Anatomy Team
MED 439

Revised & Approved

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MED439
KING SAUD UNIVERSITY

The Omentum

GNT Block

Don't forget to check the Editing File

Color index:

Content
Male slides
Female slides
Important
Doctors notes
Extra information, explanation

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Objectives

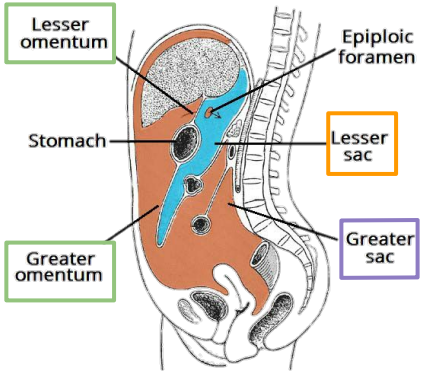
At the end of the lecture the students must know:

- 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

- It 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.**

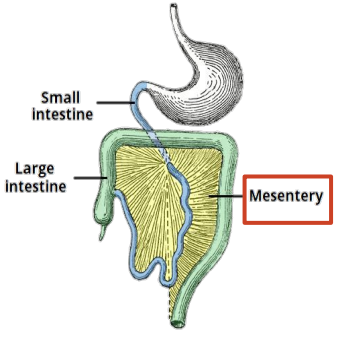
- The **peritoneal cavity** is the largest one in the body.
- **Divisions of the peritoneal cavity :**
- **Greater sac**:extends from diaphragm down to the pelvis.
- **Lesser sac**: lies behind the stomach.
- Both cavities are interconnected
- through the **epiploic foramen**.

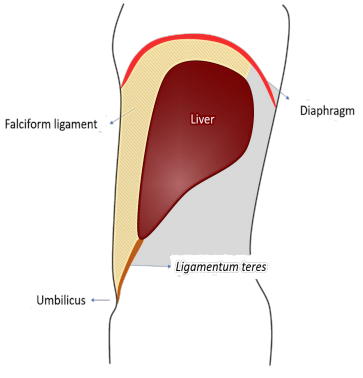


- **In male**: the peritoneum is a closed sac.
- **In female**: the sac is not completely closed because it communicates with the exterior through the uterine tubes, uterus and vagina.

Types of peritoneal folds:

1- **Omenta.**
2- **Mesenteries.**
3- peritoneal **Ligaments.**
The peritoneal ligaments,omenta and mesenteries **permit** blood, lymph vessels, and nerves to reach the viscera





Peritoneal folds that are related to the stomach are called **omentum**.

If they're related to the small intestine well call them **mesentery.**

For any other structure we call them ligaments

Intraperitoneal and retroperitoneal structures

Intraperitoneal and retroperitoneal structure:
describe the relationship between various organs and their peritoneal covering.

Intraperitoneal

- Intraperitoneal structure is nearly totally covered by visceral peritoneum.
- Intraperitoneal organ Is entirely surrounded by the peritoneum and has a supporting mesentery :

- stomach
- 1st part of duodenum
- liver
- gallbladder
- spleen
- jejunum
- ileum
- transverse colon
- sigmoid colon
- uterus
- ovaries.

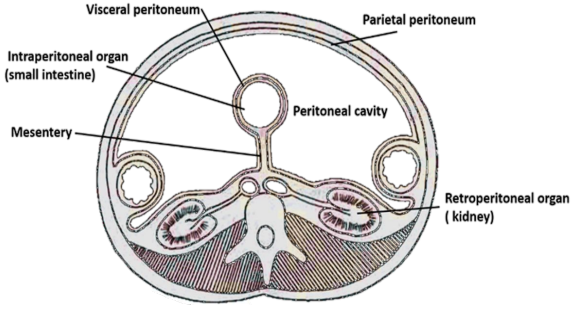
retroperitoneal

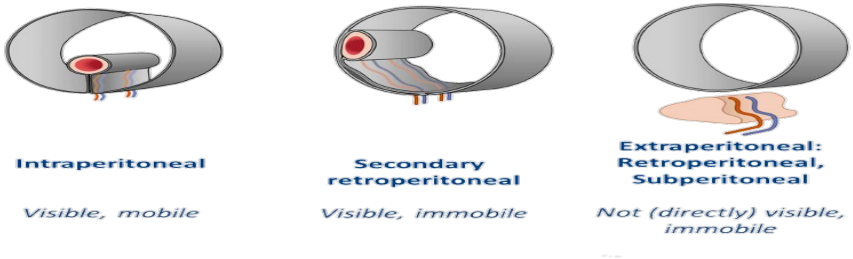
- Structure that lies behind the peritoneum or partially covered by the peritoneum and has no supporting mesentery.
- Primary retroperitoneal organs:

- Aorta
- Inferior Vena Cava
- Kidneys 2
- Suprarenal Glands
- Urinary Bladder
- Vagina
- 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
- descending colon.

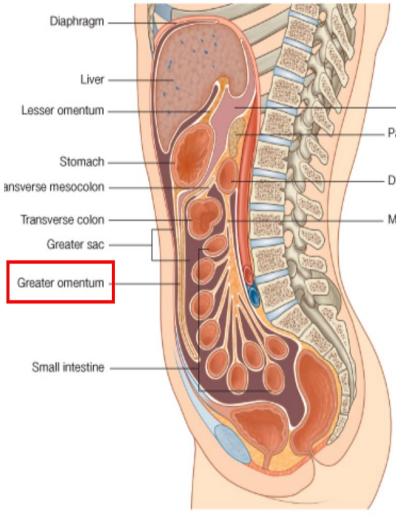


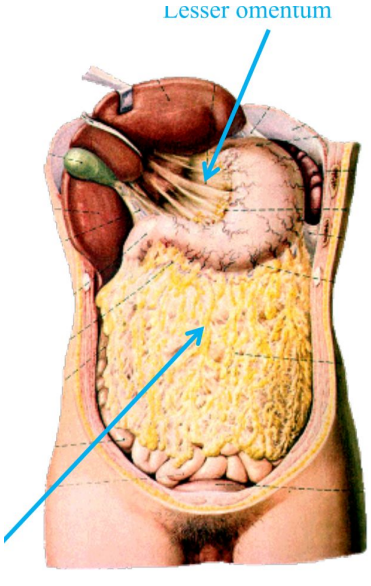


omenta

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 to the transverse colon.
The gastrosplenic omentum; connects the stomach to the spleen.

	The lesser omentum	**The greater omentum** (cribriform appearance)
Course	**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	It consists of a double sheet of peritoneum, folded on itself so that it is made up of four layers (2 anterior ,2 posterior). 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.
Left Border	To the **left** of porta hepatis it is carried to the **diaphragm**.	continuous with the **gastrosplenic ligament**.
Right Border	is a free margin; constitutes the anterior boundary of the epiploic foramen	extends as far as the commencement of the duodenum.
Content	• Close to the right free margin, are the **hepatic artery**, **common bile duct**, **portal vein**, **lymphatics**, and **hepatic plexus** •At the attachment to the stomach, run the **right and left gastric vessels.**	• Adipose tissue. • **Right & left gastroepiploic vessels** and The anastomosis between them • Lymph nodes





Omenta

Omental bursa (lesser sac):

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

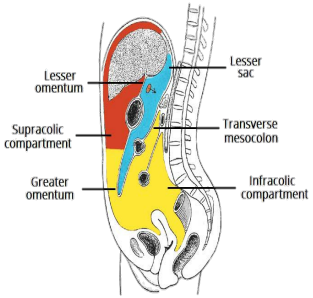
its Boundaries :

Anterior wall
from above downward

- **caudate lobe** of the liver
- **lesser omentum**
- back of the **stomach**
- **anterior two** layers of the **greater omentum**.

Posterior wall
from below upward

- posterior two layers of the **greater** omentum
- **transverse colon**
- ascending layer of the **transverse mesocolon**
- upper surface of the **pancreas**
- **left suprarenal gland** and upper end of the **left kidney**



Epiploic foramen:

it is the communication between the **greater** and **lesser sacs.**

It is bounded by:

In front

free border of the lesser omentum, with its contents between its two layers:
1. **hepatic artery**
2. **common bile duct**
3. **portal vein**

Below (floor)

peritoneum covering of the
1. commencement of the **duodenum**
2. **hepatic artery,**

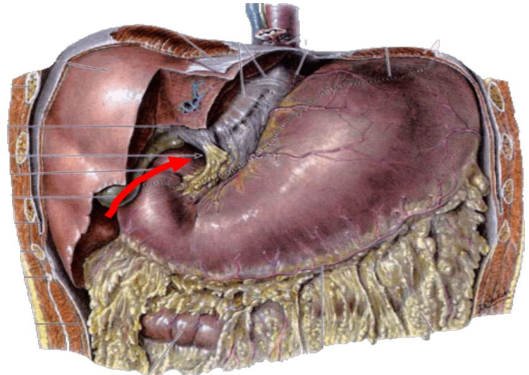
before ascending between the two layers of the lesser omentum.

Above (roof)

peritoneum on the **caudate process** of the liver.

Behind

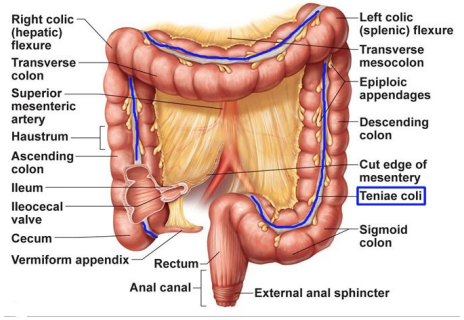
peritoneum covering the **inferior vena cava**.

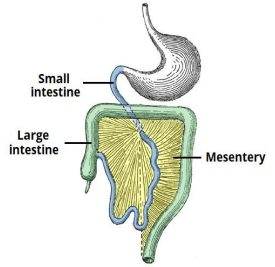


Mesentery and Ligaments

Mesentery

❖ Two-layered fold of peritoneum **suspends the small intestine** from the posterior abdominal wall
❖ Broad and a fan-shaped
❖ **Intestinal border**: folded, 7cm 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.**



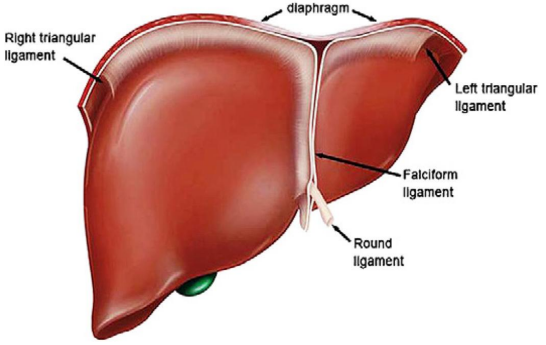


Ligaments

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

❖ **Ligaments of liver :** (just be familiar with the names)

· Falciform ligament of liver
· Coronary ligament
· Left and right triangular ligaments
· Ligamentum teres



Nerve Supply and Clinical points of the Peritoneum

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, C3,4,and 5
- Peripheral part of the diaphragmatic peritoneum by lower 6 thoracic nerves.
- 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 (as in Peritonitis)

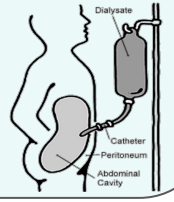
From the Parietal Peritoneum : Abdominal pain originating from the parietal peritoneum is therefore of the **somatic type**, it is usually severe, and can be **accurately localized**.

From the Visceral Peritoneum : 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, unclear, aching)

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**.



MCQ

Q1: peritoneal cavity extends from diaphragm down to the pelvis?			
A: Lesser sac	B:Greater sac	C:Greater omentum	D:Lesser omentum

Q2: the left Border of the lesser omentum ?			
A: to the left of porta hepatis it is carried to the diaphragm.	B: continuous with the gastrosplenic ligament.	C: is a free margin; constitutes the anterior boundary of the epiploic foramen	D: extends as far as the commencement of the duodenum.

Q3: The greater omentum connects the greater curvature to?			
A: stomach.	B: spleen.	C: liver.	D: transverse colon.

Q4: which of the following is Primary retroperitoneal organs:			
A: Aorta	B: Ascending Colon	C: Urinary Bladder	D: both A&C

Q5: the right Border of the greater omentum ?			
A: to the left of porta hepatis it is carried to the diaphragm.	B: extends as far as the commencement of the duodenum.	C: is a free margin; constitutes the anterior boundary of the epiploic foramen	D: continuous with the gastrosplenic ligament.

Q6: in lesser omentum At the attachment to the stomach, run the ?			
A: left gastric vessels.	B: right gastric vessels.	C: right gastroepiploic vessels	D: both A&B

Answer key:
1 (B) , 2 (A) , 3 (D) , 4 (D) , 5 (B) , 6 (D)

MCQ

Q7: which of the following structures located in the posterior wall of the omental bursa			
A: caudate lobe of the liver	B: lesser omentum	C:back of the stomach	D: transverse colon

Q8: caudate process of the liver lies in which boundary of the epiploic foramen			
A: in front	B: behind	C: above (roof)	D: below (floor)

Q9: the mesentery Directed obliquely at the level of the left side of L2 from ?			
A: duodenojejunal flexure	B: iliac fossa	C: sacroiliac joint	D: none of them

Q10: The visceral peritoneum is sensitive to?			
A: stretch	B: tearing	C: pain	D: A and B

Q11: which of the following describe the Parietal Peritoneum pain ?			
A:dull	B: localized	C: cramping	D: unclear

Q12: The parietal peritoneum is supplied by ?			
A: upper Thoracic nerves	B: autonomic afferent nerves	C: Pelvic wall by obturator nerve L2,3,and 4	D: all of them

Answer key:
7(D) , 8(C) , 9(A) , 10(D) , 11(B) , 12(C)

SAQ

Q1: Enumerate the peritoneal folds.

Q2: What is found at the right border of the lesser Omentum

Q3: Enumerate the ligaments of the liver

Q4: Mention the use of the peritoneal dialysis

Answers

1 :

A. Omenta.
B. Mesenteries.
C. Peritoneal Ligaments.

2 : is a free margin; constitutes the anterior boundary of the epiploic foramen

3 : Falciform ligament, Coronary ligament, Left and right triangular ligaments, Ligamentum teres

4 : It is used in patients with acute renal insufficiency.

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