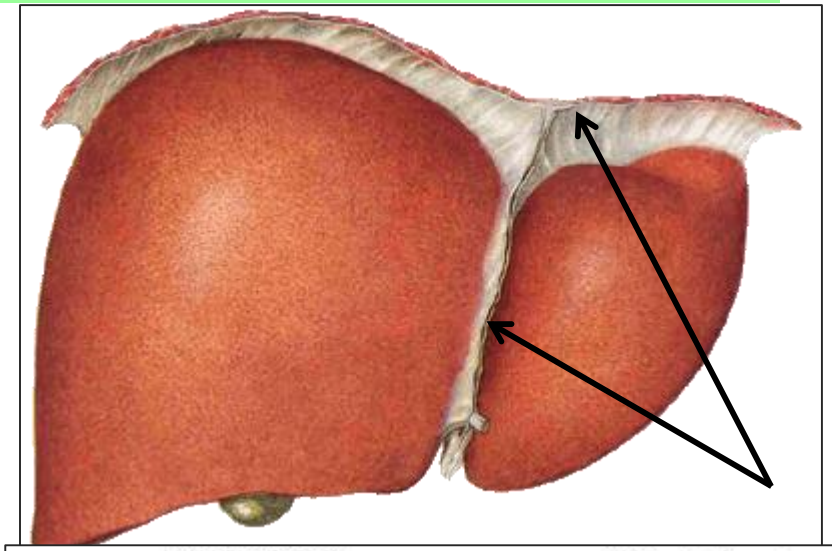


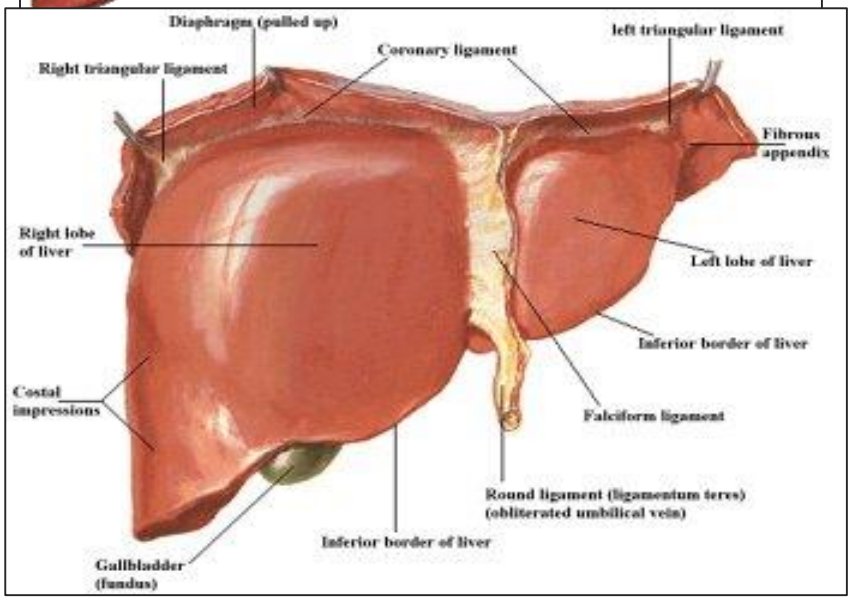
Ligaments

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

Ligaments of liver

- Falciform ligament of liver
- Coronary ligament
- Left and right 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 :

- **Thoracic nerves T7-12 and L 1**
- The central part of the diaphragmatic peritoneum is supplied by the **phrenic nerves, C3,4,and 5**
- Peripheral part of the diaphragmatic peritoneum by intercostal nerves T7-11
- **Pelvic wall by obturator nerve L2,3,and 4**

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

It is supplied by :

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

Clinical points

❑Peritoneal Pain

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

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.

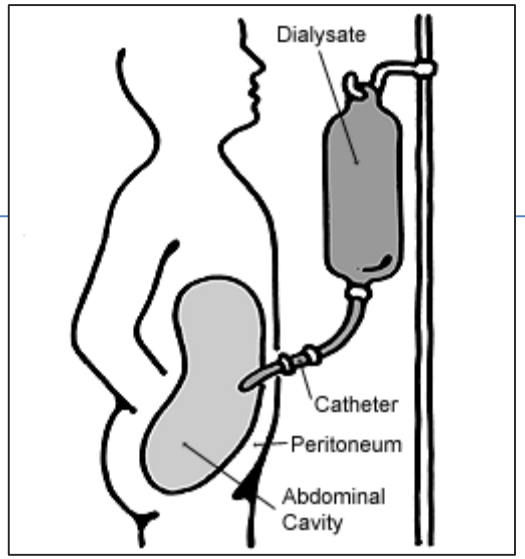
[leading to poorly localized, poorly characterized pain. (dull, cramping, aching)]

Clinical points

❑Peritoneal Dialysis:

Because the peritoneum is a <u>semi permeable</u> membrane :

- **It <u>allows transfer of substances across itself</u>.**
- **It has been made use of <u>in patients with acute renal insufficiency.</u>**



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.**