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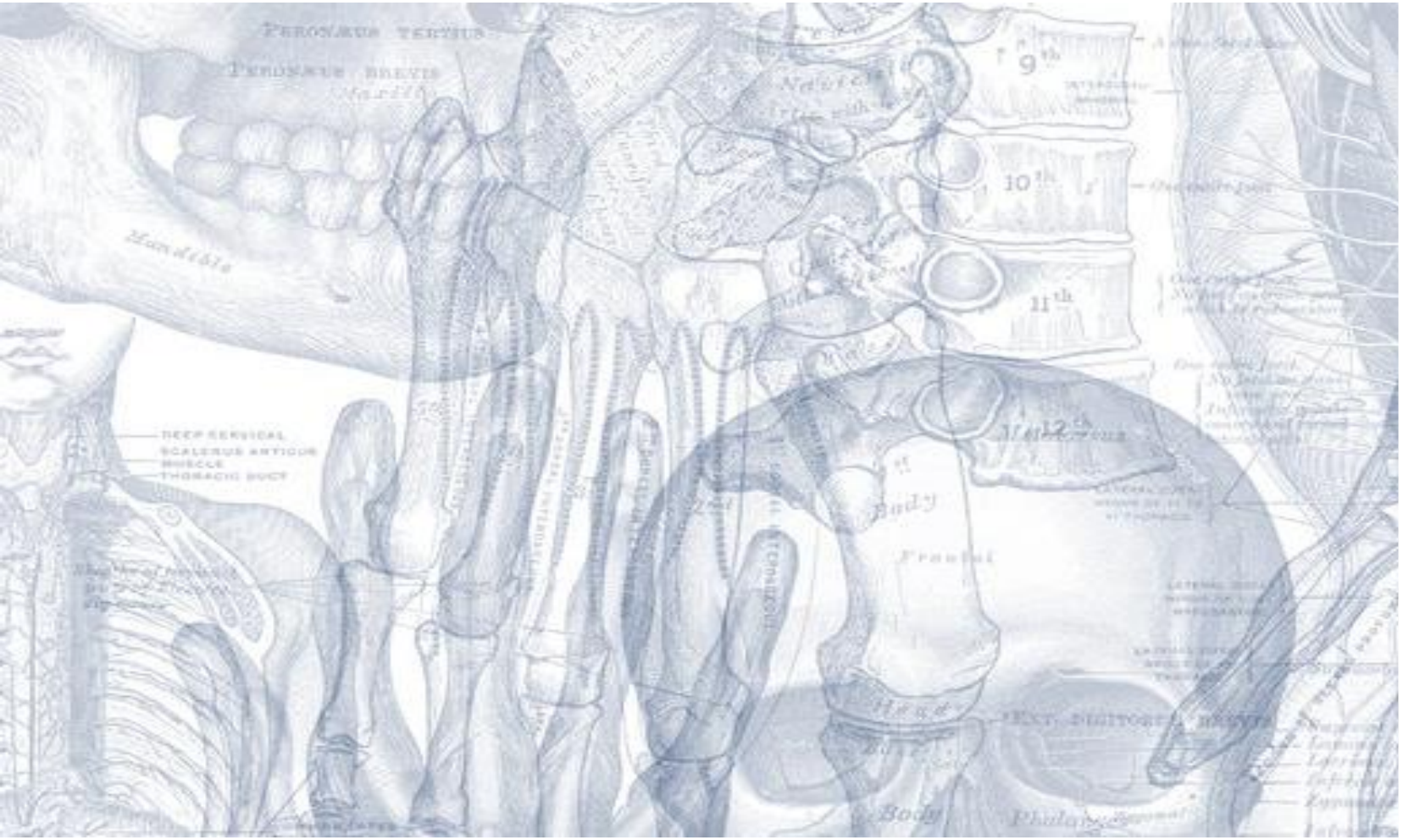


ANATOMY
TEAM 436

436
MEDICINE
KING SAUD UNIVERSITY

تمت المراجعة
شوق الأحمري & عبدالعزيز العنقري

Omentum

Please view our Editing File before studying this lecture to check for any changes.

Color Code

- **Important**
- **Doctors Notes**
- **Notes/Extra explanation**

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 **omentum**, as one of the peritonial folds
- ✓The **greater omentum** ,its extends, 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.**

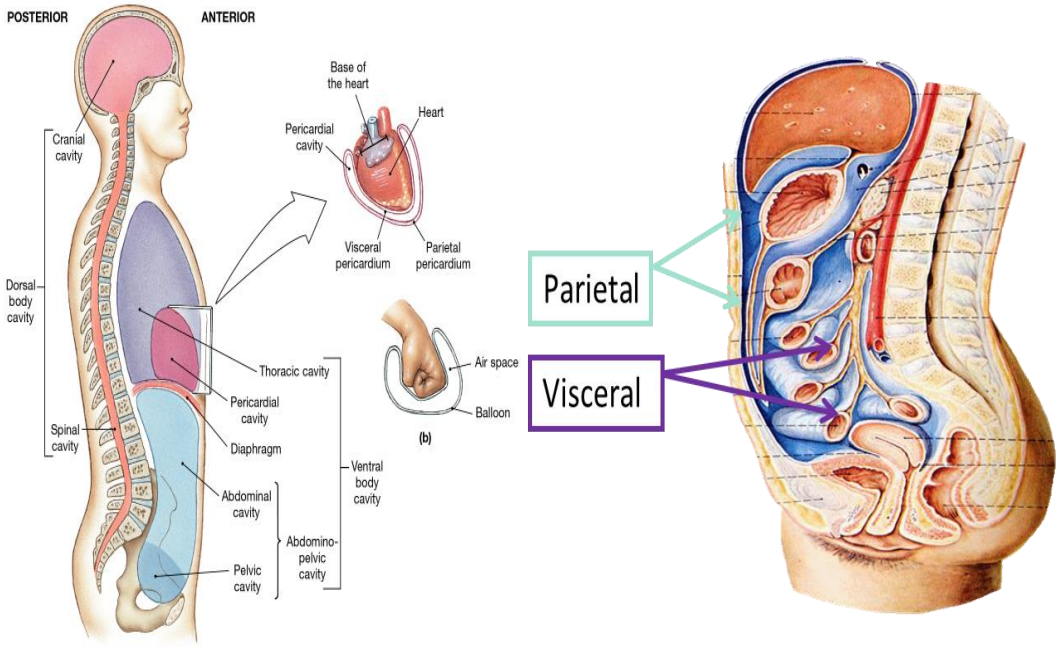
These objectives are only on the **Girls Slides** **BUT** they were found in the **Medical Education Guide**

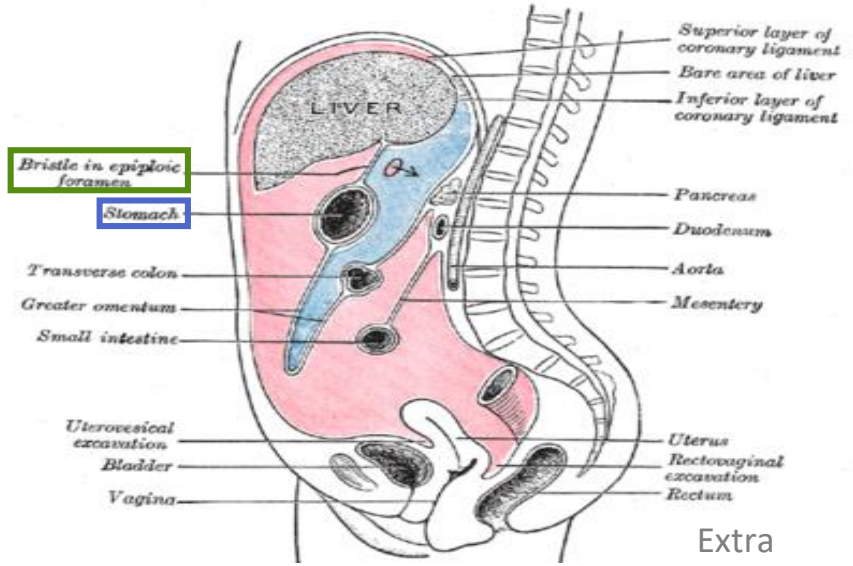
The Peritoneum

Highly recommended → 07:12

- 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 is the largest one in the body.
- Divisions of the peritoneal cavity :
  1. Greater sac; extends from **diaphragm** down to the **pelvis**.
  2. 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.

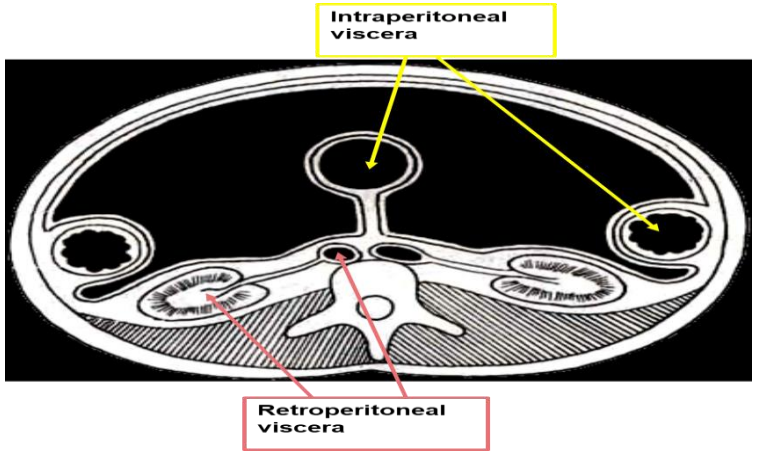




Extra

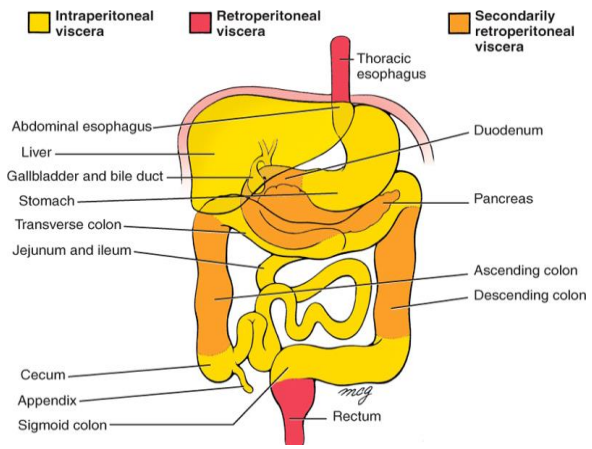
The Peritoneum

- **Intraperitoneal** and **retroperitoneal**; describe the relationship between various organs and their peritoneal covering;



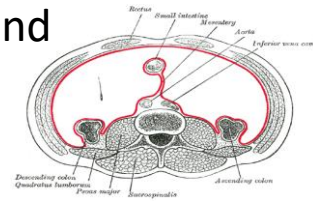
Intraperitoneal structure; which is nearly totally (entirely) covered by visceral peritoneum and has a supporting mesentery :

- **stomach** & **1st part of duodenum**,
- liver,
- gall bladder,
- spleen,
- **jejunum, ileum**,
- transverse colon,
- sigmoid colon,
- uterus, and
- ovaries.

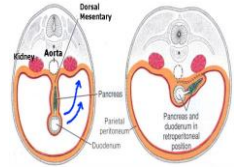


Extraperitoneal or **Retroperitoneal** structure; lies **behind the peritoneum**, or partially covered by visceral peritoneum and has **no** supporting mesentery.

- **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.



*The **examples** are only on the girls' slides*

Folds of the Peritoneum

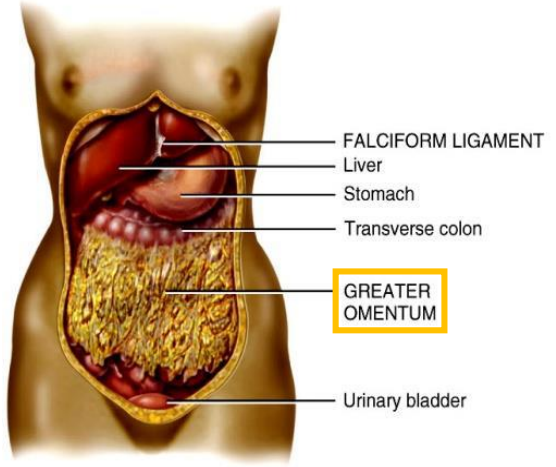
The peritoneum is divided into (types of peritoneal folds):

1. Omenta.
2. Mesenteries.
3. Peritoneal ligaments.

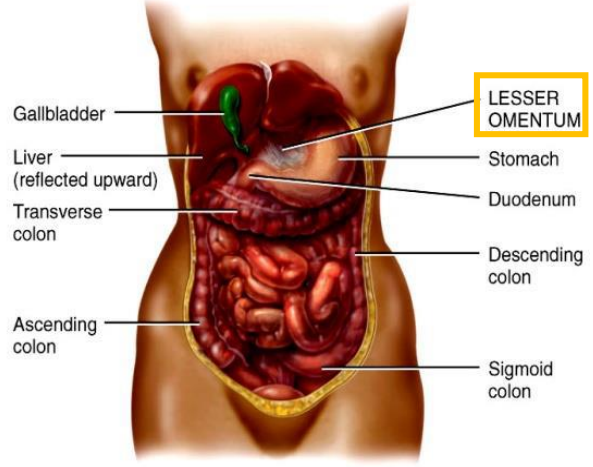
08:27

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

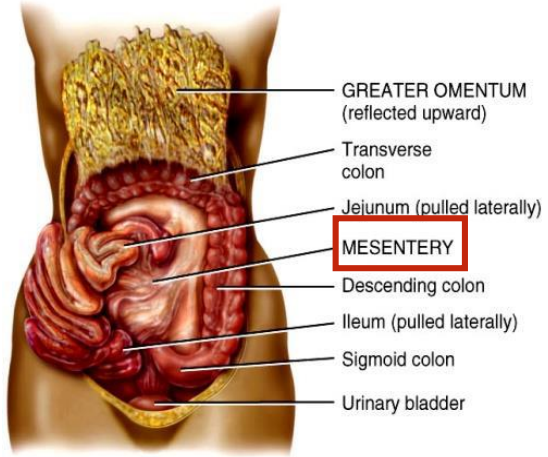
Only on the girls' slides



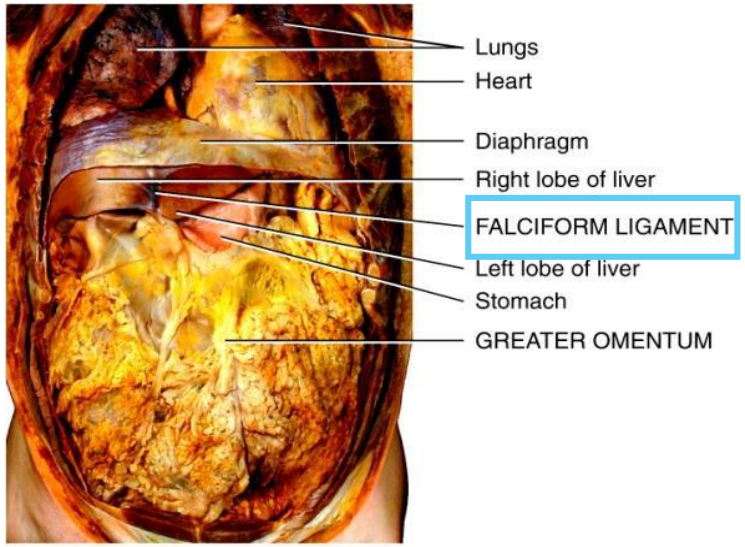
(b) Anterior view



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



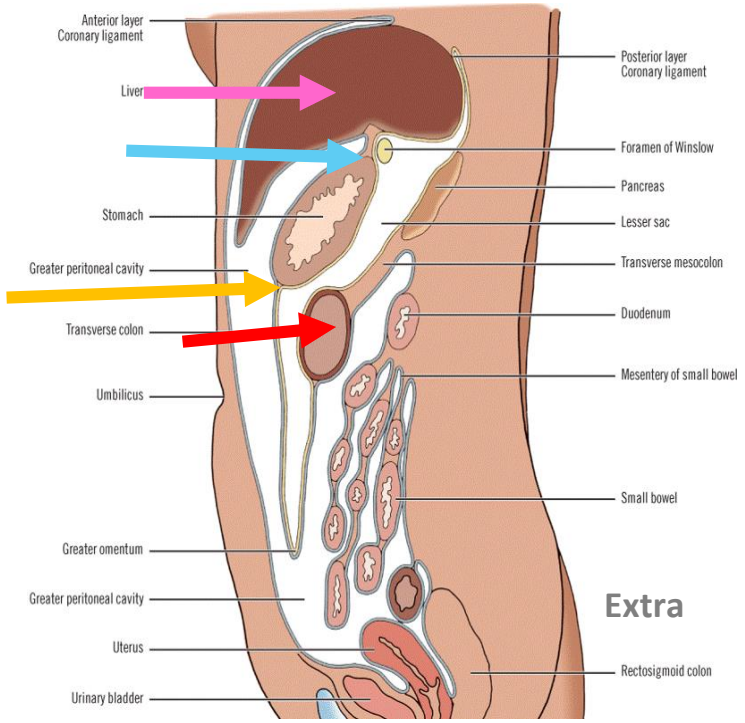
(d) Anterior view (greater omentum lifted and small intestine reflected to right side)

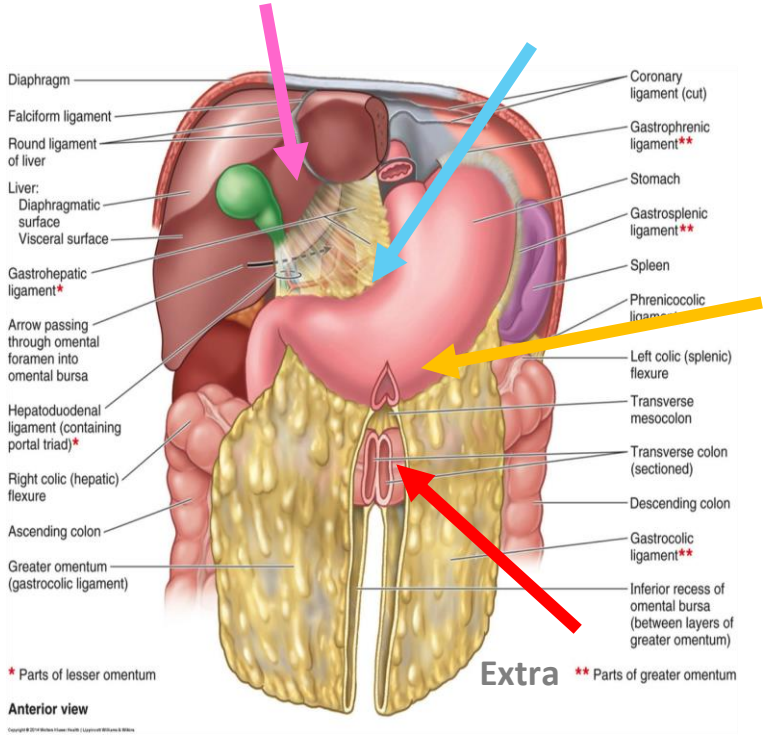


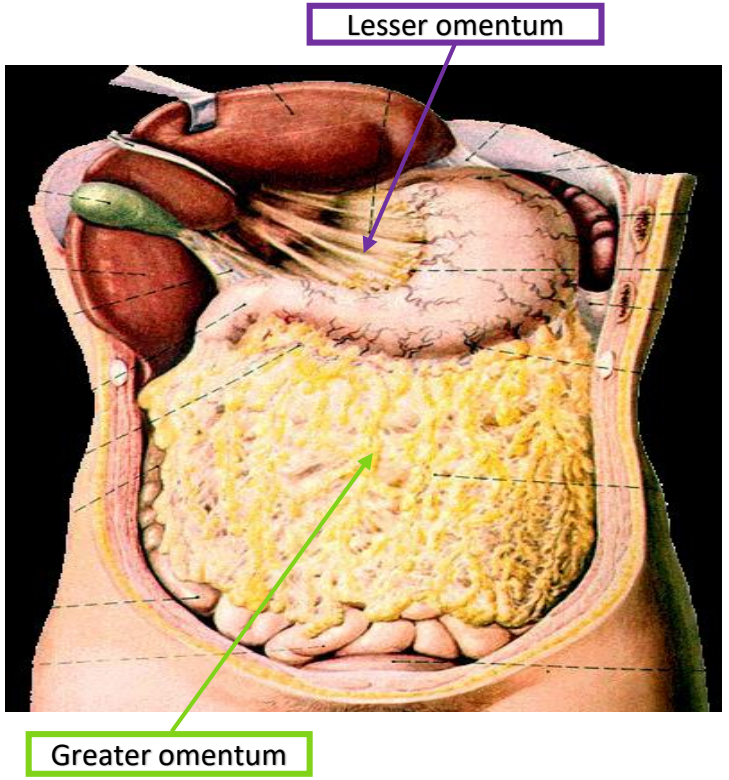
(e) Anterior view

1. Omenta

- Two layered fold of peritoneum connecting the stomach to another viscus.
- The **lesser omentum** attaches the lesser curve of the stomach to the liver.
- The **greater omentum** connects the greater curve of the stomach to the transverse colon. Greater omentum = كرشة

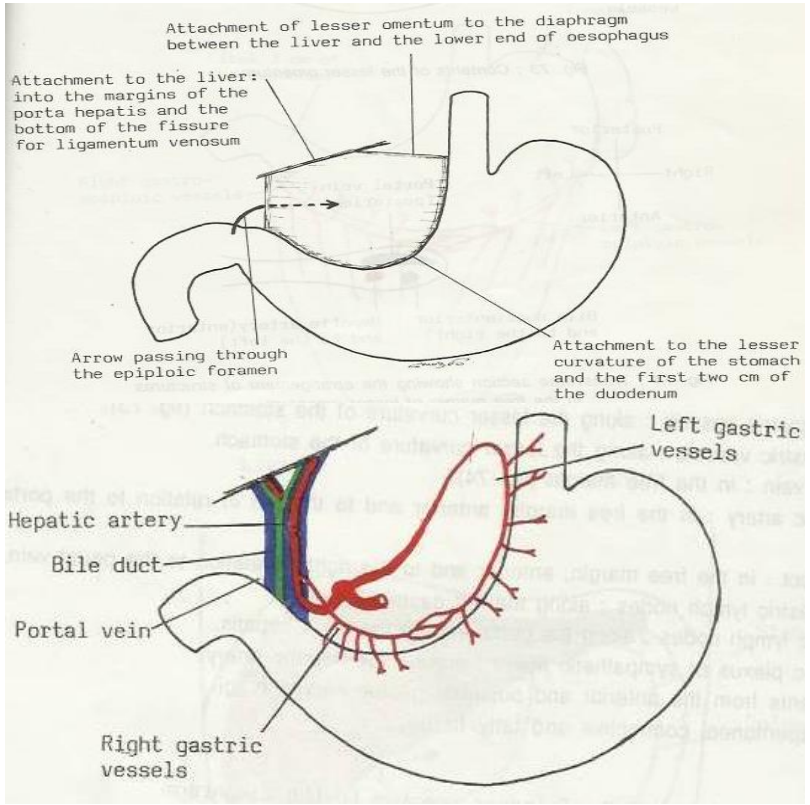






1. Omenta
Lesser omentum

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



Important

Contents between the two layers of the lesser omentum :

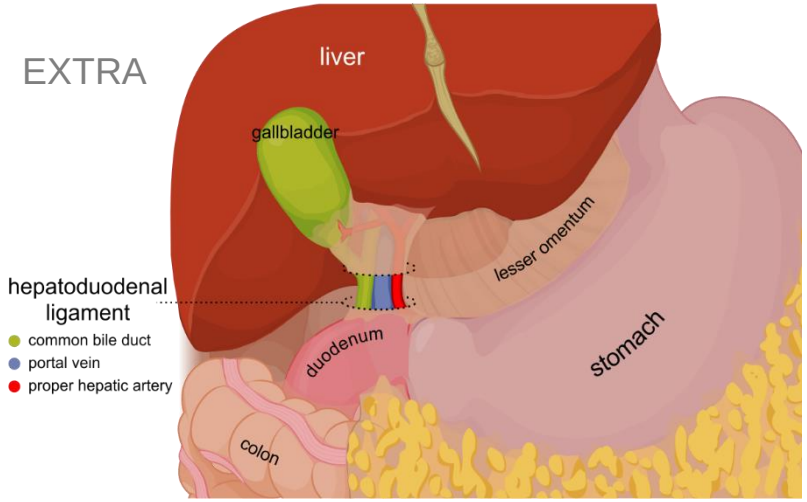
Close to the **right free margin**:

1. hepatic artery
2. common bile duct
3. portal vein
4. Lymphatics
5. hepatic plexus of nerves

At the attachment to the **stomach** :

run the right and left gastric vessels.

EXTRA



1. Omenta

Lesser omentum

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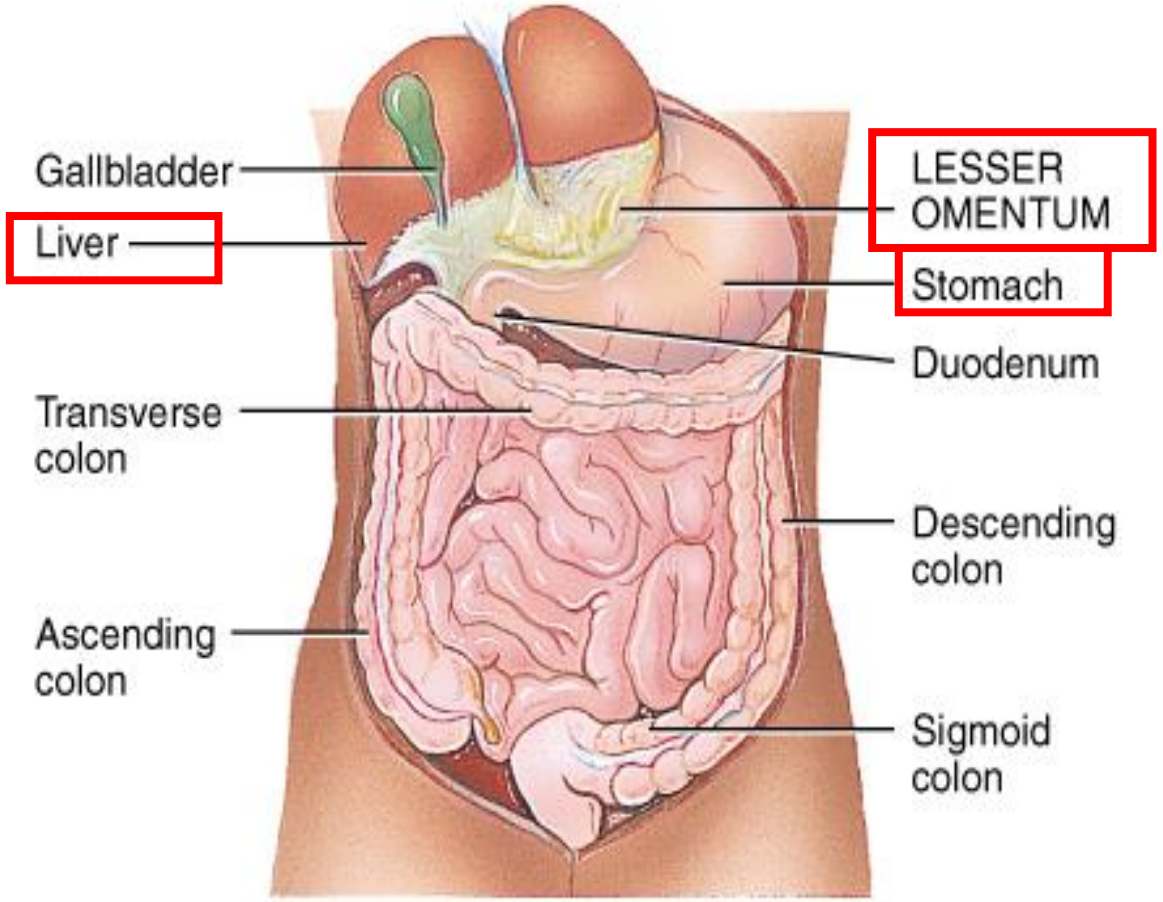
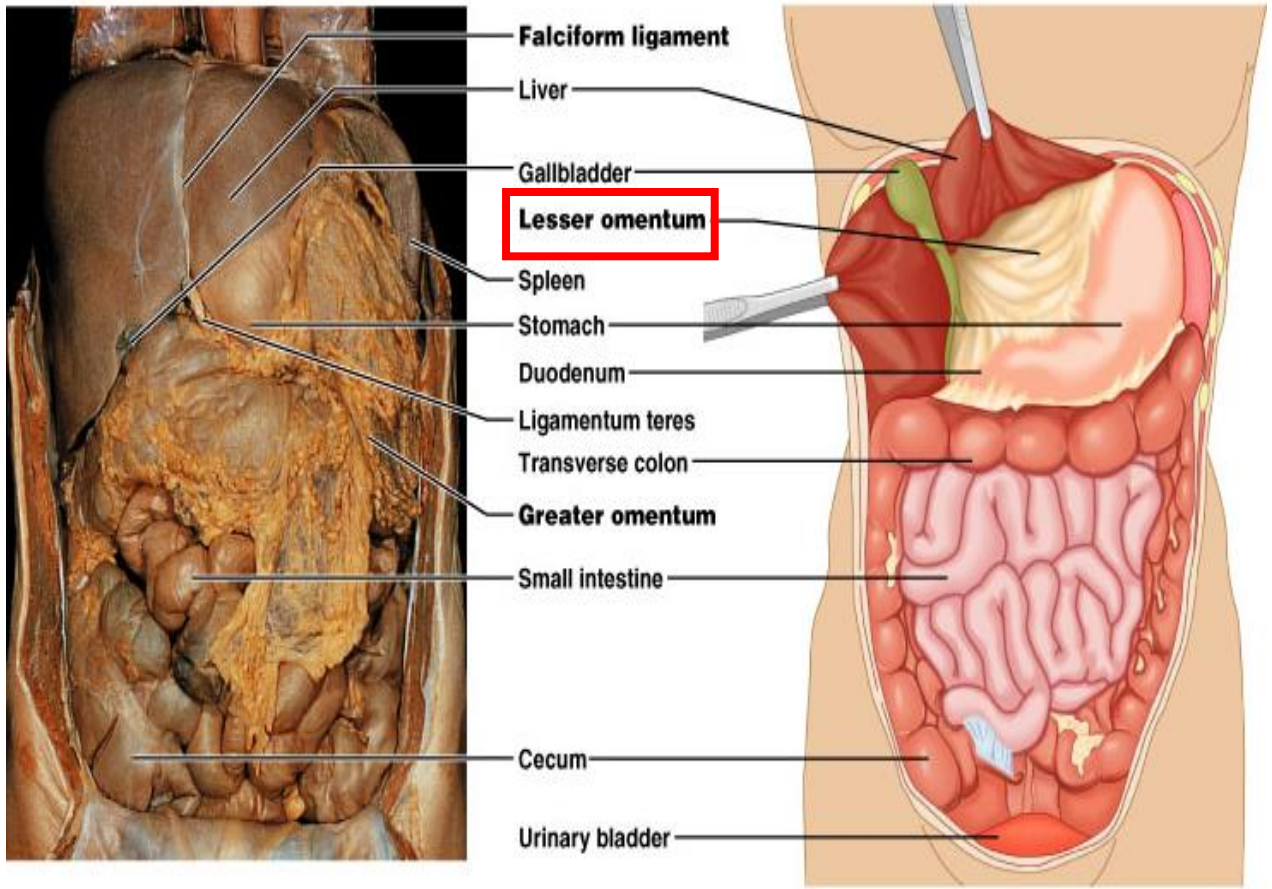




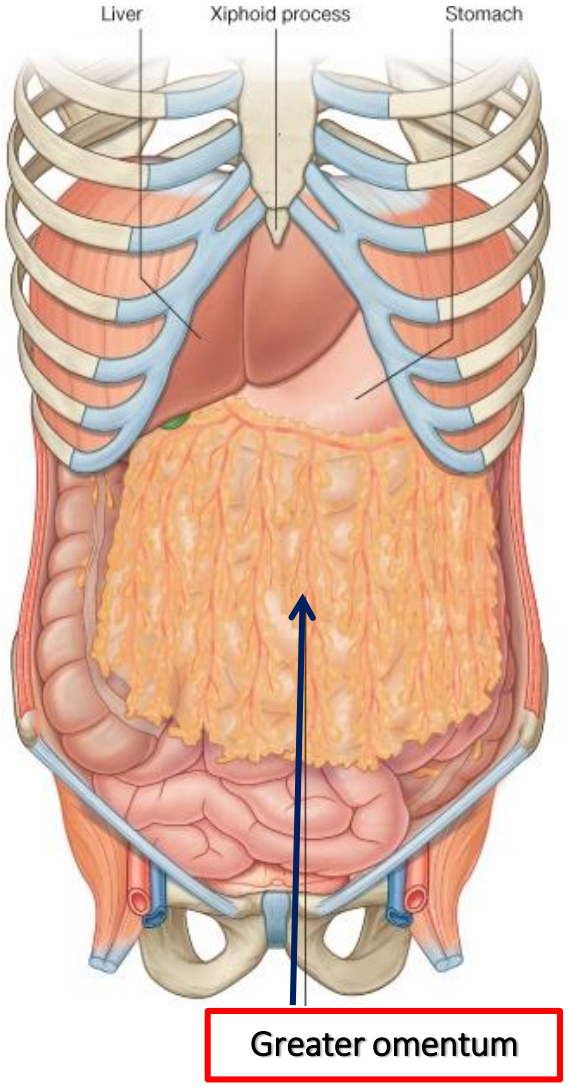
1. Omenta

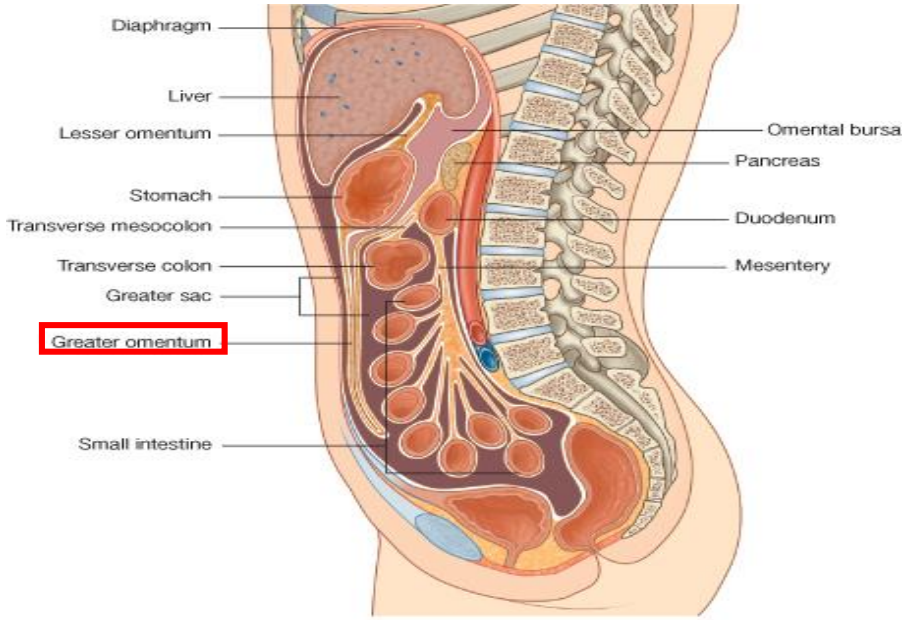
Greater omentum

Greater Omentum		
connect	the greater curve of the stomach to the transverse colon.	
Description and course	• The **largest** peritoneal fold. • 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.	
borders	Right	Left
	continuous with the **gastrosplenic ligament**.	extends as far as the commencement (beginning) of the duodenum.
Content between the 2 layers.	the **anastomosis** between the right and left gastroepiploic vessels.	

1. Omenta

Greater omentum





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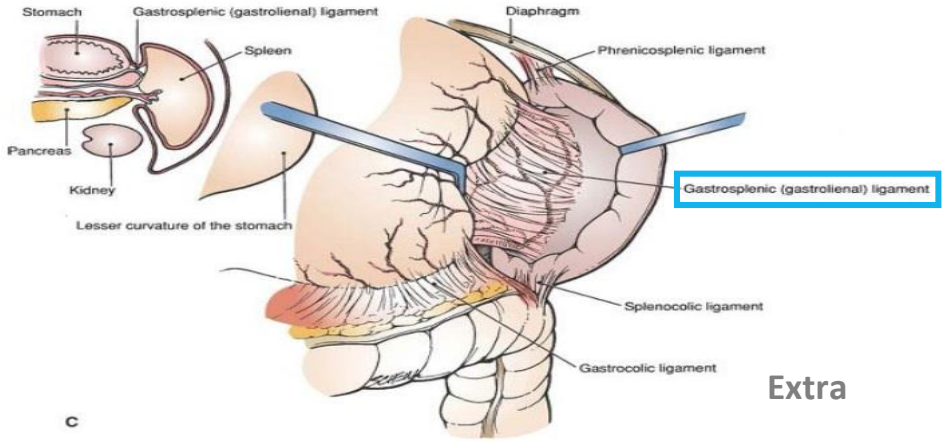

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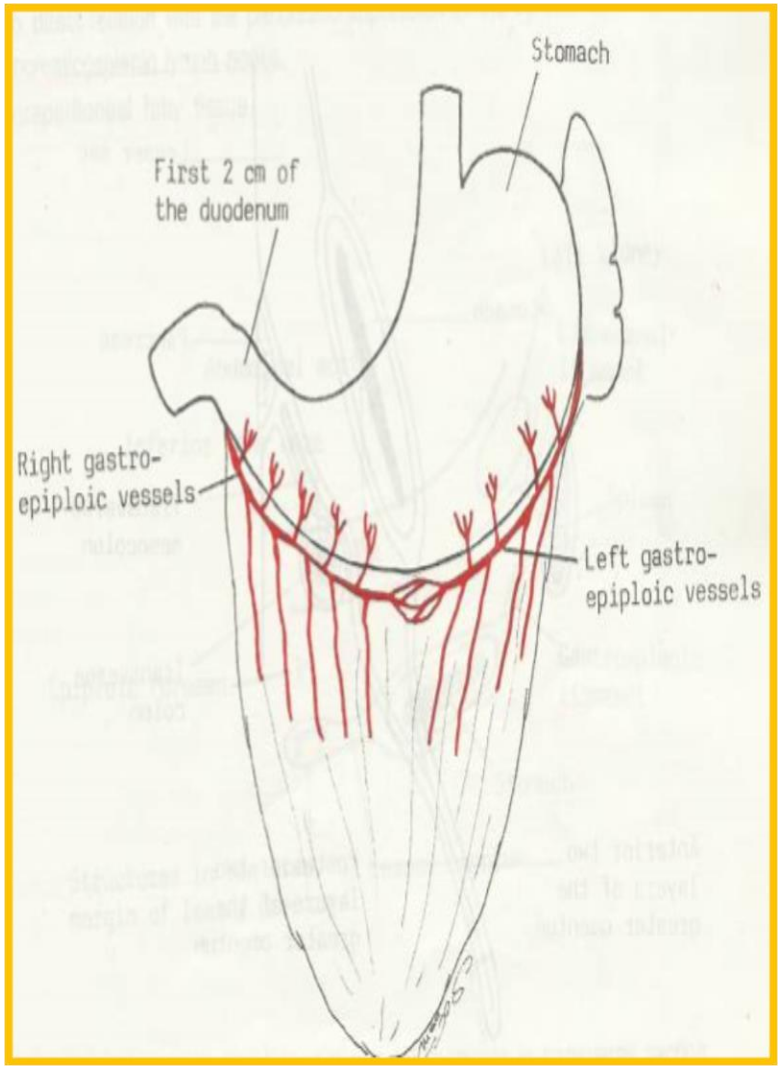
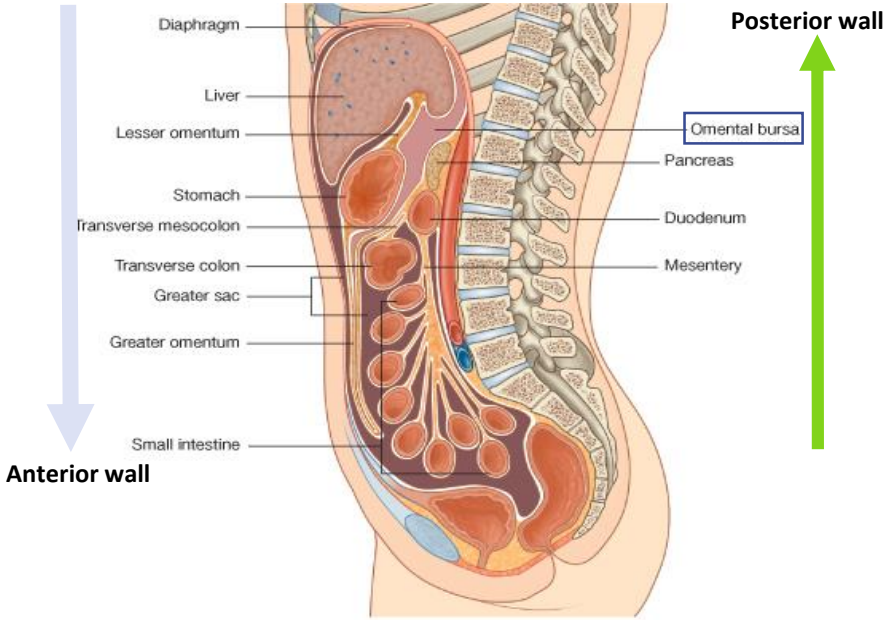


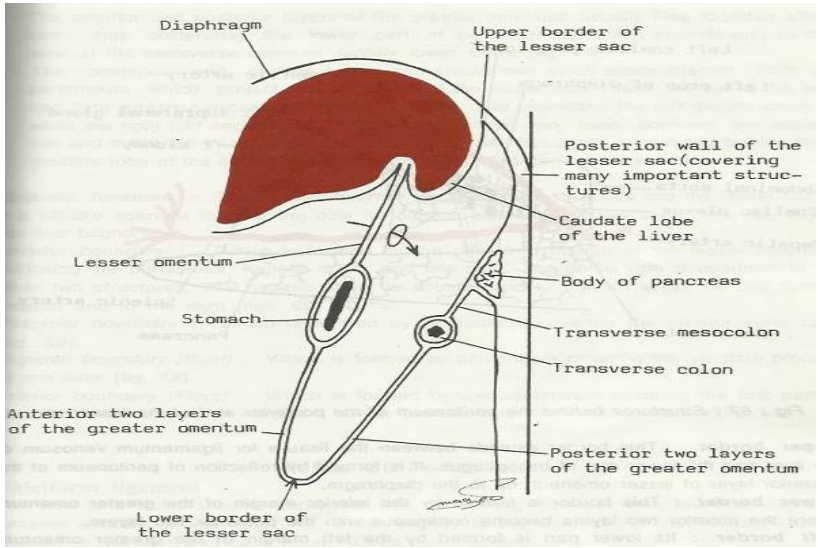
1. Omenta
Omental bursa (Lesser Sac)

- The omental bursa is a part of the peritoneal cavity <u>behind the stomach.</u>
- Boundaries of the **omental bursa**:

<u>Anterior wall</u>: 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

<u>Posterior wall:</u> 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.





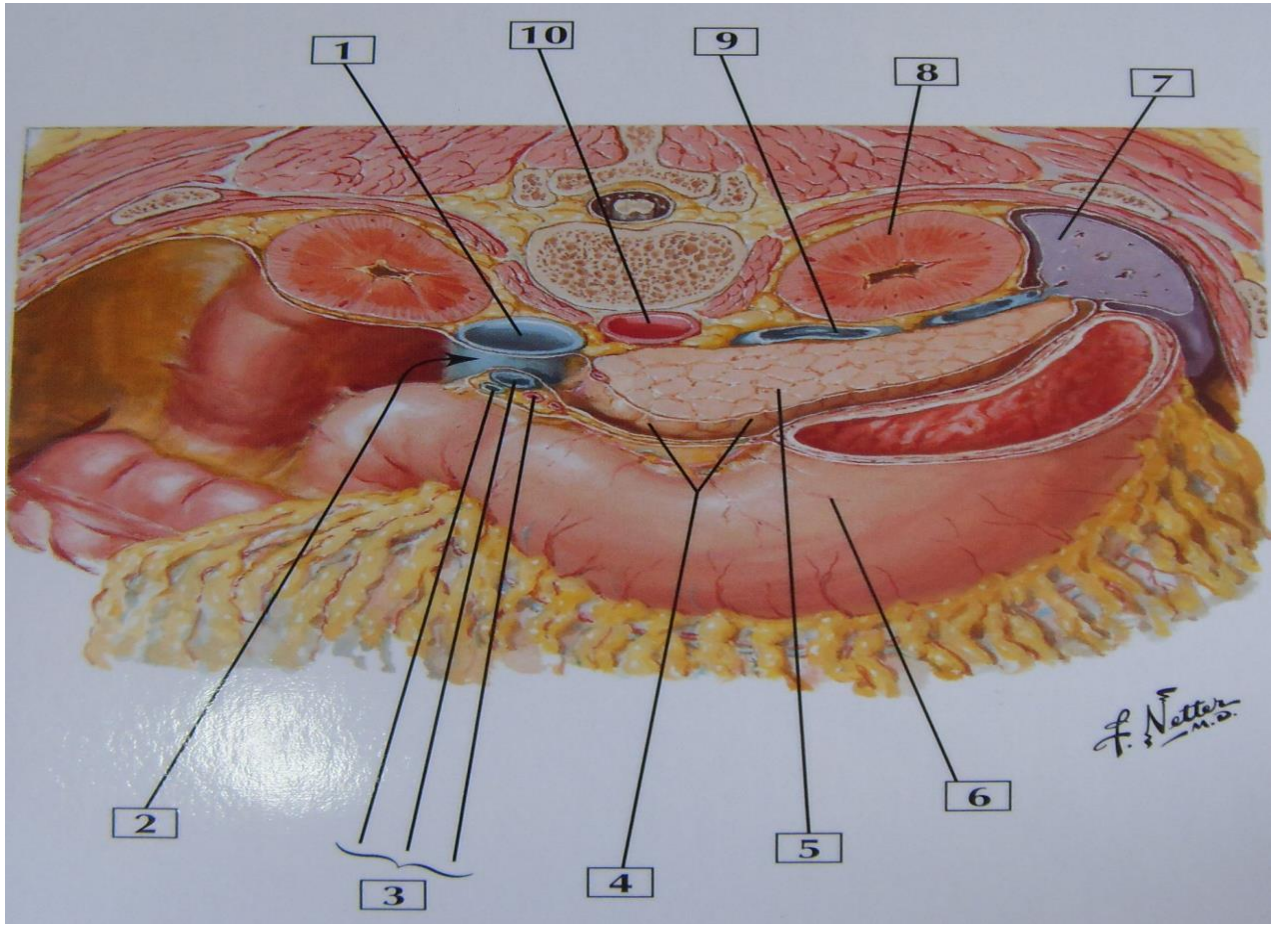
Sagittal section of abdominal cavity

1. Omenta

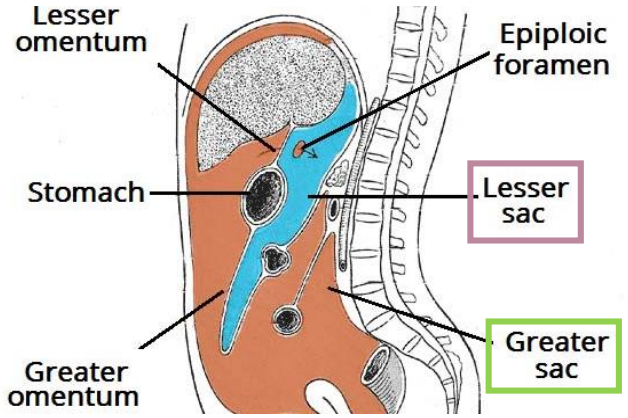
Omental bursa (Lesser Sac)

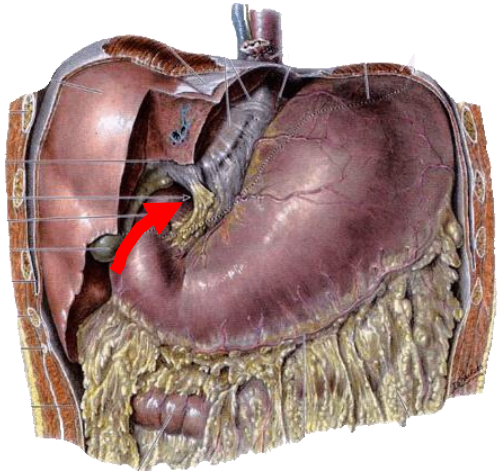
Only on the boys' slides

1. **IVC** (inferior vena cava)
2. **Epiploic Foramen**
3. **Portal Triad**
4. **Lesser Sac**
5. Pancreas
6. **Stomach**
7. Spleen
8. Kidney
9. Splenic Vein
10. Abdominal Aorta



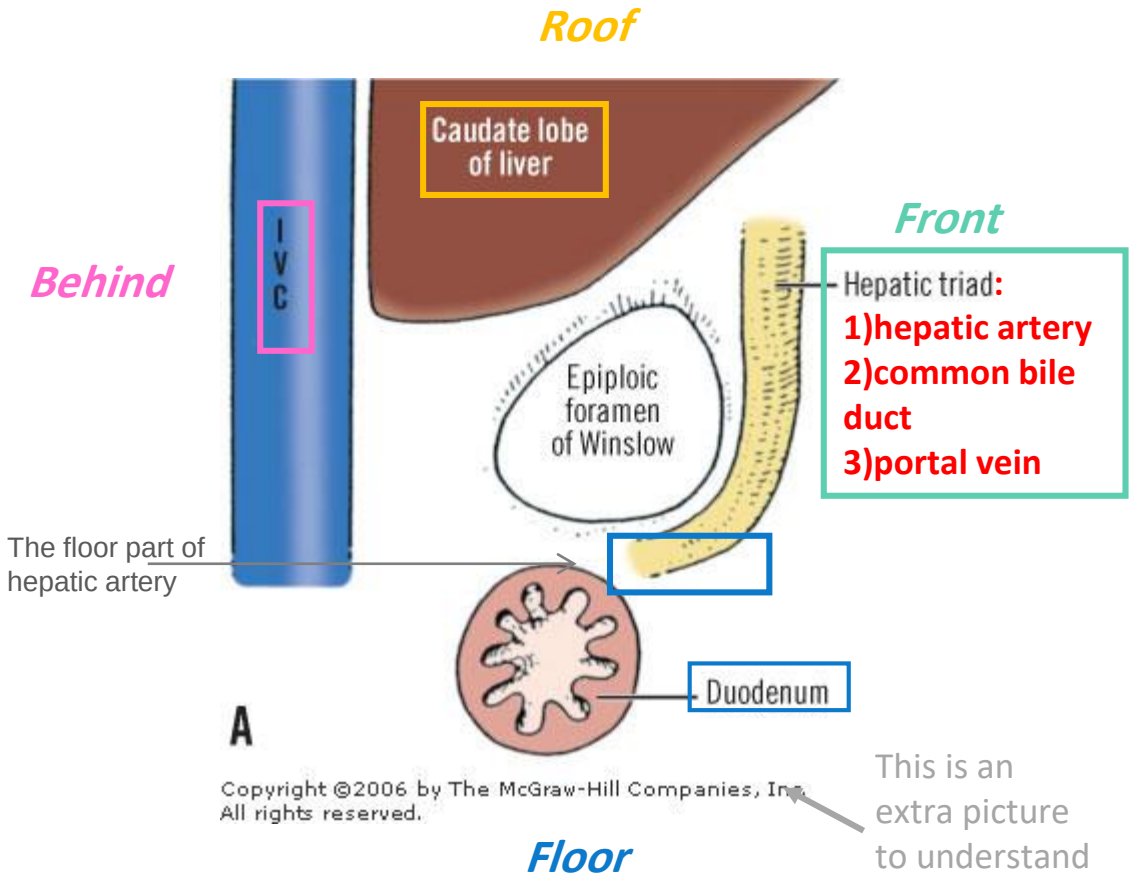
1. Omenta
Epiploic Foramen





- The epiploic foramen 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.



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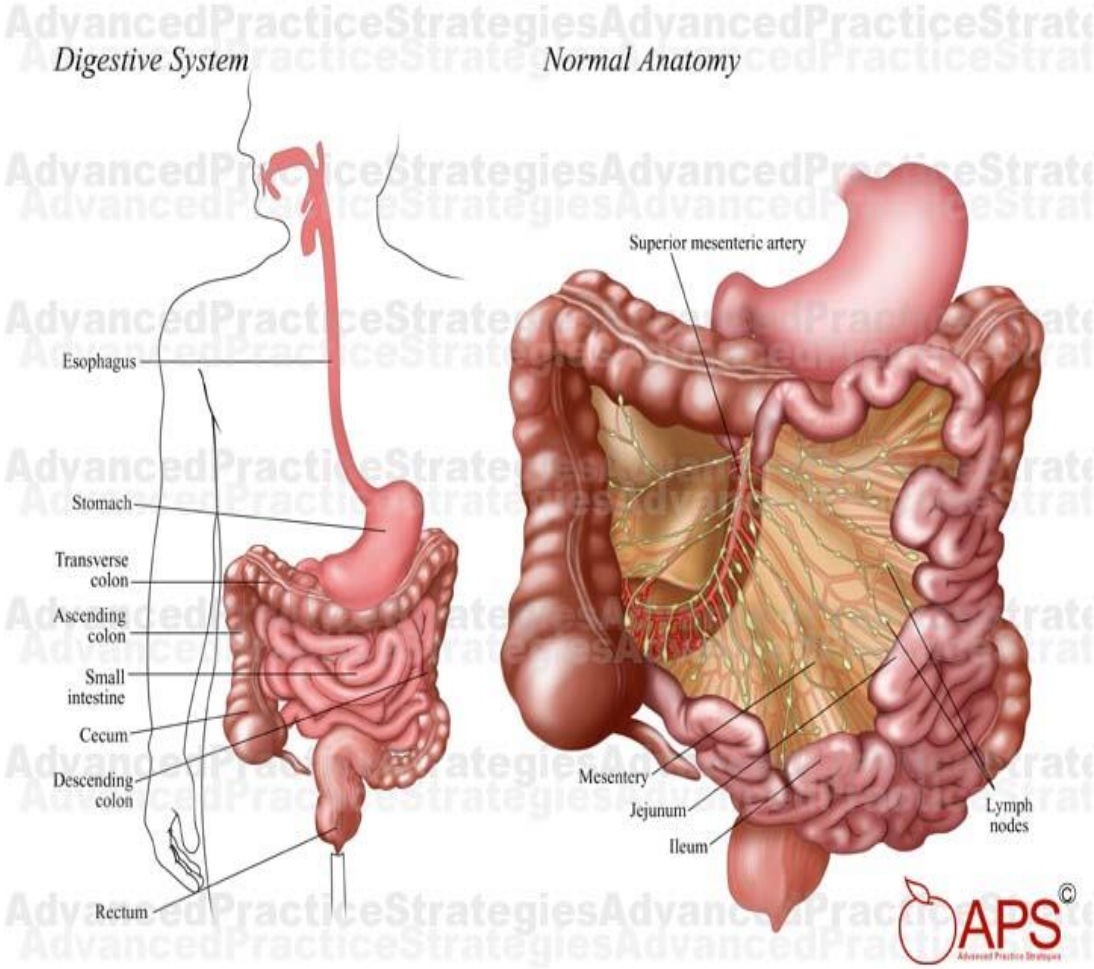
2. Mesentery

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



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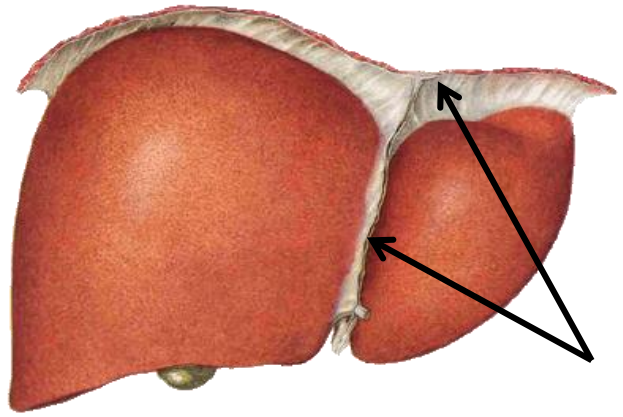
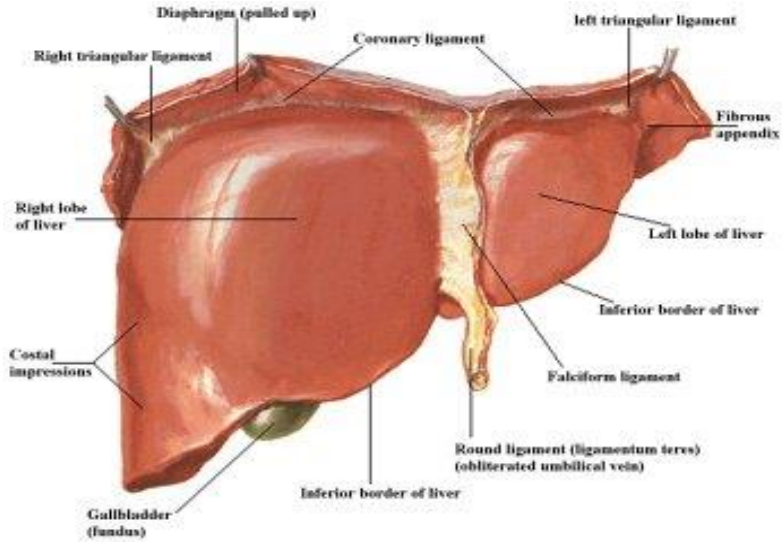
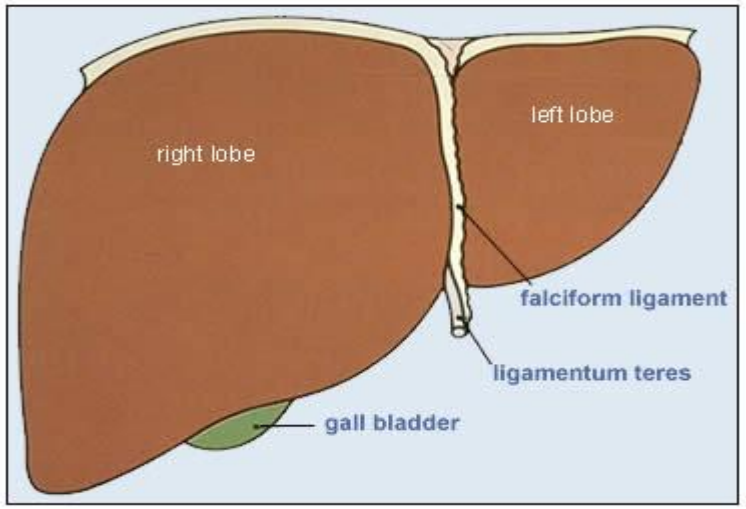
3. Ligaments

- Two-layered folds of peritoneum that attach solid viscera to the abdominal wall and diaphragm.
- Ligaments of liver (will discuss them in more detail in the next lecture)
  - Falciform ligament of liver
  - Coronary ligament
  - Right & Left triangular ligaments
  - Ligamentum teres







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The Peritoneum
Nerve supply

Peritoneum	**Parietal** Peritoneum	**Visceral** Peritoneum
Sensitive to	Pain, temperature, touch, and pressure.	Only to stretch and tearing
Supplied by	**Somatic spinal:** • *Lining the anterior abdominal wall:* **lower six thoracic** (lower 6 intercostal) and **first lumbar** nerves. • *The central part of the diaphragmatic peritoneum* is supplied by the **phrenic nerves** (C3,4,5)**.**	**autonomic** nerves that supply the viscera or traveling in the mesenteries.
Clinical Point: Peritoneal Pain (peritonitis)	Abdominal pain originating from the parietal peritoneum is therefore of the **somatic type,** it is usually **severe**, and can be **accurately localized.**	It is due to **Stretch** caused by over distension of a viscus and **pulling** on a mesentery t**hat gives rise to the sensation of pain.** Leading to abdominal pain; **poorly localized**, poorly characterized pain (dull ,unclear, cramping).

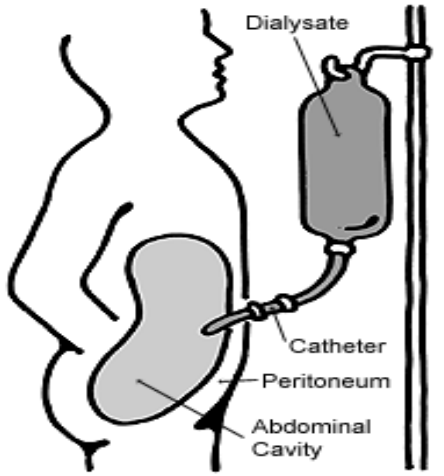
Clinical point

Only on the girls' slides

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.



Summary

- The peritoneum is divided into 2 layers :
  1)**Parietal layer**, lines the abdominal and pelvic walls.
  2)**Visceral layer**, covers the abdominal and pelvic organs.
- Omenta are **folds** of peritoneum. 2 omenta :
  1)lesser
  2) greater

- 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.**

Lesser omentum	Greater omentum
connects the stomach and 1st part of duodenum to the liver	connects the greater curvature of stomach with the transverse colon
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* : 1)Hepatic artery 2)Bile duct 3)Portal vein 4)Nerves, lymph vessels& fat. Hepatic (portal) Triad	**Contents of greater omentum** : *Along the greater curvature of stomach* : Right & left gastroepiploic vessels. Lymph nodes, vessels & fats.

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.

MCQS

1- An organ covered by visceral peritoneum and has a supporting mesentery is described as:
- A-Retroperitoneal
- B-Extrapetironeal
- C-Intraperitoneal

2- Which of the following connects the greater curve of the stomach to the transverse colon :
- A-Lesser omentum
- B-Greater omentum
- C-Epiploic Foramen

3-Which of the following is a content of lesser omentum?
- A-Hepatic duct
- B-Hepatic vein
- C-Hepatic artery

4-The right border of the greater omentum is continuous with:
- A-Gastrosplenic ligament
- B-Coronary ligament
- C-Ligamentum teres
- D-Falciform ligament

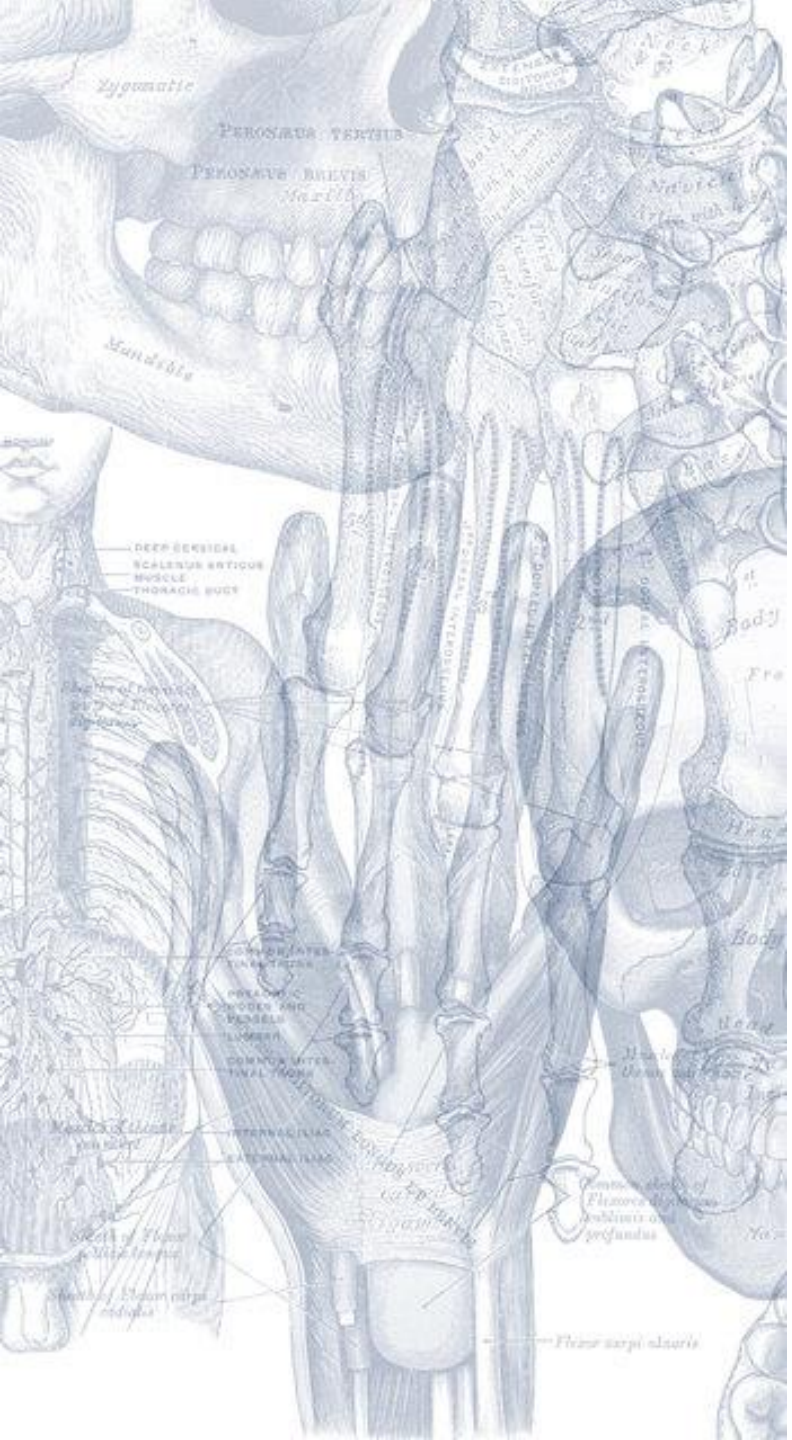
5-Which of the following is an anterior border of the omentum bursa?
- A- transverse colon
- B- left kidney
- C- back of the stomach

6-Which of the following is part of the hepatic triad?
- A- common bile duct
- B- hepatic duct
- C- portal artery

7-The parietal peritoneum is supplied by:
- A-lower 6 intercostal
- B-lower 6 cervical
- C-autonomic

8- A patient presented with abdominal pain that was dull and poorly localized, which part of the peritoneum is affected?
- A- parietal peritoneum
- B- visceral peritoneum
- C- both A & B

1. C, 2. B, 3. C, 4. A, 5. C, 6. A, 7. A, 8. B



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