

The Digestive System

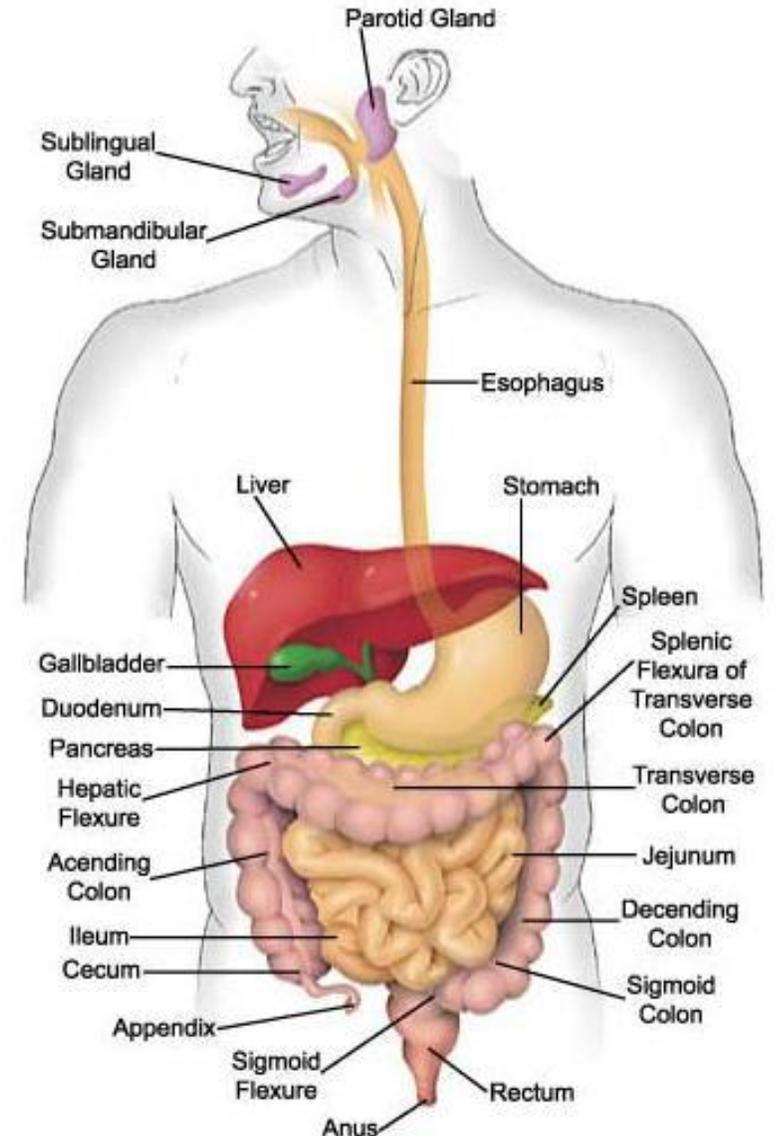
* It includes the following:

A. The gastrointestinal tract or alimentary canal:

* This is a continuous tube that extends from mouth to anus.

* It includes mouth, pharynx, esophagus, stomach, small intestine & large intestine.

B. Accessory Glands: such as liver, pancreas & salivary glands.



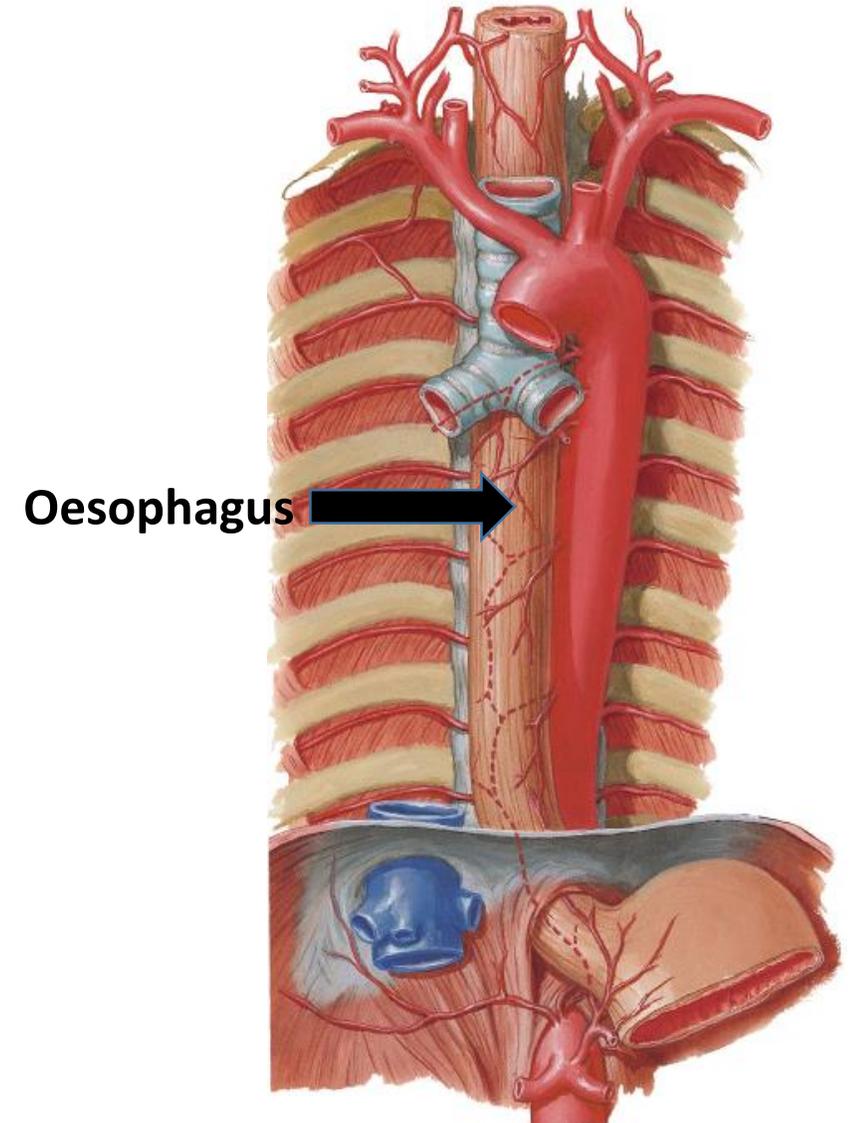
Oesophagus

* It is a **muscular tube** (continuation of pharynx) which extends from the level of 6th cervical vertebra (lower border of cricoid cartilage) to the cardiac end of stomach.

* **Length:** 25 cms.

* **Parts:**

1. A short **cervical** part.
2. A **long thoracic** part.
3. A short **abdominal** part which opens in the stomach.



Stomach

* It lies in the upper part of abdomen mainly to the left.

* **It has:**

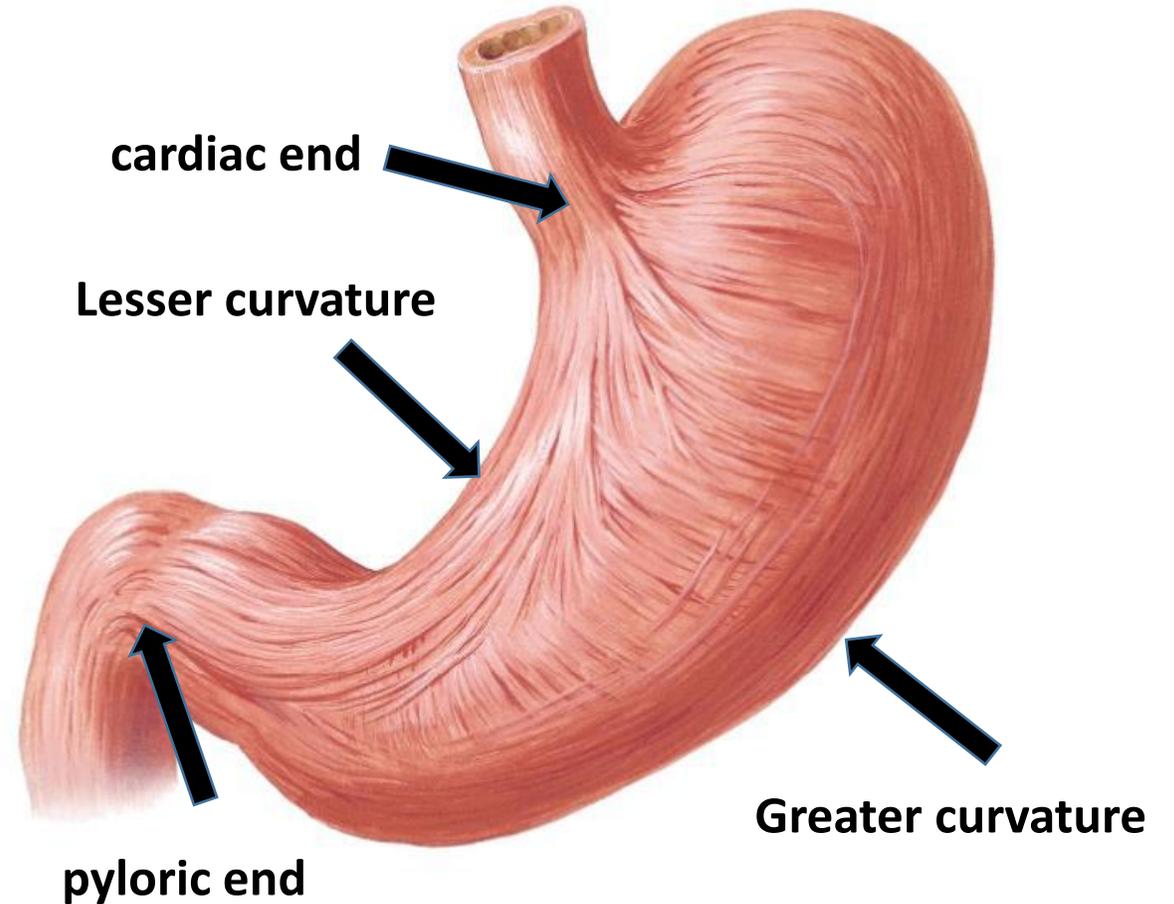
** **2 ends:** 1. cardiac end.
2. pyloric end.

** **2 borders:**

1. Lesser curvature → to the right.
2. Greater curvature → to the left.

** **2 surfaces:**

1. Anterior surface.
2. Posterior surface.



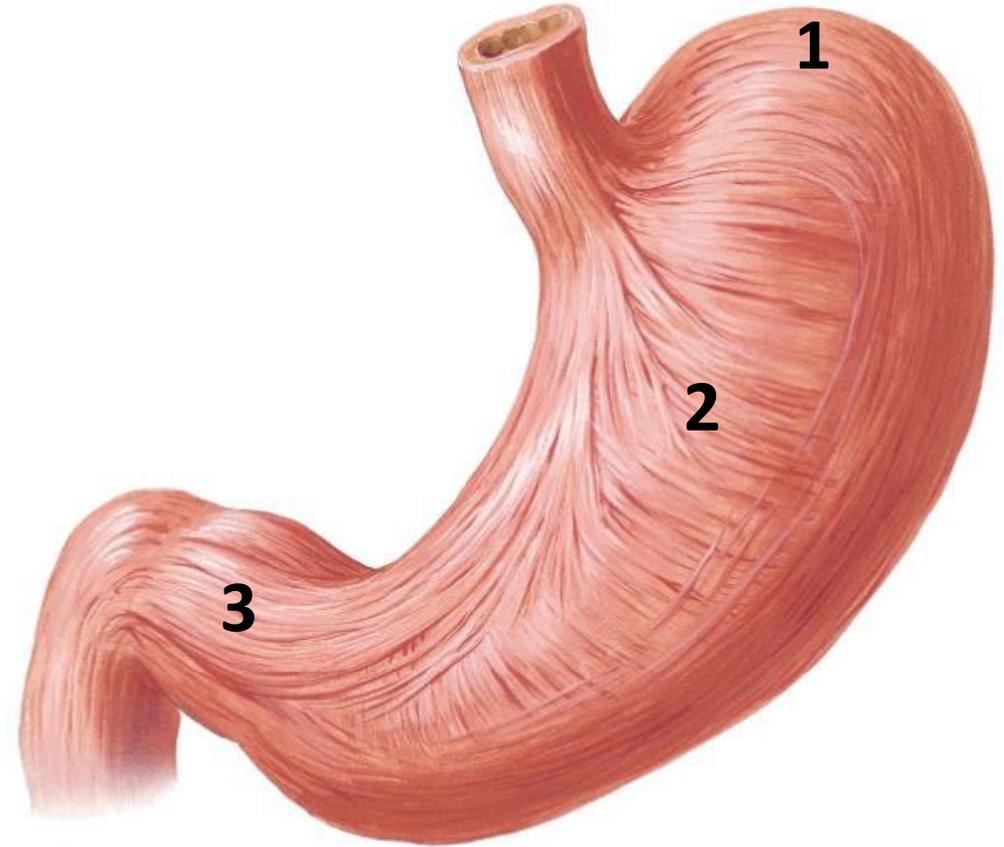
Stomach (Contd)

* It is formed of three parts:

1. Fundus.
2. Body.
3. Pyloric part.

* **Peritoneal covering of the stomach:**

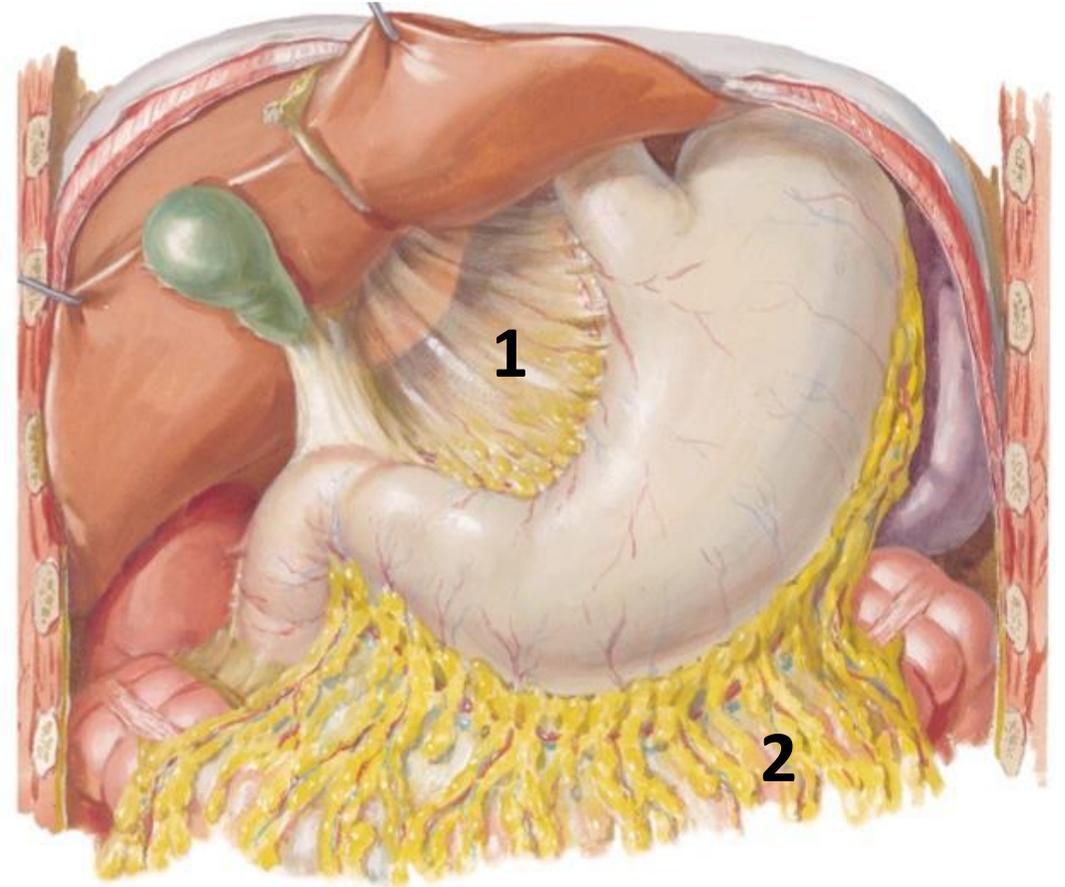
It is mostly covered with peritoneum.



Stomach (Contd)

* Peritoneal folds of stomach:

- 1. Lesser omentum:** It extends from the liver to the lesser curvature.
- 2. Greater omentum:** It is attached to the greater curvature and lies in the front of the intestine.



Small Intestine

** It is formed of duodenum, jejunum and ileum.

I. Duodenum:

* It is C-shaped and formed of 4 parts.

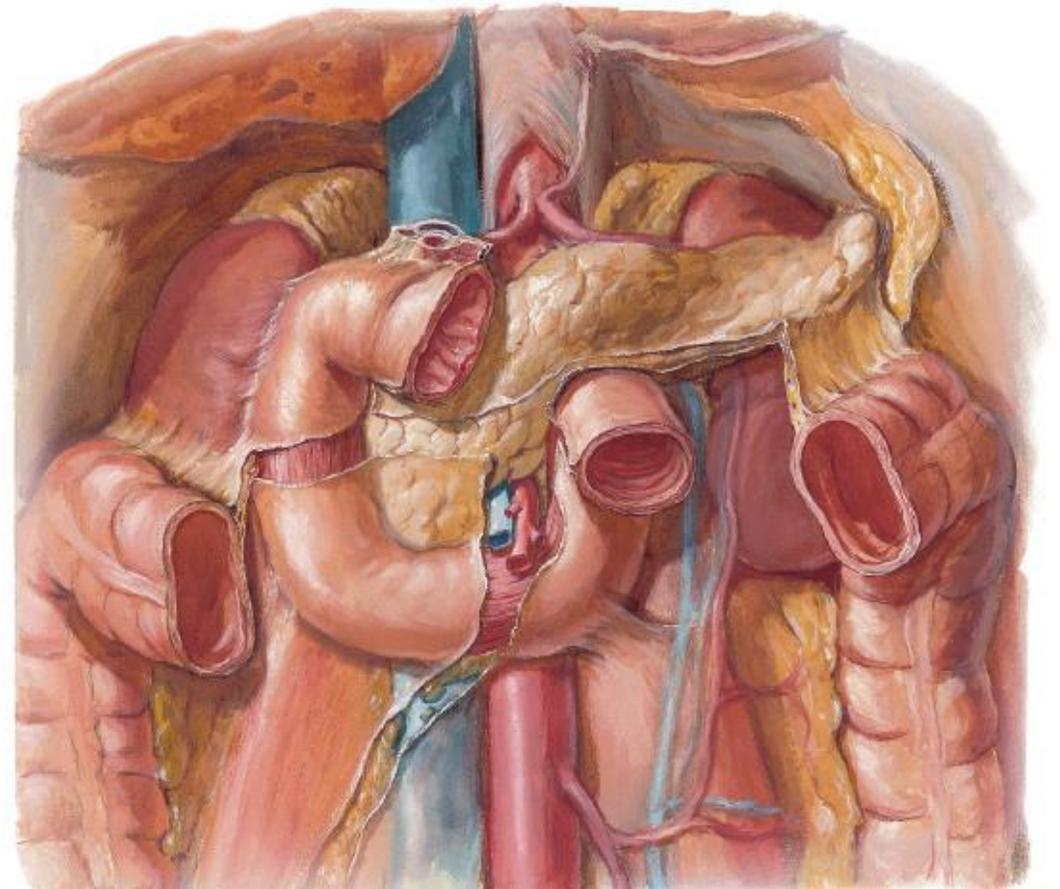
* Length: 25 cms.

* Peritoneal covering: it is retroperitoneal (except for the 1st inch of the 1st part which is covered with peritoneum).

* **Openings in the second part of duodenum:**

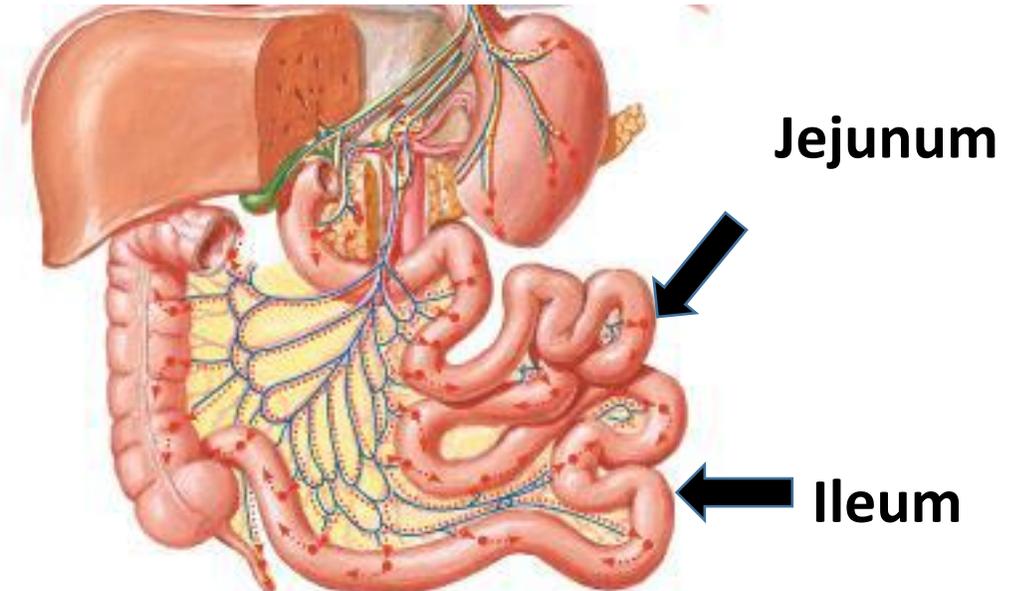
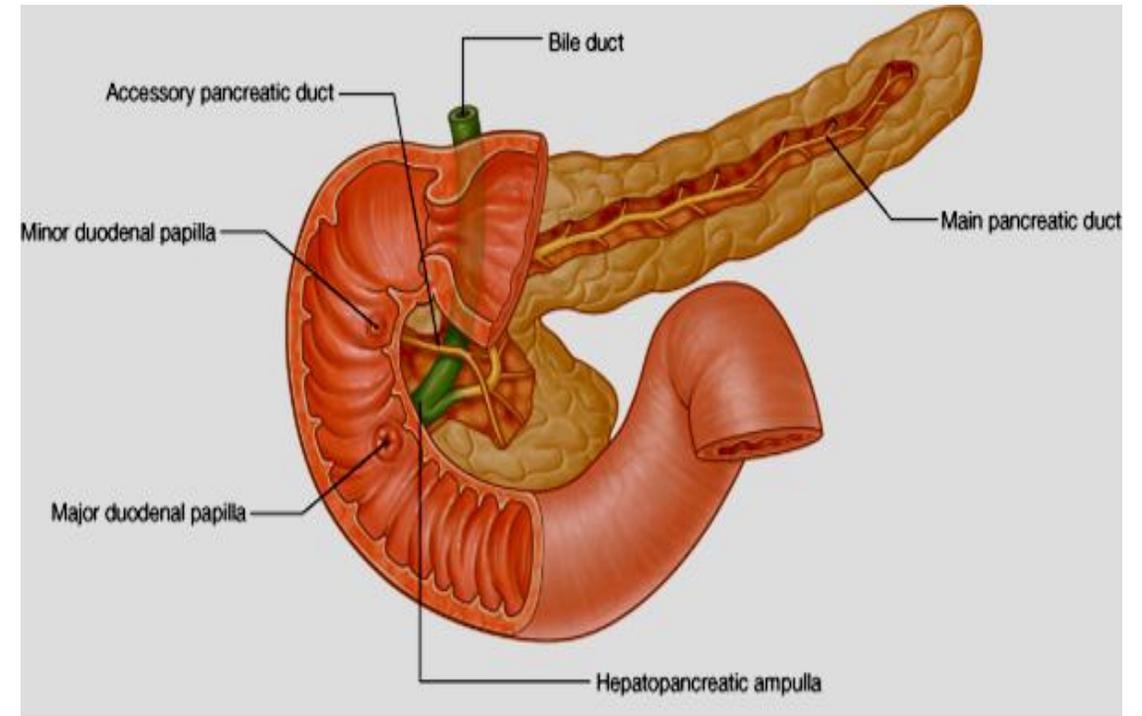
1. The main pancreatic duct joins the common bile duct to open together.

2. Accessory pancreatic duct.

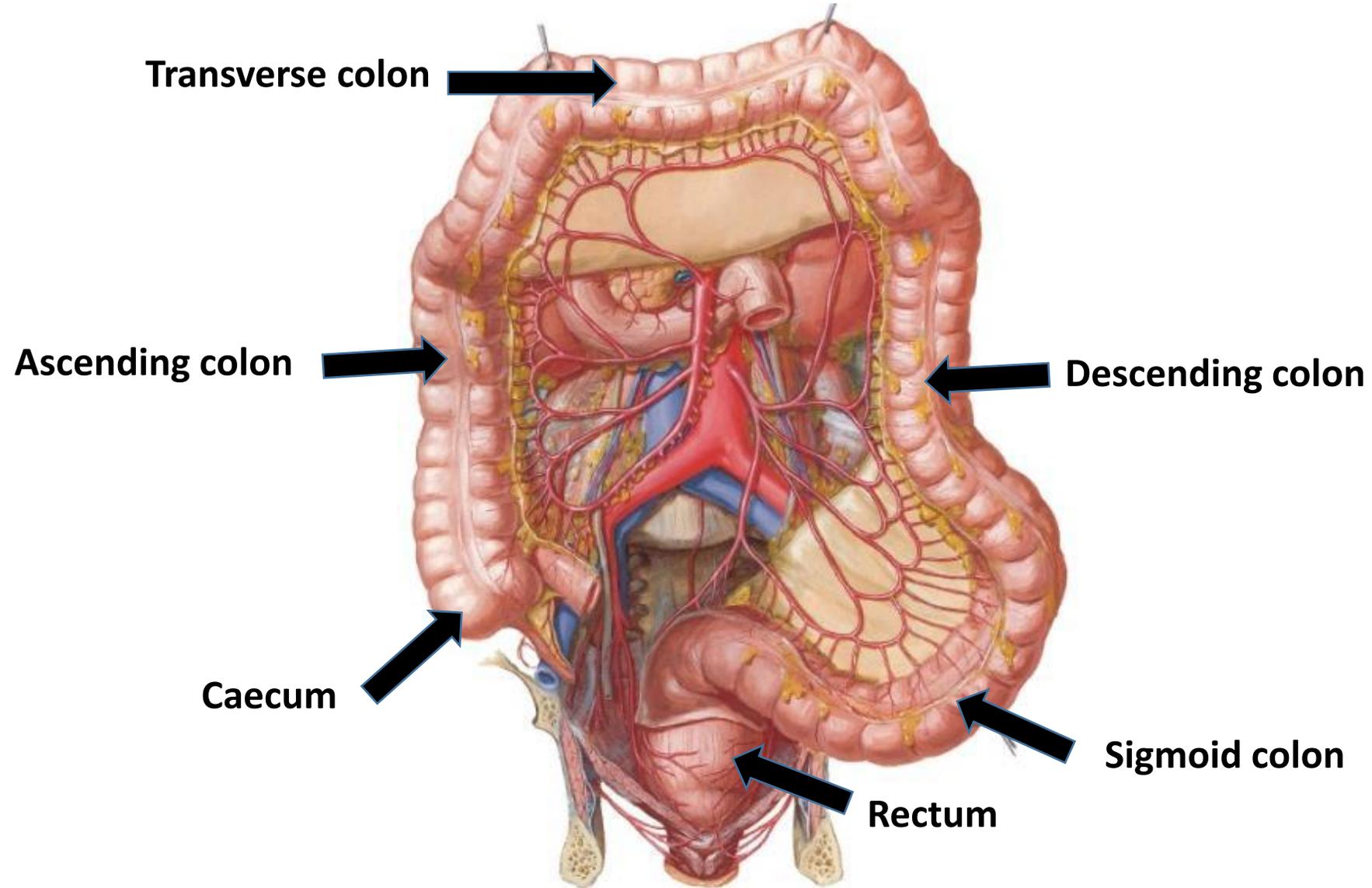


II. Free Parts of Small Intestine:

- * These are the **jejunum and ileum**.
- * They are about **6 meters** in length.
- * The jejunum constitutes the proximal 2/5 and the ileum constitutes the distal 3/5.
- * The ileum opens in the Caecum.
- * They are **freely mobile** as they are completely covered by peritoneum and suspended by a peritoneal fold called **mesentery**.



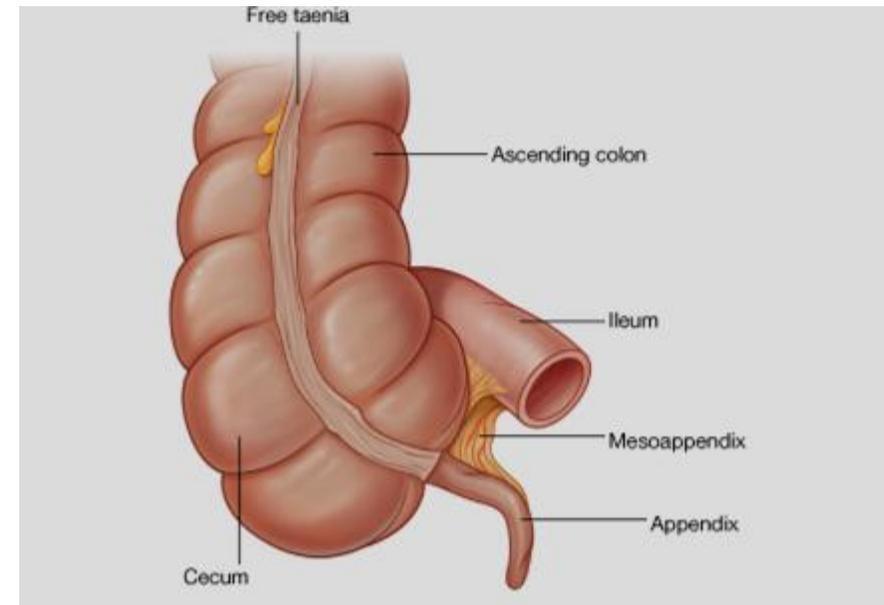
Large Intestine



Large Intestine

1. Caecum:

- * It is a sac which receives the ileum and opens in the ascending colon.
- * Length: 2.5 inches.
- * The **vermiform appendix** is attached to the caecum.
- * As the appendix and the umbilicus are supplied by the same nervous segment, the pain from the appendix is referred to the **umbilicus**.



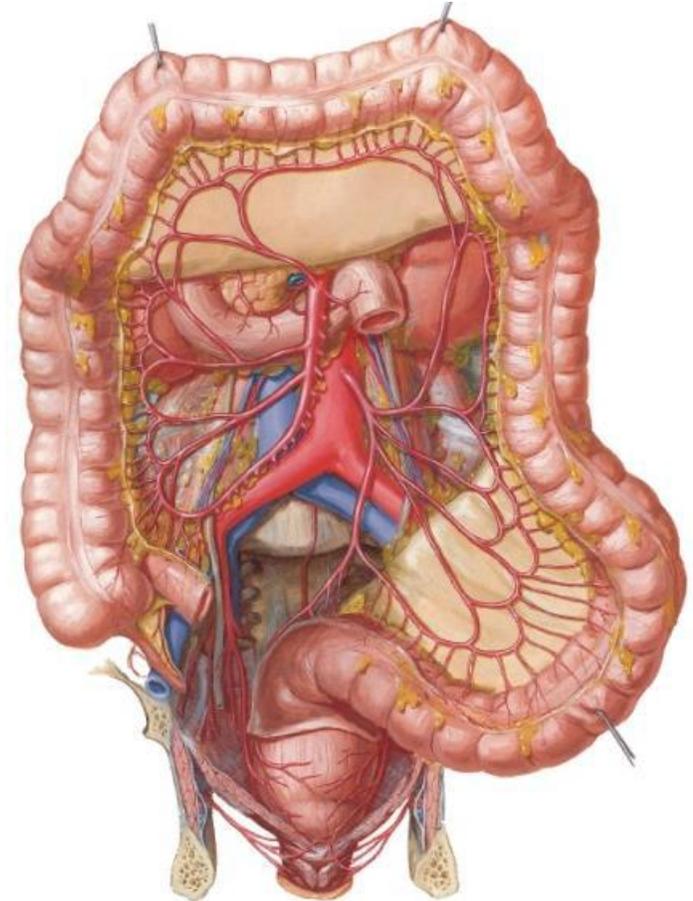
Large Intestine

2. Ascending colon:

- * It extends from the caecum to the right colic (hepatic) flexure.
- * Length: 5 inches.
- * It is covered by peritoneum from the front and sides only.

3. Transverse colon:

- * It extends from the hepatic flexure to the left colic (splenic) flexure.
- * Length: 20 inches.
- * It is completely covered by peritoneum and suspended by a peritoneal fold called **transverse mesocolon**.



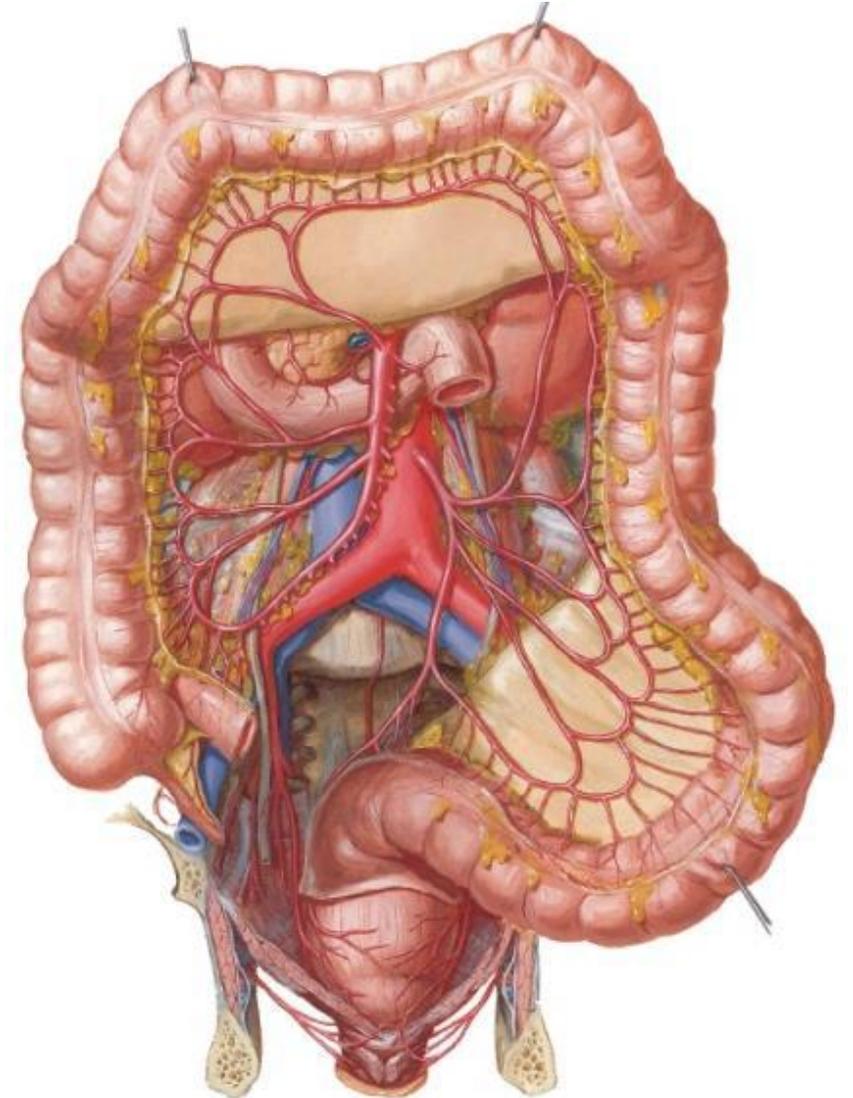
Large Intestine

4. Descending colon:

- * It extends from the splenic flexure to the sigmoid colon.
- * Length: 10 inches.
- * As ascending colon, it is covered by peritoneum from front and sides only.

5. Sigmoid colon (Pelvic colon):

- * It extends from the end of descending colon, enters the pelvis and takes an S-shape.
- * It ends in front of the 3rd sacral vertebra where the rectum begins.
- * Length: 15 inches.
- * It is completely covered by peritoneum and suspended by a peritoneal fold called **sigmoid mesocolon**.



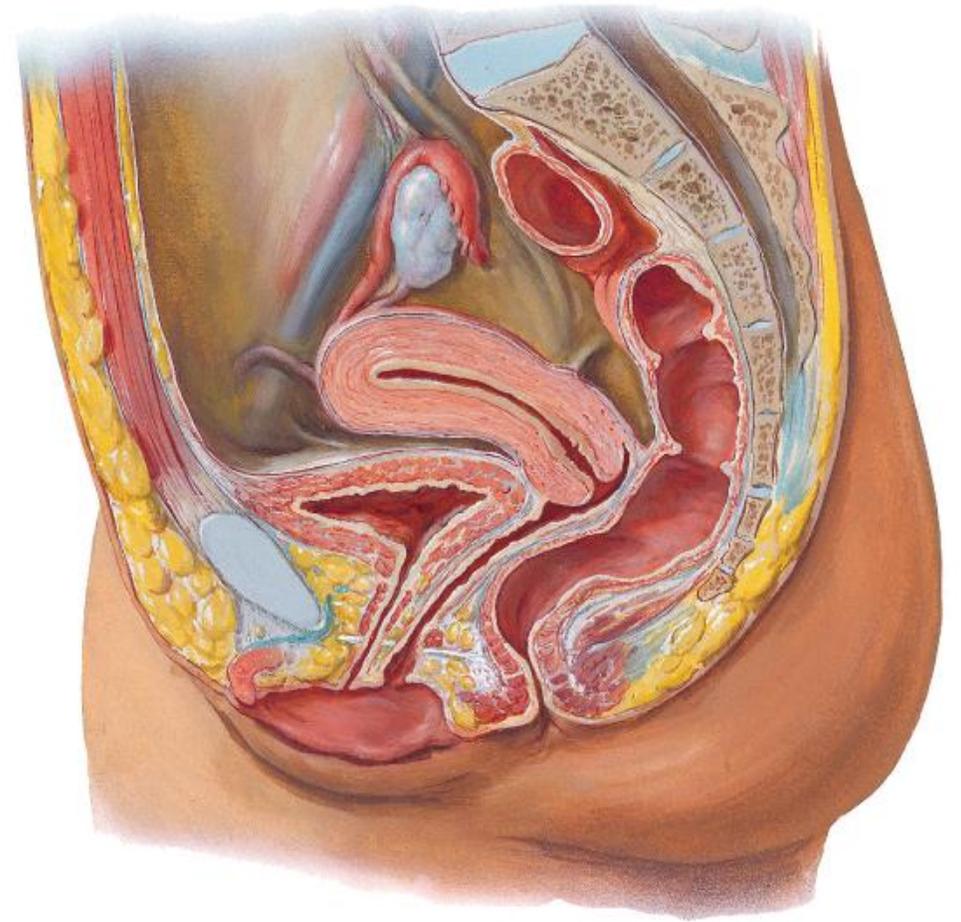
Large Intestine

6. Rectum:

- * It begins in front of the sacrum (at the level of 3rd sacral vertebra) and ends one inch in front and below the coccyx.
- * Peritoneal covering of rectum:
 - Upper third: covered from the front and sides.
 - Middle third: covered from the front only.
 - Lower third: not covered with peritoneum.

7. Anal canal:

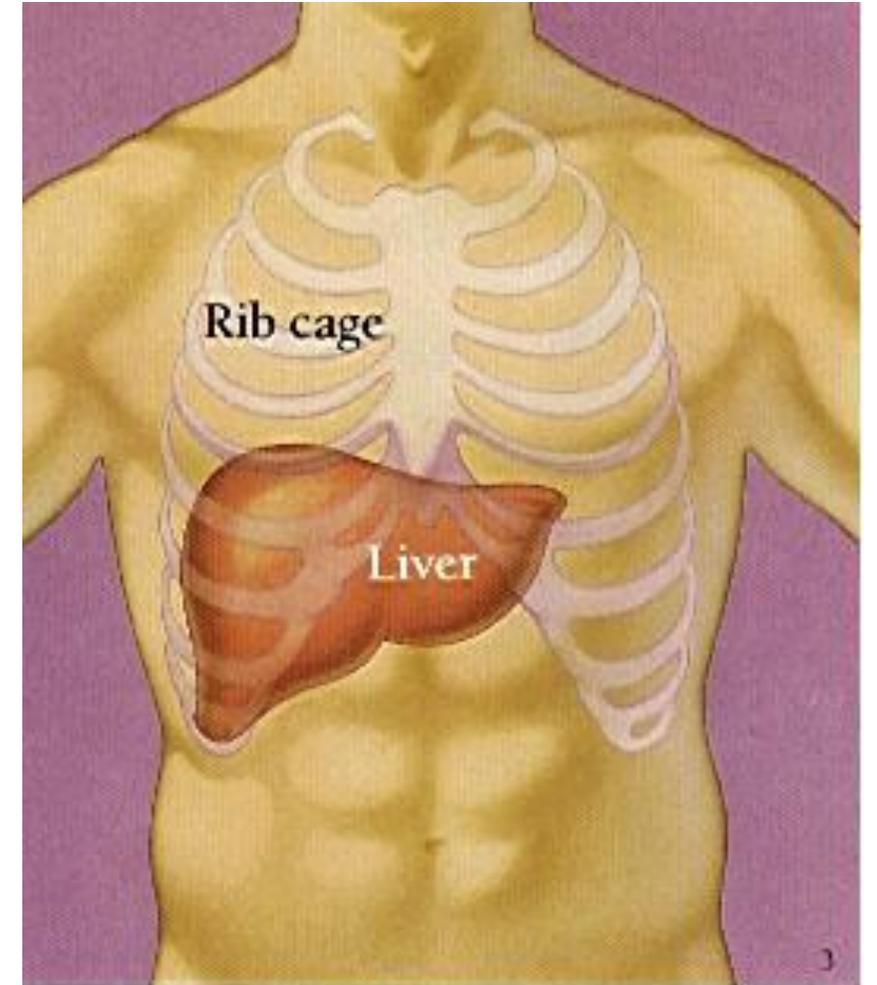
- * It begins one inch in front and below coccyx and ends at the anus.
- * Length: 4 cms.
- * It is directed downward and posteriorly.



Accessory Glands of G.I.T.

A. Liver and Biliary System

- * It is the **largest gland** in the body (1400 – 1800 gms weight).
- * **Shape: Wedge-shaped** with its rounded base to the right.
- * **Surfaces:** It has **5 surfaces**; anterior, superior, posterior, right (diaphragmatic) and inferior (visceral).



Surfaces of Liver

1. Anterior Surface:

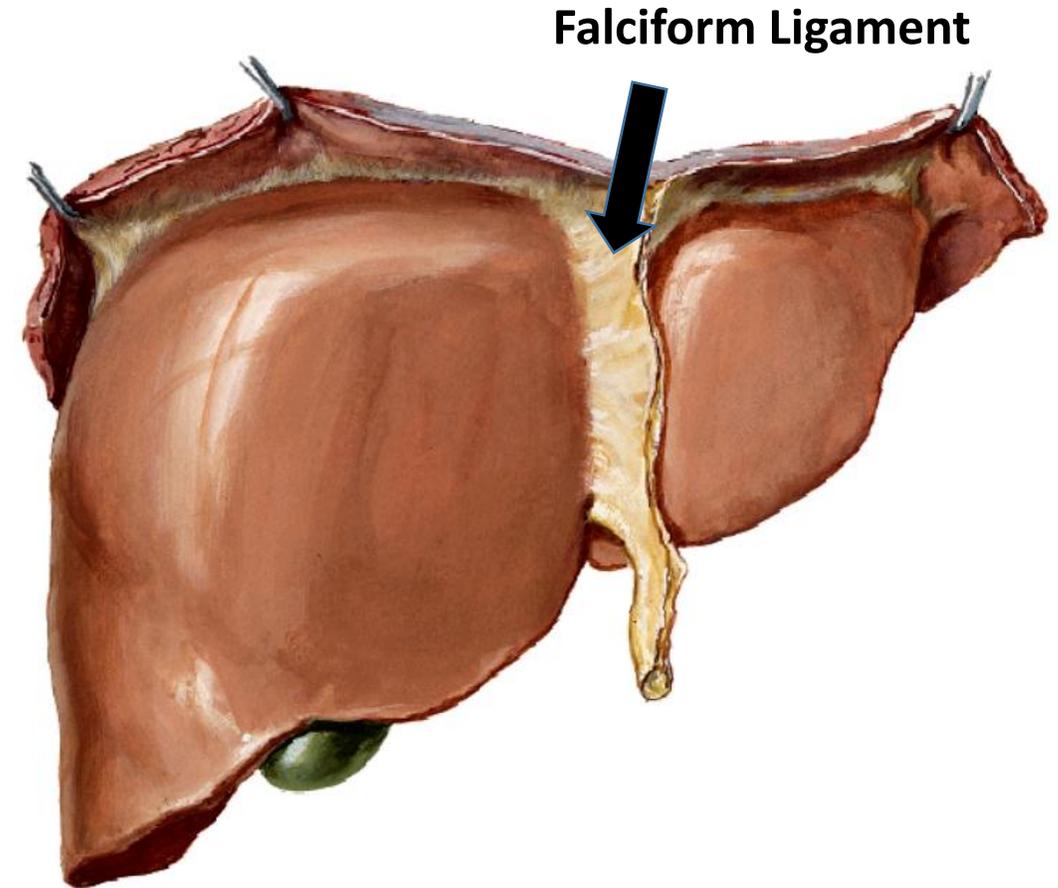
* Gives attachment of falciform ligament.

2. Superior surface:

* Related to diaphragm.

3. Right surface (Base):

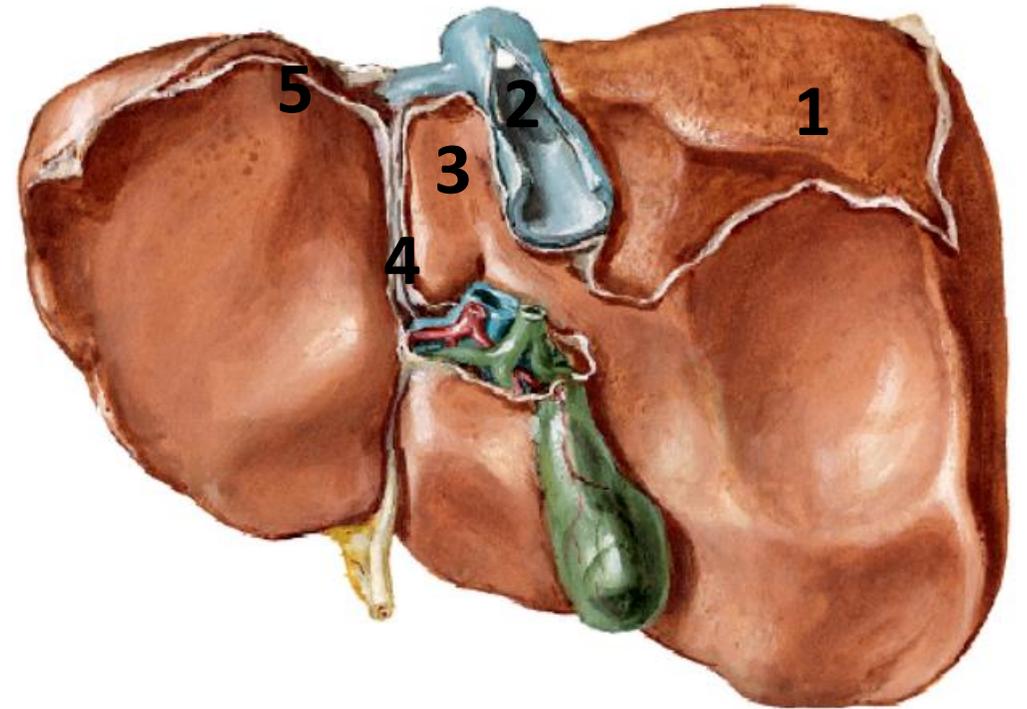
* Related to diaphragm & ribs.



4. Posterior surface of liver:

* It shows the following:

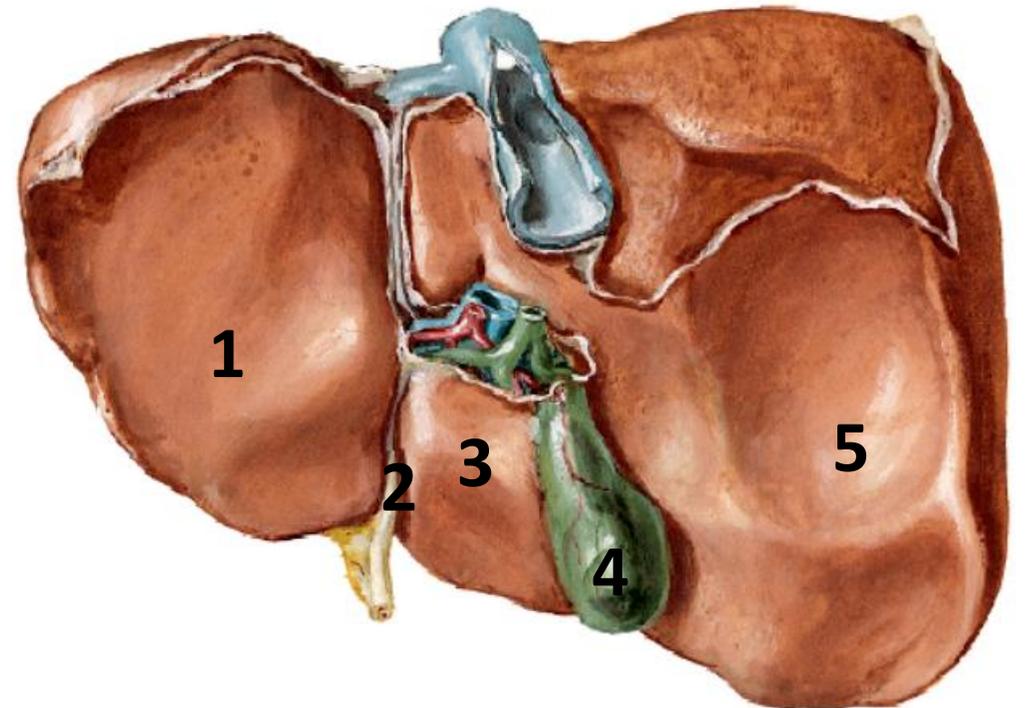
1. Bare area.
2. I.V.C. in caval groove.
3. Caudate lobe.
4. Fissure for ligamentum venosum.
5. Oesophageal impression.



5. Inferior surface of liver:

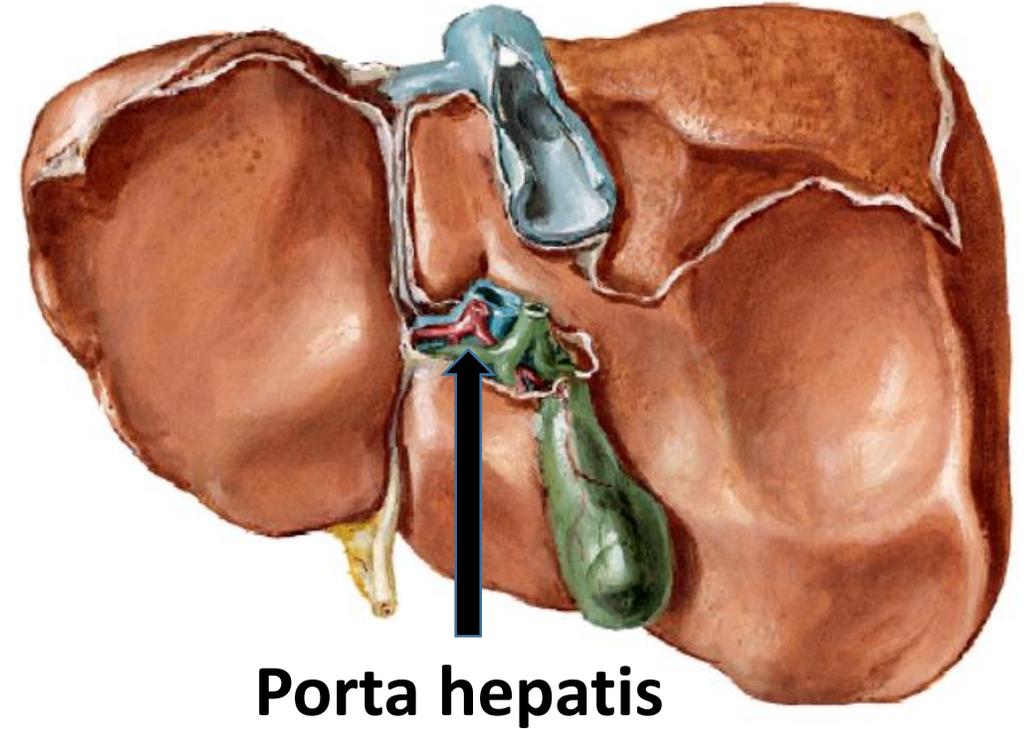
* It shows the following:

1. Gastric impression.
2. Fissure for ligamentum teres.
3. Quadrate lobe.
4. Gall bladder in its fossa.
5. Renal impression.



**** Porta hepatis:**

- * It is the hilum of the liver.**
- * It lies between the caudate and quadrate lobes of the liver.**
- * Structures passing through it:**
 - 1. Portal vein and its branches.**
 - 2. Hepatic artery and its branches.**
 - 3. Hepatic ducts.**

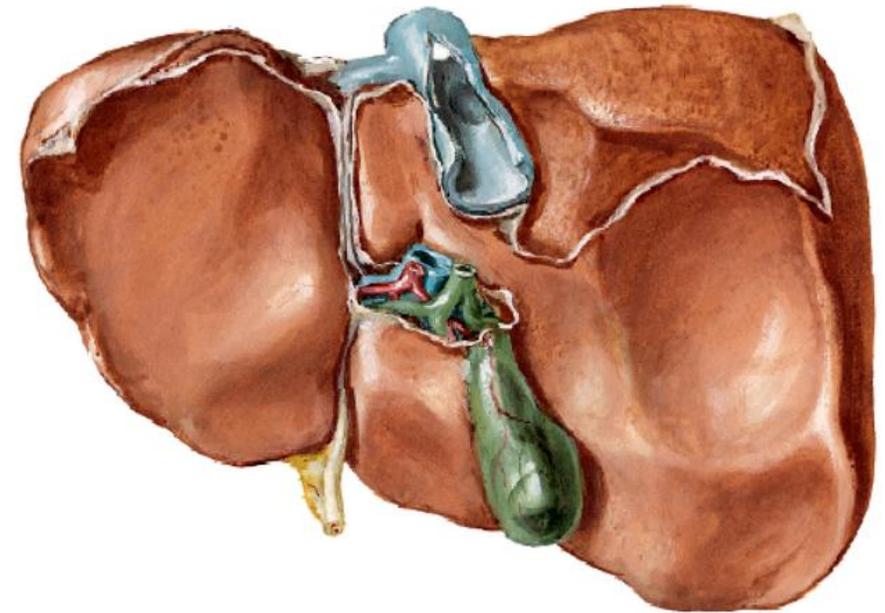
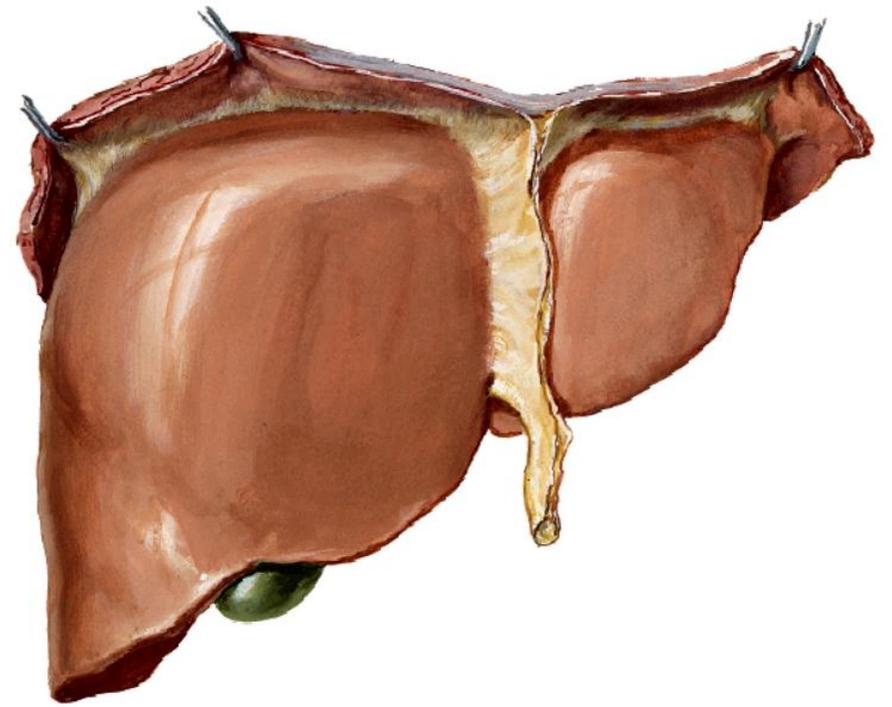


**** Lobes of liver:**

*** Anatomically** → the liver is divided by falciform ligament, fissure for ligamentum venosum and fissure for ligamentum teres, into:

- 1. Larger right lobe (including caudate & quadrate lobes).**
- 2. Smaller left lobe.**

*** Physiologically & functionally** → the caudate & the quadrate lobes belong to the left lobe.



**** Blood supply of the liver:**

1. Hepatic artery.

2. Portal vein.

* Both divide at the porta hepatis into right and left branches.

* Physiologically, hepatic artery → 25 % of blood and 50 % of oxygen demand, while portal vein → 75% of blood and 50 % of oxygen demand.

3. Right & left hepatic veins which drain into I.V.C.

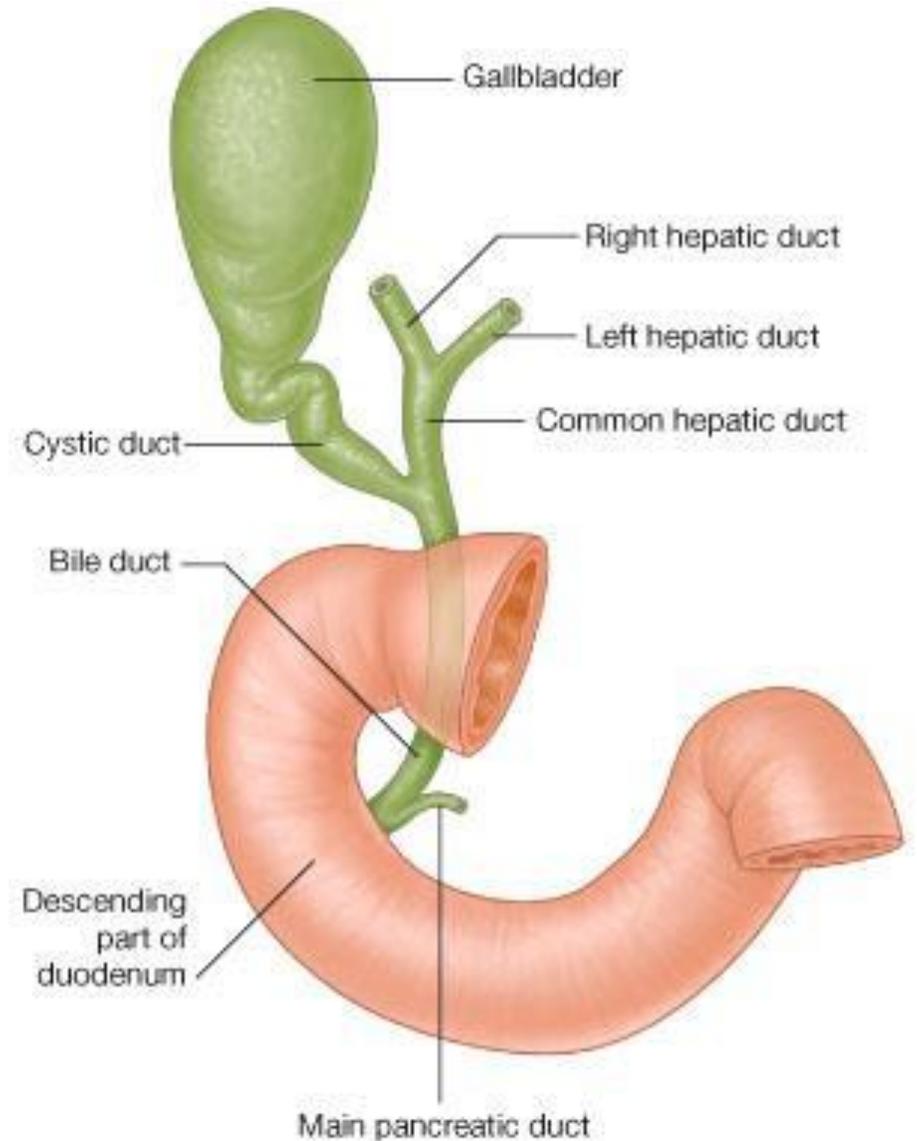
**** Functions of the liver:**

1. It receives venous blood loaded with products of digestion from G.I.T. through portal vein. The liver stores these nutrients and returns them back into circulation as needed e.g. Glycogen.
2. Secretes bile.
3. Detoxification of drugs and other toxins.

Biliary system

**** This system includes:**

1. Right and Left **hepatic ducts**.
2. **Common hepatic duct** (3 cms long).
3. **Gall bladder** formed of 3 parts; fundus, body and neck. The neck gives rise to **cystic duct** (3 cms long).
4. **Bile duct** (3 inches): formed by the union of common hepatic and cystic ducts.



B. Pancreas

- * A mixed endocrine and exocrine gland.
- * An elongated gland (15 cms).
- * It lies across the posterior abdominal wall from duodenum to spleen.
- * It is mostly retroperitoneal.
- * It is formed of 4 parts:
 1. Head.
 2. Neck.
 3. Body.
 4. Tail.

