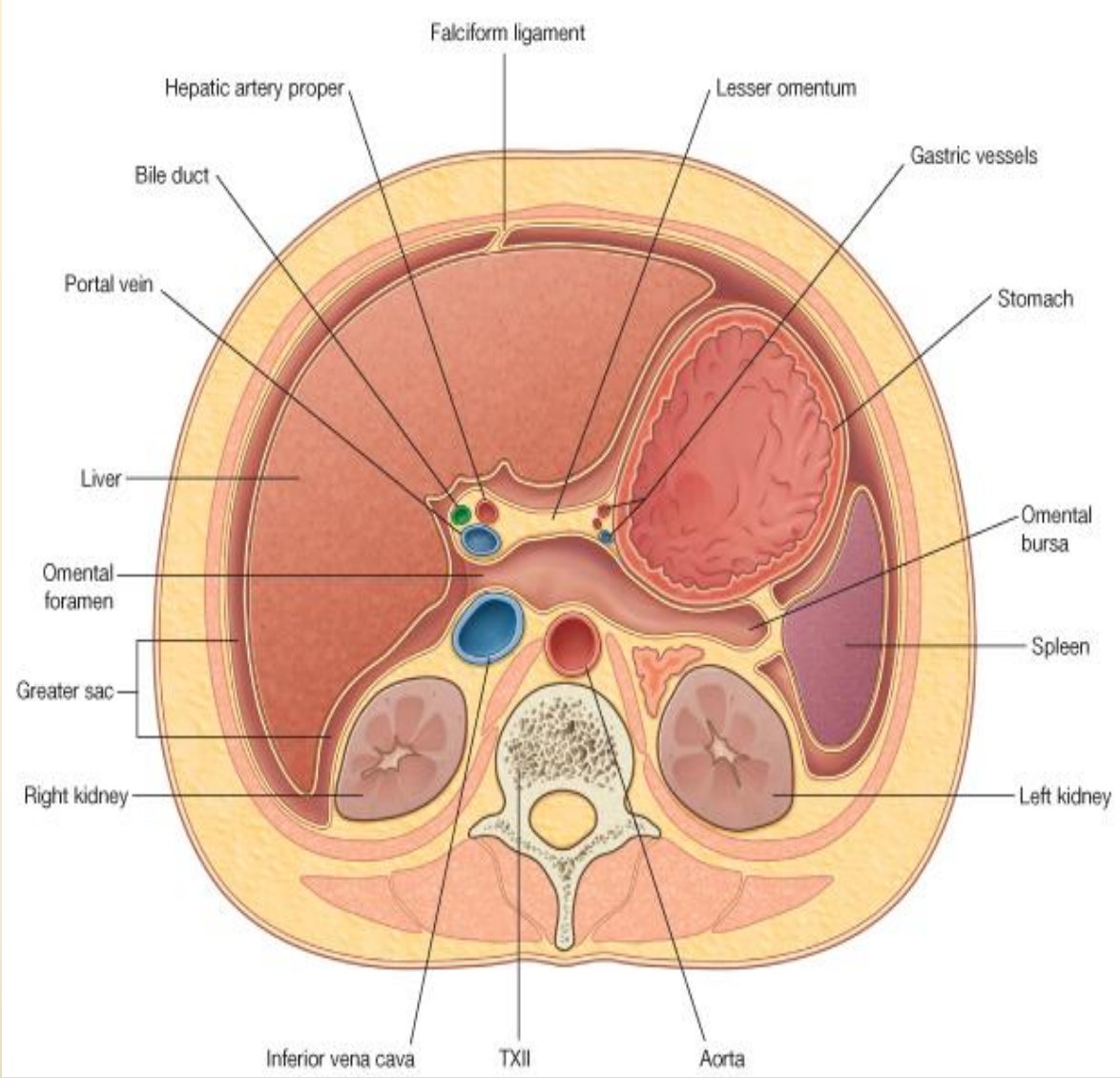
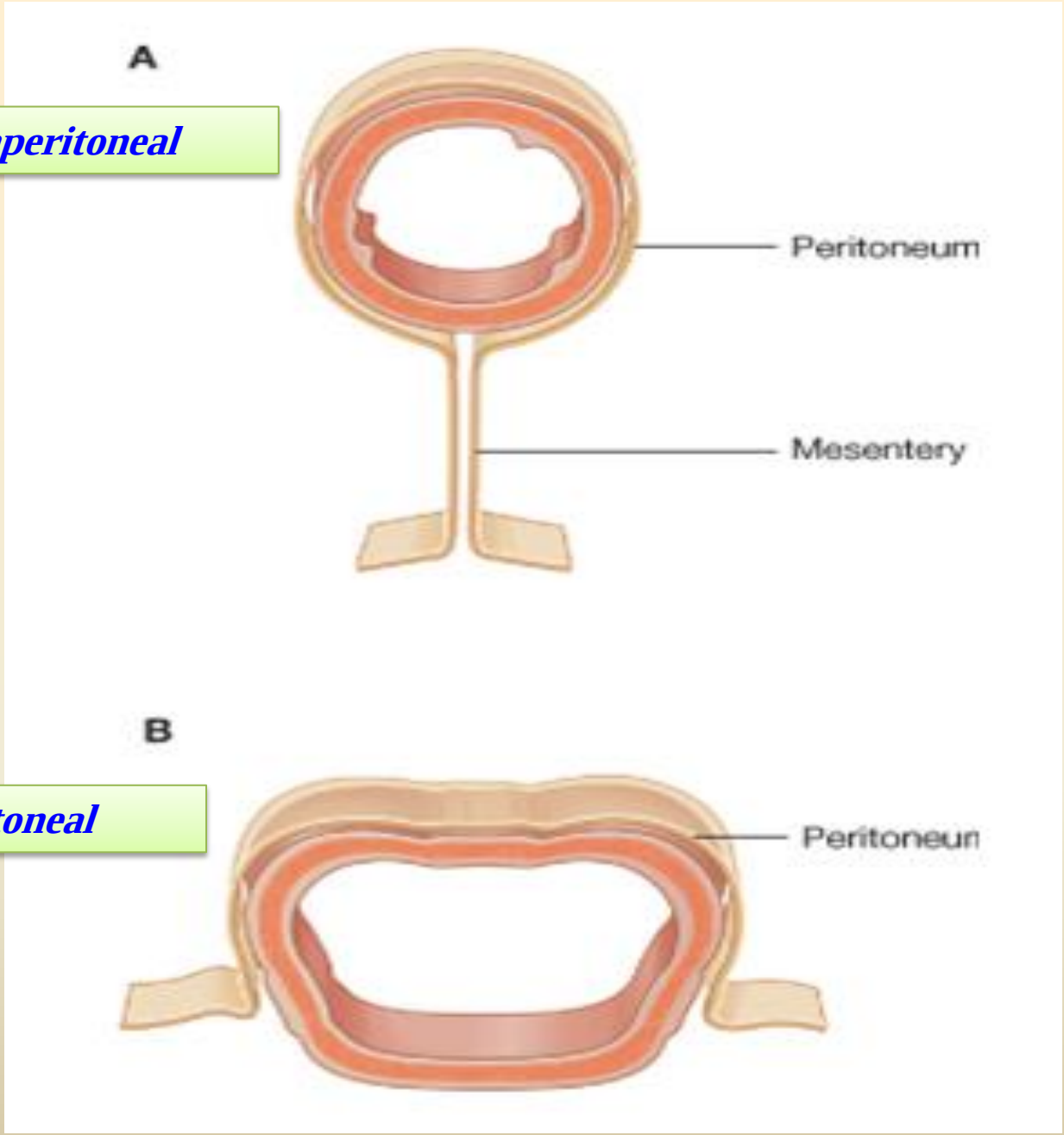
Peritoneum

- The peritoneum is a thin serous membrane that lines the walls of the abdominal and pelvic cavities and clothes the viscera

- The peritoneum can be regarded as a **balloon** against which organs are pressed from outside
- The parietal peritoneum lines **the walls of the abdominal and pelvic cavities**
- The visceral peritoneum **covers the organs**
- The potential space between the parietal and visceral layers, is called **the peritoneal cavity**



Intraperitoneal



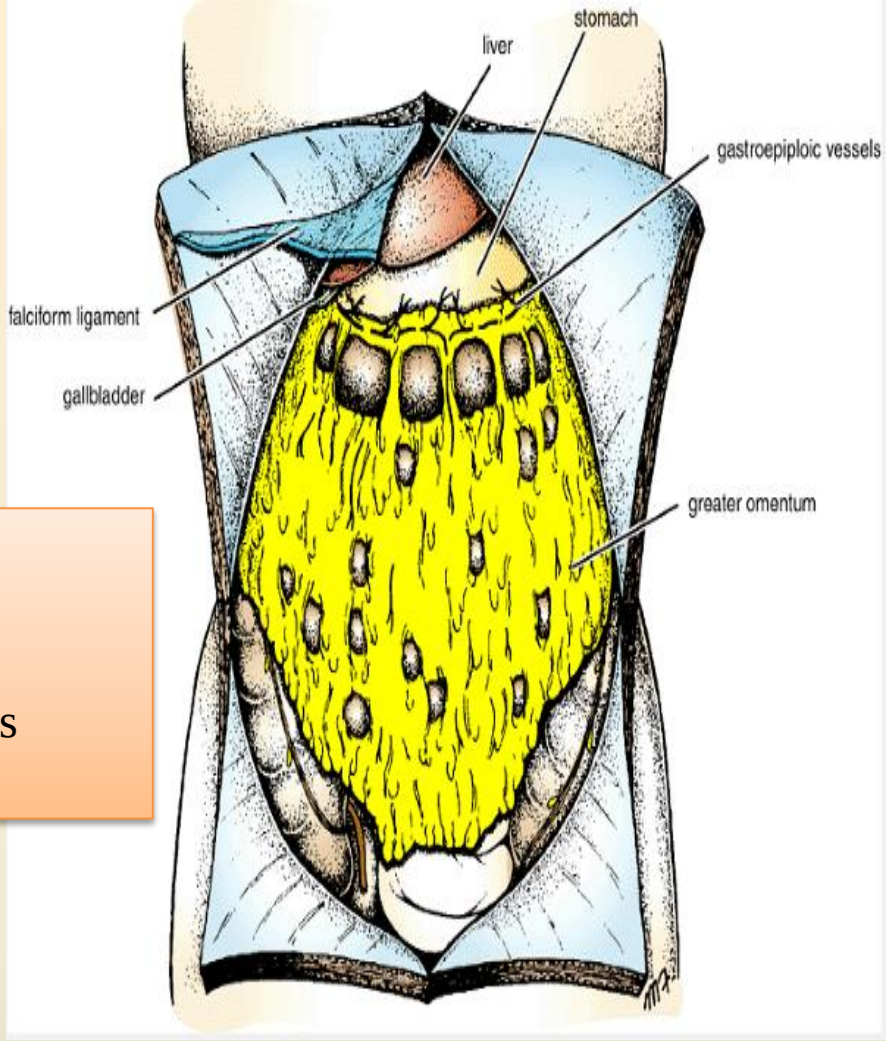
Retroperitoneal

Intraperitoneal and Retroperitoneal

Intraperitoneal

An organ is said to be intraperitoneal when it is almost totally covered with visceral peritoneum

The stomach, jejunum, ileum, and spleen are good examples of intraperitoneal organs.



Retroperitoneal

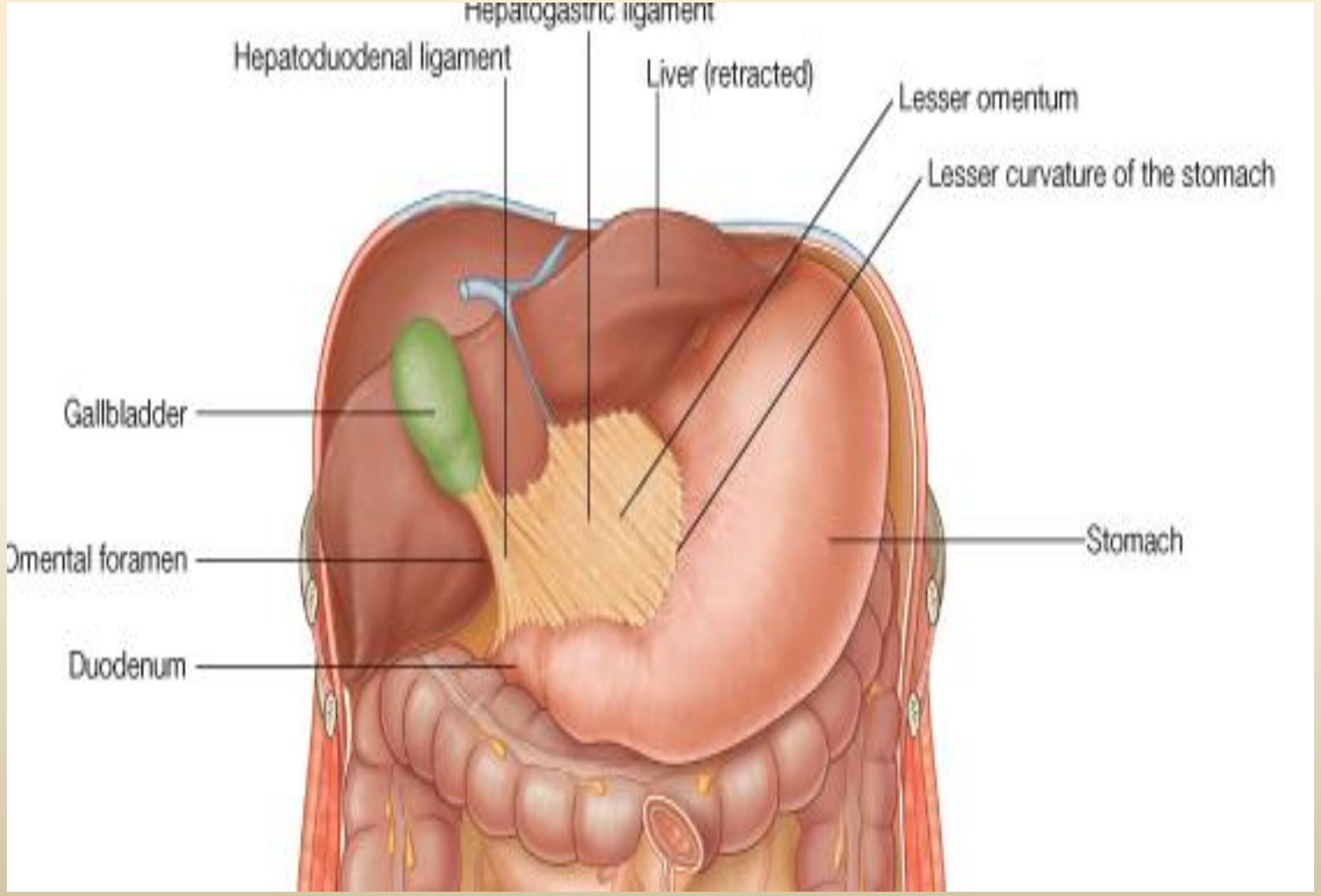
organs lie behind the peritoneum and are only partially covered with visceral peritoneum.

The pancreas and the ascending and descending parts of the colon are examples of retroperitoneal organs.

The greater omentum connects the greater curvature of the stomach to the transverse colon It hangs down like an apron in front of the coils of the small intestine and is folded back on itself to be attached to the transverse colon

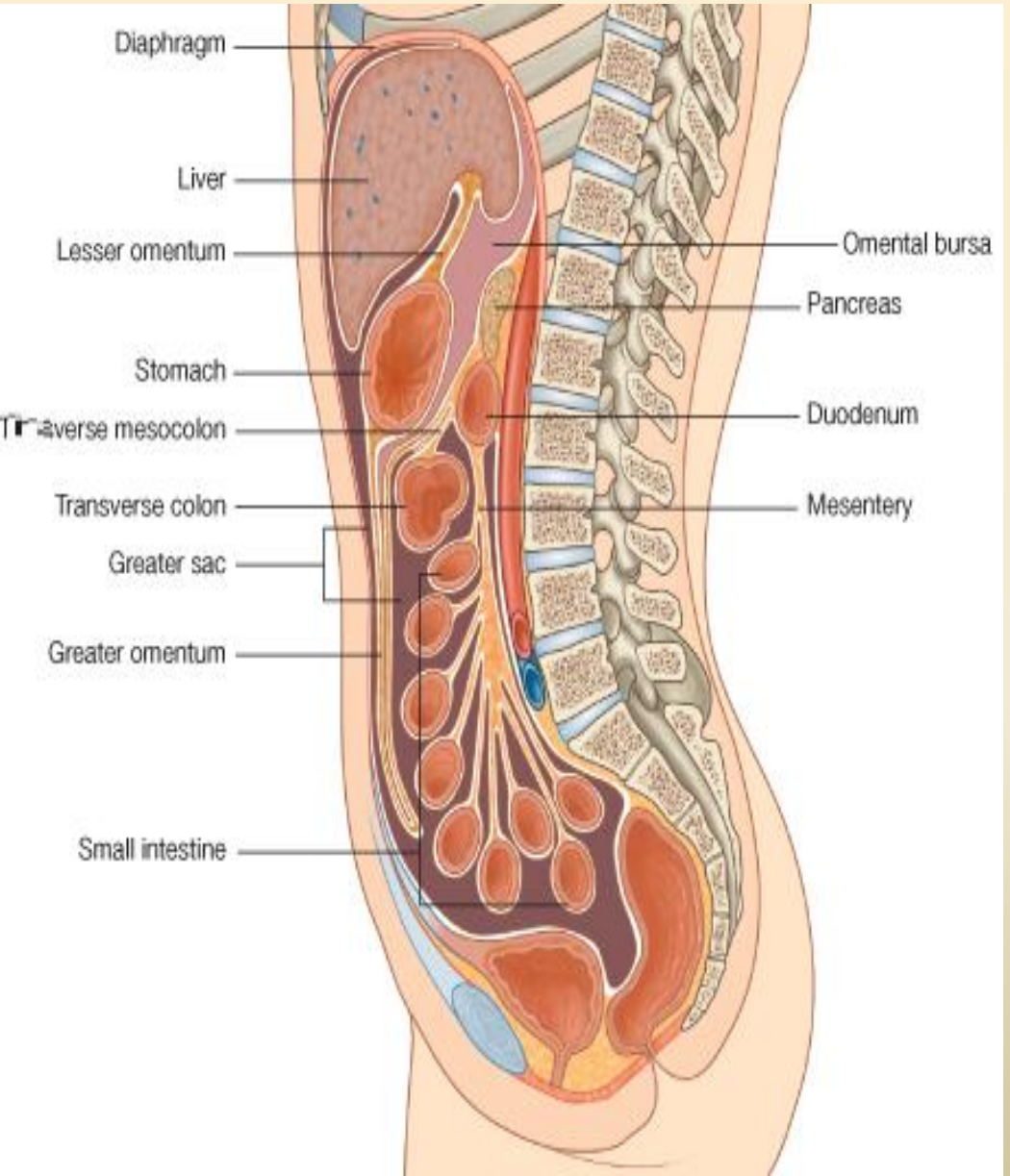
The lesser omentum

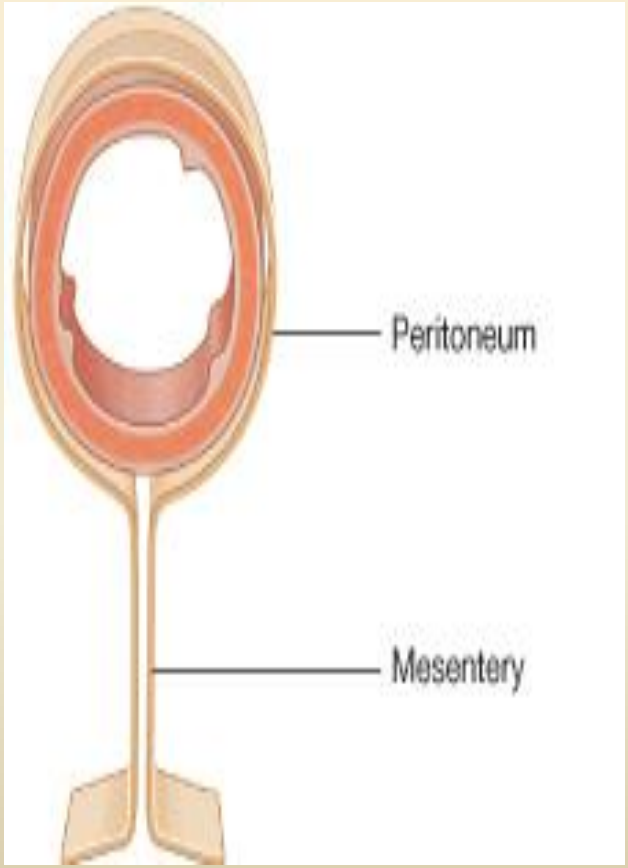
suspends the lesser curvature of the stomach from the fissure of on the undersurface of the liver



Mesenteries

Mesenteries **<u>are two-layered folds of peritoneum</u>** connecting parts of the intestines to the posterior abdominal wall





General Arrangement of The Abdominal Viscera

A-Gastrointestinal tract

1-Esophagus (abdominal portion)

2- Stomach

3- Duodenum

4- Jejunum

5- Ilium

Small intestine

6-Cecum

7-Ascending colon

8- Transverse colon

9- Descending colon

10- Sigmoid colon

Large intestine

11- Rectum → Located in pelvic cavity

12- anal canal (located in the perineum)

B-Other organs

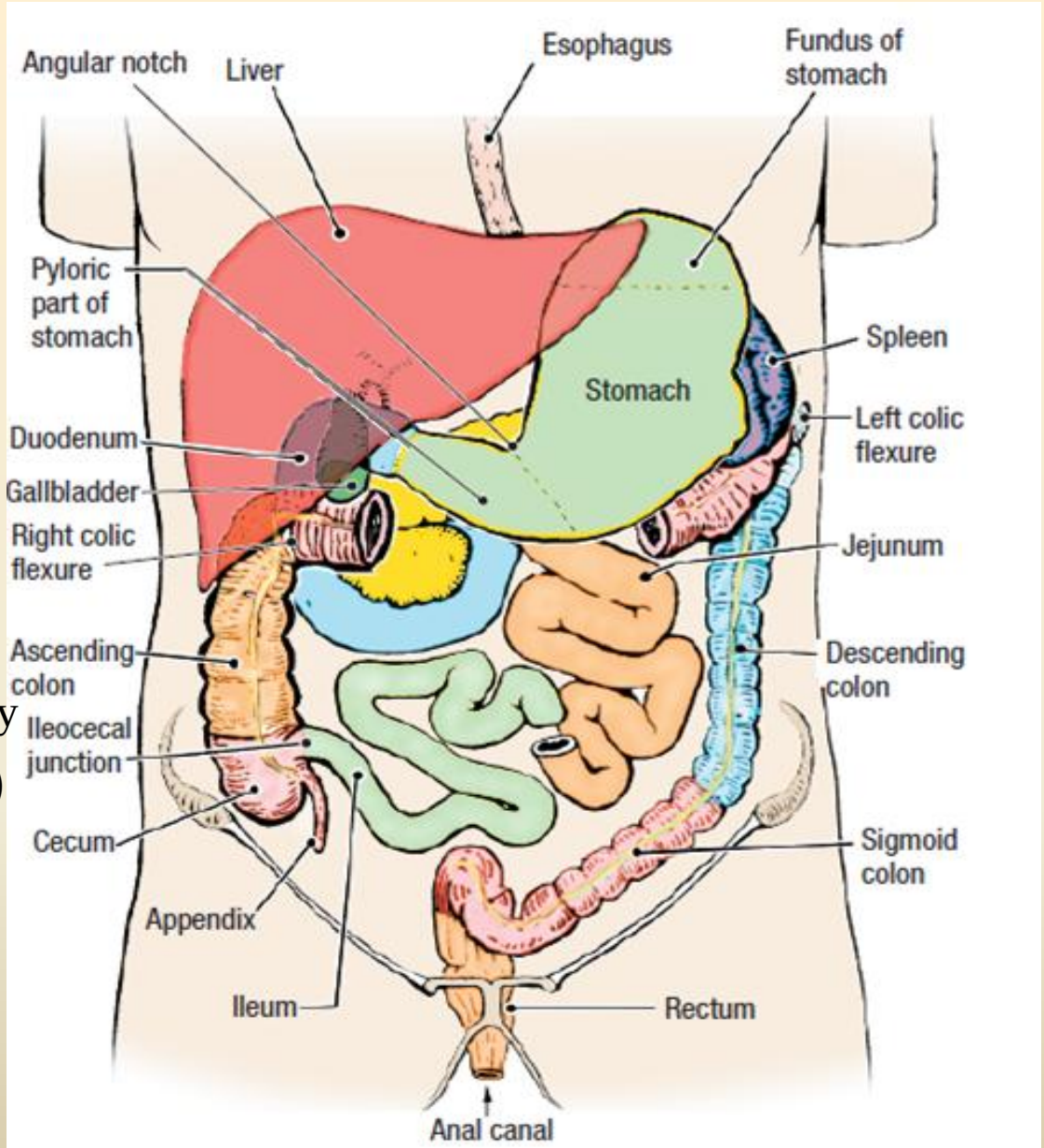
Liver

Biliary ducts

Pancreas

Spleen and

Parts of the urinary system



Schematic drawing of the abdominal organs. Part of the transverse colon has been removed.

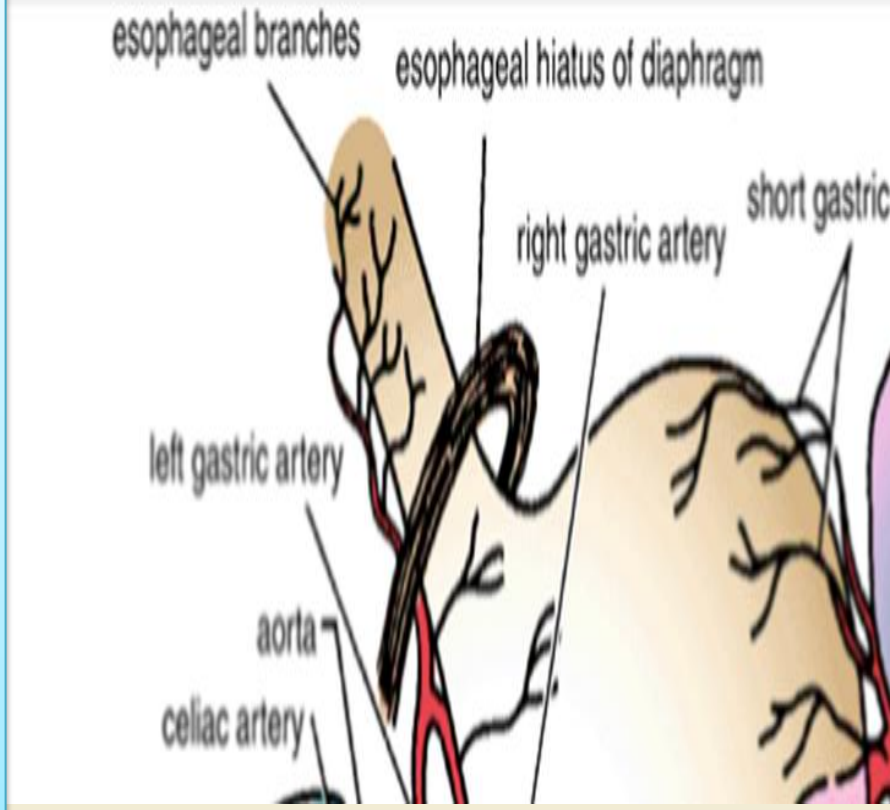
Gastrointestinal Tract

1-Esophagus (Abdominal Portion)

➢The esophagus is a muscular tube, about **25 cm long** that joins **the pharynx to the stomach**

➢The greater part of the esophagus **lies within the thorax**

➢The esophagus enters the abdomen through an opening in **the right crus of the diaphragm** called **esophageal hiatus** at the level **of thoracic vertebra number 10 (T10)** .



❖**Blood Supply**

▪**Arteries**

branches from **the left gastric artery** .

▪**Veins**

drain into the **left gastric vein**,
a tributary of the portal vein .

Read only

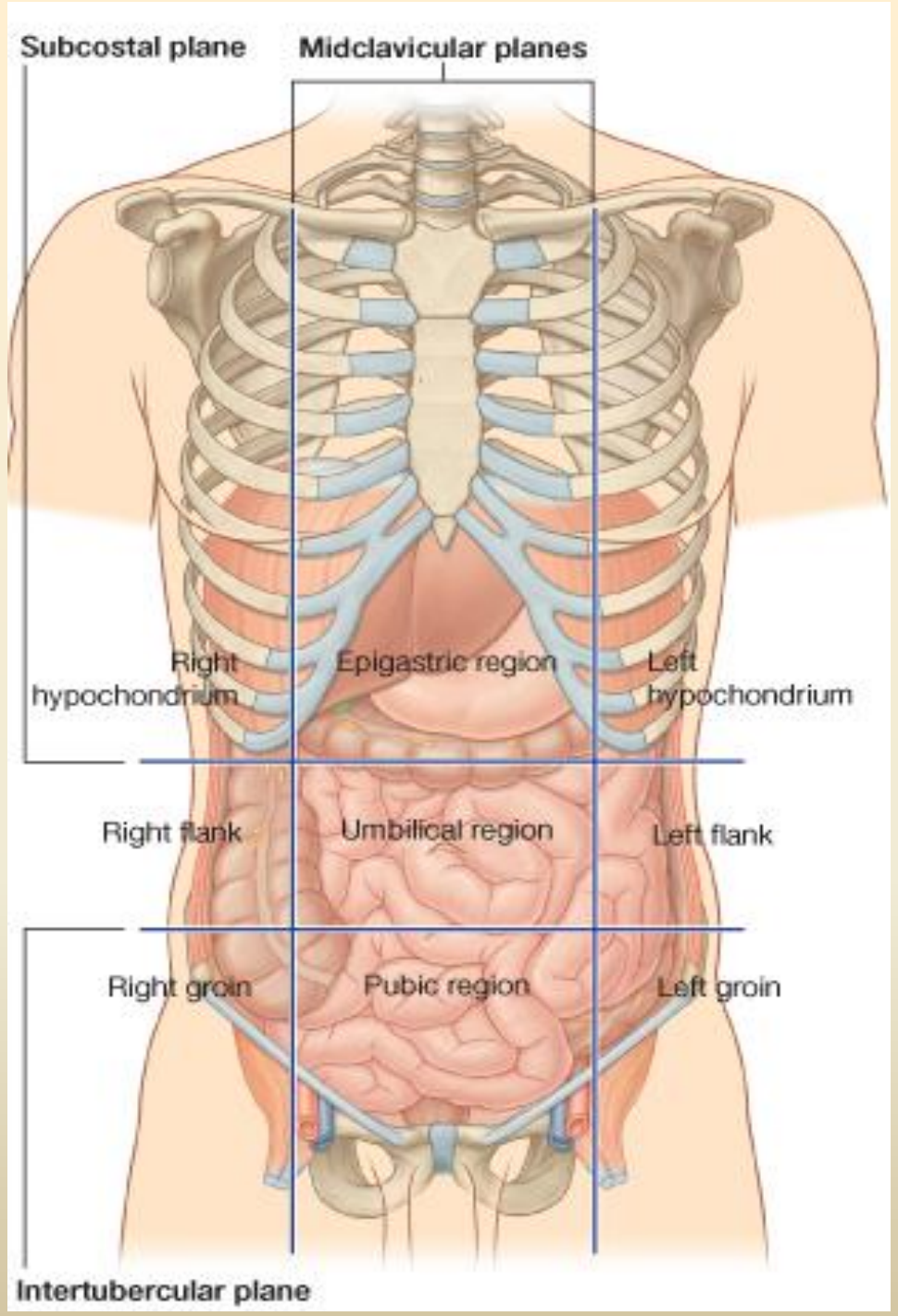
2-THE STOMACH

Is the widest part of the ➢ gastrointestinal tract

➢Has **roughly a J-like shape**

➢Positioned between **the abdominal esophagus and the small intestine**

➢The stomach lies in the **epigastric**, **umbilical**, and **left hypochondrium** regions of the abdomen.



External features of the stomach

Has two openings: 1- Cardiac
2- Pyloric

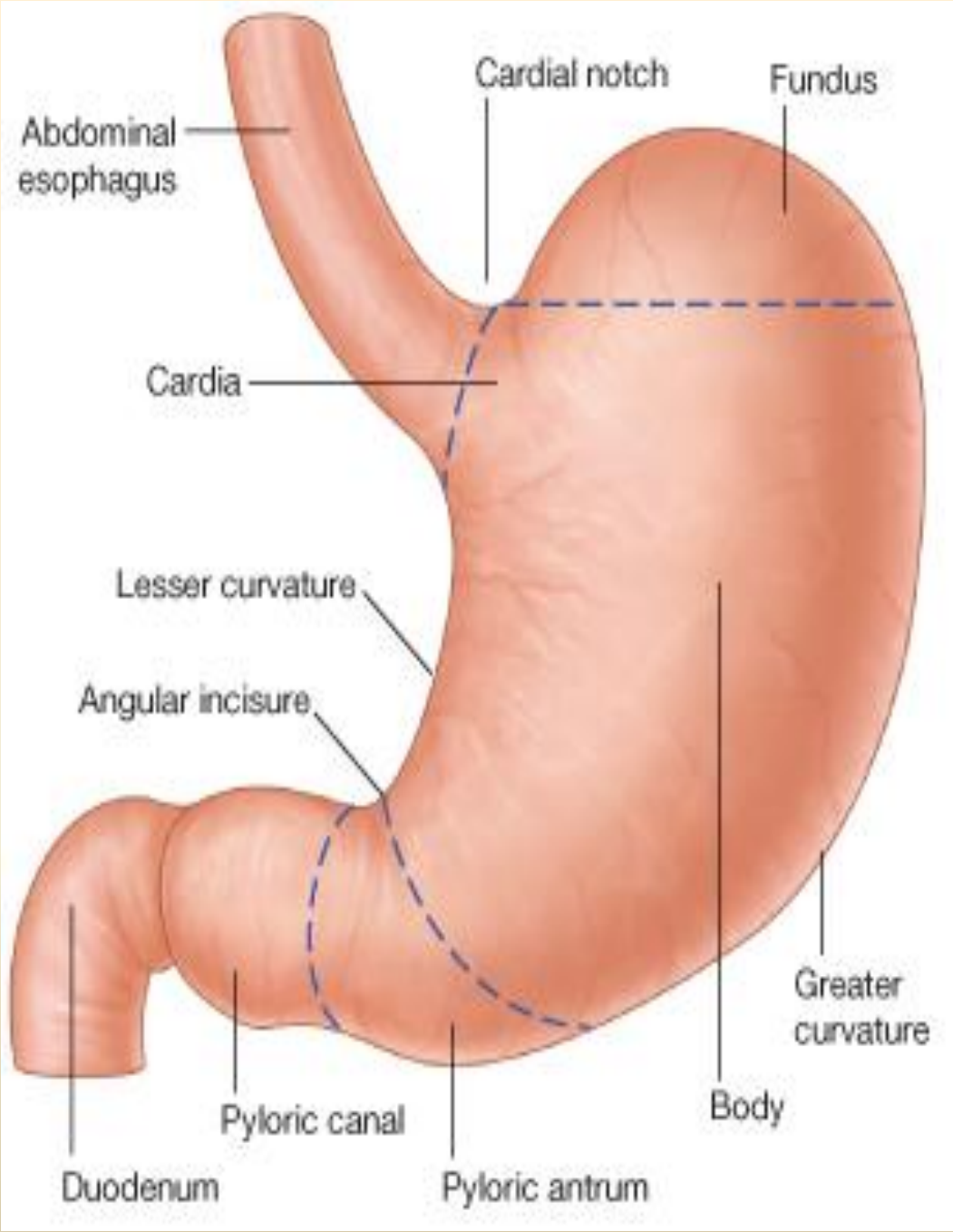
Two curvatures :
1- Greater
2- lesser

Two surfaces:
1-anterior
2-posterior

Three Parts: 1- Fundus

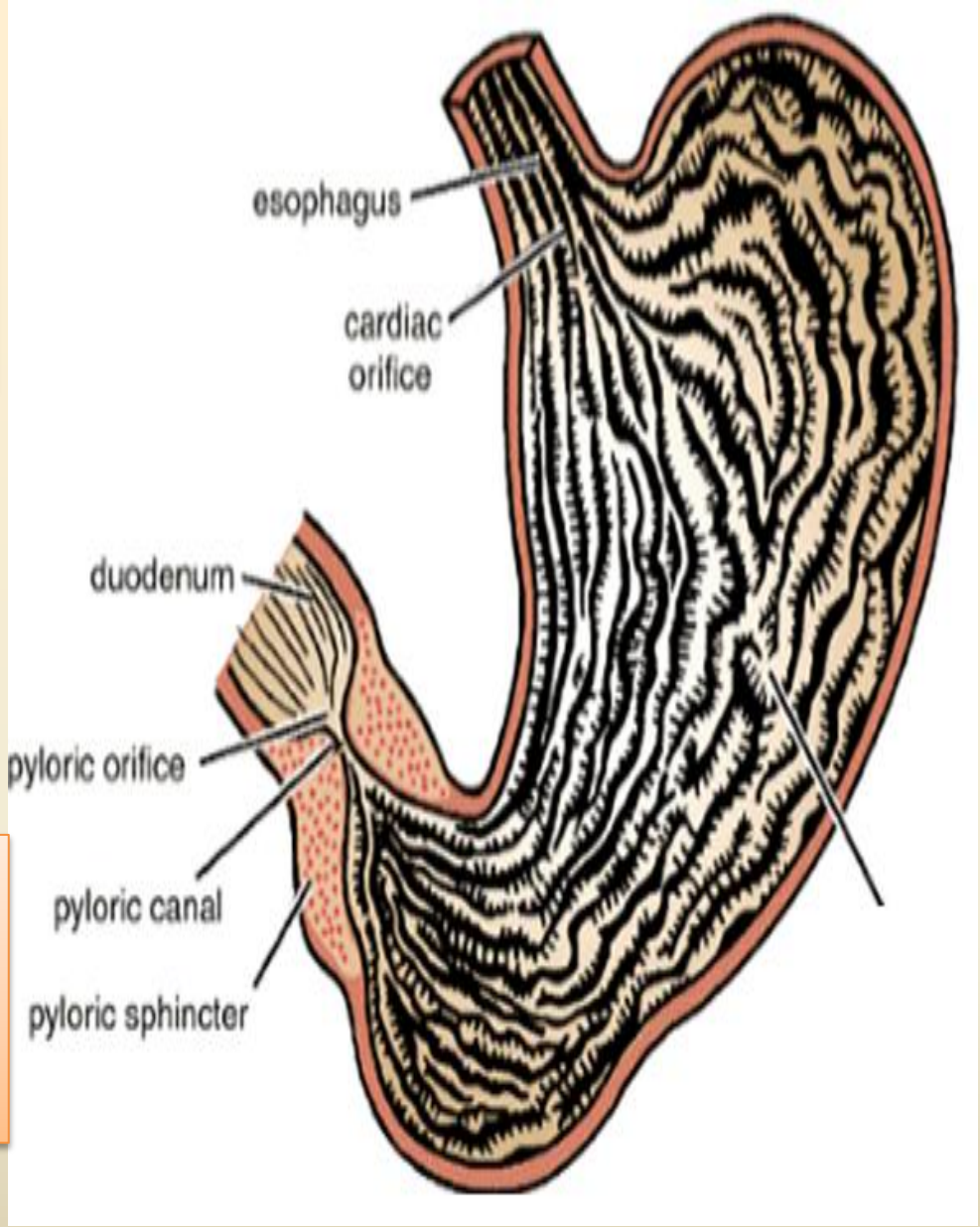
2- Body

3- Pyloric



1- Cardiac orifice (opening)

- It has no **true anatomical sphincter**, therefore the **gastro-esophageal junction *closes by*** means of a ***physiological sphincter***



2- Pyloric orifice

➢Is formed by the **pyloric canal**, which is about 1 in. (2.5 cm) long

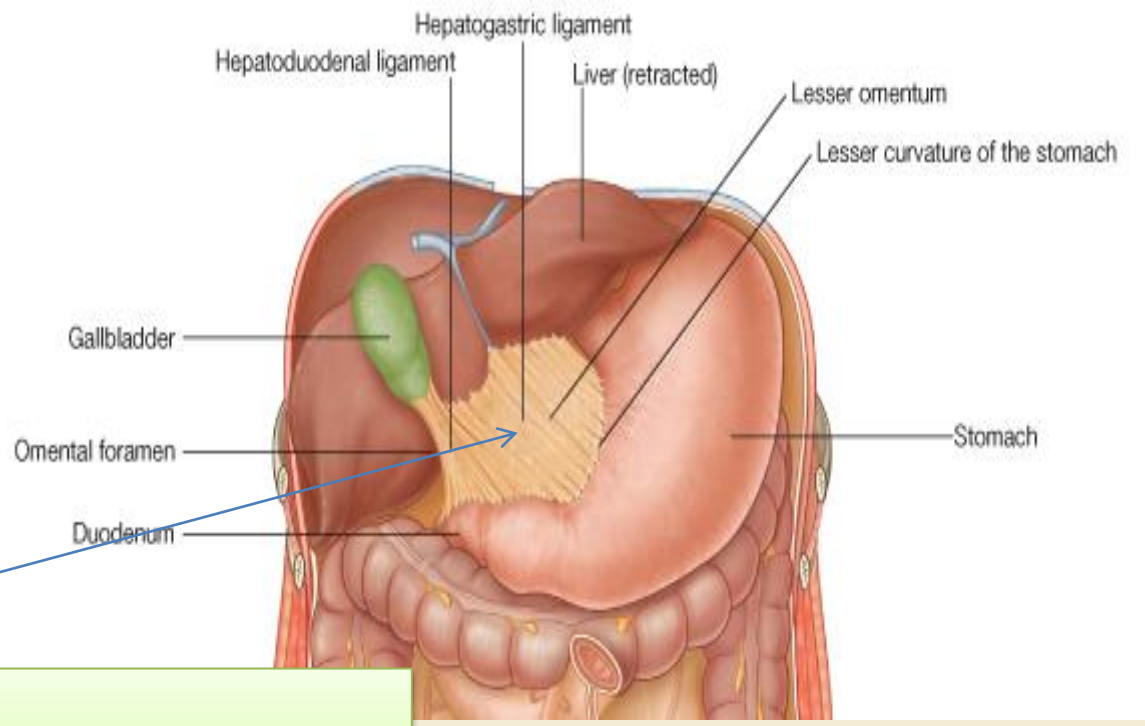
➢The circular muscle coat of the stomach is much thicker here and forms **the anatomic (true sphincter)**

Curvatures of the stomach

1-The lesser curvature

- **Forms the right border of the stomach**
- **Extends from the cardiac orifice to the pylorus**
- **It is suspended from the liver by the**

lesser omentum



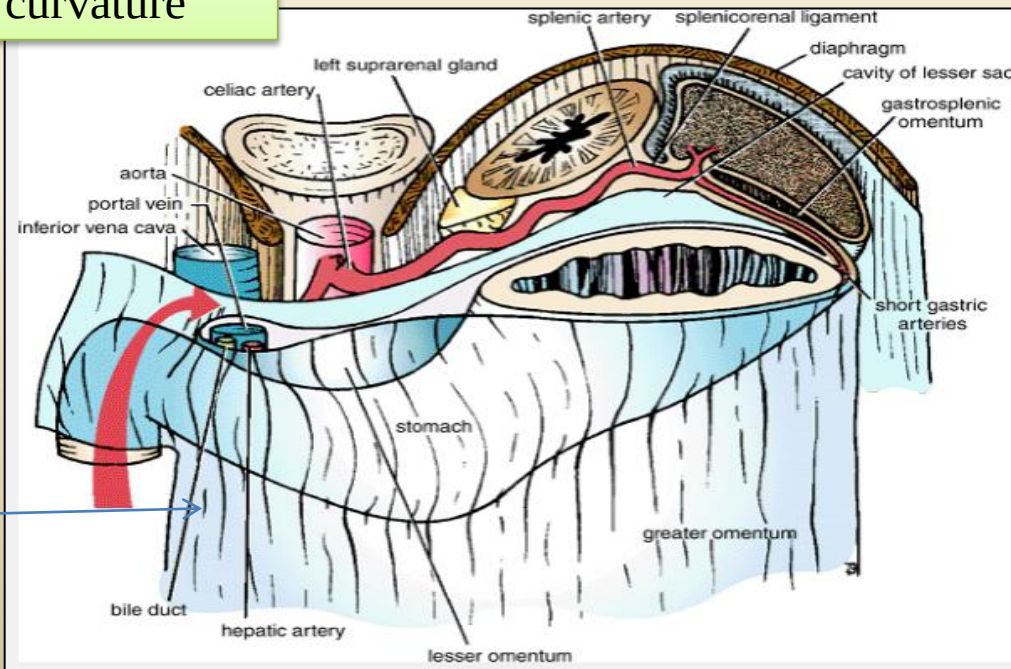
- **incisura angularis**

a constant notch in the lower part of the lesser curvature

2-The greater curvature

- Is much longer than the lesser curvature.Extends from **the left of the cardiac orifice**, over the dome of the fundus, and along the left border of the stomach **to the pylorus**

The greater omentum extends from the **lower part of the greater** curvature to the transverse colon



Parts of the stomach

1-Fundus:

- Is dome-shaped and projects upward and to the left of the cardiac orifice.
- It is usually full of gas.

2-Body:

- extends from the level of the cardiac orifice to the level of the **incisura angularis**

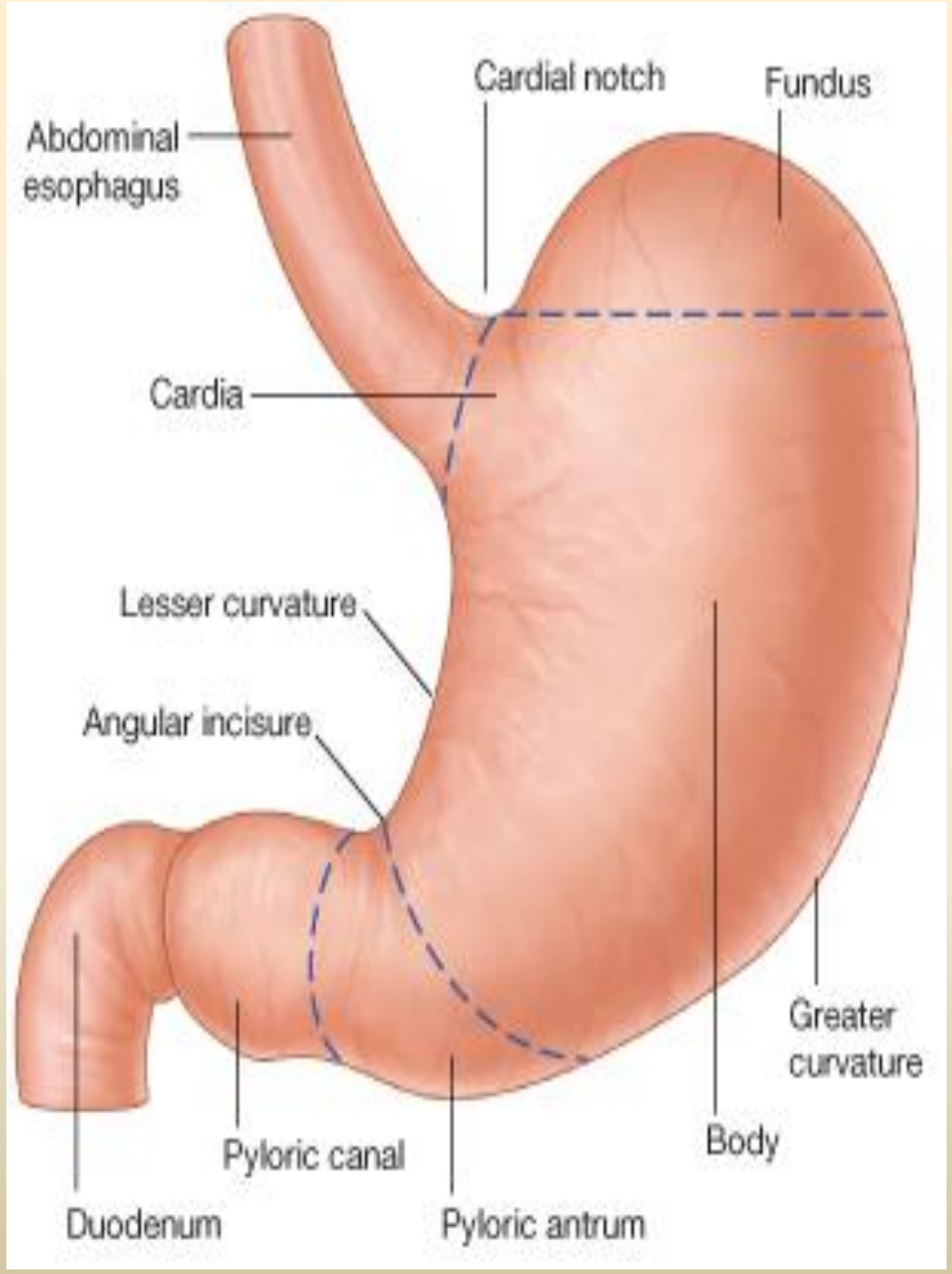
3-Pyloric antrum:

- Extends from the incisura angularis to the pylorus

Pylorus: This is the most tubular part of the stomach.

The thick muscular wall is called **the pyloric sphincter**

- The cavity of the pylorus is the **pyloric canal**



Arteries

The arteries are derived from the branches of the **celiac artery**

1-The left gastric artery arises from the **celiac artery**

2-The right gastric artery arises from **the hepatic**

3-The short gastric arteries arise from **the splenic artery**

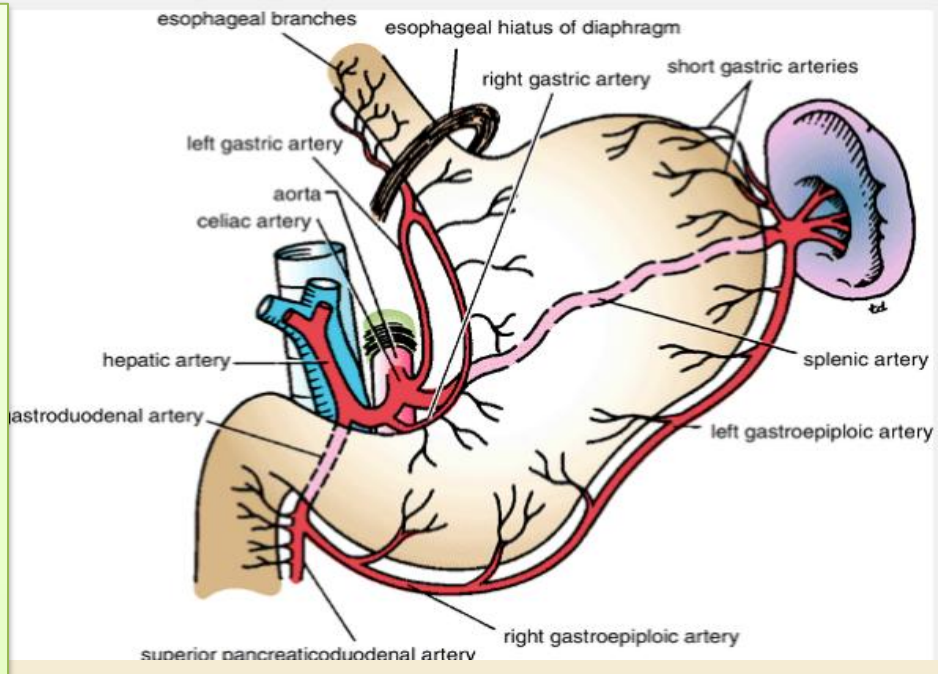
4-The left gastroepiploic artery arises from **the splenic artery**

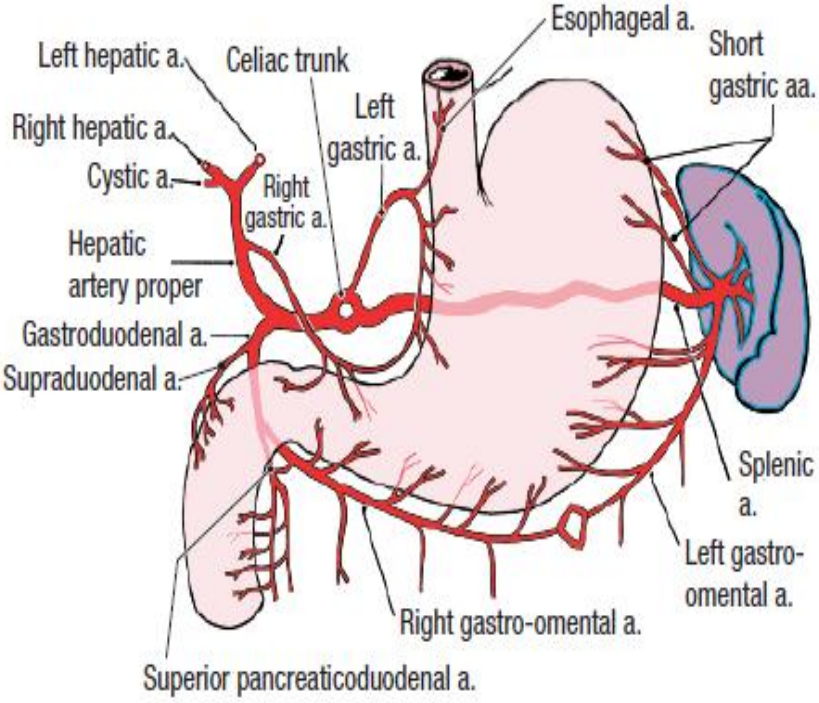
5-The right gastroepiploic artery arises from the gastroduodenal branch of the hepatic artery

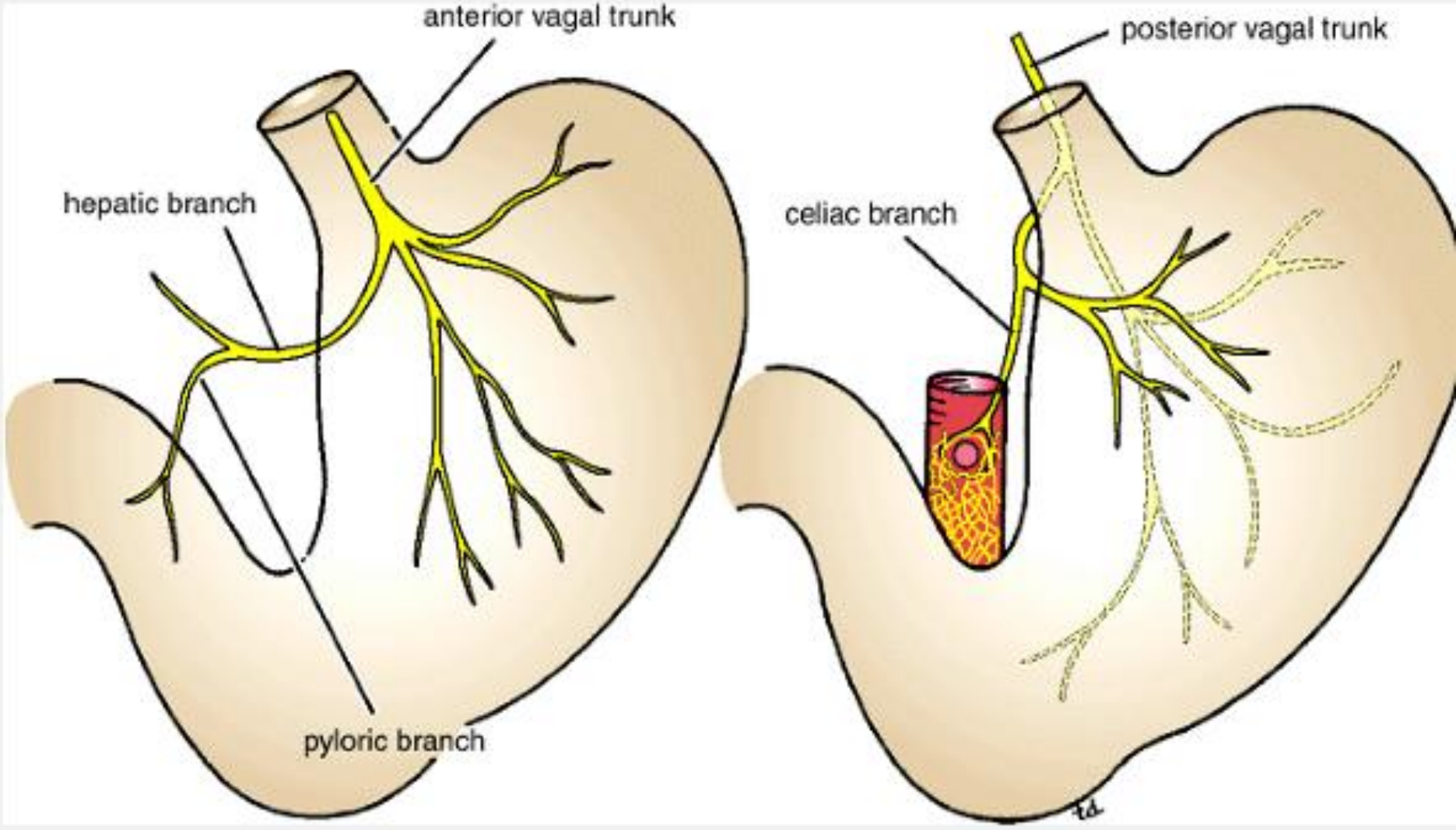
Veins

The veins drain into **the portal vein**

Read only





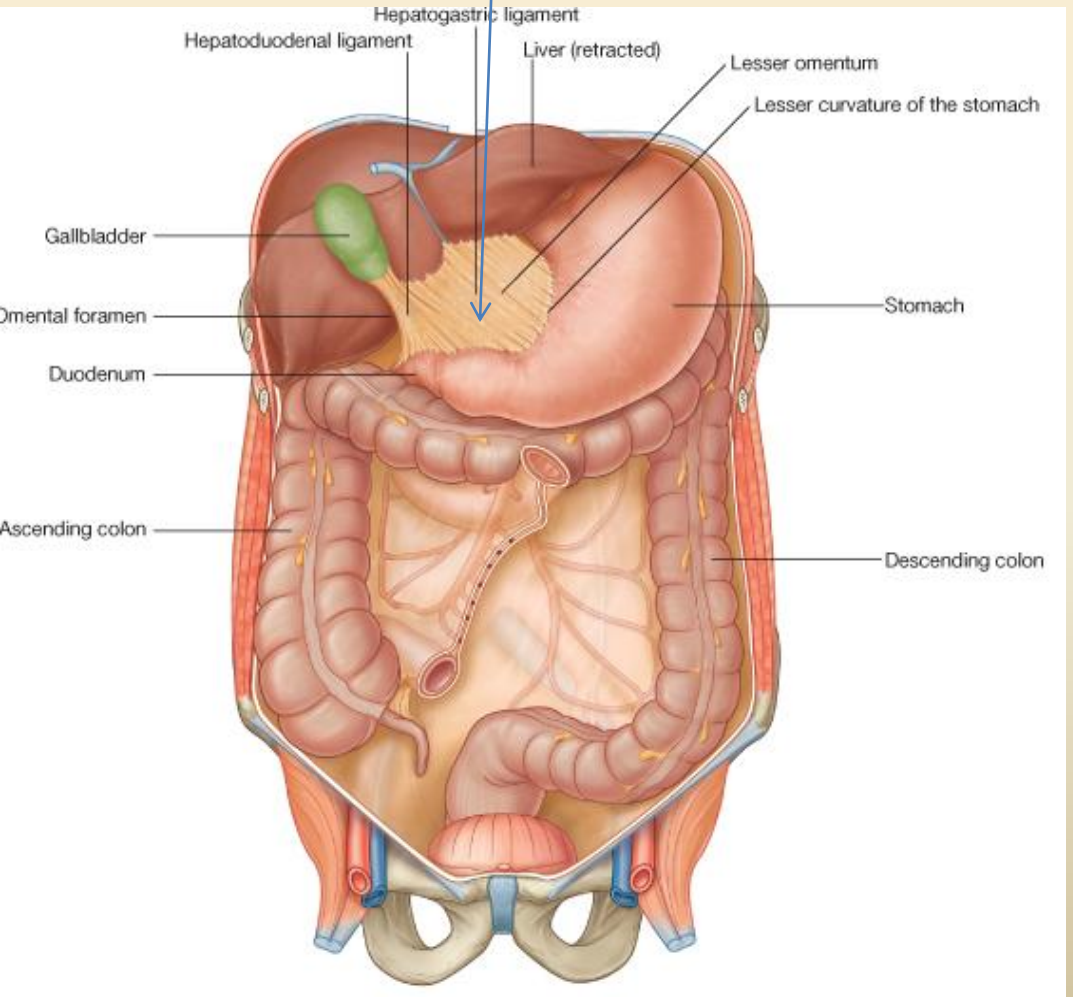


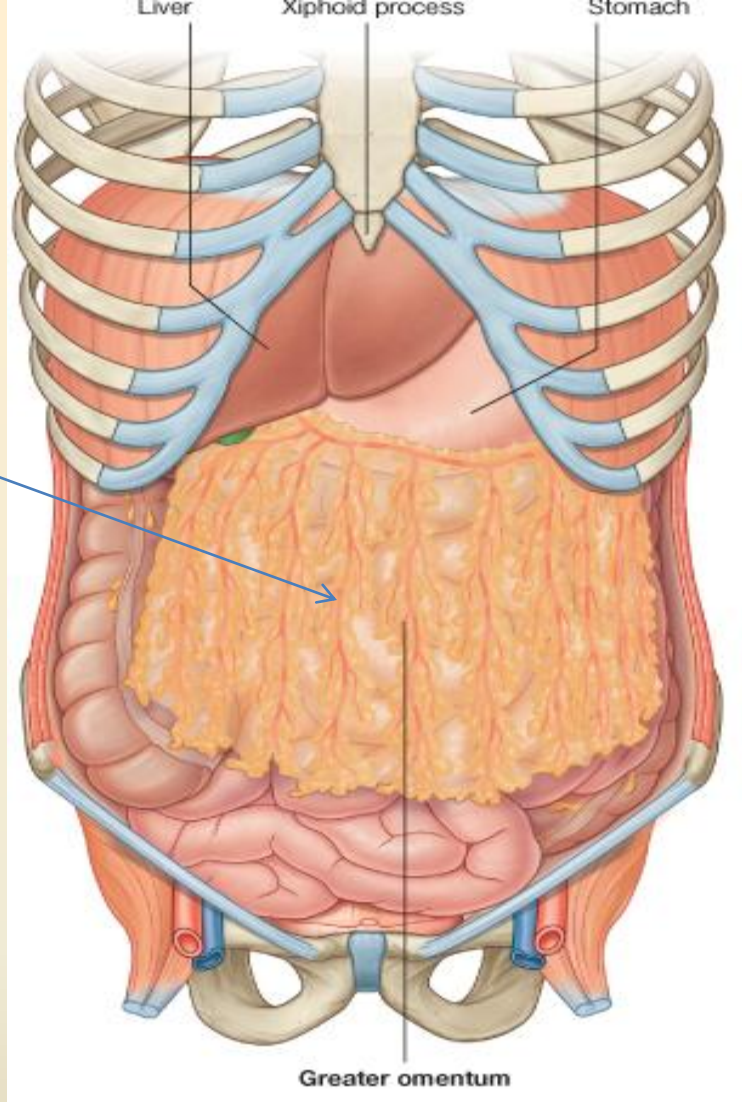
Nerve Supply

The nerve supply includes sympathetic fibers derived from the celiac plexus and

parasympathetic fibers from the right and left vagus nerves

The peritoneum (visceral peritoneum) completely surrounds the stomach. It leaves the lesser curvature as the lesser omentum and the greater curvature as the gastrosplenic omentum and the greater omentum



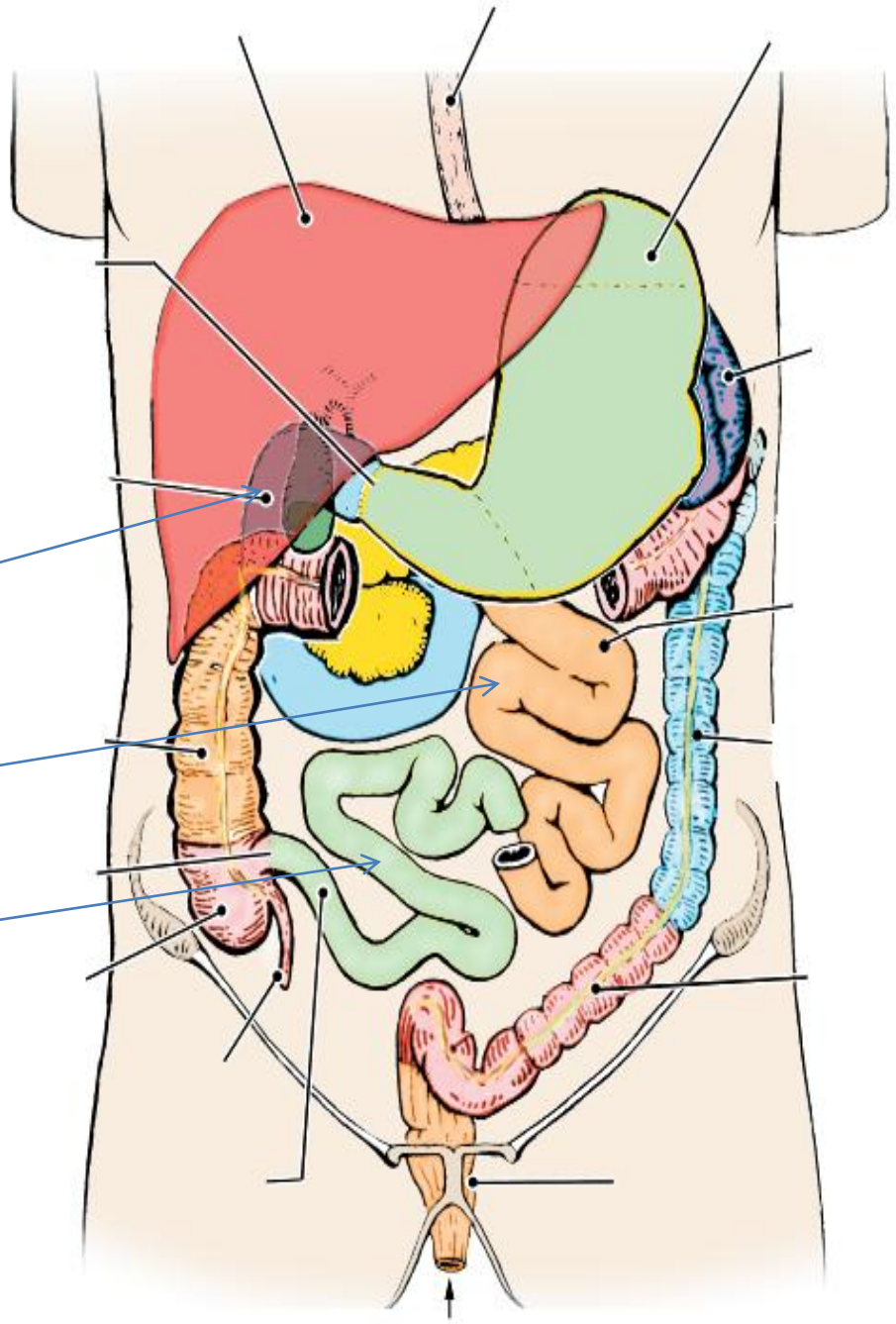


3-Small intestine

- Extends from the **pyloric orifice** of the stomach to the **ileocecal fold**

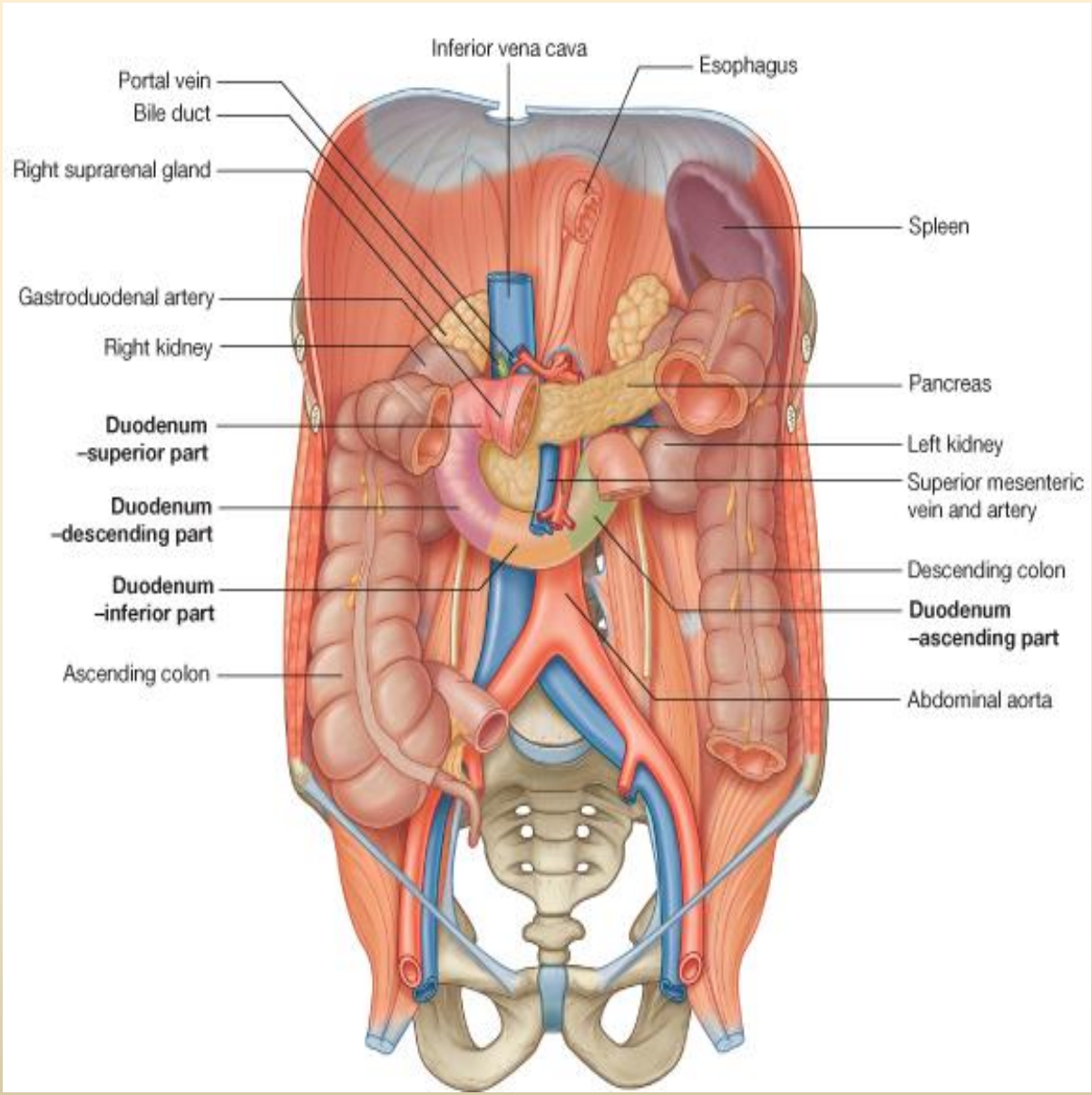
- Approximately **6-7 m long** with a narrowing diameter from beginning to end
- consists of:

- **A- The duodenum**
- **B- The jejunum**
- **C- The ileum**.



3-The duodenum

- **is situated in the epigastric and umbilical regions**
- **For purposes of description, is divided into four parts.**



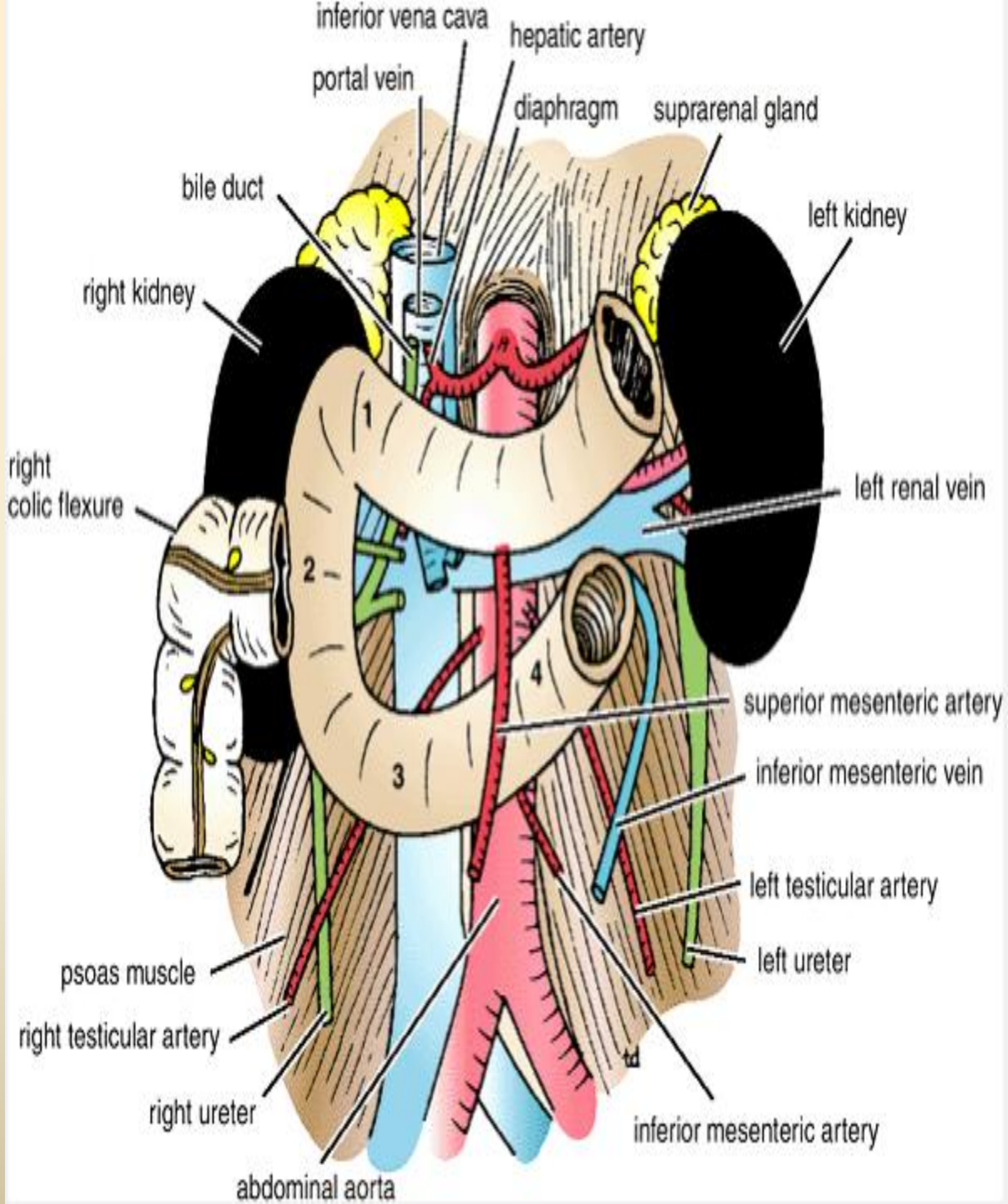
The duodenum is divided into four parts:

The superior part (first part) extends **from the pyloric orifice** of the stomach to **the neck of the gallbladder**, is just to the right of the body of vertebra LI

The descending part (second part) of the duodenum extends from **the neck of the gallbladder** to the **lower border of vertebra LIII**

The inferior part (third part) of the duodenum is the longest section
it is crossed anteriorly by the superior mesenteric artery and vein

The ascending part (fourth part) of the duodenum passes upward and terminates at the **duodenojejunal flexure**



The descending part of the doudenum

This part of the duodenum contains:

1- The **major duodenal papilla**

which is the common entrance for

A- The bile

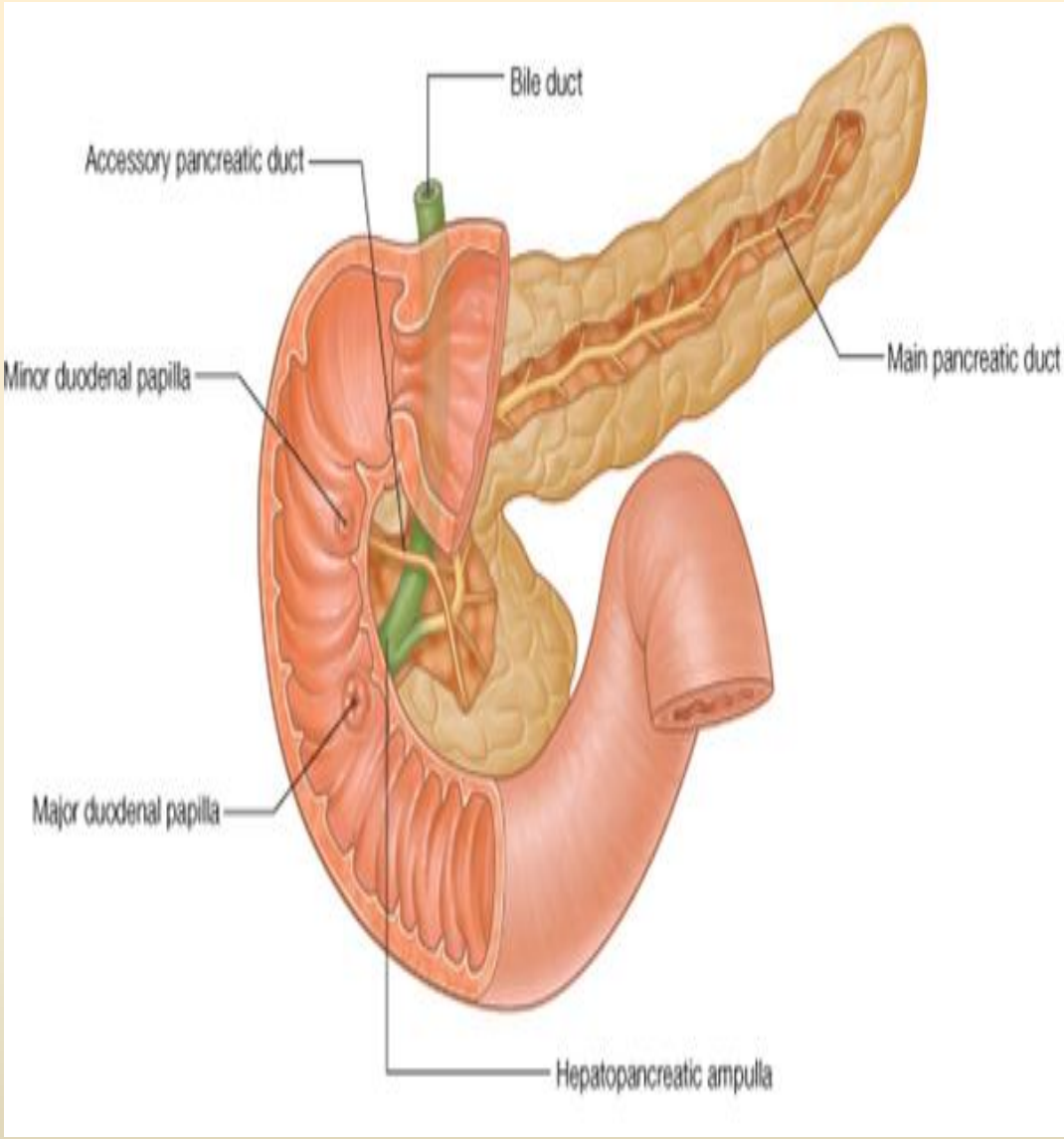
B- Pancreatic ducts

2- **The minor duodenal papilla**

which is the entrance for

the **accessory pancreatic duct**,

and the junction of
the foregut
and the midgut just
below the
major duodenal papilla



B -Jejunum and ileum

the jejunum can be distinguished from the ileum by the following features:

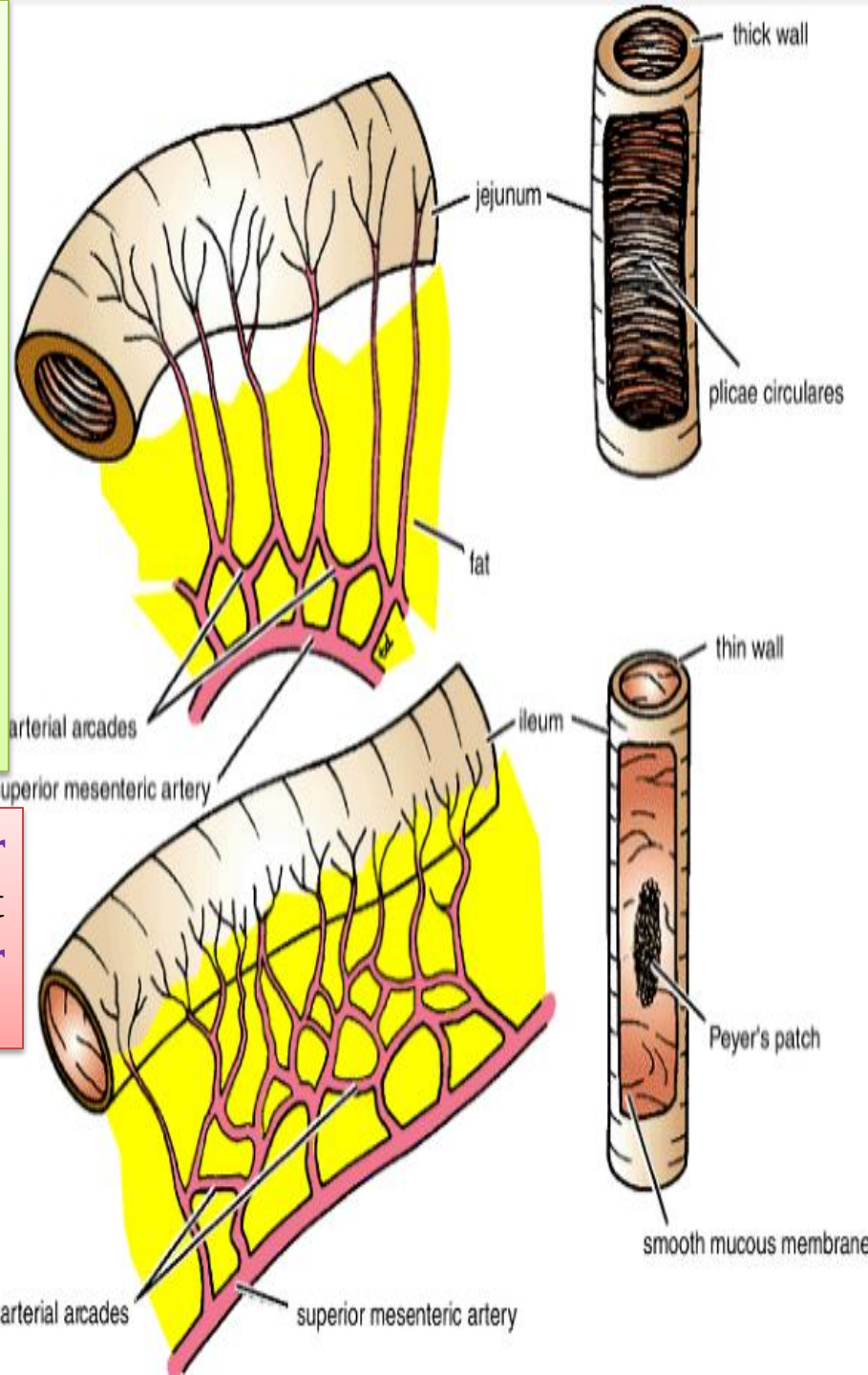
A-The jejunum lies **in the upper part** of the peritoneal cavity ,the **ileum** is in **the lower part** of the cavity

B-The jejunum is wider, **thicker walled**, **and redder** than the ileum

C- The jejunal wall feels thicker because the permanent foldings of the mucous membrane, the **plicae circulares**

D-The jejunal mesenteric vessels form only **one or two arcades**. The ileum receives numerous short terminal vessels that arise from **a series of three or four or even more arcades**

E-Aggregations of lymphoid **tissue (Peyer's patches)** are present in the mucous membrane of the lower ileum

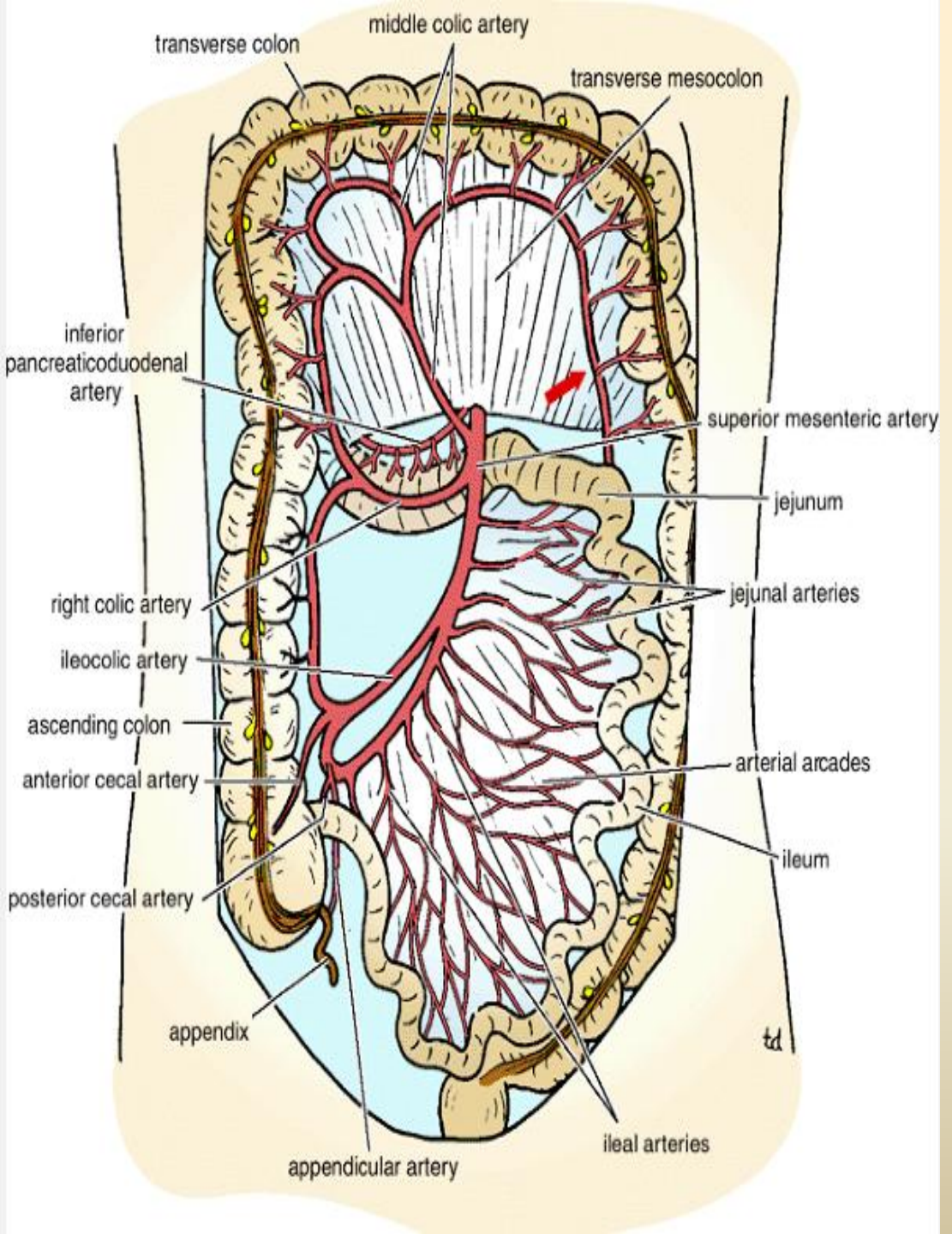


Blood Supply of small intestine

Arteries

The arterial supply is from branches **of the superior mesenteric artery** .

The veins correspond to the branches of the superior mesenteric artery and drain into **the superior mesenteric vein**



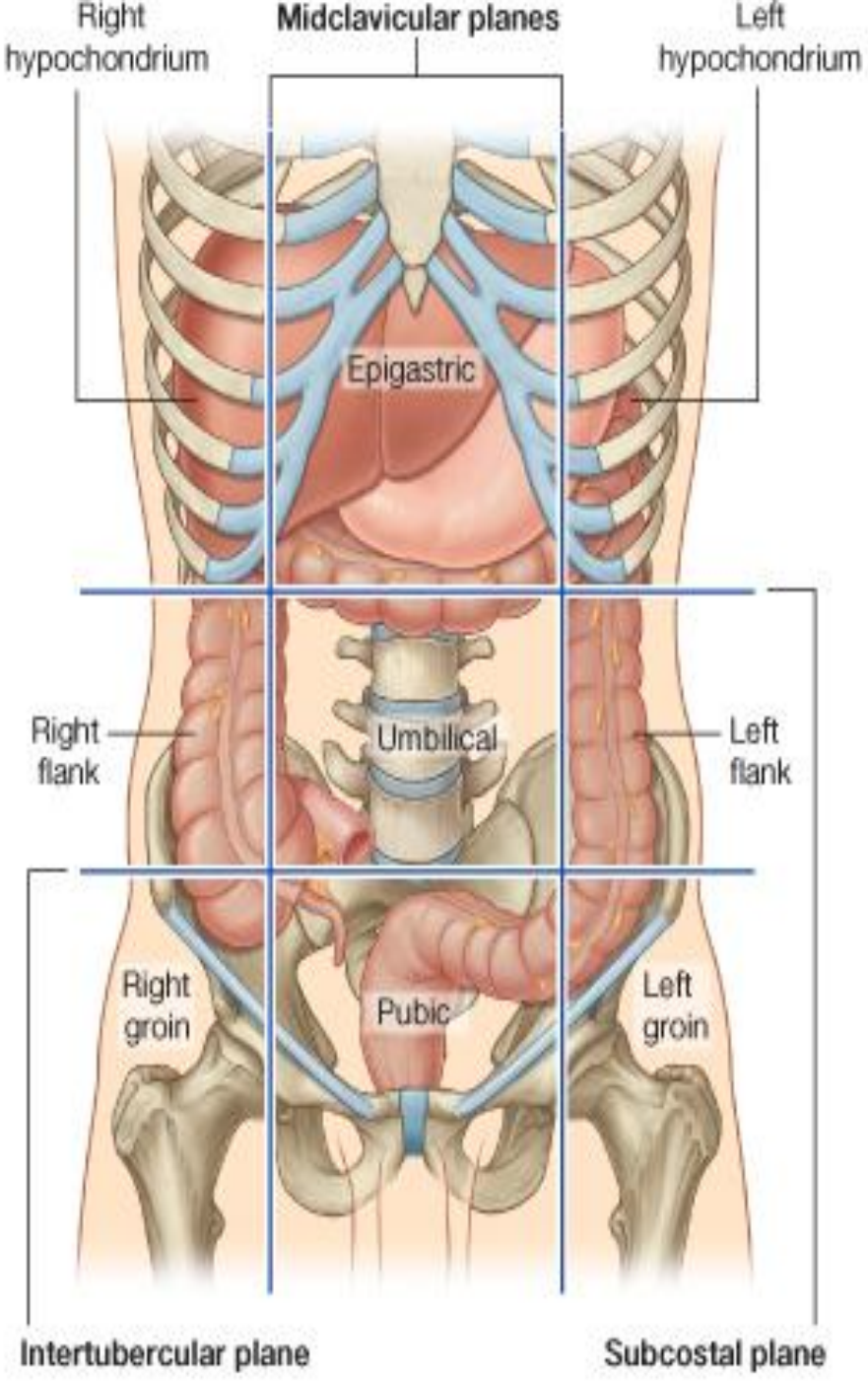
4-Large Intestine

➢The large intestine extends from **the ileum to the anus**.

➢It is divided into:

1- The cecum
2-Appendix
3-Ascending colon
4-Transverse colon
5-Descending colon
6-Sigmoid colon
7-The rectum

➢The primary function of the large intestine is the absorption of water and electrolytes and the storage of undigested material until it can be expelled from the body as feces.



Cecum

➢The **cecum** is that part of the large intestine that *lies below the level of the junction of the ileum with the large intestine*

➢It is **a blind-ended pouch** that is situated in the **right iliac fossa**

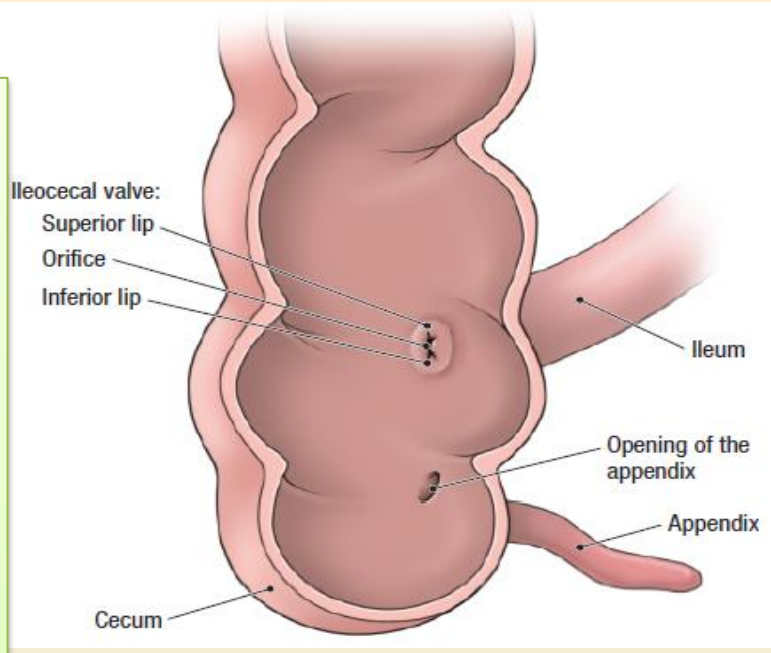
➢ **It is completely covered with peritoneum**

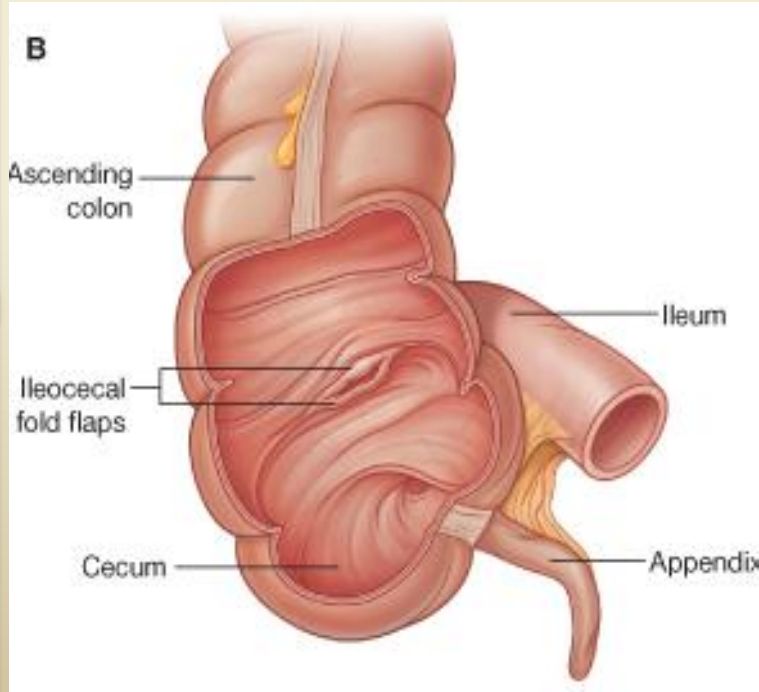
➢Attached to its **posteromedial s**urface is the **appendix**

➢The terminal part of the ileum enters the large intestine at the junction of the cecum with the ascending colon

➢The opening is provided with two folds, or lips, which form the so-called **ileocecal valve**

➢The appendix communicates with the cavity of the cecum through an opening located below and behind the ileocecal opening





Blood Supply

Arteries

Anterior and posterior cecal arteries form the ileocolic artery, a branch of the superior mesenteric artery

Veins

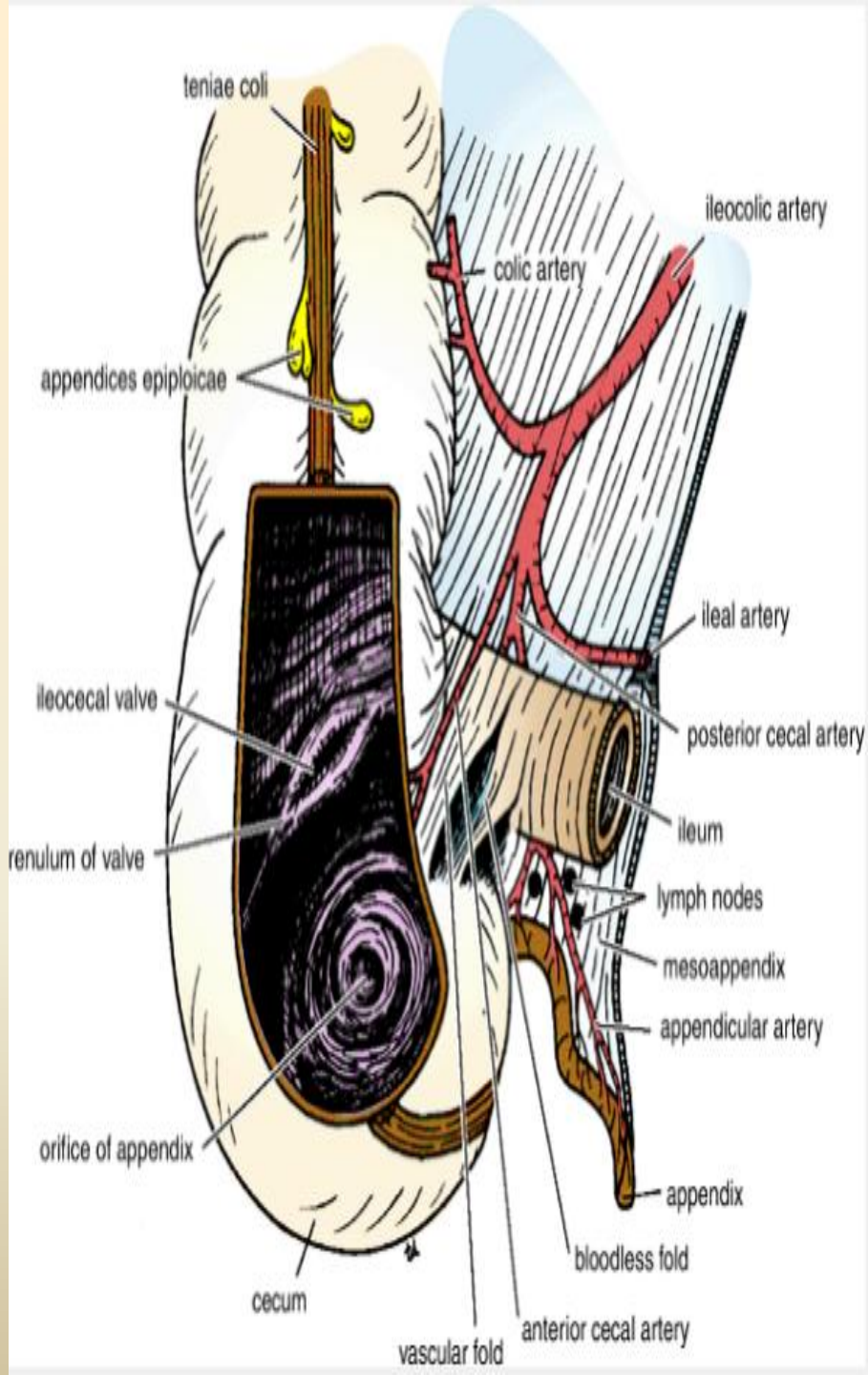
The veins correspond to the arteries and drain into the **superior mesenteric vein**

Appendix

- The appendix is a narrow, muscular tube containing a large amount of lymphoid tissue
- It varies in length from 3 to 5 in. (8 to 13 cm)
- The **base** is attached to the posteromedial surface of the cecum
- It has a complete peritoneal covering, which is attached to the mesentery of the small intestine by a short mesentery of its own

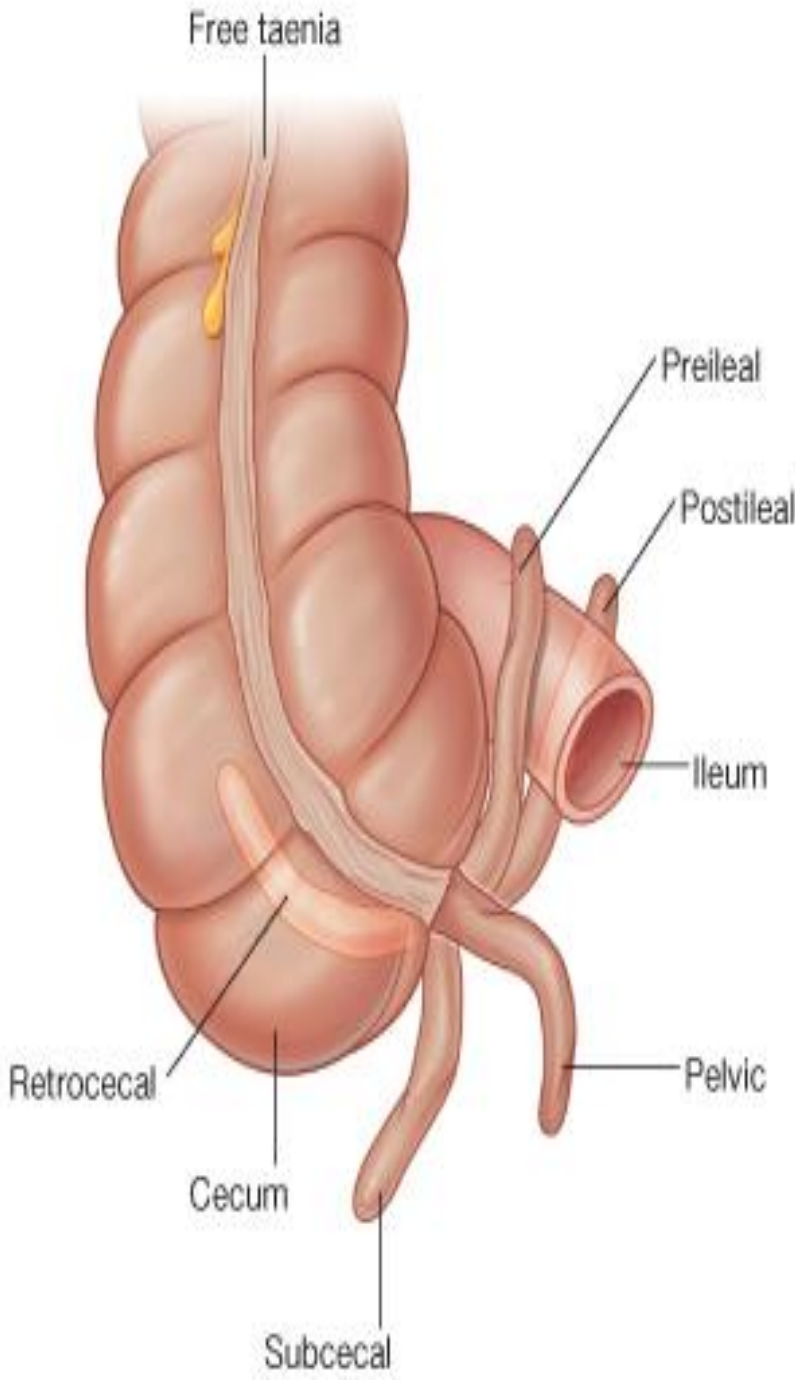
the mesoappendix.

- The mesoappendix contains the appendicular vessels and nerves.
- The appendix lies in **the right iliac fossa**
- its **base** is situated one third of the way up the line joining the right anterior superior iliac spine to the umbilicus (**McBurney's point**).
- the base of the appendix is easily found by identifying the teniae coli of the cecum and tracing them to the base of the appendix, where they converge to form a continuous longitudinal muscle coat



Pain of Appendicitis

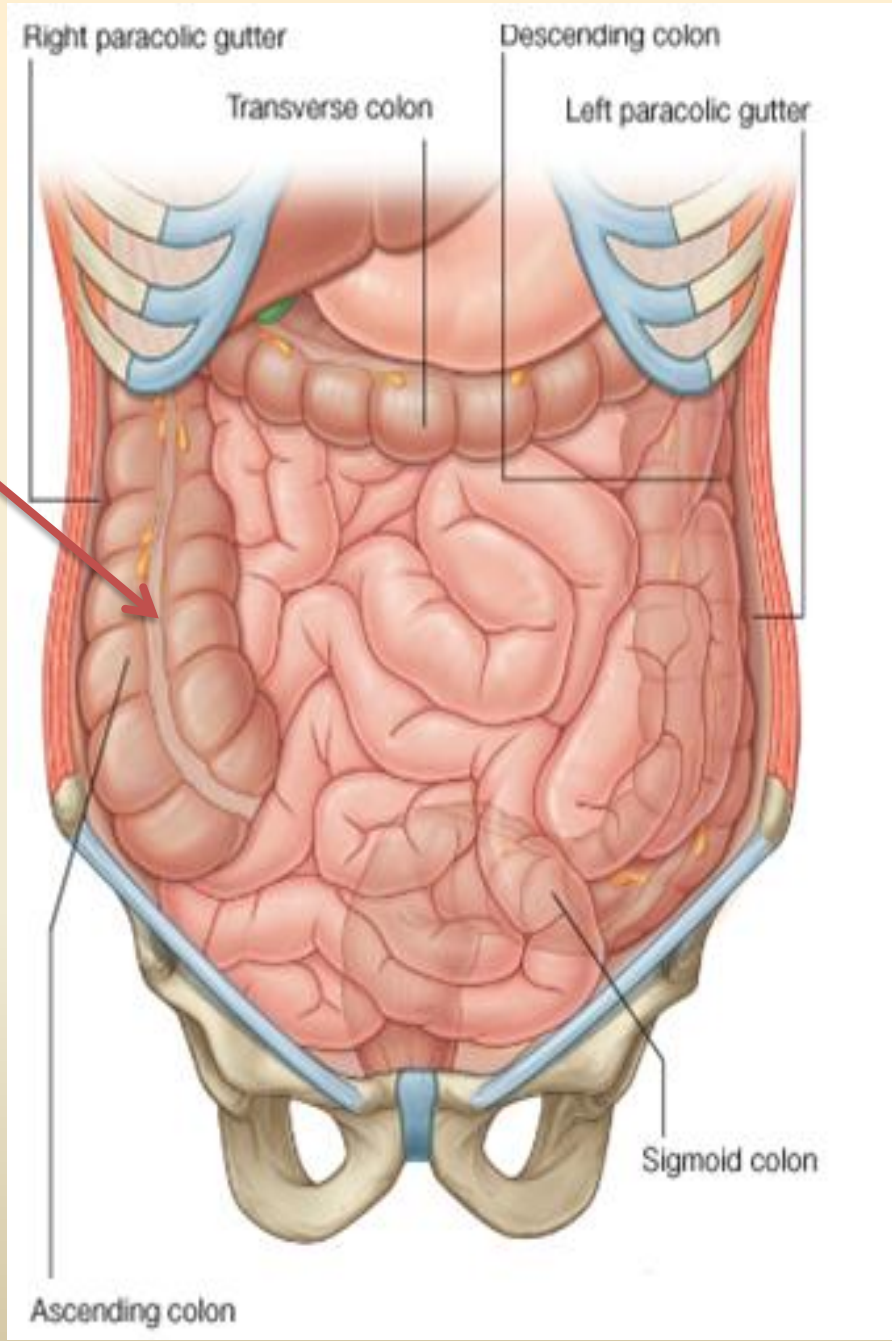
Visceral pain in the appendix is produced by distention of its lumen or spasm of its muscle. The afferent pain fibers enter the spinal cord at the level of **the 10th thoracic segment**, and a vague referred pain is felt in the region of the **umbilicus**. Later, the pain shifts to where the inflamed appendix irritates the **parietal** peritoneum. **Here the pain is precise, severe, and localized**



Ascending Colon

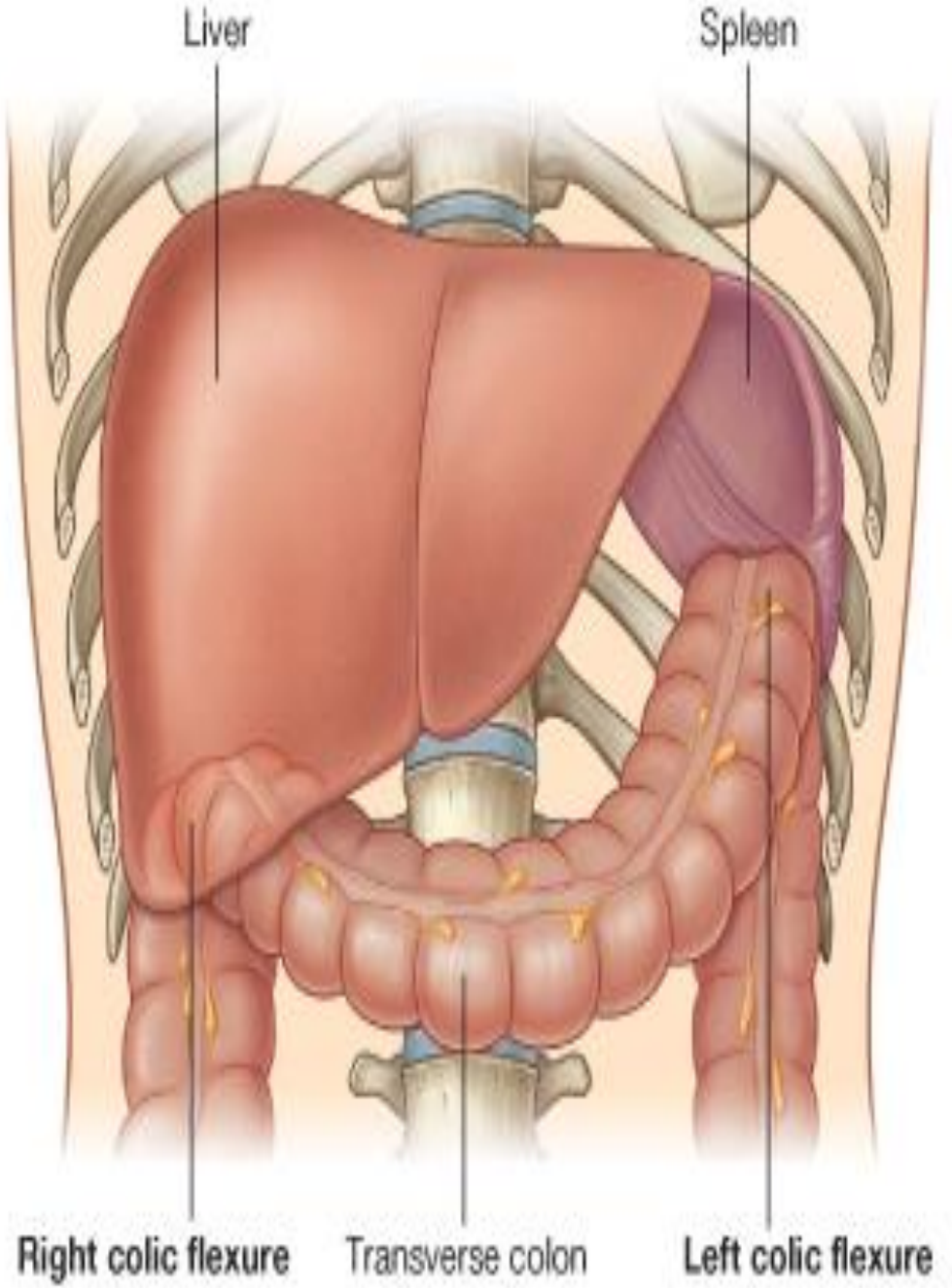
➢The ascending colon is about 5 in. (13 cm) long

➢The peritoneum covers the front and the sides of the ascending colon, binding it to the posterior abdominal wall



Transverse Colon

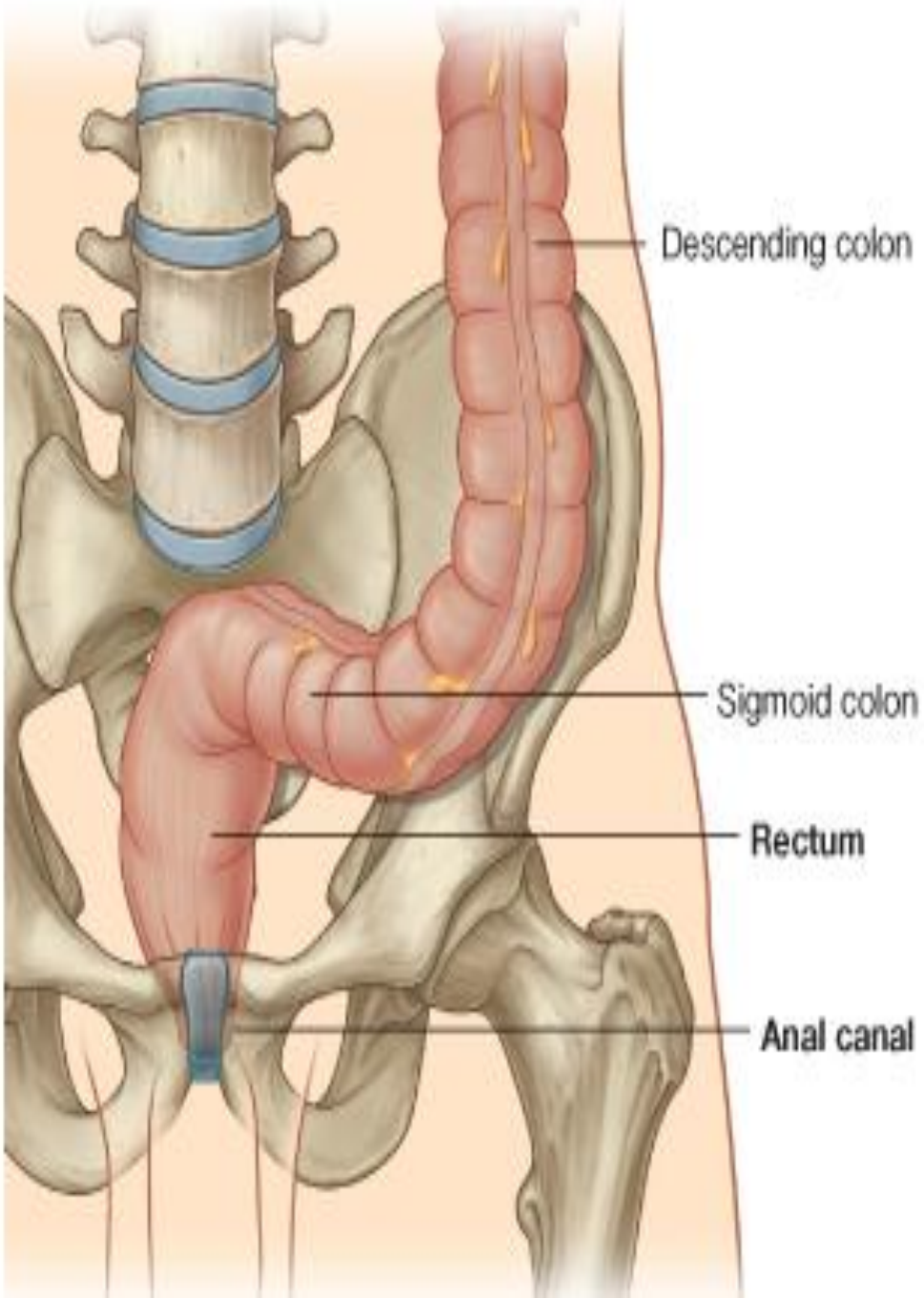
- The transverse colon is about 15 in. (38 cm) long and extends across the abdomen, occupying the umbilical region.



Descending Colon

- The descending colon is about 10 in. (25 cm) long

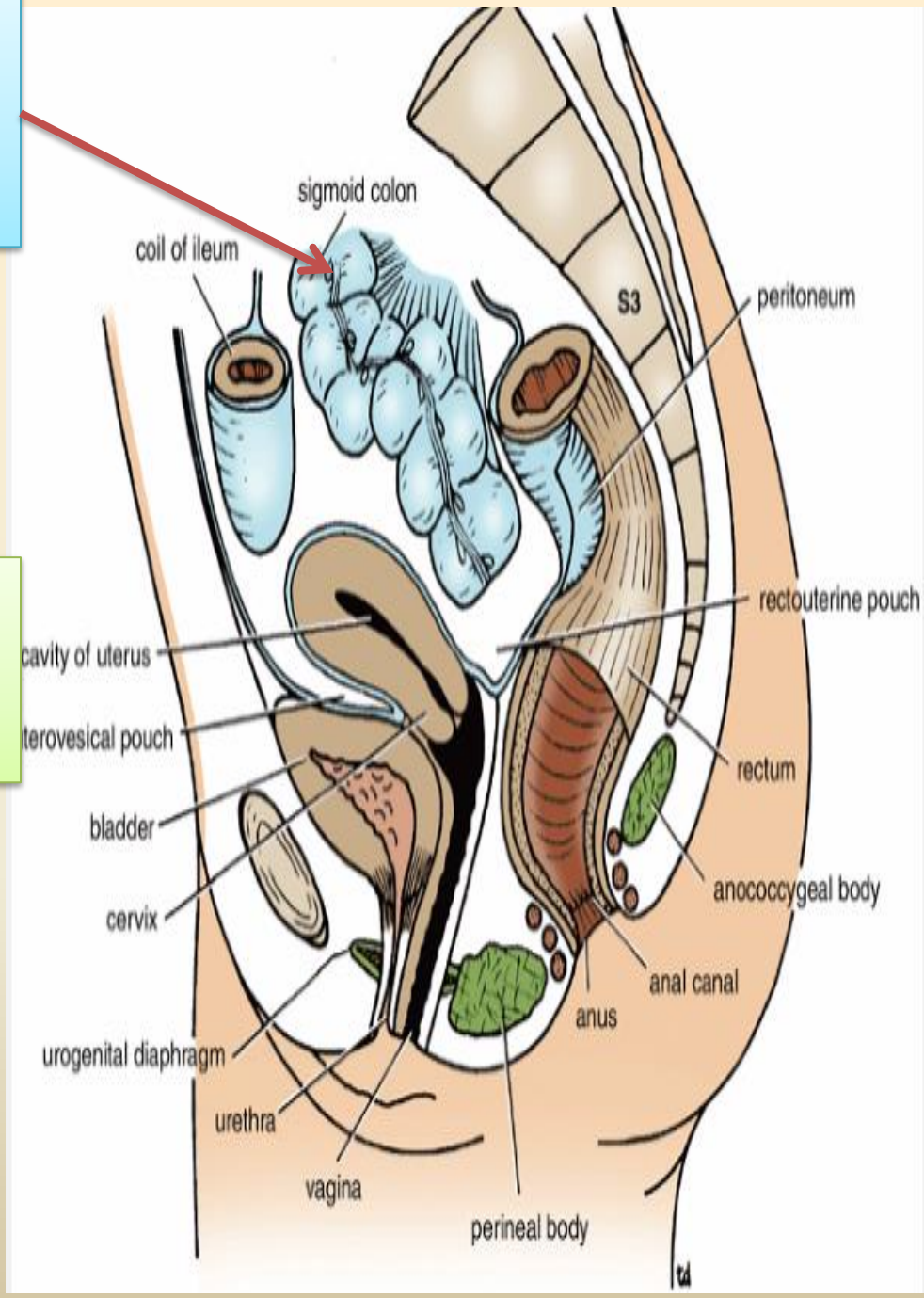
The peritoneum covers the front and the sides and binds it to the posterior abdominal wall



Sigmoid Colon

➢The sigmoid colon is 10 to 15 in. (25 to 38 cm) long and begins as a continuation of the.

➢The sigmoid colon is attached to the posterior pelvic wall by the fan-shaped sigmoid mesocolon.



Rectum

- The rectum is about 5 in. (13 cm) long
- begins in front of the third sacral vertebra as a continuation of the sigmoid colon.
- The lower part of the rectum is dilated to form the rectal **ampulla**

The peritoneum covers **the anterior and lateral surfaces of the *first third* of the rectum**
covers only **the anterior surface of the middle** third, leaving **the lower third devoid of peritoneum**