



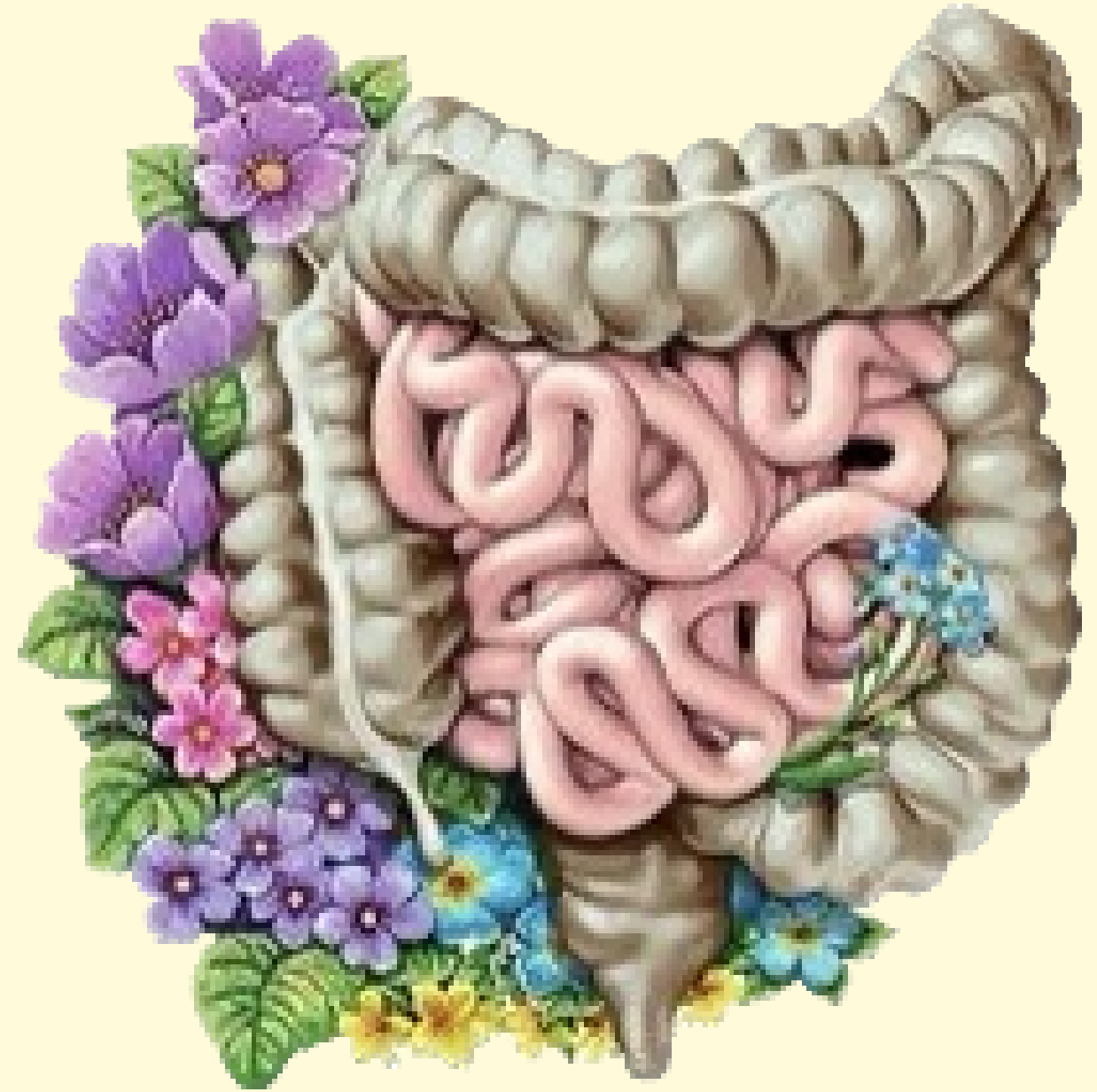
GIT SYSTEM

Subject : Anatomy

Lecture : 5

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وَقُلِّبْهُ رَبِّكَ ذِكْرِي عَلِيمًا





Third year
GIT..

Anatomy

Lecture(5)

ANATOMY OF STOMACH

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ILOs

- 1. Describe the location, shape, opening, surfaces, and relations of stomach.**
- 2. Understand the blood & nerve supply and Lymph drainage of stomach.**

Stomach

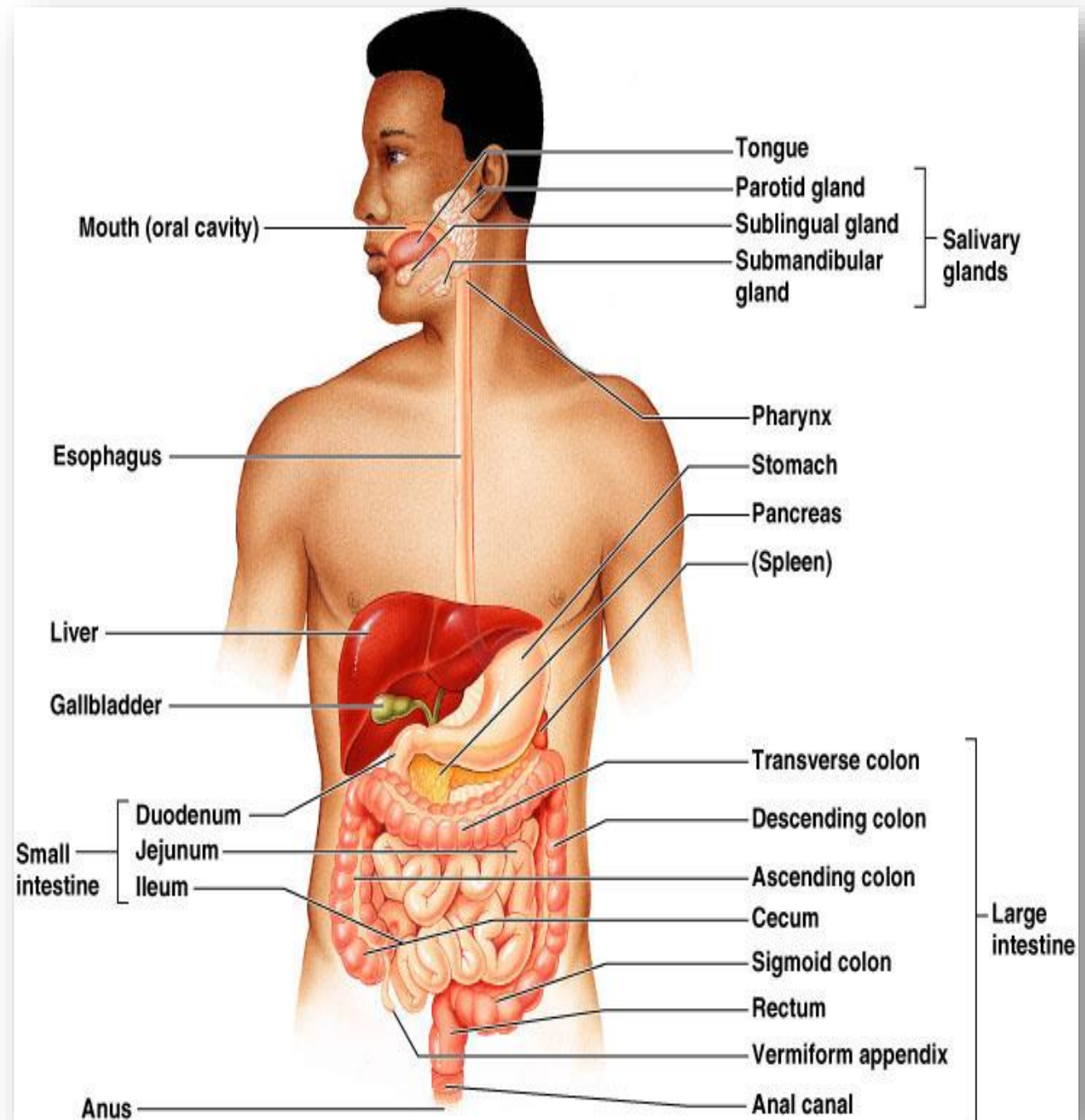
Def.: It is the most dilated part of the alimentary canal. It **lies** between the oesophagus and the duodenum.

First part of the small intestine

Its capacity; in adult about 1500ml. At birth, only 30ml.

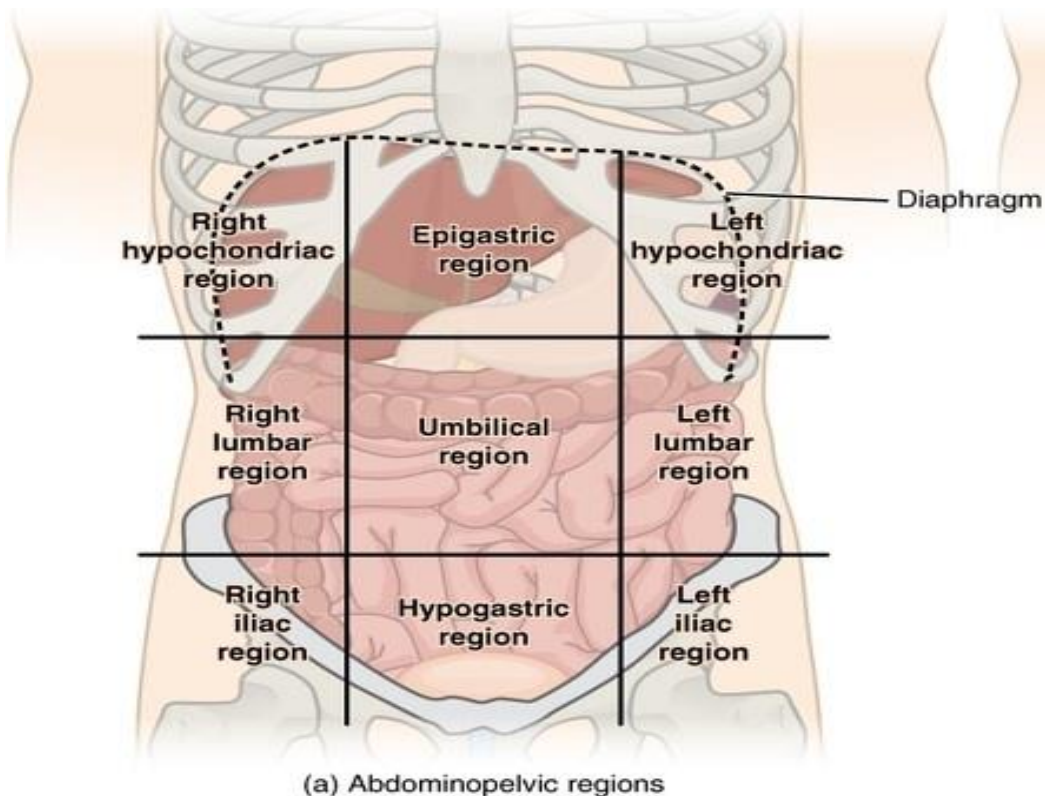
Description: Stomach has:

- Two Orifices,
- Two Borders (curvatures)&
- Two Surfaces.



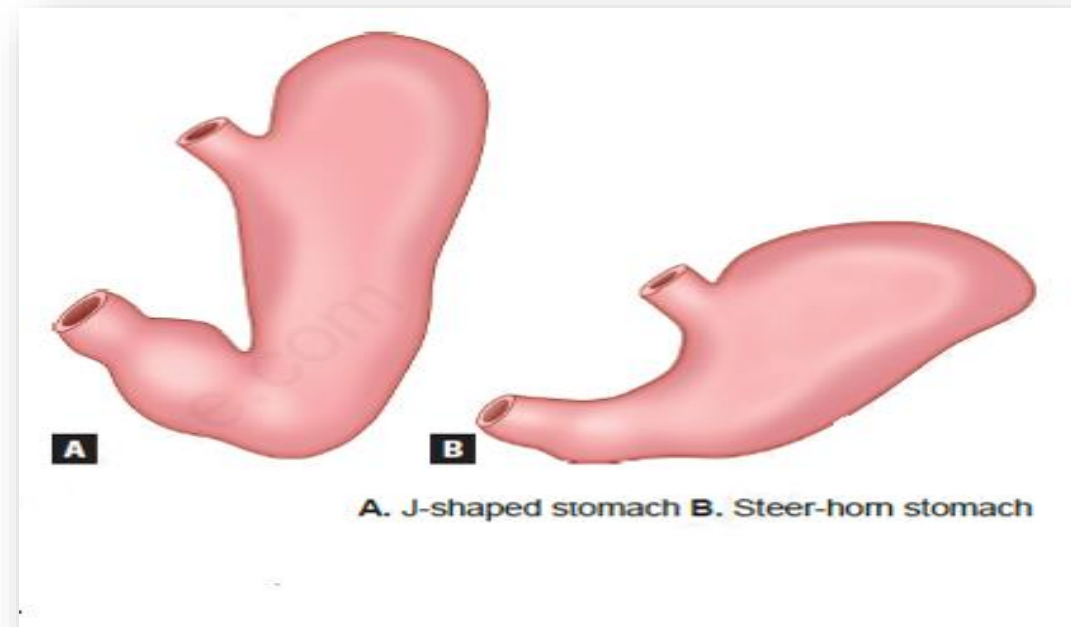
Location of the stomach

It lies in 3 abdominal regions; the left hypochondrium, epigastric and umbilical regions.



Shape of the stomach

- 1- J shaped:** vertical –commonest especially in tall thin persons
- 2- Steer (ox) horn:** horizontal - less common
- 3- intermediate.**

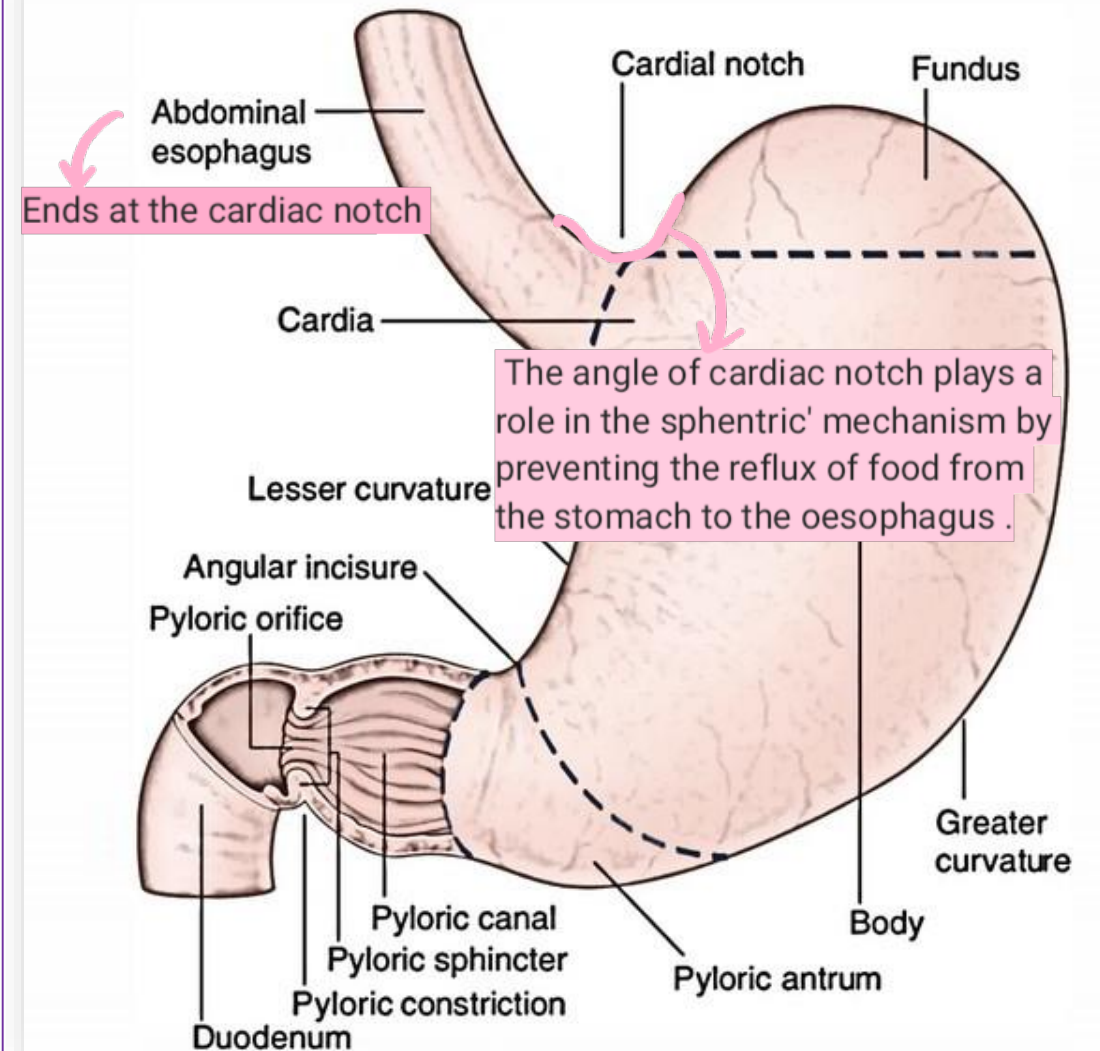


Orifices of Stomach

- The stomach has **two orifices** through which it communicates with the **oesophagus above (cardiac orifice)** and with the **duodenum below (pyloric orifice)**.

1- Cardiac Orifice:

- It **receives** the abdominal part of the oesophagus.
- The right border of oesophagus continuous with lesser curvature of stomach.
- The left border is separated from the greater curvature by an acute angle called **cardiac notch**.
But it has another [histological or physiological] sphincter
- **Sphincter:** There **is no true anatomical sphincter** related to this orifice.

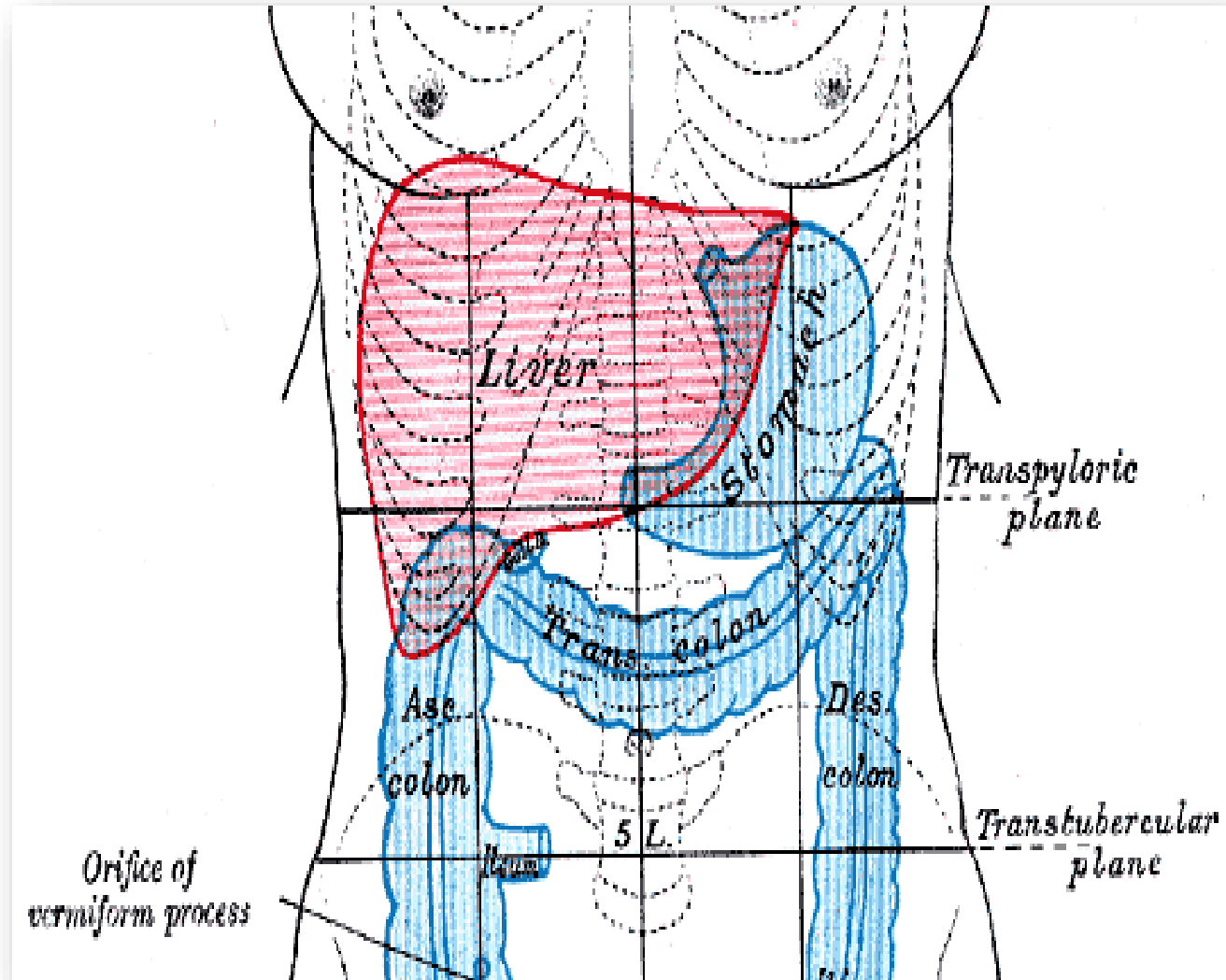


مشان ال orifice يكون الها true anatomical sphincter لازم
ال thickened تكون circular smooth muscle

Orifices of stomach

Surface anatomy of Cardiac orifice:

- It lies (1 inch) to the left of the midline.
- It lies behind the 7th costal cartilage at the level of the T11 vertebra.
- It is placed (40 cm) from the incisor teeth. Vertically بساعدنا بتركيب ال gastric tube



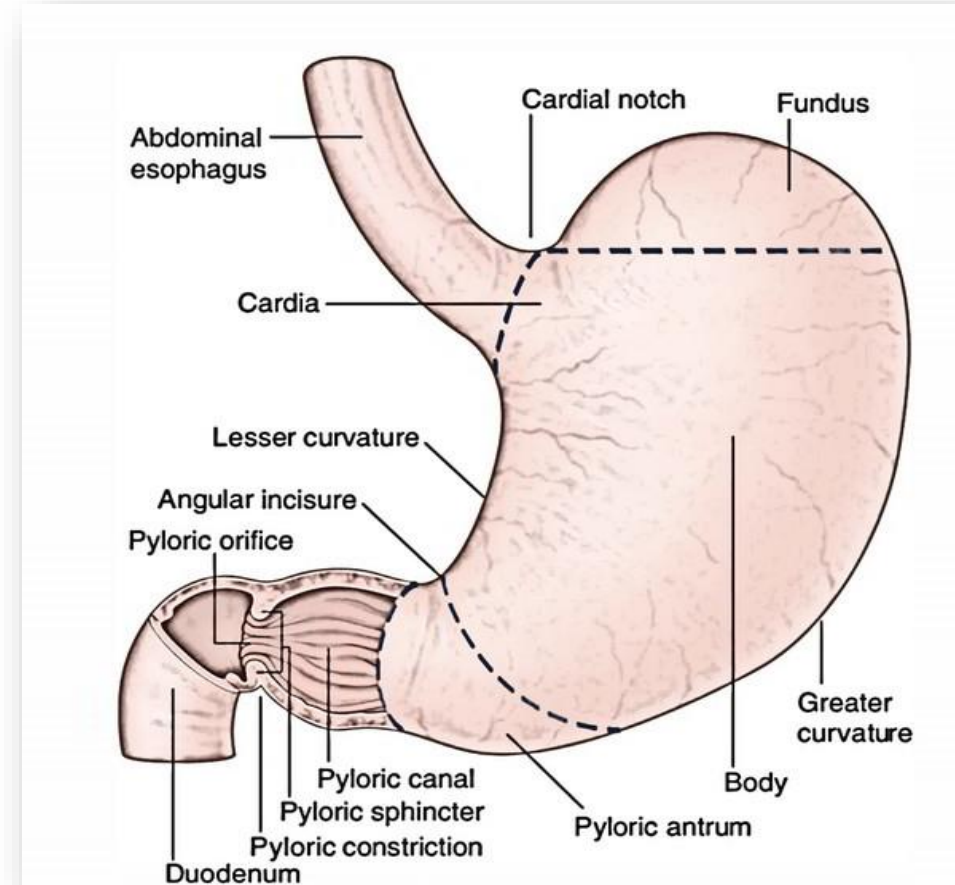
Orifices of stomach

2- Pyloric orifice:

- The pyloric orifice **lies at** the junction of the stomach with the duodenum.
- **Surface anatomy:** It lies on the transpyloric plane (L1), (0.5 inch to the right of the median plane).
- **The pyloric sphincter:** True anatomical sphincter. it is a muscular ring, formed by a marked thickening of the circular gastric muscle.

To identify the pylorus in surgical procedures:

- Circular groove** (pyloric constriction). The pyloric constriction appears grossly as circular groove
- The prepyloric vein of Mayo** (seen only in the living) which passes vertically across the anterior surface of the pylorus. It communicates the right gastric vein (above the pylorus) with right gastroepiploic vein (below the pylorus).
- Thickness of the pyloric sphincter.**



Borders (curvatures) of the stomach

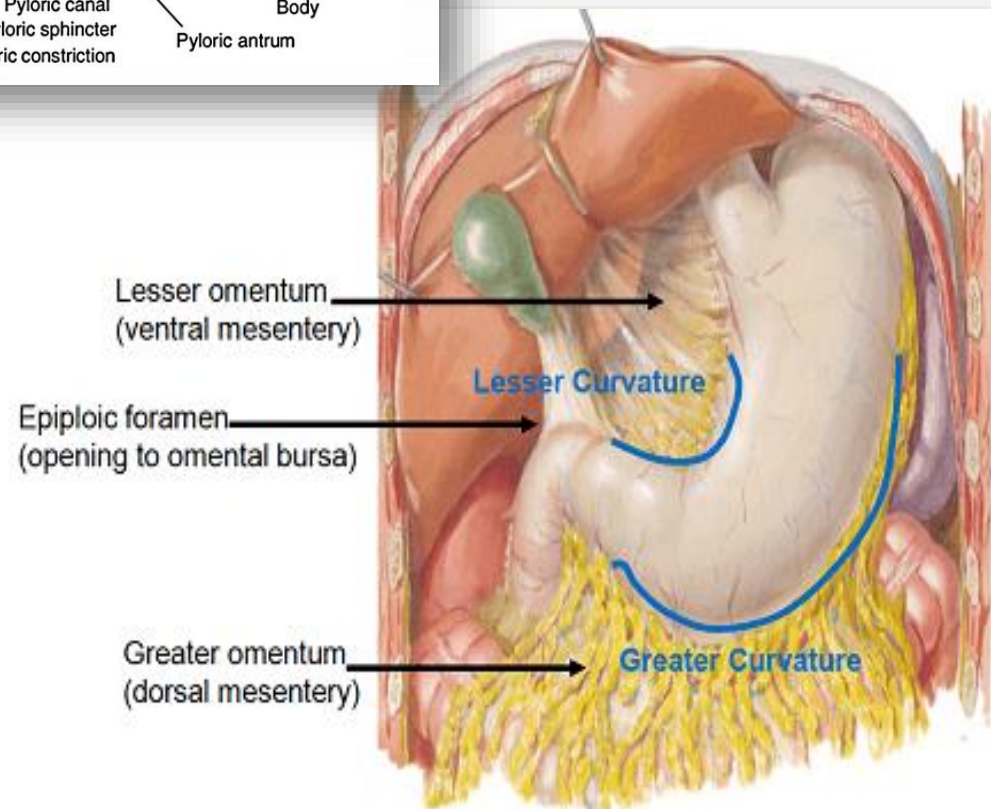
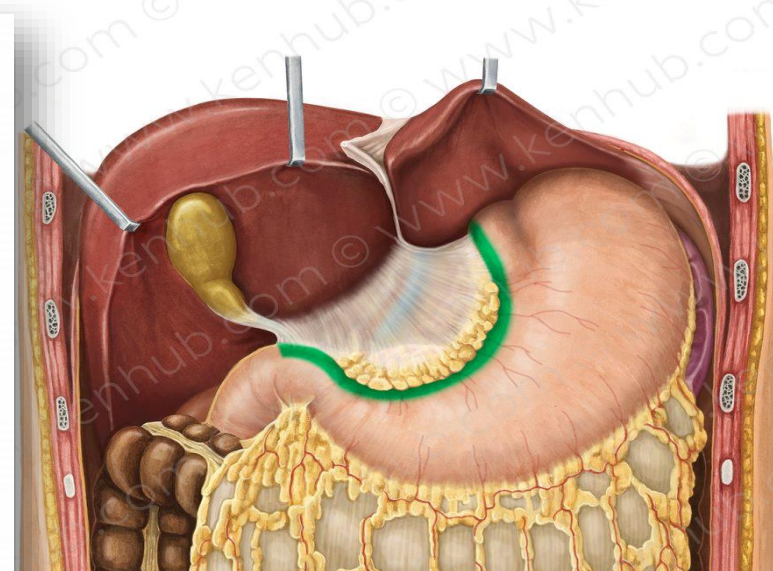
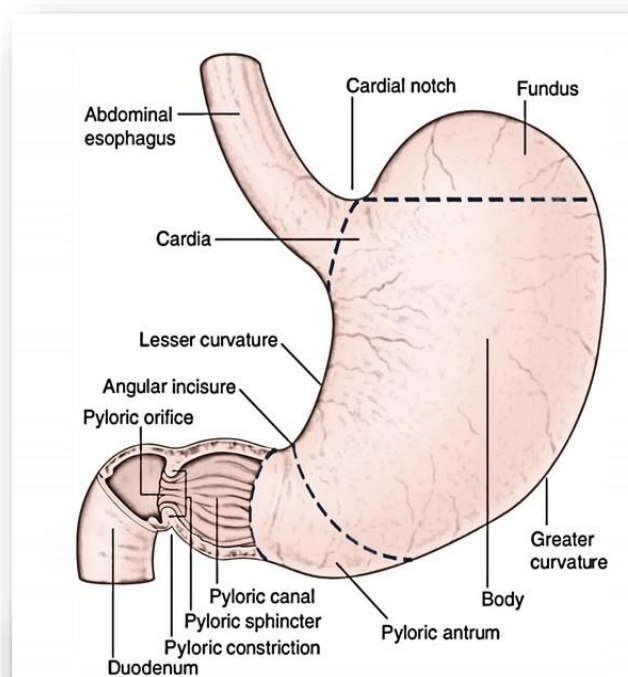
1-Lesser curvature:

- It is the right concave border of the stomach.
- It extends from the cardiac orifice to the pylorus.
- It has a constant notch called **angular incisura**.
- It gives attachment to the lesser omentum.

Its fixed even if the stomach got dilated or expanded.

و بتضل ظاهرة و بنقدر نشوفها

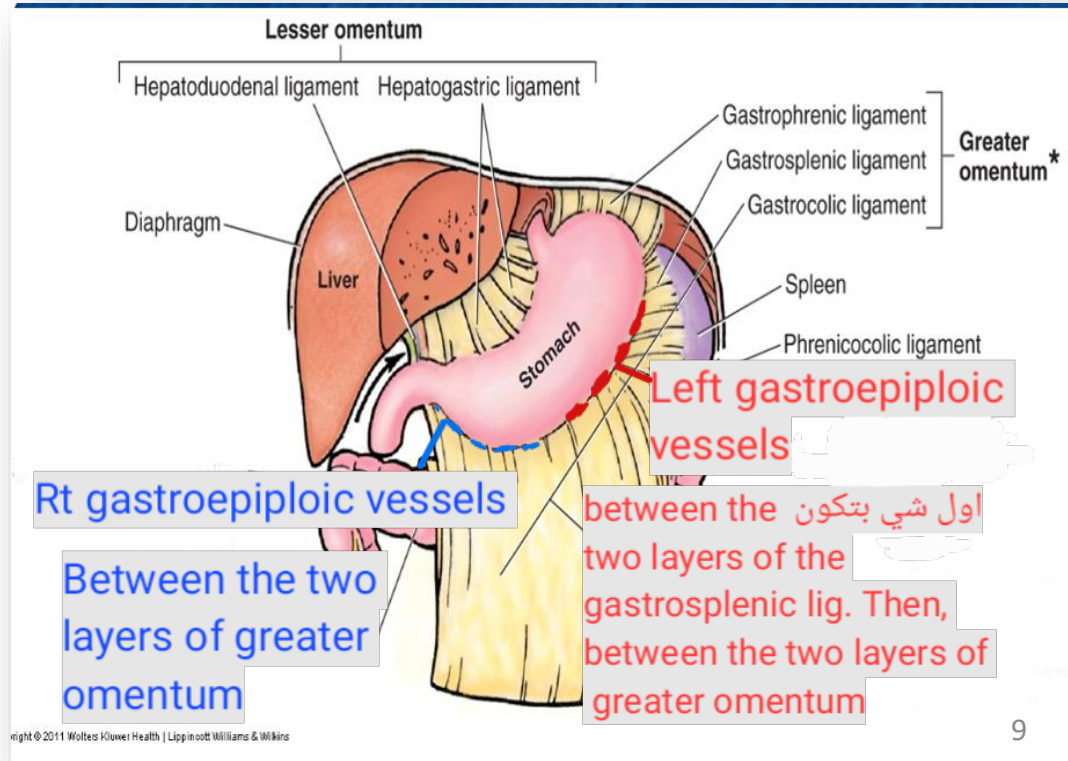
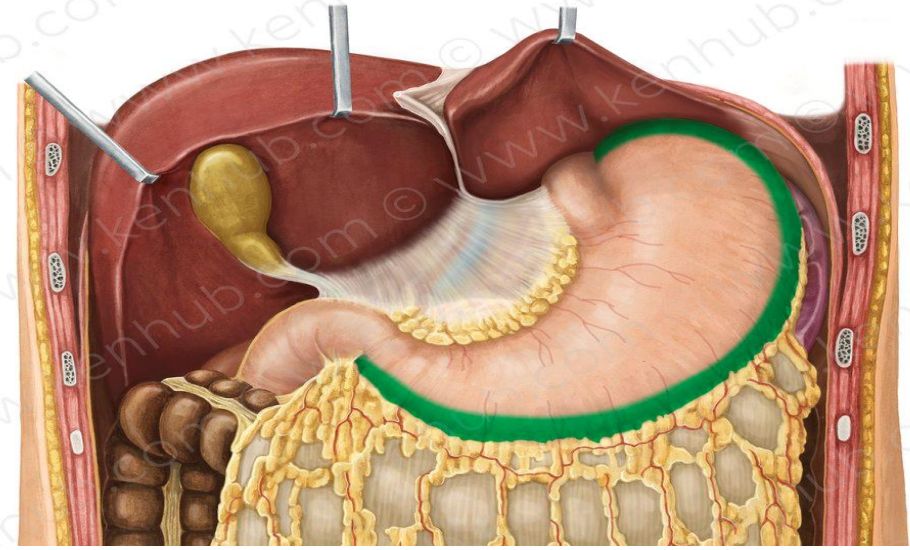
- **Related to:** Rt& Lt gastric vessels and lymph nodes between the 2 layers of the lesser omentum.



Borders (curvatures) of the stomach

2-Greater curvature:

- It is the **left convex border** of the stomach.
- It **begins** at the Lt margin of the oesophagus.
- It **arches** upward, backward and to the left forming the fundus.
- Then it **passes** downwards and to the right to **end** at the pylorus.
- It gives **attachment to Gastrophrenic, Gastrosplenic & Greater omentum.**
- **Related to:** Rt & Lt gastroepiploic vessels and lymph nodes, between the anterior 2 layers of the greater omentum & gastrosplenic ligament.



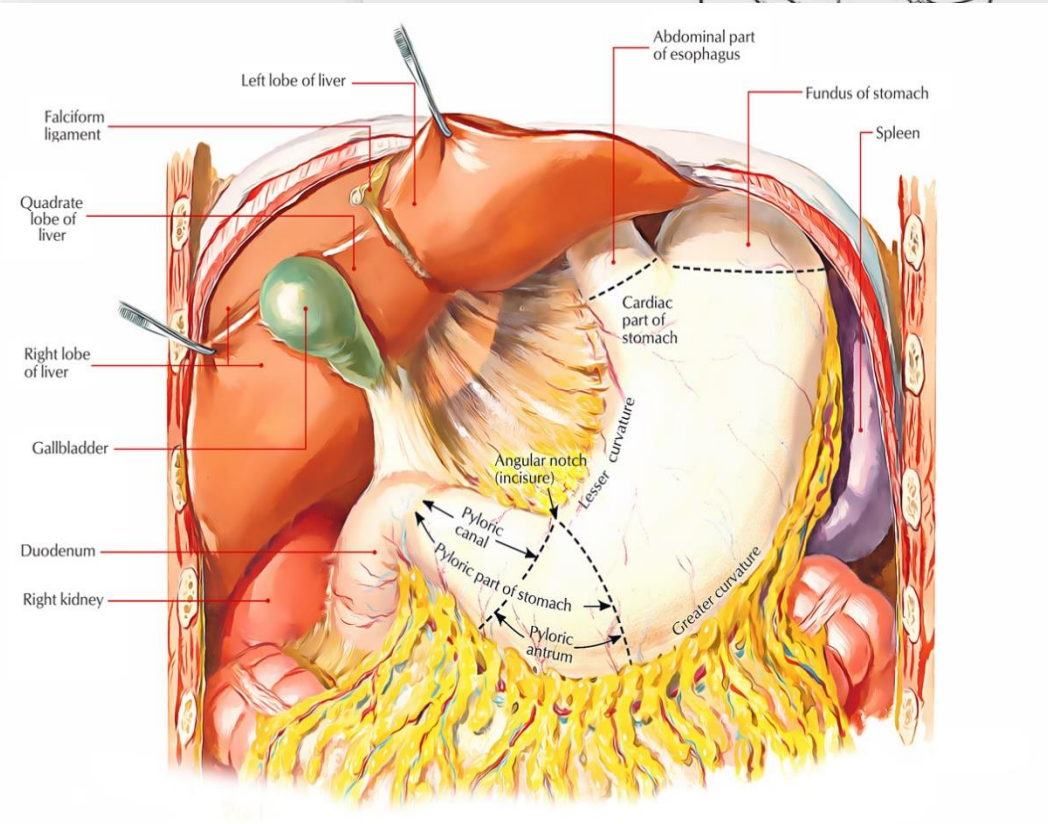
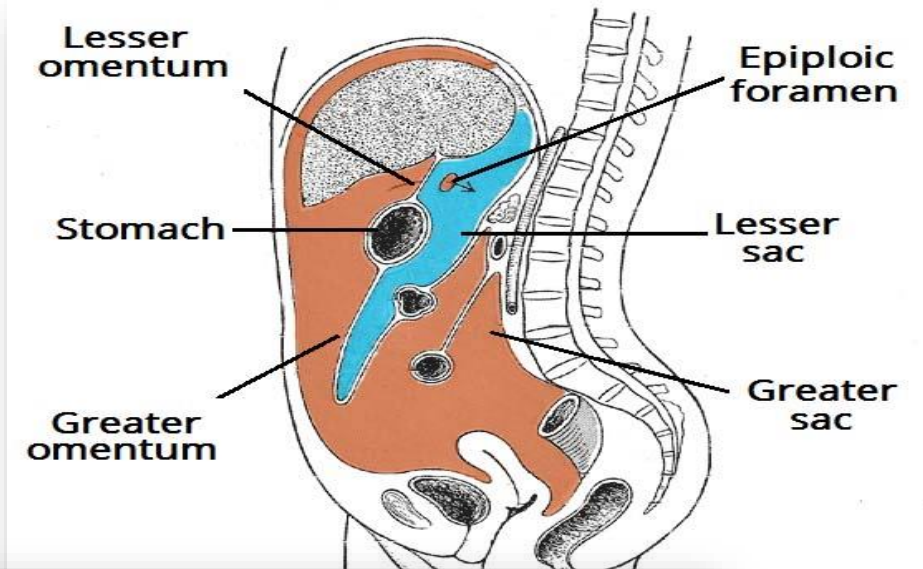
Surfaces of the stomach

1- Antero-superior surface:

- It is **directed** forward and slightly upward.
- It is **covered by** peritoneum of the greater sac.

It is related anteriorly to (covered by) the following structures:

- **Its left part:** Diaphragm and the left 6th, 7th & 8th ribs and their costal cartilages.
- **Its right part:** Left lobe of the liver.
- **Its lower part:** Anterior abdominal wall.



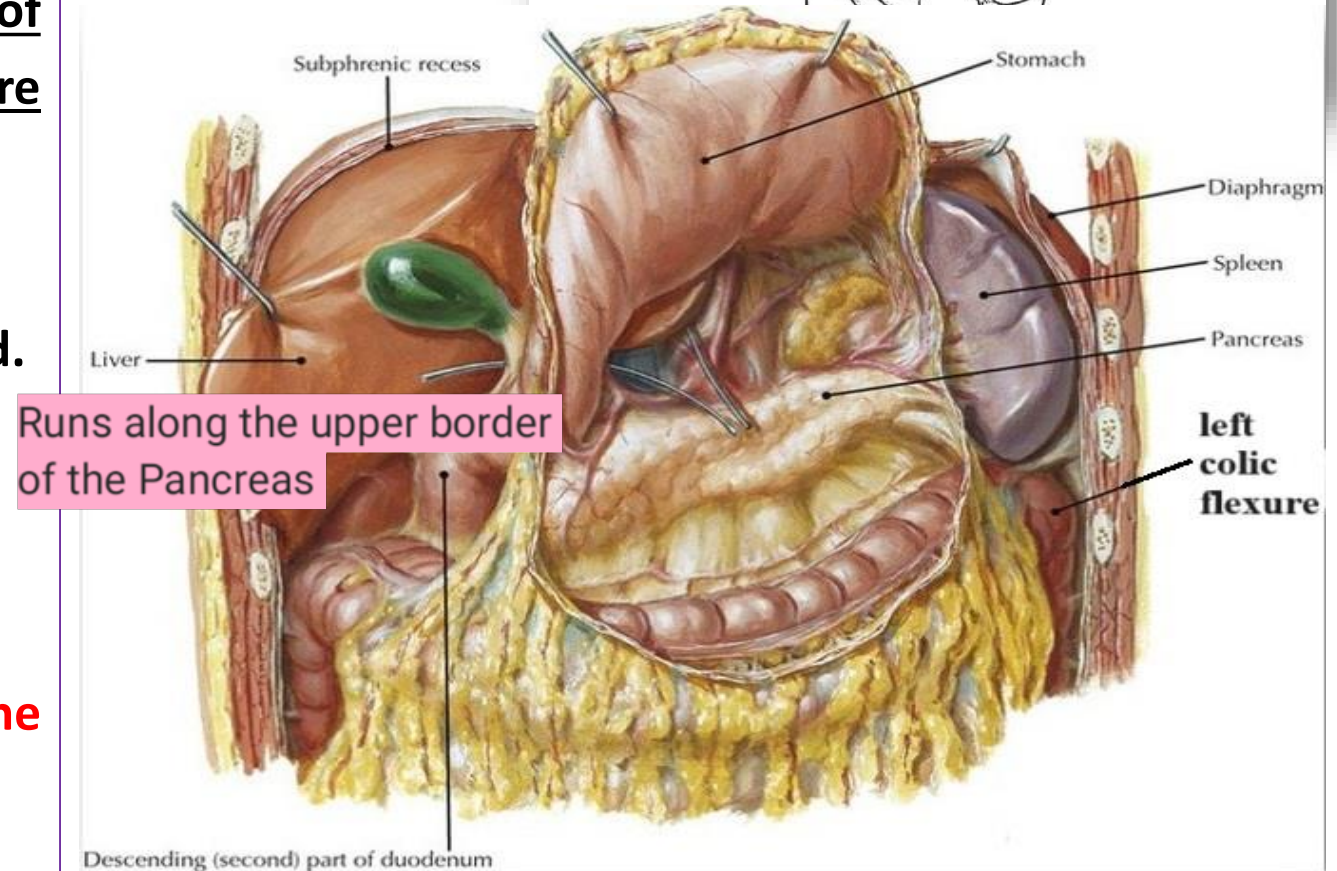
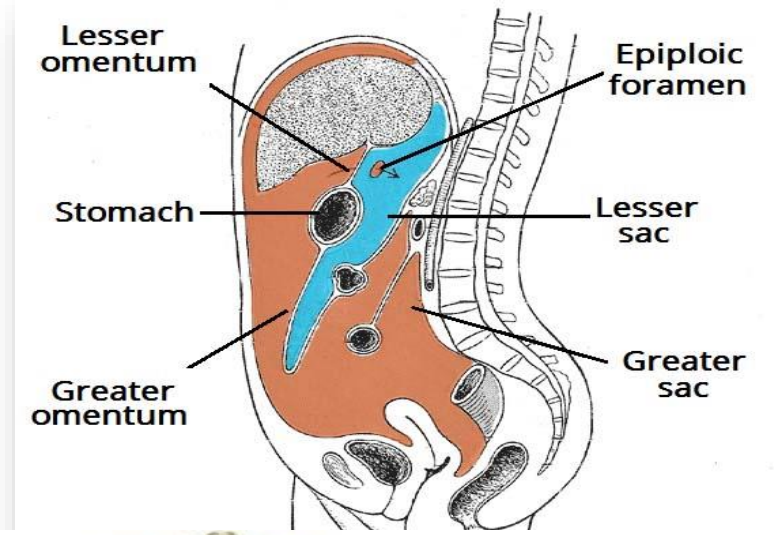
Surfaces of the stomach

2- Postero- inferior surface:

- It is **directed** backward and slightly downward.
- It is **covered by** peritoneum of the lesser sac.

It is related posteriorly (lies over) a number of structures that forming the **stomach bed**, these are the following:

- **Diaphragm.**
- Anterior surface of **Lt kidney & Lt suprarenal gland.**
- Anterior surface of **the Pancreas & Splenic artery.**
- **Spleen.**
- **Transverse colon & transverse mesocolon.**
- **The lesser sac** separates the stomach from **the stomach bed.**



Parts of the Stomach

The stomach consists of three parts: fundus, body and pyloric parts.

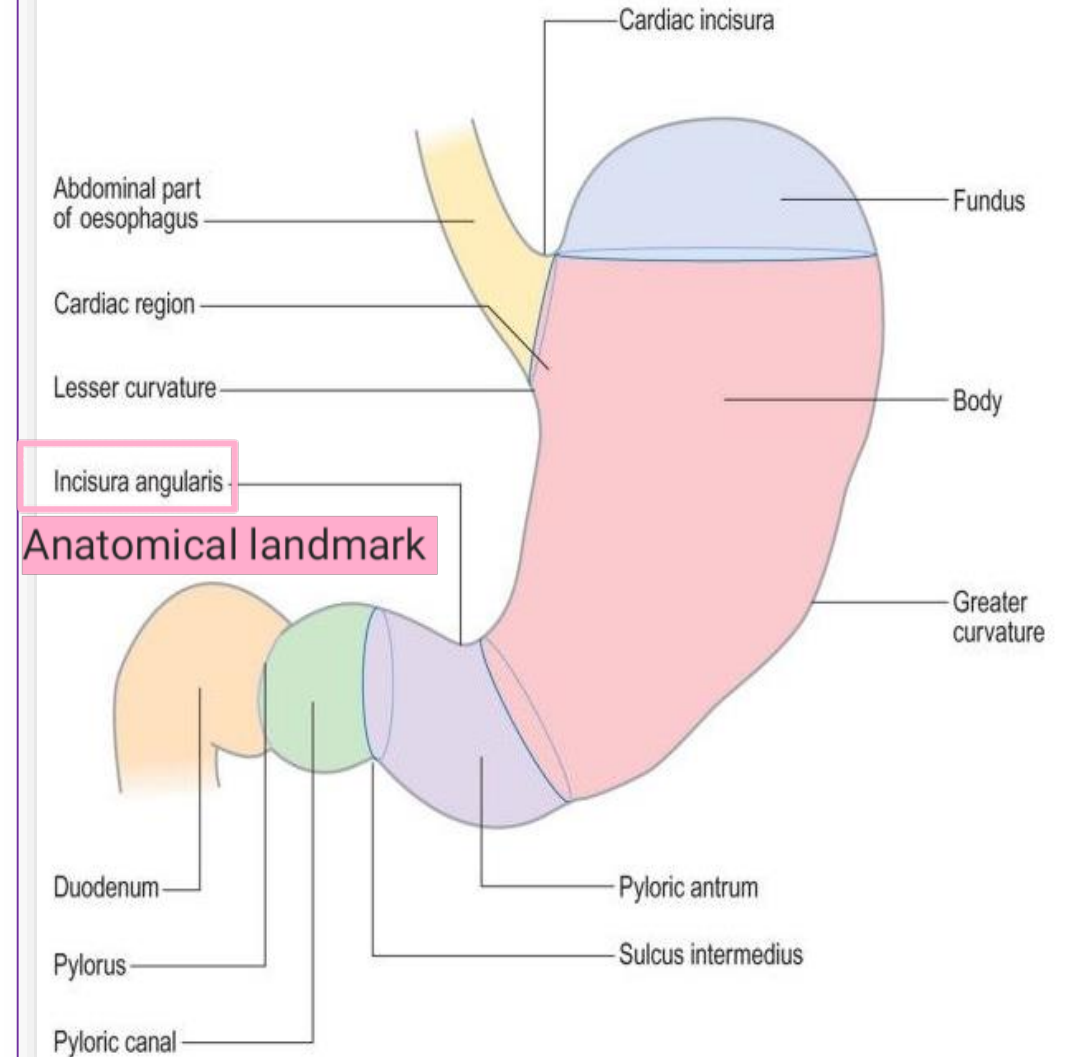
The internal appearance and microstructure of these regions varies to some degree.

1-The fundus:

- It is dome shaped and **projects above and to the left** of the cardiac orifice.
- It **lies in contact with** the left dome of the diaphragm.
- It is usually distended with gas.

2-The body of stomach:

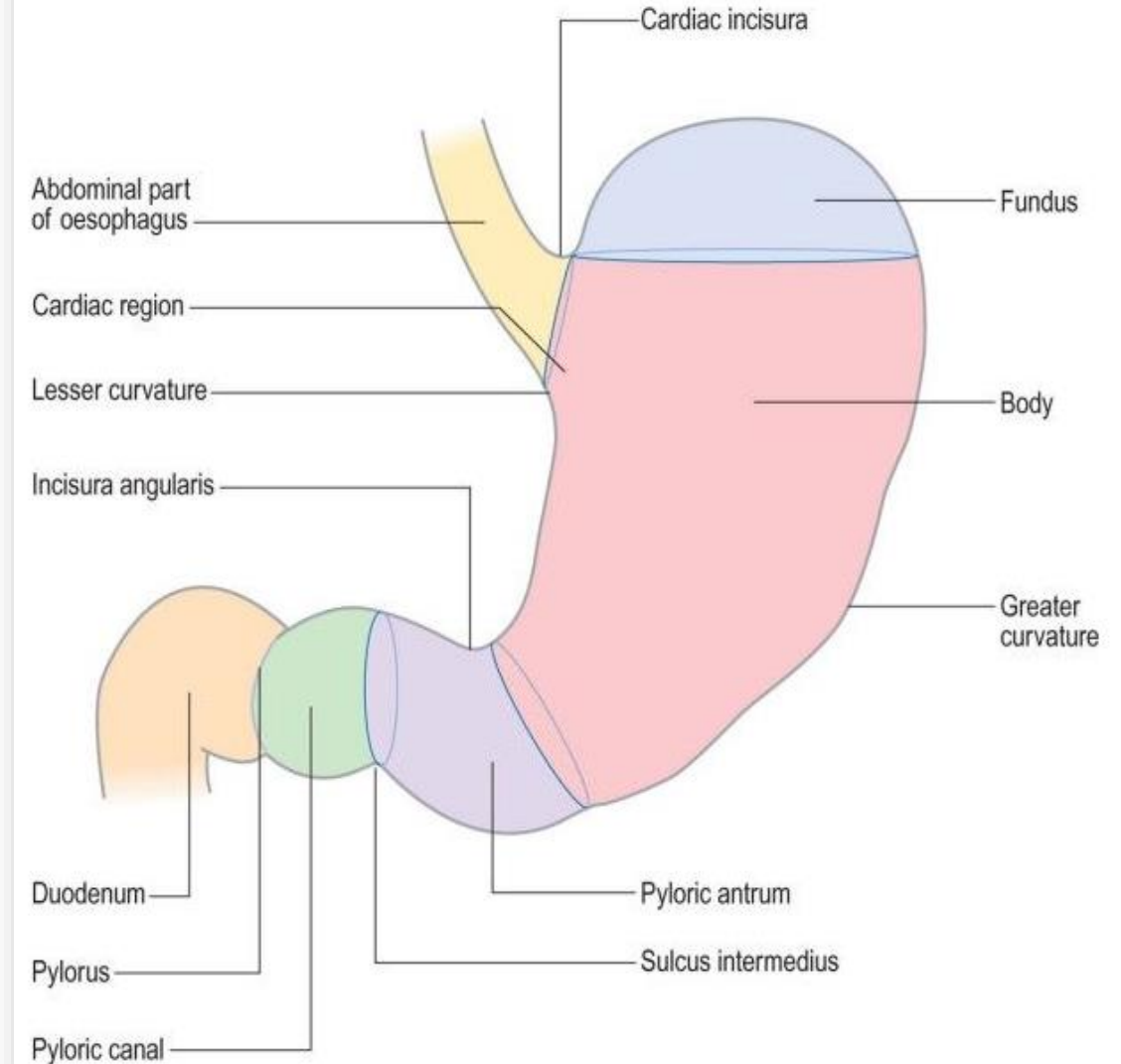
- It is the part **below** the fundus and **above** the line (extending from the **angular incisura** to the greater curvature).



Parts of the stomach

3-The pyloric part:

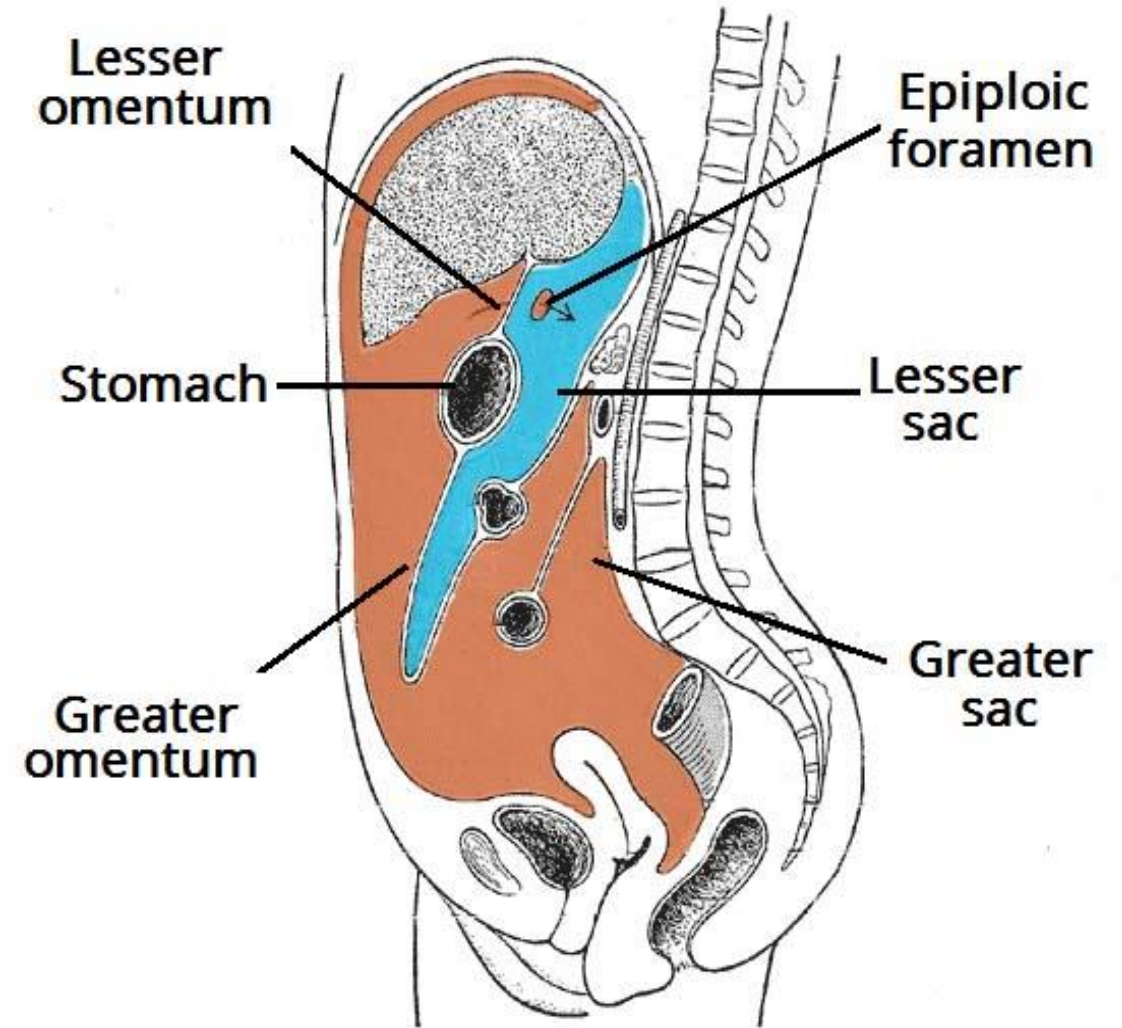
- It **lies** below and to the right of the body of the stomach. **below incisura angularis**
- **It consists of:**
 - Pyloric antrum:** It is the dilated proximal part.
 - Pyloric canal:** It is narrow cylindrical part that follows the pyloric antrum.
 - Pyloric orifice with pyloric sphincter (pylorus):** It is the most distal thickened portion.



Peritoneal relation of the stomach

Intra peritoneal organ

- The **anterior surface** is covered by peritoneum of greater sac.
- The **posterior surface** is covered by peritoneum of lesser sac, **except a small area close to the cardiac orifice (bare area of the stomach)** that is related to the left crus of the diaphragm.
- The **peritoneal folds** attached to the stomach are:
 - 1- Lesser omentum.
 - 2- Greater omentum.
 - 3- Gastrosplenic ligament.
 - 4- Gastrophrenic ligament.



Lesser Omentum

Borders & contents:

1- Hepatic border:

- It is attached to the **liver** (fissure for the ligamentum venosum and margins of the porta hepatis).

2-Gastric border:

- It is attached to the **lesser curvature of the stomach and 1st part of the duodenum.**
- It **contains; Rt & Lt gastric vessels** and left gastric lymph nodes.

3-Diaphragmatic border:

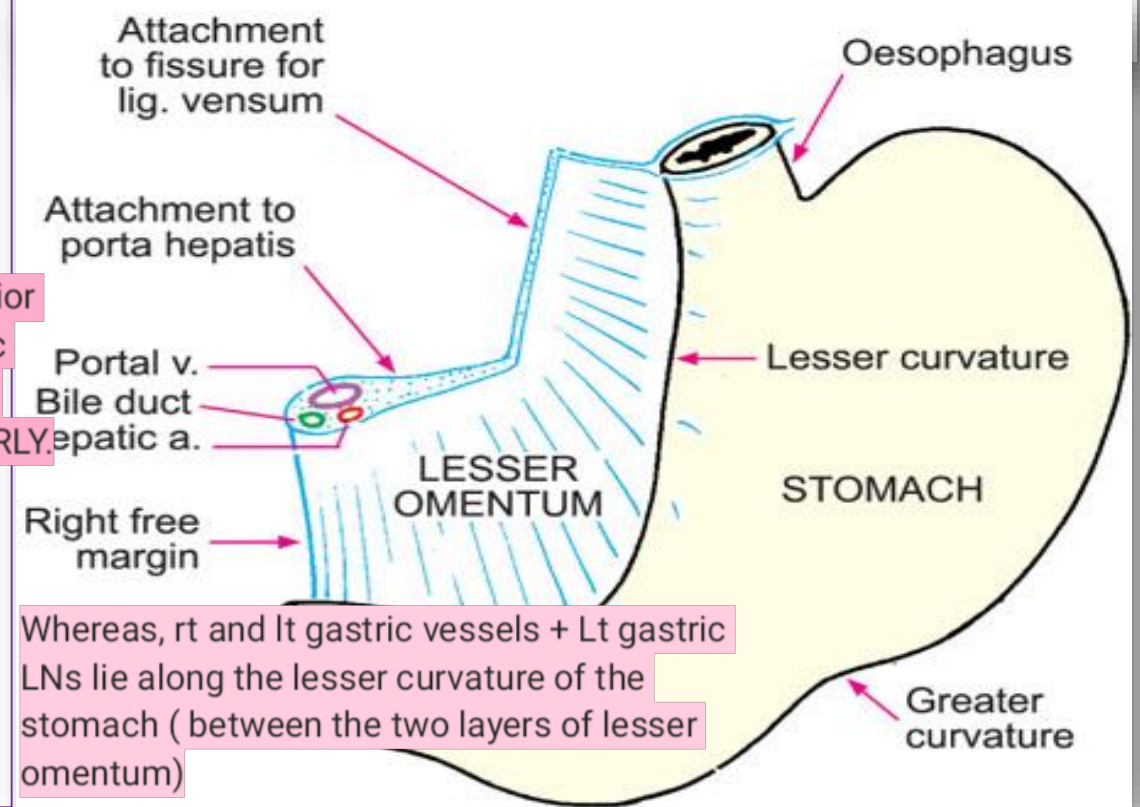
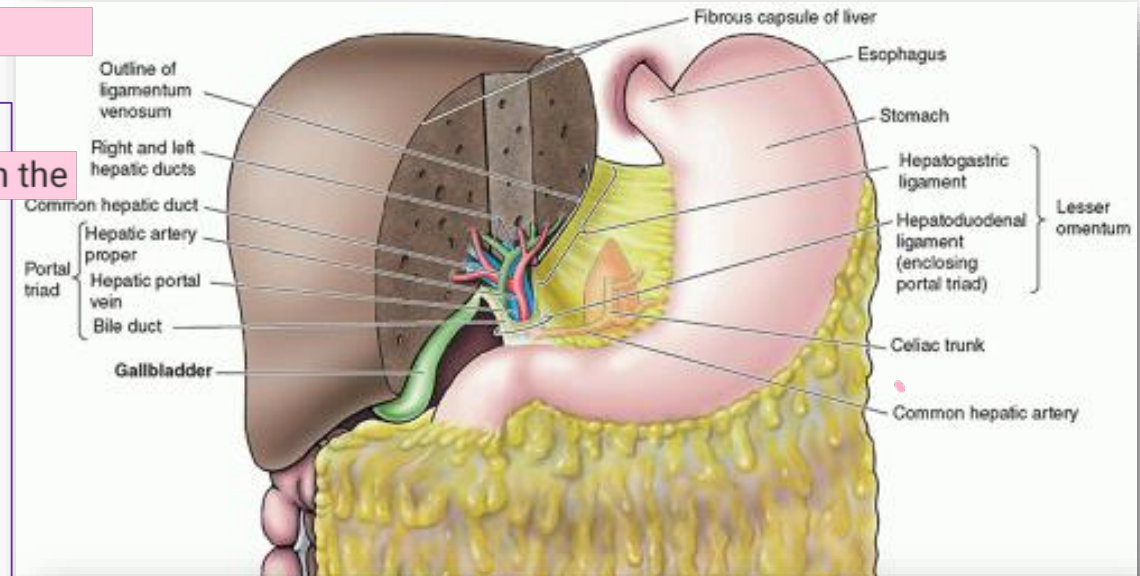
- It is attached to the diaphragm

4- Right free border:

- It is **free** in which the two layers are continuous with each other.
- **It contains: Portal vein, Hepatic artery & Common bile duct.**

The lesser omentum is L-shaped (vertical part n horizontal part)
Vertical part with a fissure for the Ligamentum venosum, the horizontal with the margins of porta hepatis.

The right free border represents the anterior surface of epiploic foramen whereas, the IVC represents the posterior surface, so we can say that the epiploic foramen separates between two veins; portal.V ANTERIORLY n IVC POSTERIORLY.



Whereas, rt and Lt gastric vessels + Lt gastric LNs lie along the lesser curvature of the stomach (between the two layers of lesser omentum)

Peritoneal relation of the stomach

Gastrosplenic ligament:

■ **Attachments:** It is a peritoneal fold which extends between the upper part of **greater curvature** of the stomach and the **hilum of the spleen**.

■ Contents:

1-Short gastric vessels.

2-Part of the left gastroepiploic vessels.

3-Lymphatics and lymph nodes.

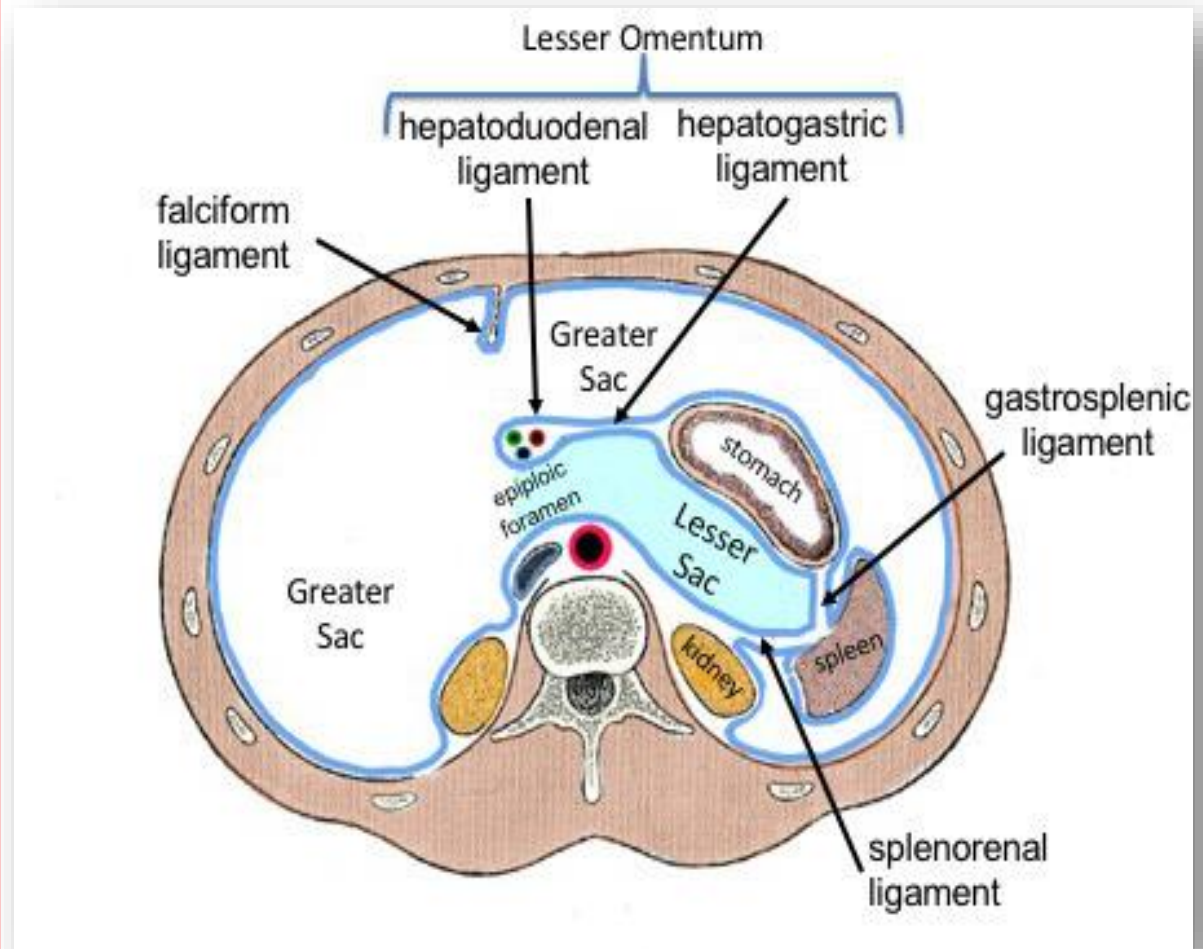
4-Autonomic nerve fibers.

5-Extraperitoneal fat.

Gastrophrenic ligament:

■ It is a peritoneal fold which extends between the upper most part of greater curvature and the diaphragm.

■ It contains only fat .



Blood supply of the stomach

Arterial supply:

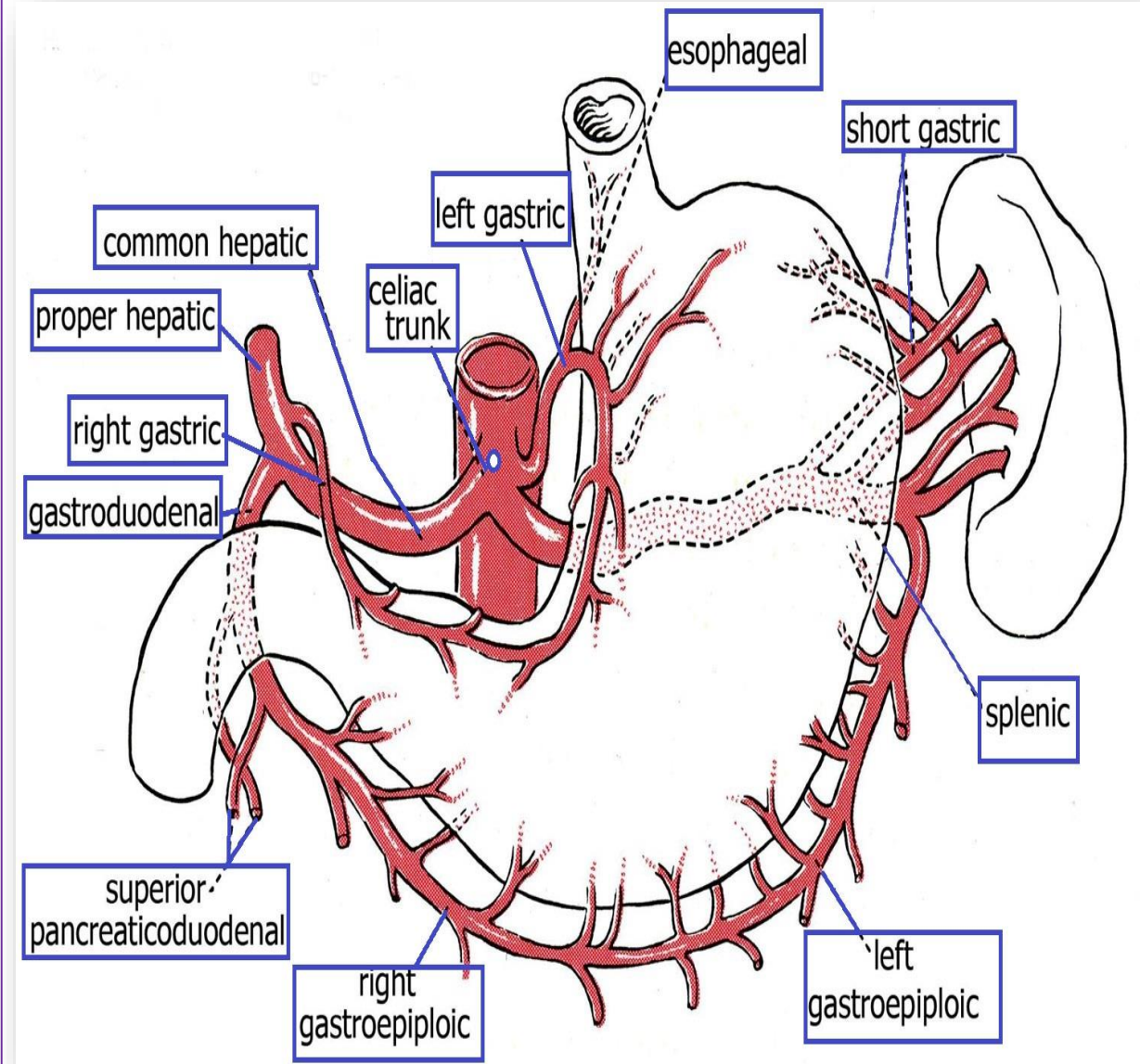
- **Five arteries** supply the stomach.
- These arteries are **derived from the branches of the coeliac trunk**.

1-Left gastric artery:

- It **arises** from the coeliac trunk.
- It **supplies** the abdominal part of oesophagus and right part of the body of the stomach.

2-Right gastric artery:

- It **arises** from the hepatic artery.
- It **supplies** the upper part of the pyloric portion of stomach.



Blood supply of the stomach

3-Right gastroepiploic artery:

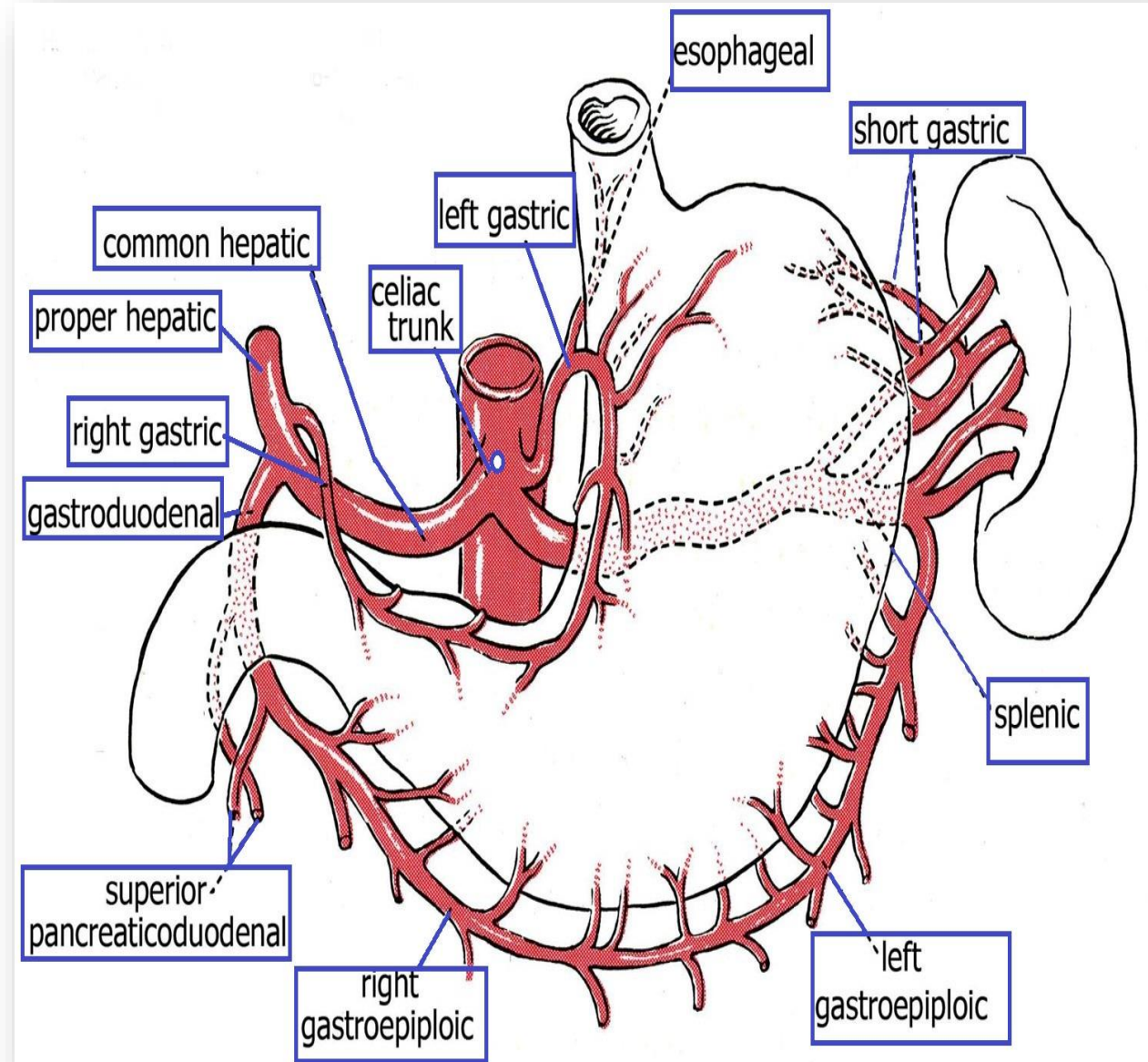
- It **arises** from the gastroduodenal artery.
- It **supplies** the lower part of the pyloric portion of stomach.

4-Left gastroepiploic artery:

- It **arises** from the splenic artery.
- It **supplies** the left part of the body of the stomach.

5-Short gastric arteries (about 5-7):

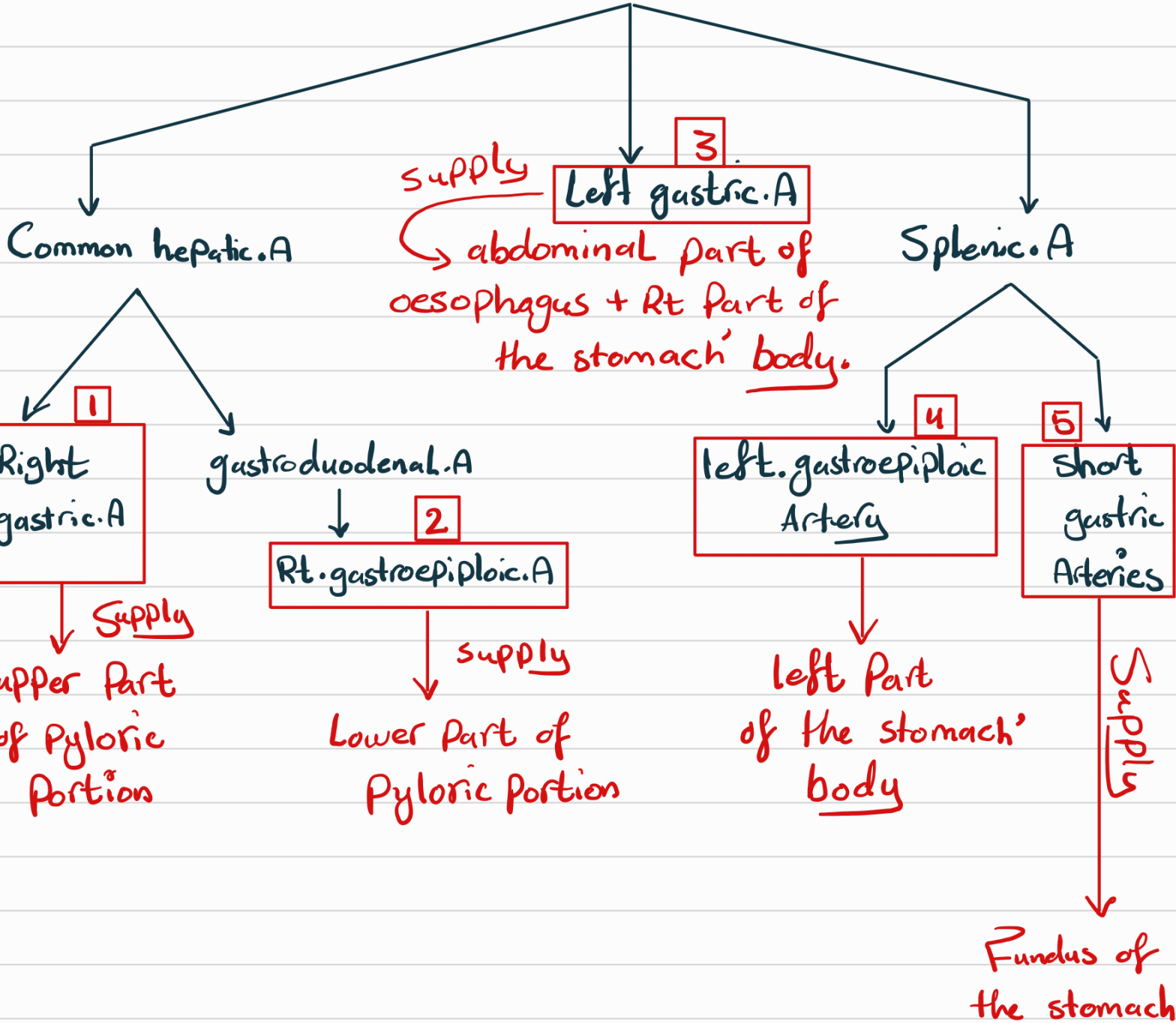
- **They arise from** the splenic artery.
- They **supply** the fundus of the stomach.



Abdominal Aorta

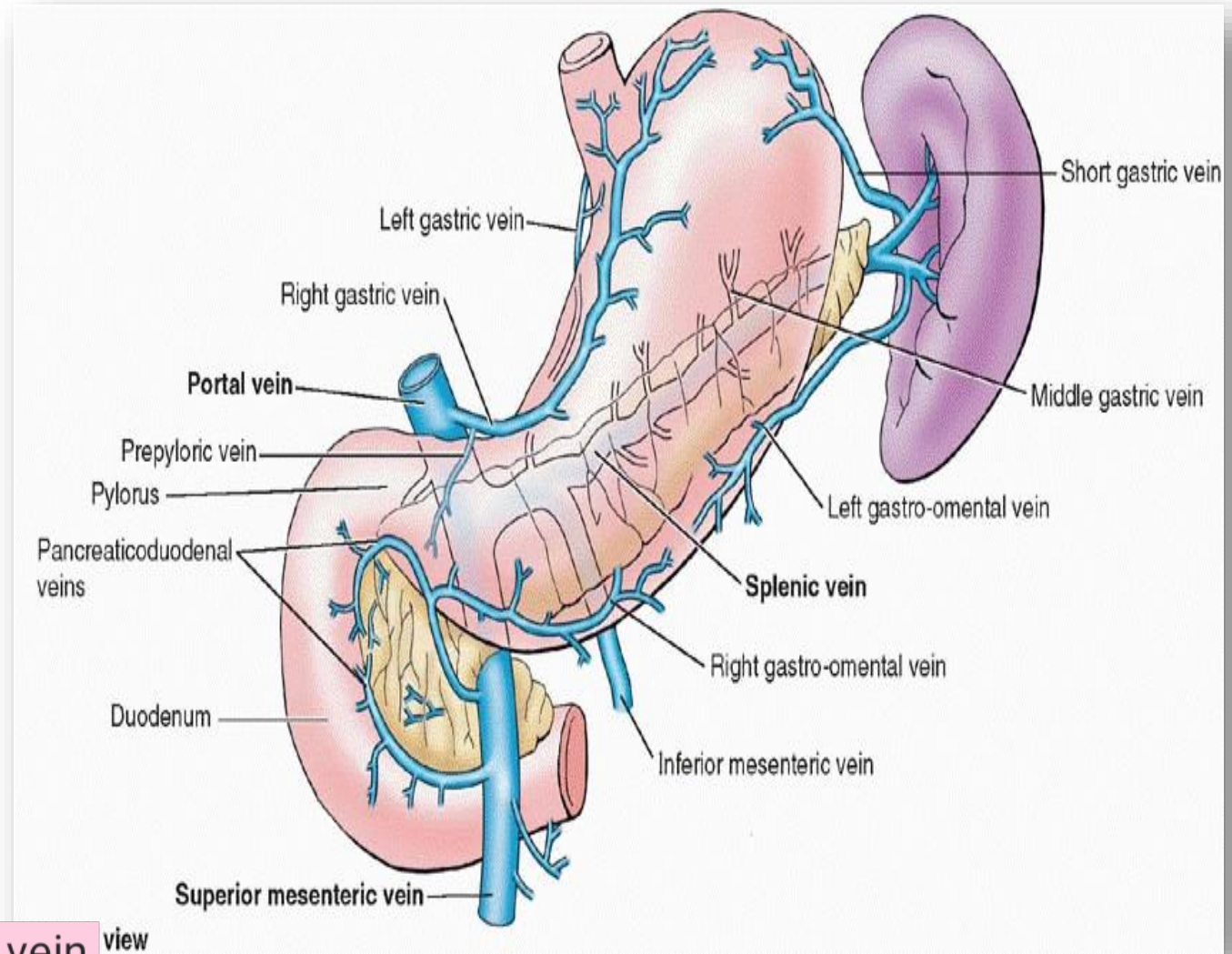


Celiac trunk



Venous drainage of the stomach

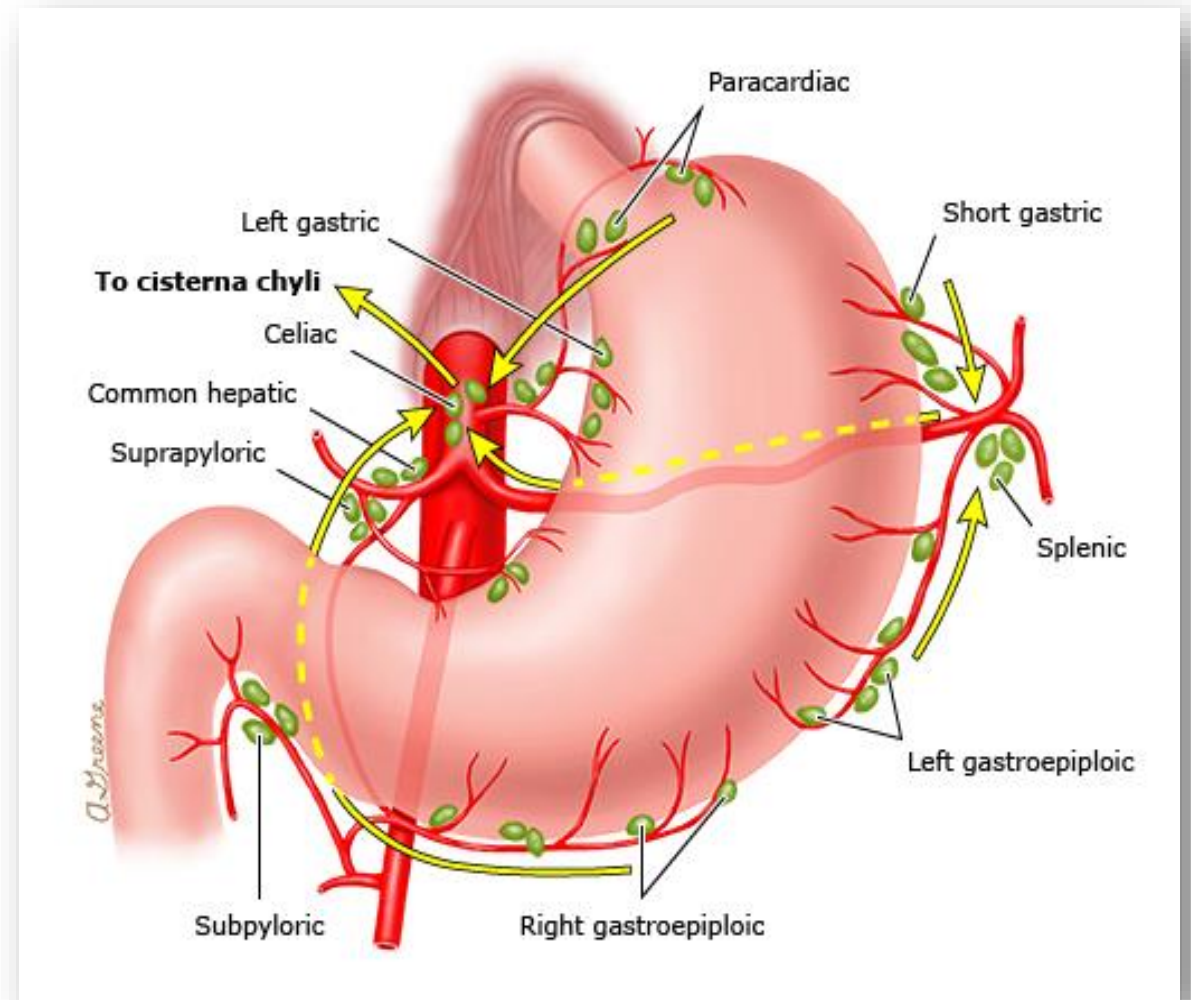
The vein	Drain into
1-Left gastric v.	Portal vein
2-Right gastric v.	
3-Right gastroepiploic v.	Superior mesenteric vein
4-Left gastroepiploic v.	Splenic vein
5-Short gastric veins	



Splenic.V + superior mesenteric.V form the portal vein

Lymphatic drainage of stomach

- Lymph vessels follow the course of the arteries that supplying the stomach.
- They drain into many separate groups of nodes in relationship to the regions of the stomach for e.x. **left gastric, right and left gastroepiploic nodes, Pancreaticosplenic nodes.**
- **Lymphatic vessels from these nodes pass to the coeliac nodes.**



Nerve supply of the stomach

A-The sympathetic fibers:

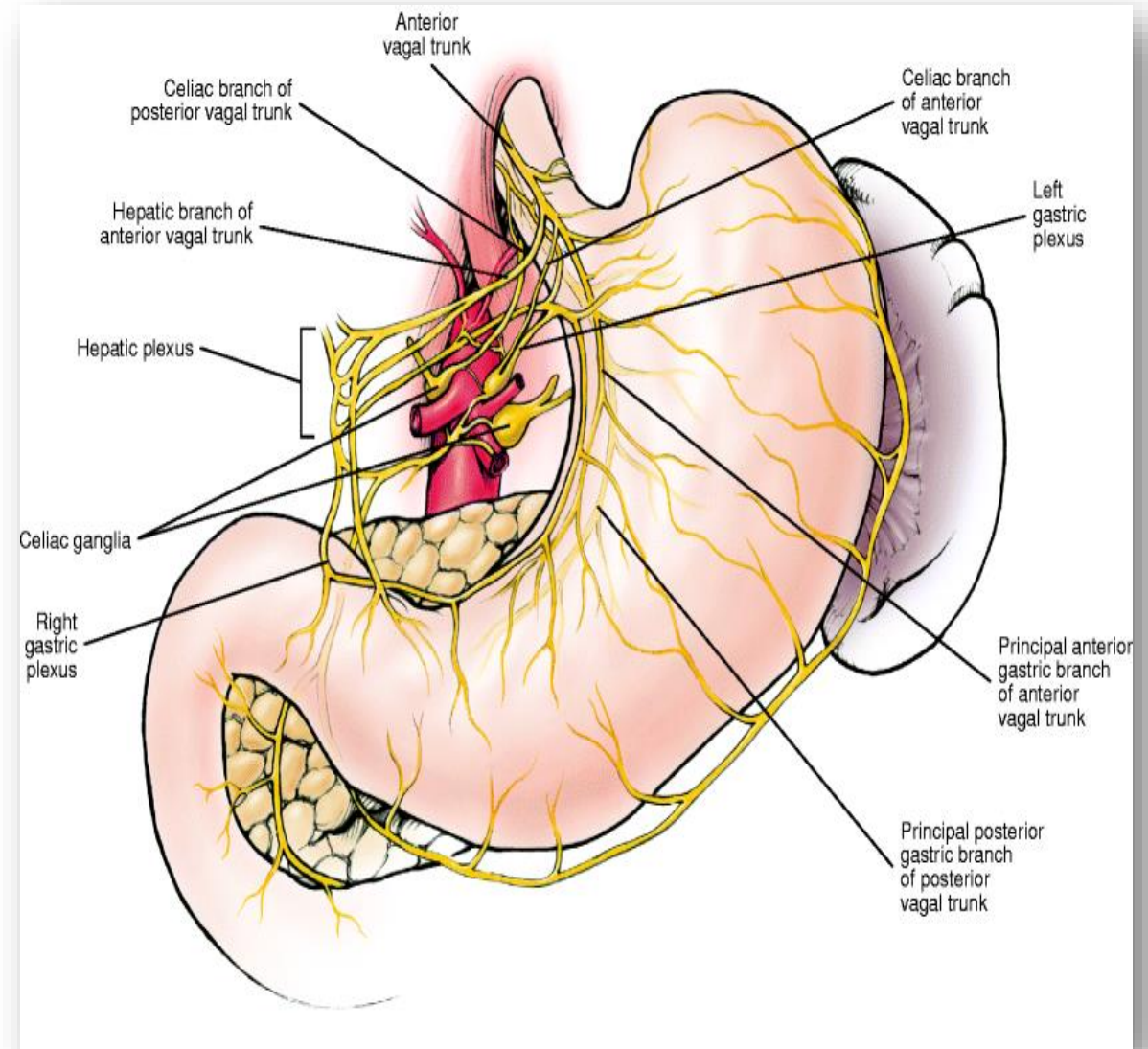
They arise from the spinal cord segments from (T6 to T10).

Gastric Pain:

The sensation of pain in the stomach is caused by the stretching or spasmodic contraction of the smooth muscle and is referred to the epigastrium.

B-Parasympathetic fibers (from vagi):

From both **vagus nerves** through the anterior and posterior gastric nerves.



Surface anatomy of the stomach

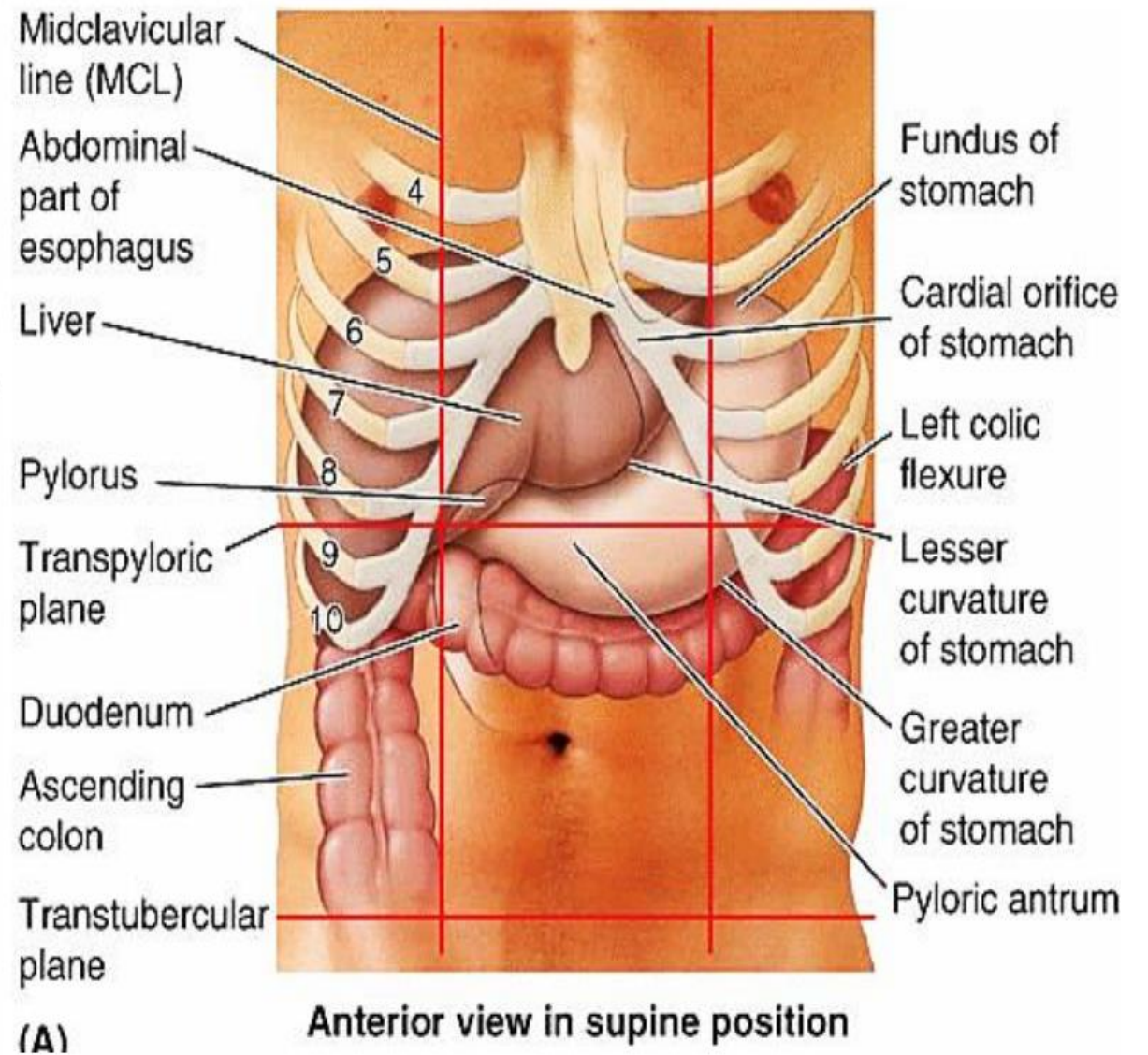
1-Cardiac end: Discussed before.

2-Pyloric end: Discussed before.

3-Fundus of the stomach:

- It represents by a point in the left 5th intercostal space, 3.5 inches to the left of median plane.

The lesser curvature represents curved line between points 1&2. The greater curvature represents curved line between 1,3& 2.



Applied anatomy

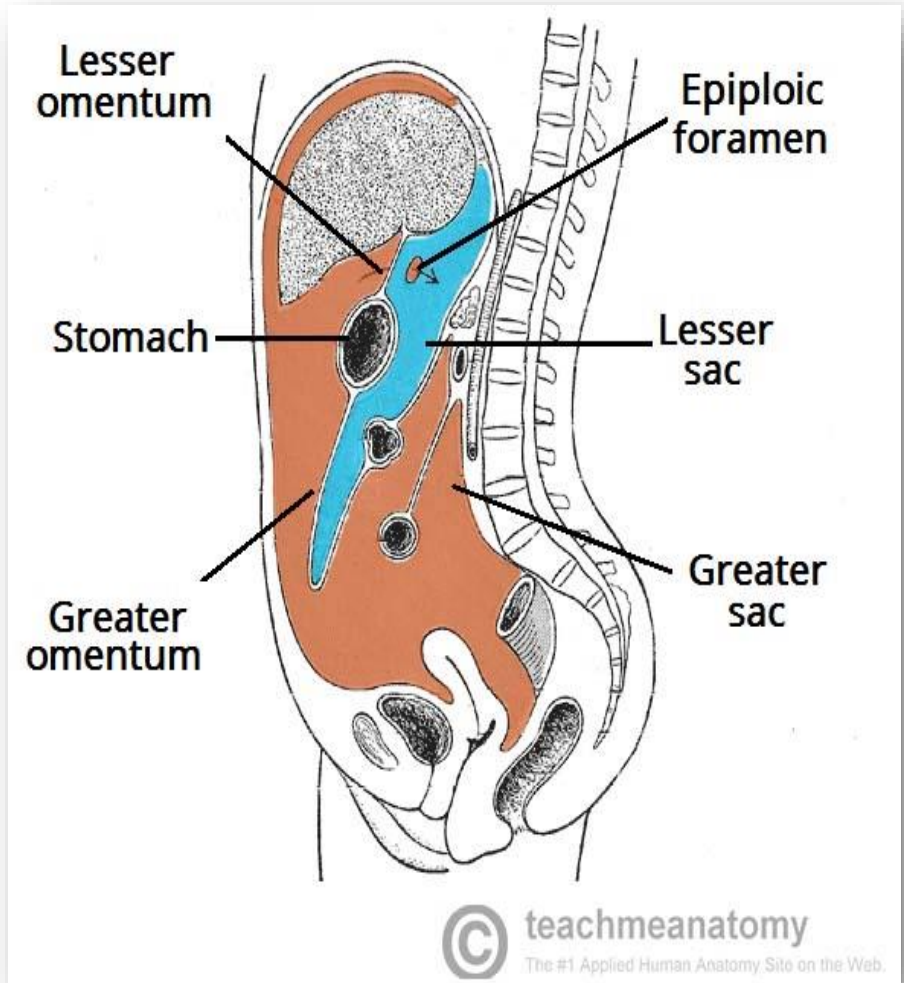
❑ The gastric ulcers are common in the lesser curvature in the pyloric region due to less blood supply to pyloric end in relation to size and there is no submucosal plexus. Due to predisposing factors

❑ Since the pancreas lies behind the stomach, acute pancreatitis is frequently diagnosed as gastritis.

ممکن یجی سوال علی ال relations بطریقه غیر مباشرة.

* ❑ An ulcer in the posterior wall of stomach may penetrate the wall and erode the splenic artery, causing a severe hemorrhage or become adherent to the pancreas (Erosion of the pancreas).

* ❑ A penetrating ulcer of the anterior stomach wall may result in; the escape of stomach contents into the greater sac, producing diffuse peritonitis. The anterior stomach wall may, however, adhere to the liver, and the chronic ulcer may penetrate the liver substance.



**Thank
You**

