O. L. ZHARIKOVA

PERITONEUM

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БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
КАФЕДРА НОРМАЛЬНОЙ АНАТОМИИ

О. Л. Жарикова

БРЮШИНА
PERITONEUM

Учебно-методическое пособие

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TOPIC: PERITONEUM

Learning aims:

– to know functions of the peritoneum;

– to understand the term peritoneum, parietal and visceral; to know the derivatives of the peritoneum (ligaments, mesenteries, omentums, folds, fossae);

– to know the parts of the abdominopelvic cavity: peritoneal cavity, retro- and extraperitoneal space; to know intra-, meso-, and retroperitoneal organs;

– to know the topography of the visceral and parietal peritoneum and its derivatives; divisions of the peritoneal cavity: compartments (floors), sacs, spaces, sinuses, recesses, gutters, pouches;

– to be able to demonstrate the divisions of the peritoneal cavity and peritoneal structures in a dissected cadaver and diagrams;

– to understand the formation of the peritoneal cavity and peritoneal derivatives.

Teaching aids: dissected cadaver, museum specimens, models, diagrams, atlas.

ABDOMINOPELVIC CAVITY: SUBDIVISIONS OF PERITONEAL CAVITY AND EXTRAPERITONEAL SPACE. DERIVATIVES OF PERITONEUM

The **peritoneum** is a thin smooth serous membrane that lines the internal walls of the abdominopelvic cavity — **parietal peritoneum**, and invests most of the abdominal and pelvic viscera — **visceral peritoneum**. Similar to the pleura and serous pericardium, it is composed of a thin connective tissue layer covered by a single layer of flat mesothelial cells, which exude serous fluid.

The **abdominopelvic cavity** contains a peritoneal sac and internal organs. **Abdominal cavity** is a greater part of the abdominopelvic cavity. It is bounded superiorly by the diaphragm, anteriorly and laterally by the abdominal muscles with their aponeuroses, posteriorly by the lumbar part of the spine, the muscles: psoas major (minor), quadratus lumborum, and latissimus dorsi; and the iliac wings with the iliac muscles. Inferiorly the abdominal cavity continues with the **pelvic cavity**. The conventional boundary between them is a plane passing through the terminal line of the pelvis, which divides the greater and the lesser pelvis. The pelvic walls have a bony framework formed by the hip bones, sacrum, and coccyx with their associated ligaments, and the obturator internus and piriformis muscles. Below the pelvic cavity is bounded by the pelvic diaphragm, which consists of the levator any and coccygeus muscles. The internal aspect of the muscular and bony abdominal and pelvic walls is covered by the **endoabdominal fascia** and its extension, the **pelvic fascia**. The inner surface of these fasciae is lined by the parietal peritoneum.

The parietal and visceral peritoneum forms a continuous sheet enclosing a serous "sac", called **peritoneal cavity.** The **peritoneal cavity** is a complex of slit-like spaces between the parietal and visceral peritoneum, as well as between the adjacent areas of the visceral peritoneum. It is filled with a thin film of **serous (peritoneal) fluid** (25–30 mL) that acts as a lubricant allowing free movement of viscera. Essentially, the peritoneal cavity is a "potential space" of a capillary thickness, which turns into a cavity in the presence of excessive amount of fluid or gas. The peritoneal cavity is completely closed in males. In females it communicates with the exterior of the body through the uterine tubes, uterine cavity, and vagina, which constitutes a potential pathway of infection from the extraperitoneal pelvic organs. The **peritoneal cavity** is subdivided into two almost separate regions: **greater sac** — the larger main part of the peritoneal cavity, and **lesser sac** — a smaller part lying posterior to the stomach; they communicate with each other by the **epiploic foramen**.

Extraperitoneal space is a part of the abdominopelvic cavity between the parietal peritoneum and endoabdominal or pelvic fasciae, filled with a variable amount of fatty or loose connective tissue. It is pronounced in the posterior abdominal wall — **retroperitoneal space**, where the kidneys, ureters, adrenal glands, abdominal aorta, and inferior vena cava are located. The retroperitoneal space is continuous with the extraperitoneal fatty tissue beneath the peritoneum of the pelvic floor, and further forward between the pubic symphysis and urinary bladder, called **retropubic space**. The loose subperitoneal tissue in this region allows a distended urinary bladder to push the peritoneum away from the anterior abdominal wall up to 5 cm above the pubis. On the rest of the anterior abdominal wall fatty tissue is poorly developed and it is absent on the diaphragm.

The abdominal and pelvic organs depending on their relation to the peritoneum are referred to as (Fig. 1):

– **Intraperitoneal** — covered with peritoneum completely: stomach, ampulla (cap) of duodenum, jejunum and ileum, cecum and vermiform appendix (in most cases), transverse and sigmoid colon, upper third of rectum, liver, spleen, body of uterus, uterine tube;

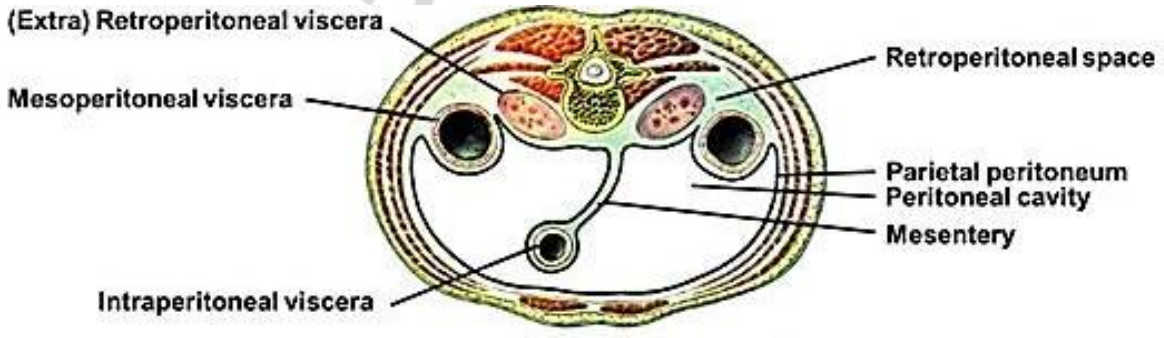

Fig. 1. Scheme of organs relation to the peritoneum

– **Mesoperitoneal** — covered by peritoneum from three sides: liver, abdominal part of esophagus, ascending and descending colon (in most cases), middle third of rectum, gallbladder, bladder (full);

– **Extra- or retroperitoneal** — lying in the extraperitoneal space and covered with peritoneum on only one side: pancreas, duodenum (except ampulla), suprarenal glands, kidneys, ureters, bladder (empty), lower third of rectum, abdominal aorta, and inferior vena cava.

Lining the abdominal walls, reflecting from them to viscera and extending between organs, the peritoneum forms its **derivatives**: peritoneal folds, ligaments, mesenteries, and omentums, which are boundaries of peritoneal spaces, bursae, recesses, fossae, and pouches.

– **Peritoneal fold** is a reflection of peritoneum that is raised from the body wall by underlying blood vessels, obliterated fetal vessels, and ducts.

– **Peritoneal ligament** is usually a double-layered fold of peritoneum that connects an organ to the abdominal wall or organs together.

– **Mesentery** is a double sheet of peritoneum, which attaches an organ (usually a part of the intestine) to the posterior abdominal wall and provides a different degree of its mobility. The mesentery of the small intestine (jejunum and ileum) is simply called "**mesentery**". The **transverse mesocolon**, **sigmoid mesocolon**, and **meso-appendix** (attaches the appendix to the terminal part of the ileum) fix corresponding parts of the large intestine.

– **Omentums** (Greek equivalent: epiploon) are modified mesenteries associated with the stomach and containing some amount of fat between their layers: **lesser omentum** (double-layered), **greater omentum** (four-layered).

The parietal peritoneum on the lower part of the anterior abdominal wall forms five **umbilical folds** converging towards the umbilicus (Fig. 2). The **median umbilical fold** extends from the apex of the urinary bladder to the umbilicus in the median plane; it covers the obliterated remnant of the embryonic urachus. Lateral to this fold, two paired folds are located: the **medial umbilical folds** that cover the obliterated parts of the umbilical arteries originating from the internal iliac arteries; and the **lateral umbilical folds** containing the **inferior epigastric vessels**.

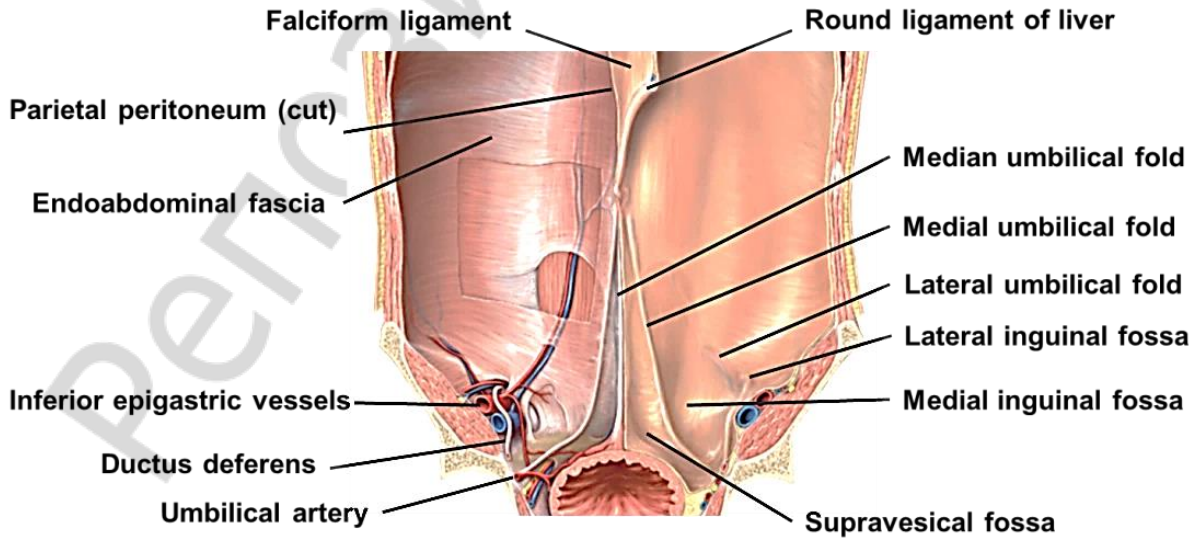

Fig. 2. Internal view of the anterior abdominal wall

Three paired shallow peritoneal fossae are located in close relation to the umbilical folds. The **supravesical fossae** are between the median and medial umbilical folds; the **medial inguinal fossae** are between the medial and lateral umbilical folds; and the **lateral inguinal fossae** are laterally to the lateral umbilical folds. The latter two paired fossae lie above the inguinal ligament and are related to the inguinal canal (the lateral inguinal fossa contains the deep inguinal ring, the superficial inguinal ring projects into the medial inguinal fossa). Below the medial part of the inguinal ligament the femoral fossa is located, which corresponds to the position of the femoral ring.

From the anterior and posterior abdominal walls the parietal peritoneum ascends on the diaphragm and reflects onto the diaphragmatic surface of the liver forming the **falciform** and **coronary ligaments** (Fig. 2, 3). These ligaments are continuous with the visceral peritoneum enclosing both diaphragmatic and visceral surfaces of the liver (leaving uncovered only the bare area posteriorly). From the porta hepatis the peritoneum descends as a double sheet, the **lesser omentum**, which invests the biliary ducts and vessels and extends towards the stomach and adjacent duodenum. Here, the two sheets split again to cover the anterior and posterior walls of these organs, and then meet at the greater curvature of the stomach to form the descending lamina of the **greater omentum**.

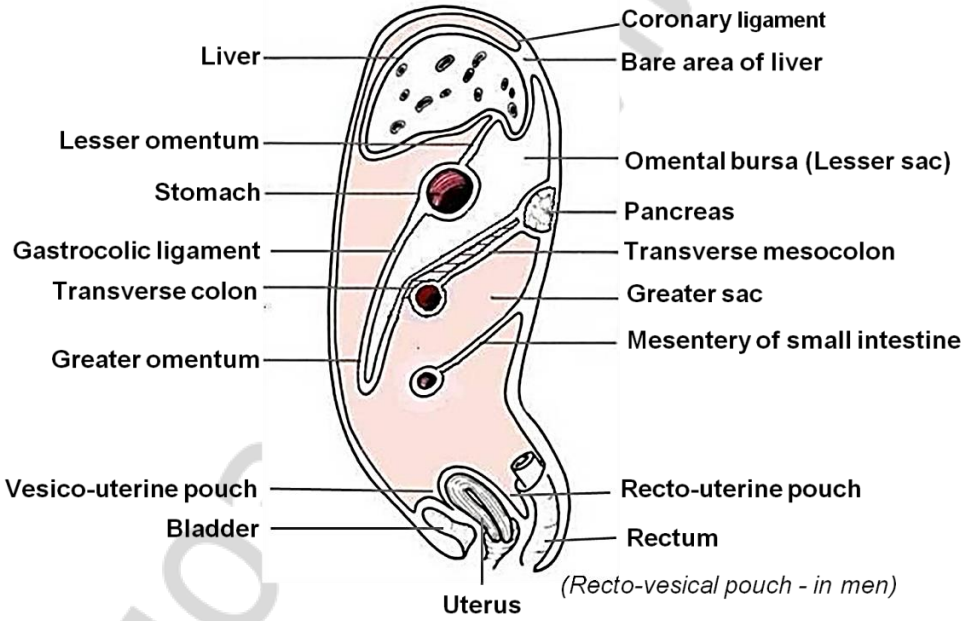

Fig. 3. Median section through the abdomen: abdominopelvic cavity (scheme)

The **lesser omentum** (Latin: *omentum minus*) consists of two continuous parts: **hepatogastric ligament** and **hepatoduodenal ligament**, formed by two peritoneal layers connecting the porta hepatis with the lesser curvature of the stomach and the proximal part of the duodenum, respectively (Fig. 3, 5, *A*). The hepatoduodenal ligament forms the free (right) edge of the lesser omentum; it limits the omental foramen and contains the "**portal triad**" lying in the following order: bile duct on the right, portal vein left and behind, and proper hepatic artery on the left (abbreviated as DVA).

The **greater omentum** (Latin: *omentum majus*) is a peritoneal structure arising from the greater curvature of the stomach and hanging like an apron over the transverse colon (merges with its anterior wall) and the small intestine (Fig. 3, 5). The greater omentum is essentially a folded mesentery accumulating a large amount of fat and consisting of two double-layered peritoneal laminae, *descending and ascending* (four layers in total). In adults the two laminae usually fuse together, leaving a space only between their superior parts — called *the inferior recess of omental bursa*. The upper part of the *descending lamina* of the greater omentum is called **gastrocolic ligament**.

The extension of the gastrocolic ligament left and superiorly connects the greater curvature with the spleen and the diaphragm forming the **gastrosplenic ligament** (Fig. 5, *B*) and **gastrophrenic ligament**, respectively. Below the transverse colon the descending lamina of the greater omentum folds back and up. The *ascending lamina* fuses with the visceral peritoneum of the transverse colon and its mesentery; reaching the posterior abdominal wall, one of its layers runs over the anterosuperior surface of the pancreas and above it continues with the parietal peritoneum (its reflection on the posterior surface of the liver forms the inferior sheet of the coronary ligament); the other layer reflects forward onto the transverse colon forming the **transverse mesocolon** (Fig. 3, 5, *B*). The root of the transverse mesocolon crosses over the descending part of the duodenum, the head of the pancreas, the anterior border of its body and reaches the splenic hilum. The inferior layer of the transverse mesocolon continues down over the posterior abdominal wall and invests the sigmoid colon, its reduplication forming the **sigmoid mesocolon** (Fig. 6). Further down the peritoneal sheet descends into the pelvis to cover the upper part of the rectum and other pelvic viscera and links up with the peritoneum of the anterior wall.

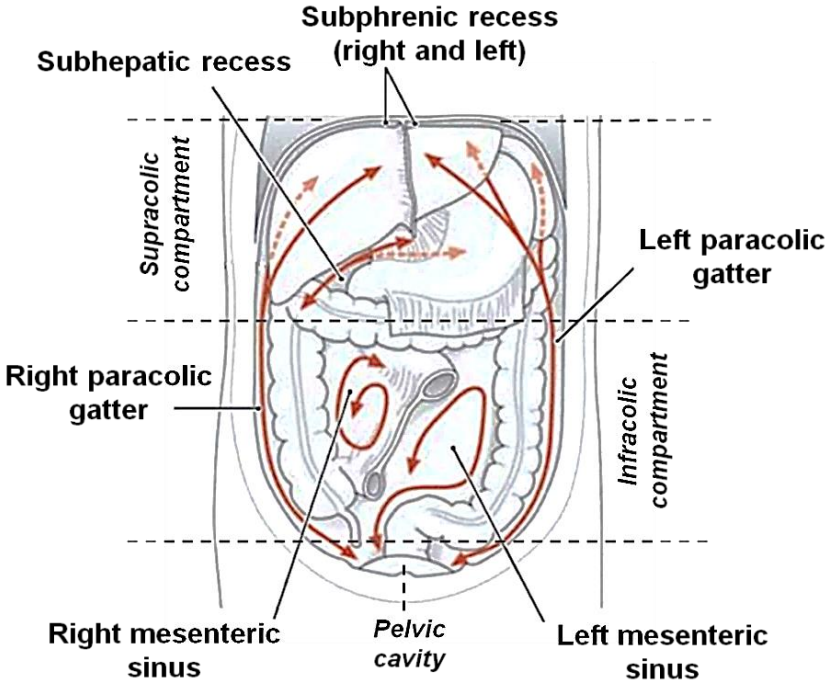

Fig. 4. Subdivisions of the peritoneal cavity and their communications

The entire peritoneal cavity can be subdivided into three main compartments (Fig. 4). Within the abdominal cavity, it is divided into **two compartments (floors)** by the transverse colon and mesocolon: **(1) supracolic compartment (upper floor)**, limited above by the diaphragm and containing the stomach, liver and spleen; and **(2) infracolic compartment (lower floor)** that contains the small intestine and most part of the colon and continues below with the **(3) pelvic cavity**. The upper and lower floors communicate with one another through a gap anteriorly to the greater omentum and on the sides of the right and left (to lesser extent) colic flexures.

TOPOGRAPHY OF PERITONEUM IN THE SUPRACOLIC COMPARTMENT (UPPER FLOOR)

In the **supracolic compartment (upper floor)** extensions of the parietal peritoneum connect the abdominal walls with the liver. A double-layered **falciform ligament** reflects from the anterior abdominal wall on the diaphragmatic surface of the liver in the sagittal plane slightly to the right of the midline (Fig. 2, 5, *A*). The inferior free margin of the falciform ligament runs from the umbilicus to the inferior border of the liver and contains the *ligamentum teres* (obliterated fetal umbilical vein), and the paraumbilical veins emptying into the portal vein. Posteriorly, the two layers of the falciform ligament diverge in the frontal plane to form the *superior layer* of the **coronary ligament**. The superior sheet demarcates the bare area of the liver (devoid of peritoneum) above, together with the *inferior layer*, which reflects onto the liver below from the posterior aspect of the diaphragm (Fig. 3). Laterally the two sheets of the coronary ligament meet to form the **right and left triangular ligaments**.

There are several peritoneal spaces and recesses in the **supracolic compartment**. **Subphrenic space** (Latin: *recessus subphrenicus*) is between the diaphragm and the diaphragmatic surface of the liver. Posteriorly it is limited by the coronary and triangular ligaments. The falciform ligament divides the space into two parts — **right** (deeper) and **left subphrenic recesses** (Fig. 4, 5, *A*). The space between the visceral surface of the liver and the transverse mesocolon is the **subhepatic space** (Latin: *recessus subhepaticus*), right and left, divided by the round ligament (Fig. 5, *A*). On the right, the visceral surface of the right hepatic lobe, peritoneal surface of the gallbladder, the superior flexure of the duodenum, and upper part of the head of pancreas face this space. The **hepatorenal recess** [Morrison pouch] is a deep extension of the right subhepatic space under the right lobe of the liver anterior to the right kidney and suprarenal gland. Laterally to the right colic flexure, the subhepatic space communicates with the right paracolic gutter; and to the left it communicates with the omental bursa (Fig. 4).

The **left subhepatic space** contains the stomach, abdominal part of the esophagus, spleen, and omental bursa (Fig. 3, 5). The **omental bursa**, or **lesser sac**, is a narrow but extensive pouch behind the stomach, lesser omentum, and gastrocolic ligament, which together compose its *anterior* wall (Fig. 3, 5).

The *posterior* wall is the parietal peritoneum covering the diaphragm and extraperitoneal viscera and vessels: pancreas (anterosuperior surface of its body), abdominal aorta, inferior vena cava, the left suprarenal gland, and the upper pole of the left kidney. The *superior wall* is formed by the caudate lobe of the liver, the *inferior* wall — by the transverse colon and its mesentery, the *left* wall — by the spleen with its ligaments: gastrosplenic and splenorenal (Fig. 3, 5, *B*). The lesser sac has three extensions, or **omental recesses**: *superior*, between the caudate lobe of the liver and the diaphragm; *splenic*, at the hilum of spleen; and *inferior*, omental (described above).

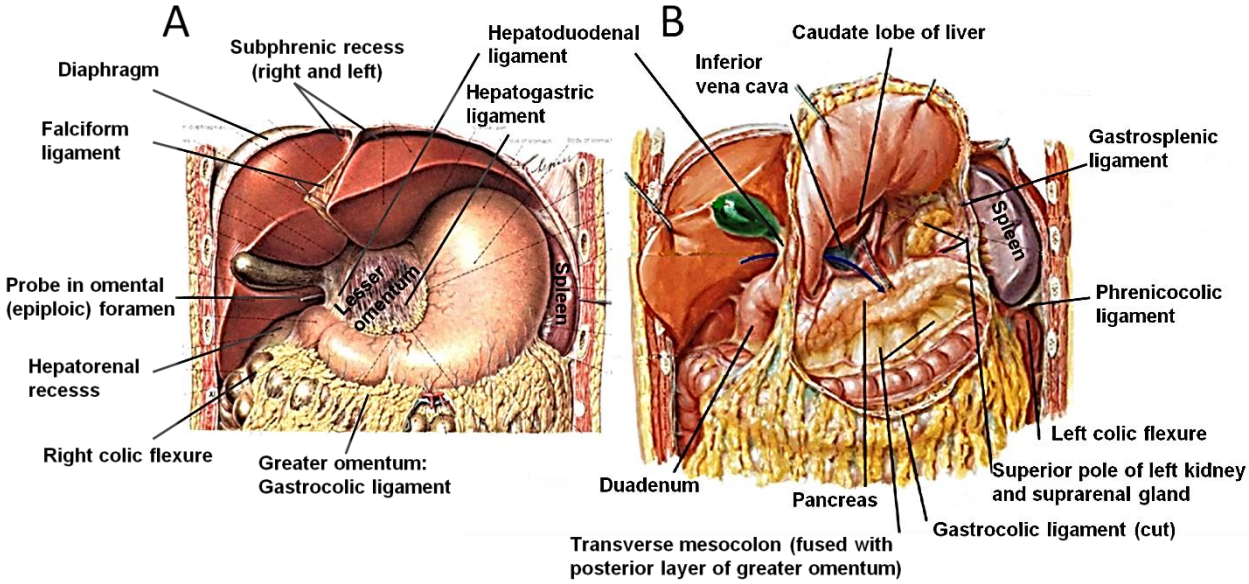

Fig. 5. Supracolic compartment:
A — general view (liver is slightly lifted); *B* — gastrocolic ligament is cut to view walls of omental bursa

On the right the omental bursa communicates with the greater sac (subhepatic space) via the **omental (epiploic) foramen** [foramen of Winslow]. Omental foramen is located posterior to the free right edge of the hepatoduodenal ligament (Fig. 5), containing the "portal triad" (*anterior boundary*). It is also bounded by the caudate lobe of the liver (*superiorly*), the cap of duodenum (*inferiorly*), and the parietal peritoneum, hepatorenal ligament (*posteriorly*), covering the inferior vena cava and right crus of the diaphragm. The narrow part of the omental bursa behind the hepatoduodenal ligament, adjacent to the omental foramen, is called **vestibule of omental bursa**. The omental bursa and organs lying behind its posterior wall, as well as the posterior wall of the stomach, can be accessed through the lesser omentum, gastrocolic ligament, or through the transverse mesocolon (inferior wall of the omental bursa).

The spleen lies deeply left and behind the stomach and omental bursa. The **gastrosplenic** and **phrenicosplenic ligaments** connect the splenic hilum to the corresponding organs and form the left boundary of the omental bursa (its splenic recess). The **phrenicocolic ligament** (Fig. 5, *B*) is a fold of peritoneum that passes from the colic flexure to the diaphragm; it supports the spleen from below and separates (in part) the area around it from the left paracolic gutter (lower floor).

TOPOGRAPHY OF PERITONEUM IN THE INFRACOLIC COMPARTMENT (LOWER FLOOR)

Infracolic compartment (lower floor) lies between the transverse colon with transverse mesocolon above and the pelvic inlet below; it is subdivided into two mesenteric sinuses and two paracolic gutters (Fig. 6). The **right paracolic gutter** is between the ascending colon and the parietal peritoneum covering the right abdominal wall, the **left paracolic gutter** is between the descending colon and the peritoneum of the left abdominal wall. The paracolic gutters provide communication between the supracolic and infracolic compartments. Besides, each gutter communicates with the iliac fossa of its side and further with the pelvic cavity.

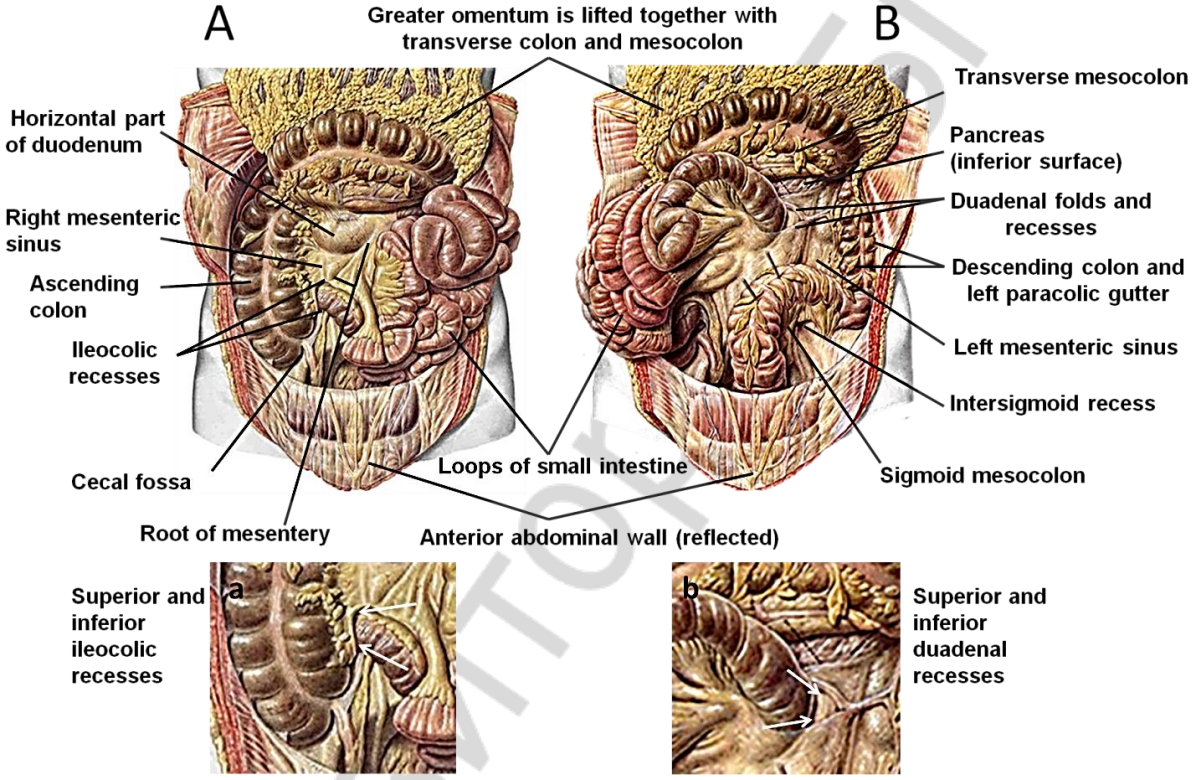

Fig. 6. Subdivisions and recesses of the infracolic compartment

The remaining central space limited by the colon (ascending, transverse, and descending) is divided by the fan-shaped mesentery into two triangle-shaped sections, **mesenteric sinuses**, containing loops of the small intestine. The **root of the mesentery**, about 15 cm, is directed obliquely and inferiorly (Fig. 6, *A*), from the duodenojejunal flexure on the left side of the L2 vertebra to the ileocolic junction in the right iliac fossa (level of the right sacroiliac joint). On its way it crosses the ascending and horizontal parts of the duodenum, abdominal aorta, inferior vena cava, right ureter, and psoas major muscle. The **right mesenteric sinus** is a closed space up and right to the mesentery, bounded inferiorly by the ileocaecal junction. The descending and horizontal parts of the duodenum, the lower part of the head of pancreas, right ureter and part of the inferior vena

cava lie retroperitoneally within this sinus. The **left mesenteric sinus** is continuous with the pelvic cavity on the right to the root of the **sigmoid mesocolon** (Fig. 4). Within the left mesenteric sinus, the parietal peritoneum covers the ascending part of the duodenum, the lower pole of the left kidney, left ureter, and lower parts of the aorta and inferior vena cava.

Several intraperitoneal recesses and fossae occur on the posterior abdominal wall, which can be sites for internal hernias. One (paraduodenal fossa) or two slit-like recesses, the **superior** and **inferior duodenal fossae** (limited by two folds of the same name), are between the duodeno-jejunal flexure on the right; and the peritoneal fold containing the inferior mesenteric vein on the left (Fig. 6, *B*). The **superior** and **inferior ileocaecal recesses** are located at the ileocolic junction, above and below the ileum, respectively (Fig. 6, *A*). The **retrocaecal recess** is a depression in the parietal peritoneum that lodges the cecum and that is where often appendix lies; in some cases it extends upwards behind the ascending colon. **Intersigmoid recess** is often present on the left side of the root of the sigmoid mesocolon (Fig. 6, *B*).

TOPOGRAPHY OF PERITONEUM IN THE PELVIC CAVITY

The peritoneum lining the walls of the **pelvic cavity** creates a number of folds and recesses as it reflects onto most of the pelvic organs but their topography greatly depends on sex. In female the uterus and the uterine tubes are suspended to the pelvic walls by mesenteries, mesosalpinx and mesometrium, which are parts of the **broad ligament of uterus** (Latin: *ligamentum latum uteri*). The ovaries, although attached to the broad ligament by their mesenteries (**mesovarium**), are not covered with peritoneum, as well as the ostia of the **uterine tubes**. The peritoneum reflecting from the bladder onto the uterus forms the **vesico-uterine pouch** (Latin: *excavatio vesicouterina)*, covers the uterus (namely, anterior surface of the uterine body, fundus, posterior surface of the body, the supravaginal part of the cervix) and the posterior fornix of the vagina, and then reflects onto the rectum forming the **recto-uterine (Douglas's) pouch** (Latin: *excavatio rectouterina*), the lowest portion of the female peritoneal cavity (Fig. 7, *B*).

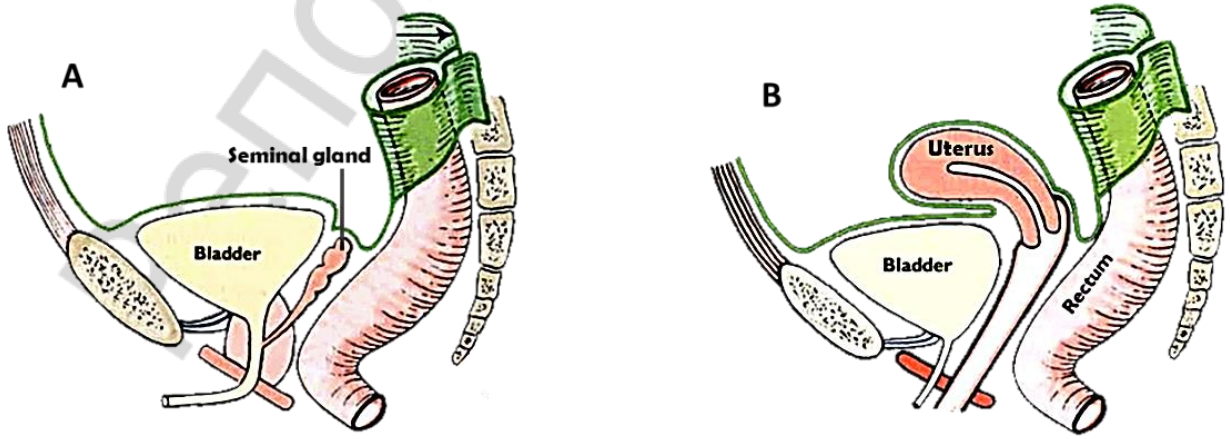

Fig. 7. Topography of peritoneum in male (A) and female (B) pelvis

In male the deep **recto-vesical pouch** (Latin: *excavatio rectovesicalis*), is formed between the urinary bladder and rectum (Fig. 7, *A*). Leaving first the sides and then the front of the rectum, the peritoneum is reflected on to the seminal vesicles and fundus of the urinary bladder, and then runs along the umbilical ligaments on the anterior abdominal wall to the level, from which a start was made.

PRENATAL DEVELOPMENT OF PERITONEUM

During the 3rd week of gestation while the embryo is a three-layered structure, the middle layer is mesoderm. (Intermediate and medial mesoderm (somites) are next to the notochord.) The lateral mesoderm forms two layers: somatic parietal — associated with the ectoderm — participates in the body wall formation; and splanchnic visceral — associated with the endoderm — surrounds the developing gut (Fig. 8). Folding of the lateral parts of the embryo forms the anterior abdominal wall and encloses the space between the mesodermal layers into the celom, embryonic body cavity. The epithelium lining the celomic walls later becomes flat and is referred to as mesothelium. In later stages of development, the pericardial cavity and paired pleural cavities will be formed in the cranial end of the celom, the peritoneal cavity — in its caudal part.

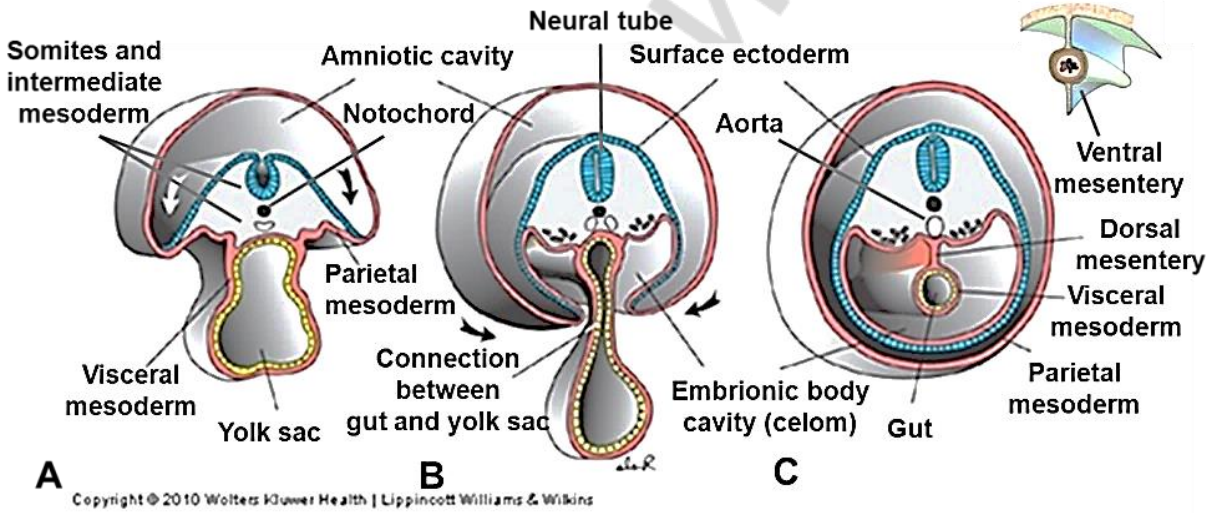

Fig. 8. Formation of celom, primitive gut, and peritoneum:
A — three-layered embryo: lateral mesoderm is divided into parietal and visceral layers; *B* — folding (arrows) of lateral parts of the embryo separates the gut from the yolk sac and encloses the celomic cavity; *C* — layers of the visceral mesoderm surround the gut and form the dorsal and ventral mesenteries

The primitive gut tube initially lies dorsally, next to the aorta and notochord, but soon it moves ventrally (Fig. 8, *C*) and becomes suspended to the celomic walls by the bilayered dorsal and ventral mesenteries. (The pancreas and liver grow as epithelial pockets of the gut into the ventral and dorsal mesenteries at the point, which marks the border between the foregut and midgut). The most of the ventral mesentery, below the umbilical vessels, disappears very soon.

The remainder is limited to the foregut (Fig. 9, *A*); it connects the anterior wall of the peritoneal sac with the stomach and upper duodenum and contains the liver. Thereby, the ventral mesentery transforms into the falciform ligament — a portion from the anterior abdominal wall to the liver, and the lesser omentum — a part from the liver to the stomach and duodenum.

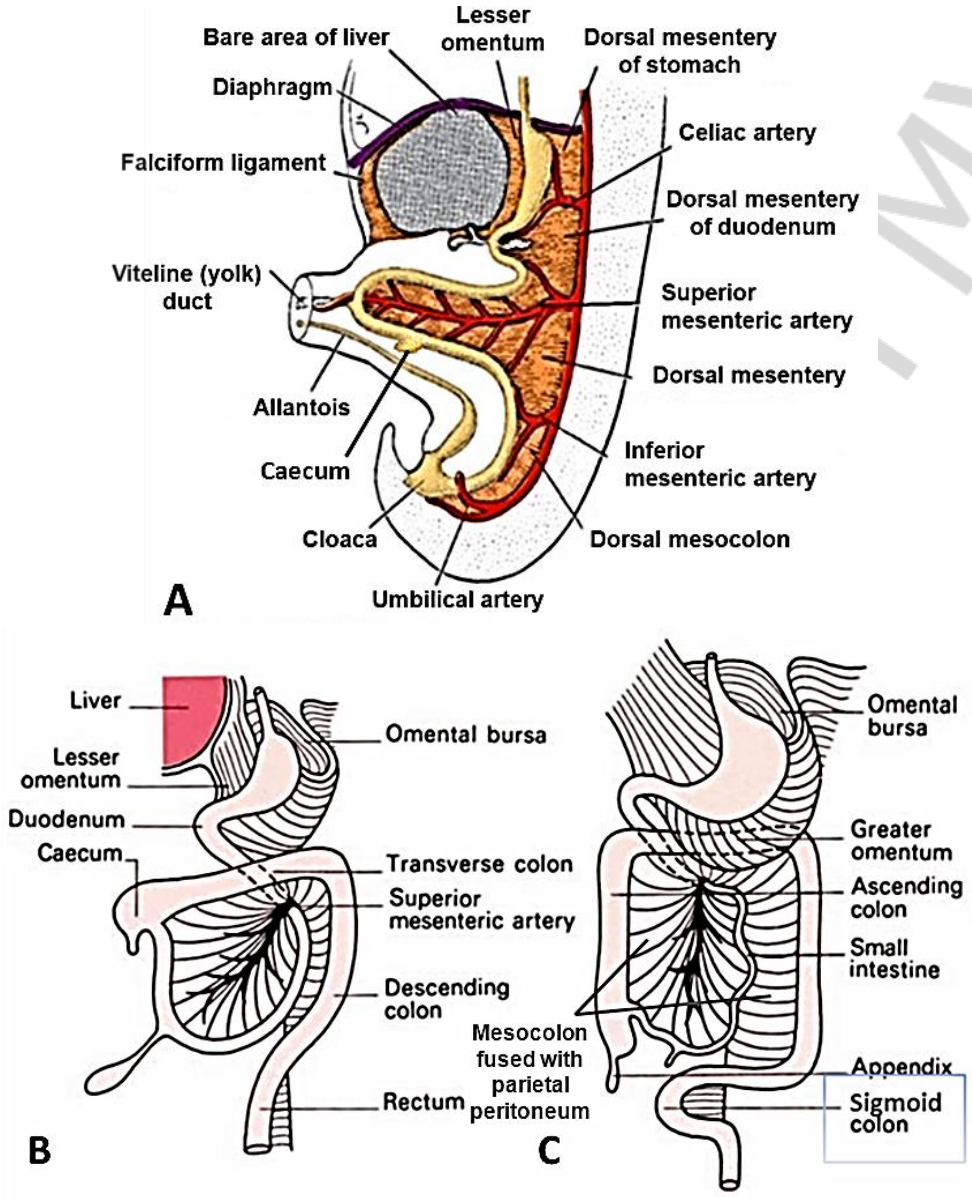

Fig. 9. Stages in rotation of the gut and related changes of its mesenteries:
A — continuous dorsal mesentery, limited by the foregut ventral mesentery contains the liver, midgut loop is outside the abdominal cavity; *B* — rotation of the stomach and midgut loop in the abdomen; *C* — completion of the stomach rotation with the formation of the omental bursa, definitive position of parts of the intestine and their mesenteries

The continuous dorsal mesentery contains the dorsal pancreatic bud (fuses with the ventral bud after the stomach rotation) and the developing spleen. The aorta lies initially at the root of the dorsal mesentery (Fig. 9, *A*). Together with other organs that will later develop on its sides (e. g. suprarenal glands and kidneys) it belongs to the *primarily retroperitoneal organs*.

As the stomach and liver rotate toward the right, the lesser omentum turns frontally, the spleen is displaced to the left, the dorsal mesentery below the stomach gets folded and forms a pocket — the greater omentum (Fig. 9, *B*, *C*); the duodenum comes in contact and fuses with the peritoneum of the posterior abdominal wall making duodenum and pancreas *secondarily retroperitoneal organs*. Throughout this entire process, the cavity of the lesser sac is created.

Due to rotation of the intestinal loop the ascending and descending colon will also become bound to the posterior abdominal wall and, hence, lose their mesenteries (Fig. 9, *C*). The mesenteries of the major part of the small intestine, transverse and sigmoid colons are preserved, but their roots change the initial median position. Variants, such as mesoduodenum, ascending and descending mesocolons, are found due to lack of fixation (or rotation) of the embryonic gut; rarely, the mesenteries attachment can be altered.

FUNCTIONS OF PERITONEUM

The peritoneum produces serous fluid, which reduces the friction of the viscera allowing their free movements during peristalsis, respiration and changing body position. Peritoneal fluid is mainly absorbed by the subperitoneal lymphatic vessels in the region of the diaphragm. In response to injury or inflammation, due to exudation of sticky fibrin, peritoneal surfaces tend to form peritoneal adhesions, and, in this way, the focus of infection can be localized, especially, by the freely moving greater omentum. Having numerous blood vessels, the greater omentum is used in surgery to tamponade bleeding surfaces and improve blood supply to organs.

Peritoneum protects, separates, and fixates the abdominal and pelvic viscera preventing their excessive movement. Peritoneal ligaments and mesenteries provide pathways for nerves, blood vessels and lymphatics from the body walls to the viscera. Peritoneum contains phagocytes, immune cells, and antimicrobial compounds; besides, the greater omentum contains numerous lymph nodes that help protect the body from toxins and pathogens. Peritoneal ligaments, mesenteries, omental processes of the colon, and especially the greater omentum store fat, considered as an important energy reserve. The adipose tissue of the omentum also insulates abdominal viscera to reduce heat loss.

The parietal peritoneum is supplied by the same somatic nerves as the adjacent body wall (muscles and skin); and it is sensitive to pain, touch, pressure, and temperature. The visceral peritoneum (as well as mesenteries) has the same nerve supply (autonomic afferent nerves) as the viscera it invests; it is sensitive only to stretch and tearing and pain caused by overdistention of an organ is poorly localized.

List of anatomical terms and structures the student should know and be able to identify in the anatomical specimens and teaching aids:

Abdominal cavity; pelvic cavity; parietal and visceral peritoneum; peritoneal cavity; exstra-/retroperitoneal space; retropubic space; greater sac; supracolic compartment (upper floor); infracolic compartment (lower floor); mesentery; transverse mesocolon; sigmoid mesocolon; meso-appendix; lesser omentum (Latin: *omentum minus*); hepatogastric ligament; hepatoduodenal ligament; greater omentum (Latin: *omentum majus*); gastrocolic ligament; gastrophrenic ligament; gastrosplenic ligament; phrenicosplenic ligament; phrenicocolic ligament; omental bursa (lesser sac); omental foramen (epiploic foramen); subphrenic space; subhepatic space; hepatorenal recess; right/left mesenteric sinus; right/left paracolic gutters; superior/inferior duodenal fossa; superior/inferior ileocaecal recess; retrocaecal recess; intersigmoid recess; median/medial/lateral umbilical fold; supravesical fossa; medial/lateral inguinal fossa; recto-uterine pouch; vesico-uterine pouch; recto-vesical pouch.

QUESTIONS FOR CONTROL

1. What is peritoneum, peritoneal cavity?
2. Does the peritoneal cavity communicate with the exterior of the body?
3. What is an intraperitoneal, retroperitoneal organ?
4. What organs can be referred to as mesoperitoneal?
5. Define the terms mesentery, omentum, peritoneal ligament and fold.
6. What are the umbilical folds?
7. What fossae are lateral and medial to the lateral umbilical fold? What is their relation to the inguinal canal?
8. Where is the femoral fossa located?
9. What are the attachments of the lesser omentum?
10. What ligaments are found in the proximal part of the greater omentum? How many peritoneal layers does its lower part consist of?
11. What is the relationship of the transverse mesocolon to the greater omentum?
12. What is the epiploic foramen? Give its location and boundaries.
13. What is the lesser sac and how can it be approached surgically?
14. What are the boundaries of the omental bursa (lesser sac)?
15. List the 3 peritoneal compartments, their contents and subdivisions (spaces, recesses, gutters, sinuses).
16. Where are the attachments of the mesentery and the transverse mesocolon roots?
17. What pouches are found in the male and female pelvic cavity?
18. Which embryonic layer does the peritoneum derive from?

19. What is the coelom?
20. What is made up from the ventral mesentery (mesogastrium)?
21. What derives from the dorsal mesentery?
22. What process changes the initial median fixation of the dorsal mesentery?
23. Give examples of primary and secondary retroperitoneal organs, explain the difference between them.

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