

Module: Gastro-Intestinal Tract (GIT)

Semester: 4

Session: 5 **L2**

Lecture Duration: 1h.

Lecture Title:

Functional relationships of the stomach, duodenum and pancreas

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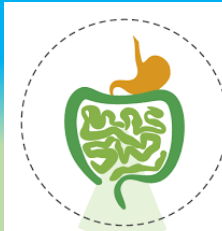
This Lecture was loaded in blackboard and you can find the material

Moore, Clinically oriented anatomy 2018

Drake: Grays anatomy for students 2015

Snell : Clinical anatomy by regions 2012

For more detailed instructions, any question, or you have a case you need help in, please post to the group of session



Objectives

1. Describe openings of diaphragm
2. Describe gastroesophageal junction and reflux
3. Describe relation of Rt and Lt vagus to the esophagus
4. Describe stomach, divisions and relations
5. Describe the blood vessels of stomach and lymphatics
6. Celiac trunk and branches
7. Identify the lesser omentum and structures related
8. Describe the relations of the 1st part of duodenum.
9. The blood supply of spleen and its relation to the tail of pancreas.
10. Relations of duodenum and Pancreas
11. Relation of superior mesenteric vessels to 3rd part of duodenum.



Diaphragm

The **diaphragm has three main openings:**

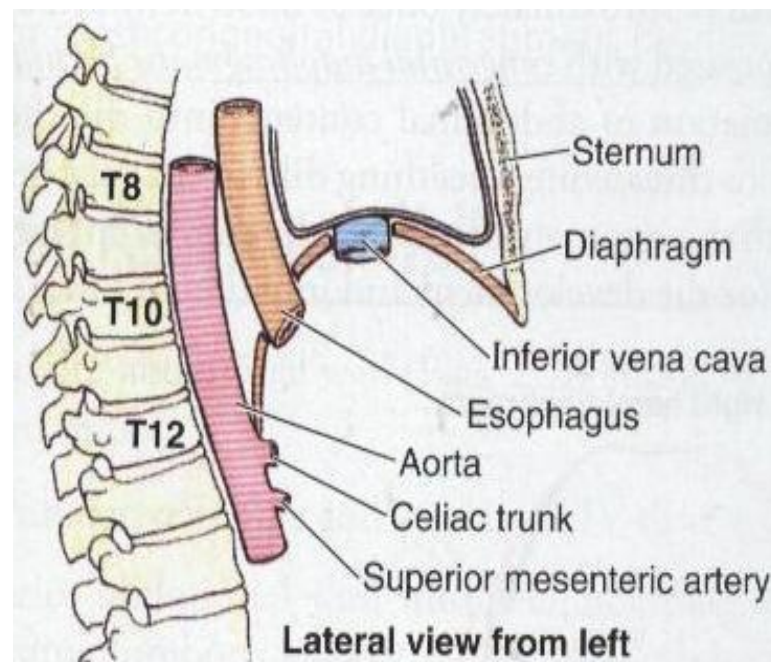
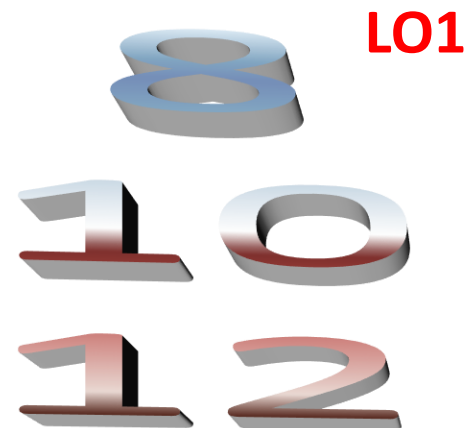
❑ The **caval opening** lies at the level of the **T 8** vertebra in the central tendon. Inferior vena cava & branches of the right phrenic nerve.

❑ The **esophageal opening** lies at the level of the **T 10 vertebra** in a sling of muscle fibers derived from the right crus at the left of median plane.

Esophagus, the right and left **vagus** nerves, the esophageal branches of the **left gastric vessels**, & the **lymph vessels**.

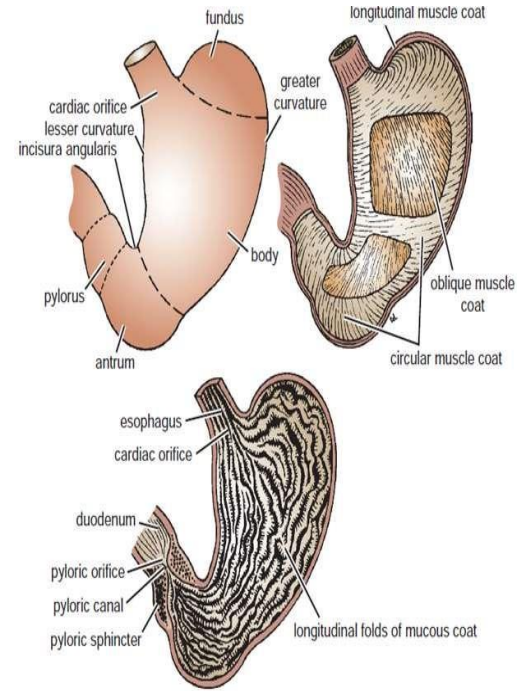
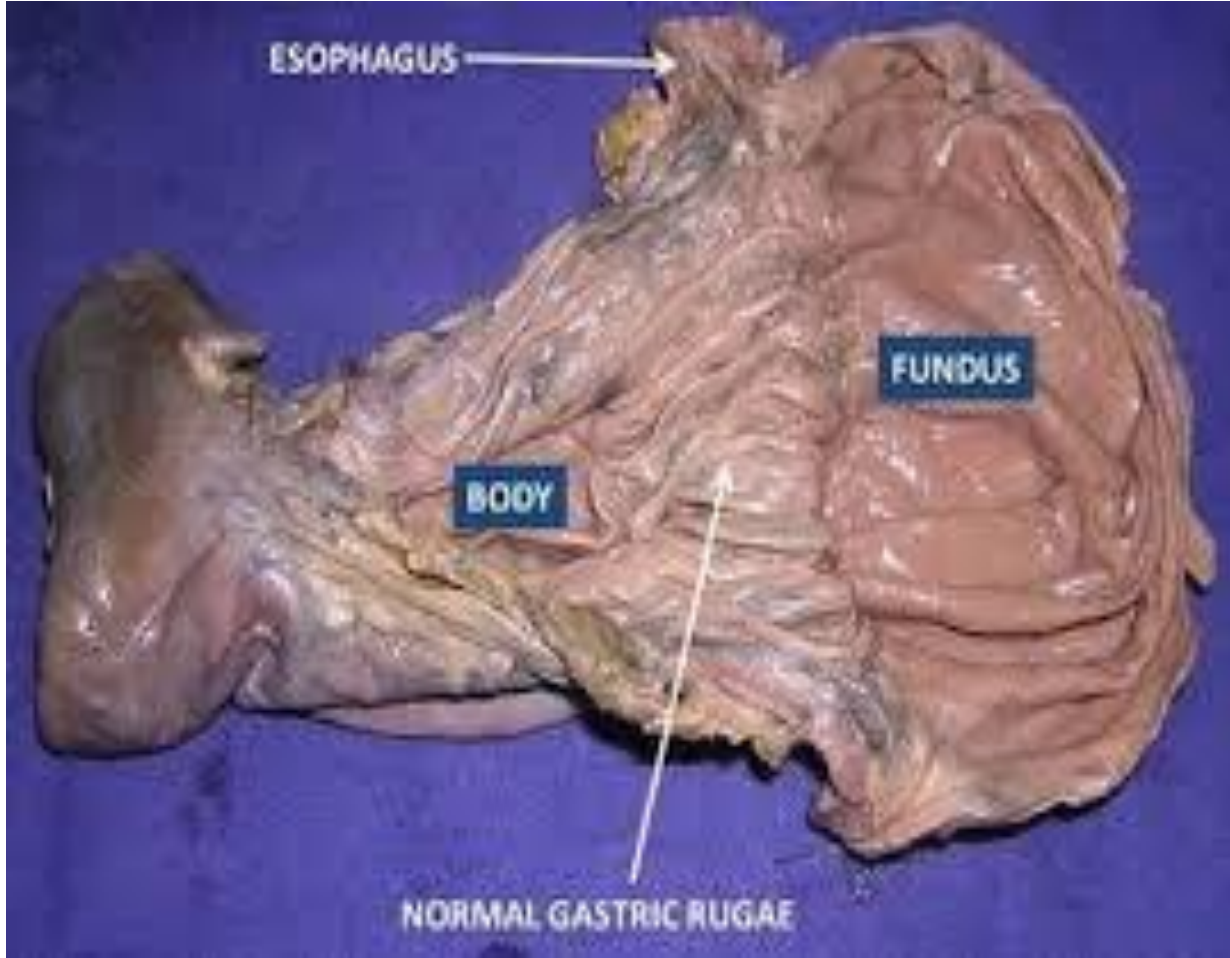
❑ **The aortic opening** lies anterior to the body of the T 12 vertebra between the crura.

Aorta, thoracic duct, & azygos vein.



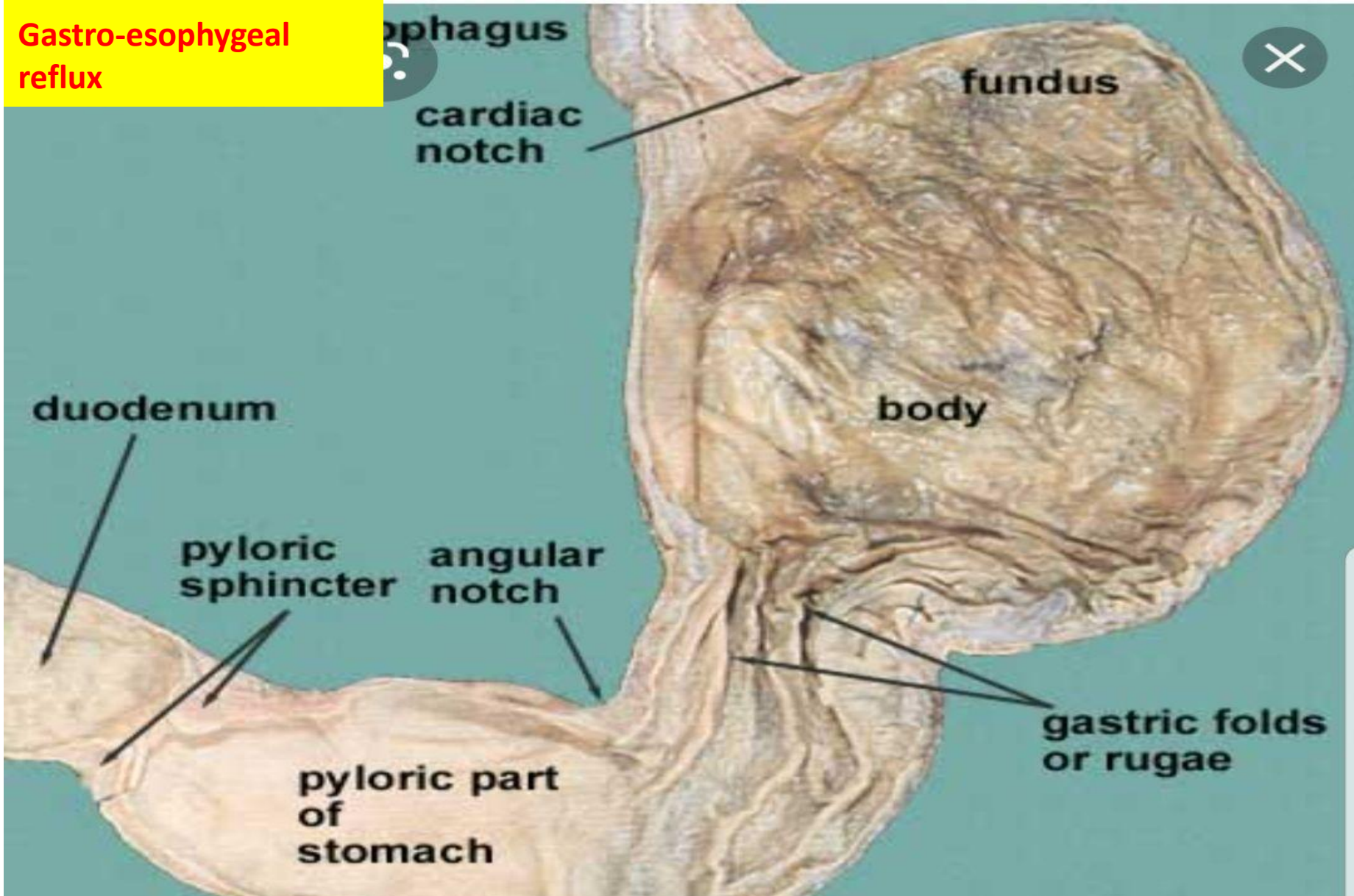
Gastro-esophageal reflux

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L02

**Gastro-esophageal
reflux**



Nerve Supply of the stomach

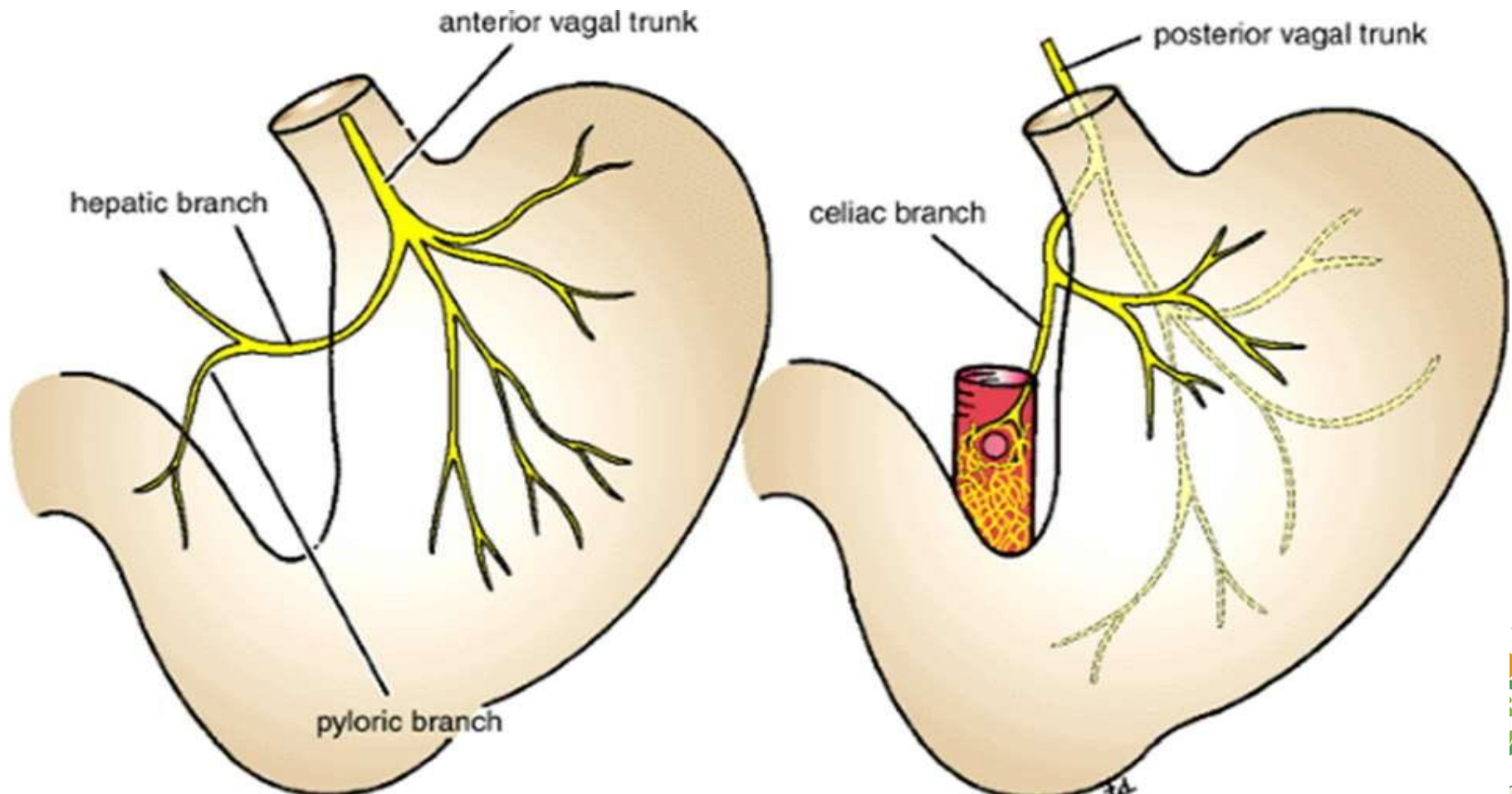
LO3

- The nerve supply includes **sympathetic fibers** derived from the **celiac plexus** and **parasympathetic fibers** from the **right vagus (posterior vagal trunk)** and **left vagus (anterior vagal trunk) nerves**.
- The sympathetic innervation of the stomach is **inhibitory** to the muscular wall of the stomach, and carries a proportion of pain-transmitting nerve fibers,
- whereas the **parasympathetic vagal fibers** are **secretomotor** to the gastric glands and motor to the muscular wall of the stomach.
- The pyloric sphincter receives motor fibers from the sympathetic system and inhibitory fibers from the vagi.



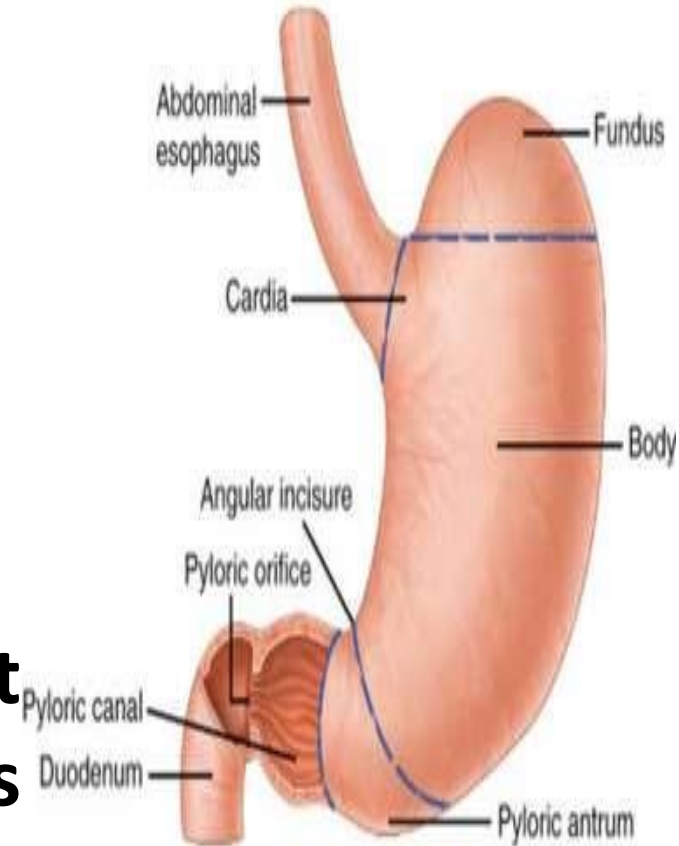
Relation of Rt and Lt vagus nerve to esophagus

L03

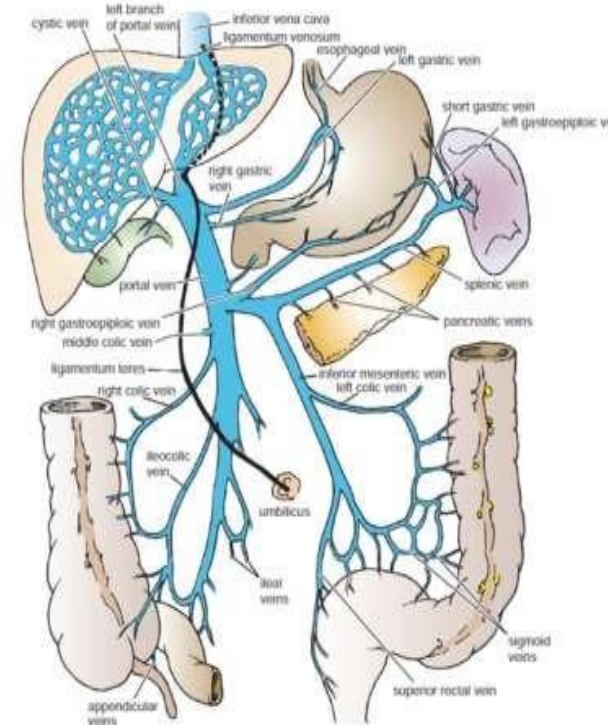
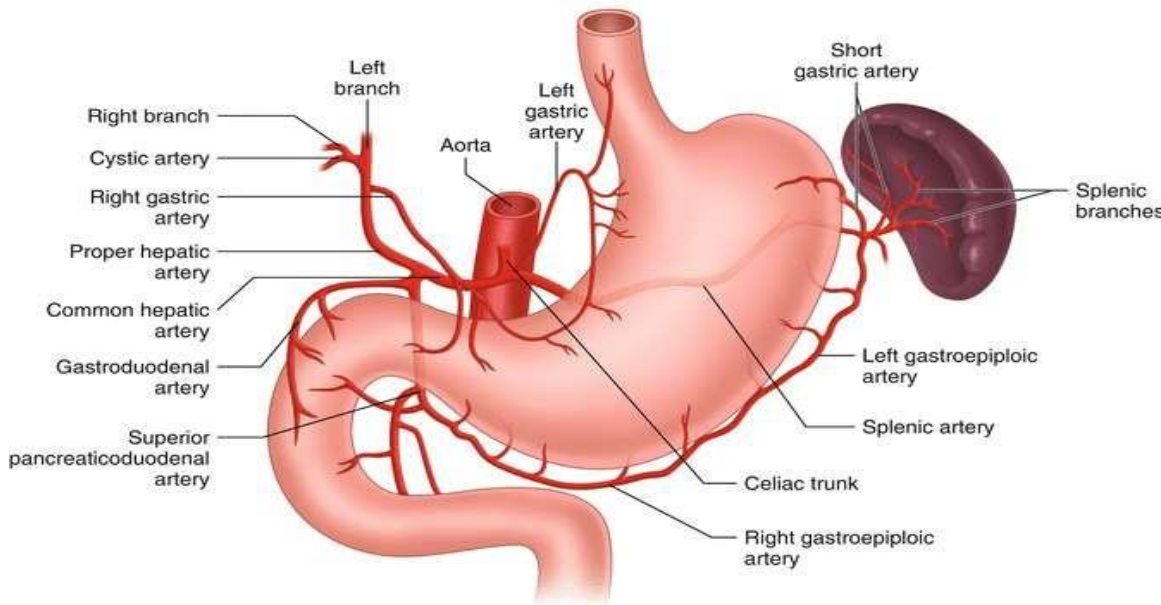


Relations of stomach

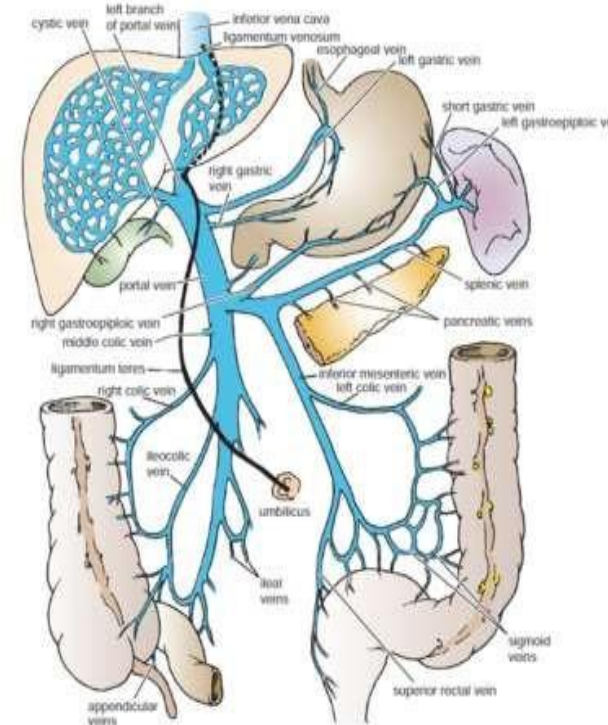
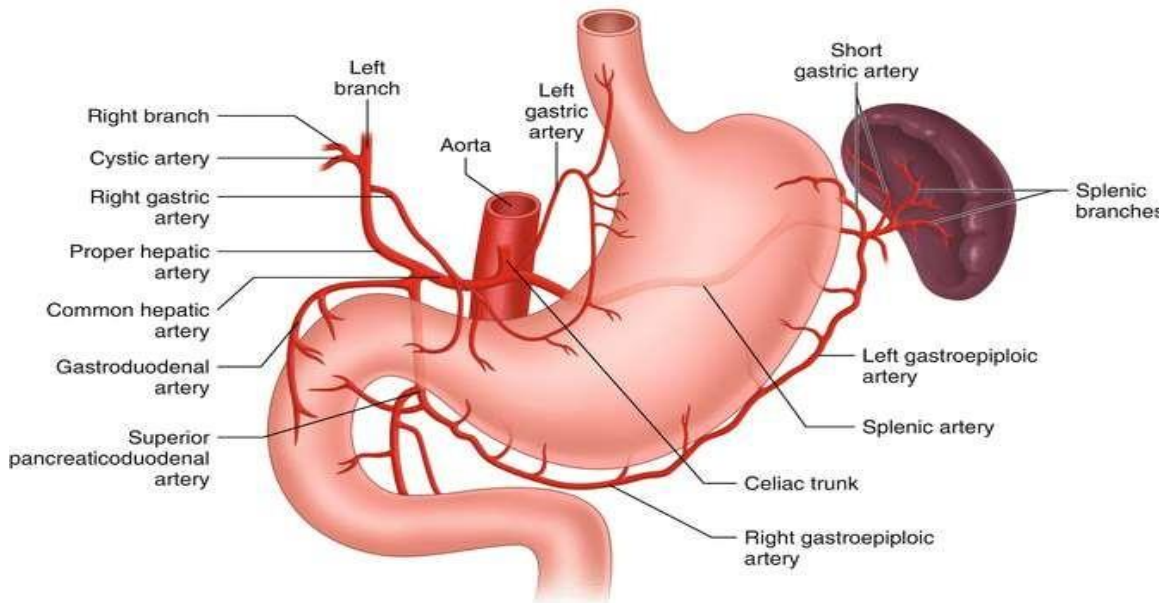
- **Anterior:**
- Ant abd wall, Lt costal margin ,
- Lt pleura and lung
- Diaphragm, Lt lobe of liver
- **Posterior:**
- Lesser sac , diaphragm, spleen .
- Lt suprarenal gland upper part of kidney ,splenic art, pancreas transverse colon



- Blood supply of stomach
- Gastroepiploic vessels



- Blood supply of stomach
- Gastroepiploic vessels

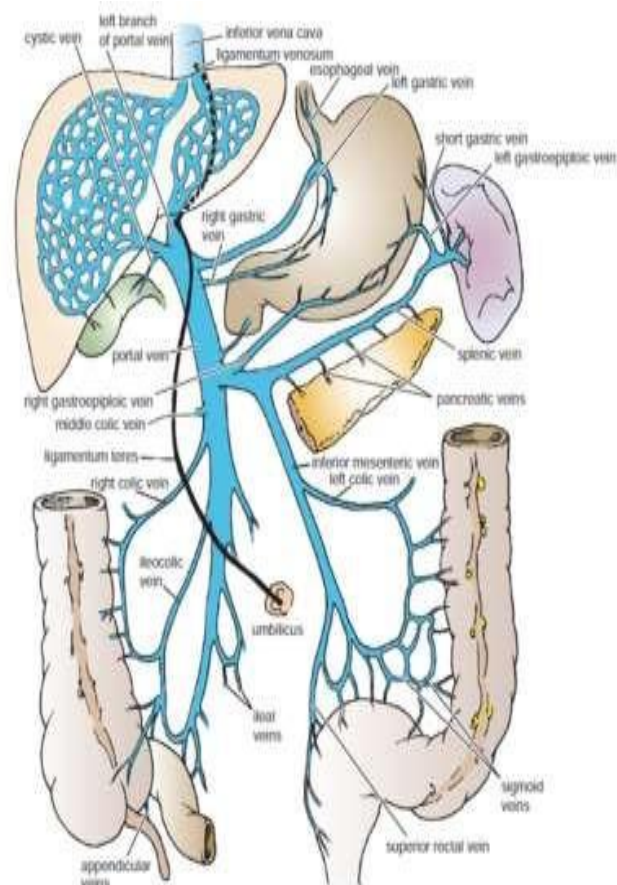


Veins of stomach

- The veins drain into the **portal circulation**.
- The **left and right gastric veins** drain directly into the portal vein.

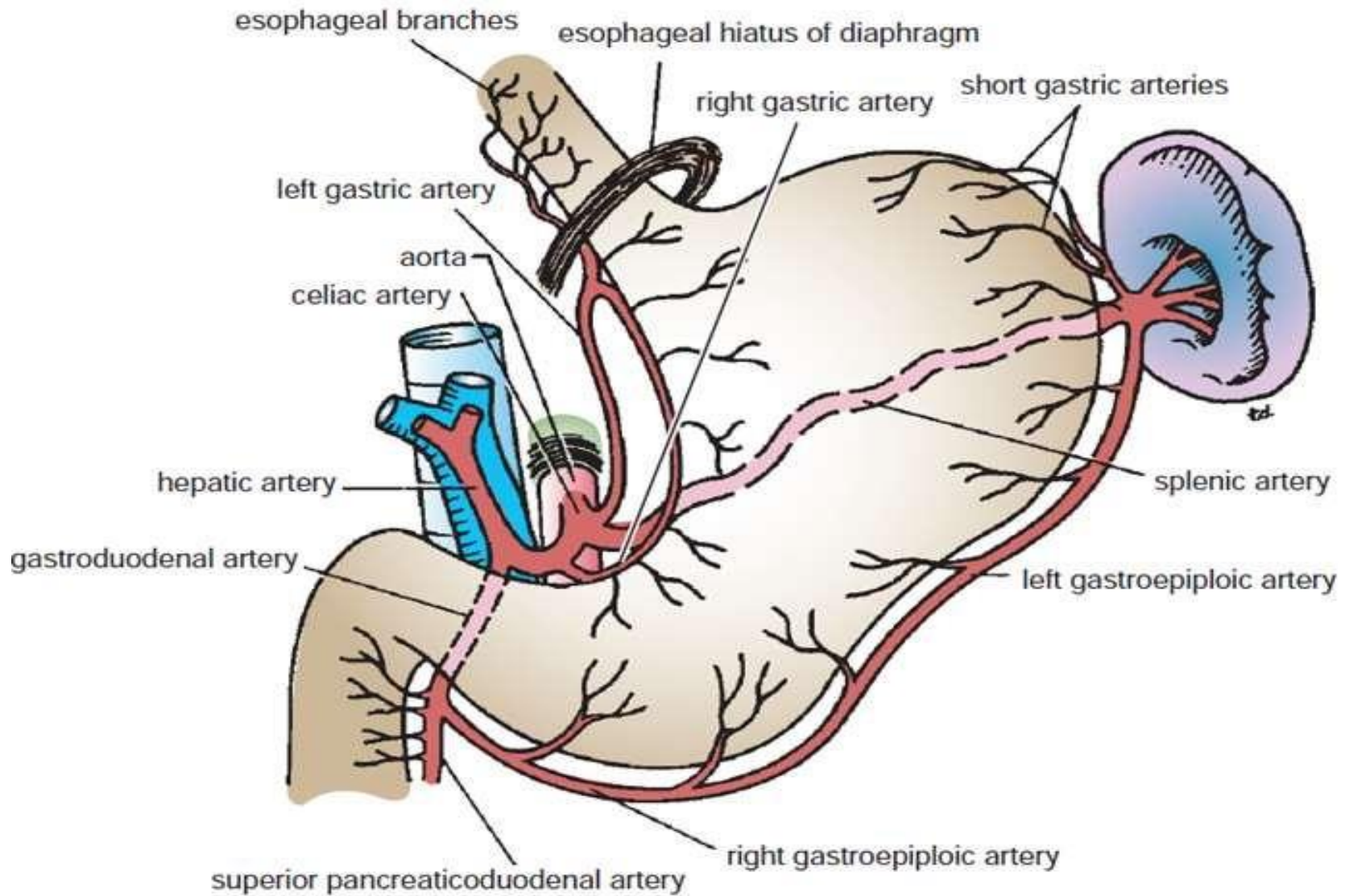
The **short gastric veins** and the **left gastroepiploic veins** join the splenic vein.

The **right gastroepiploic vein** joins the superior mesenteric veins





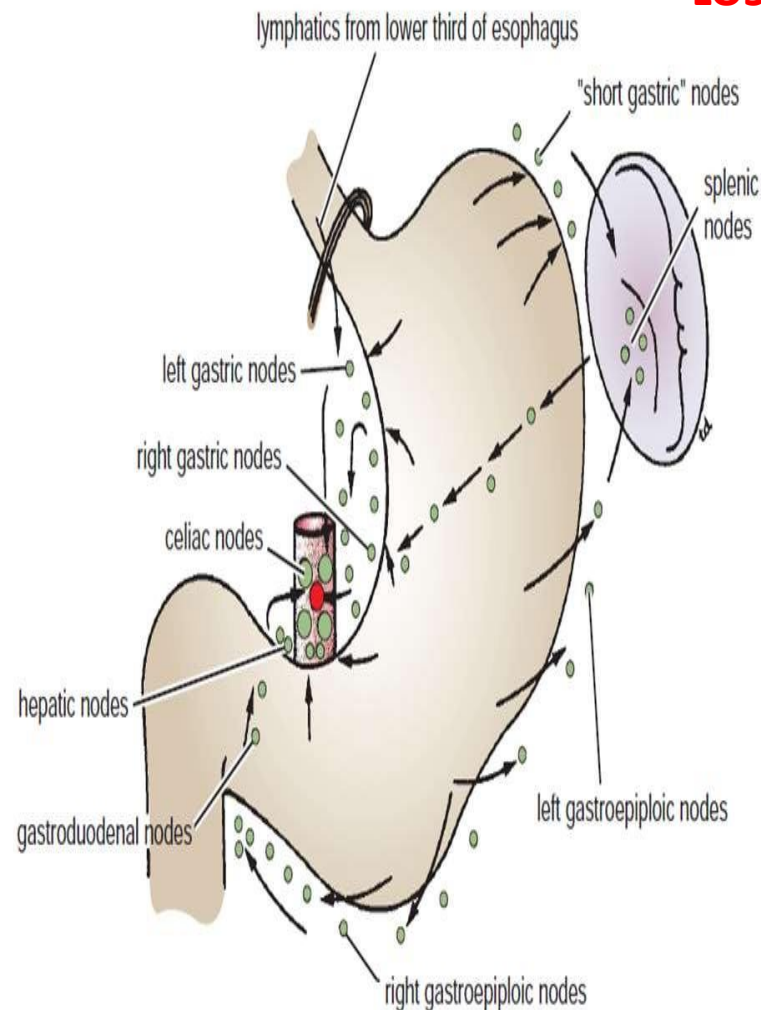
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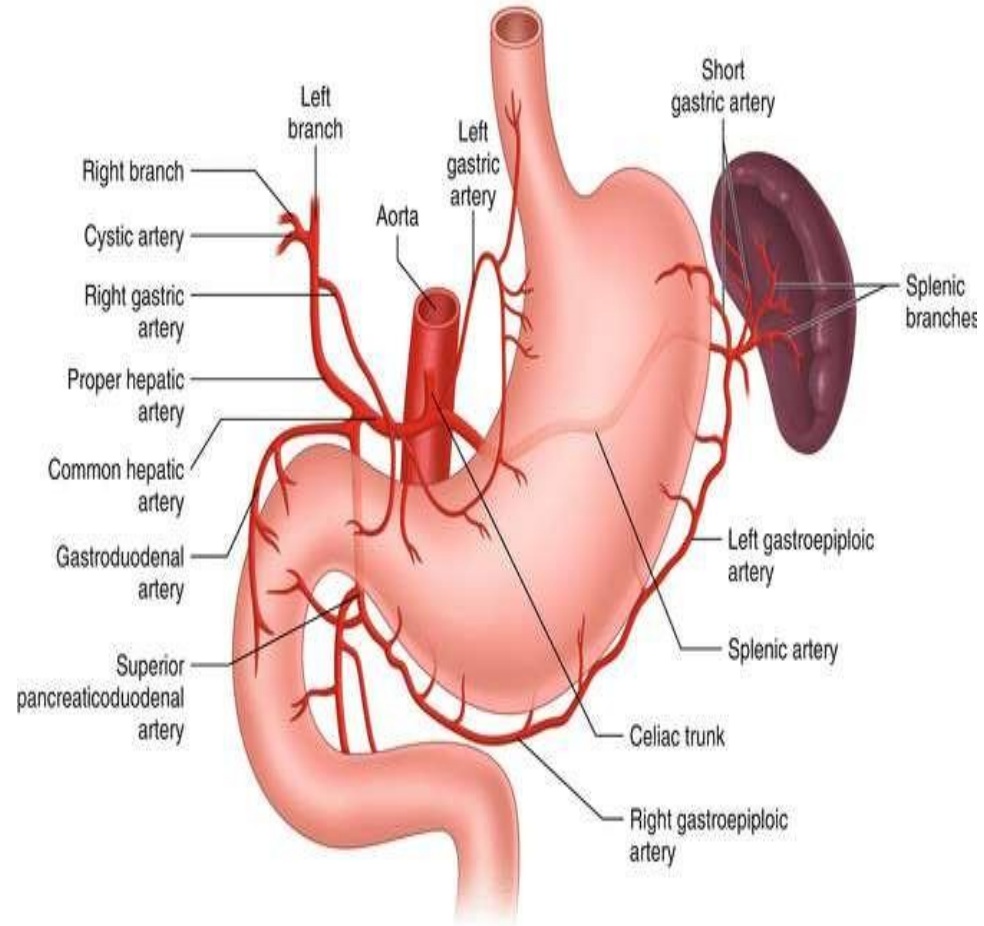
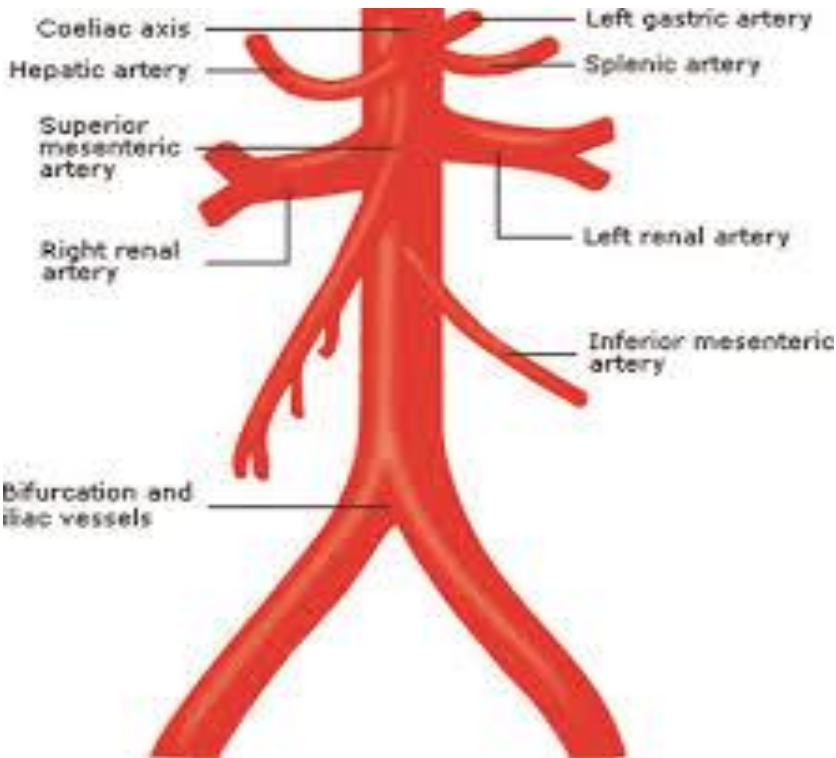
Lymphatic drainage of the stomach

- The lymph vessels follow the arteries into the left and right gastric nodes, the left and right gastroepiploic nodes, and the short gastric nodes.
- All lymph from the stomach eventually passes to the celiac nodes located around the root of the celiac artery on the posterior abdominal wall.

LO5



Celiac trunk and branches



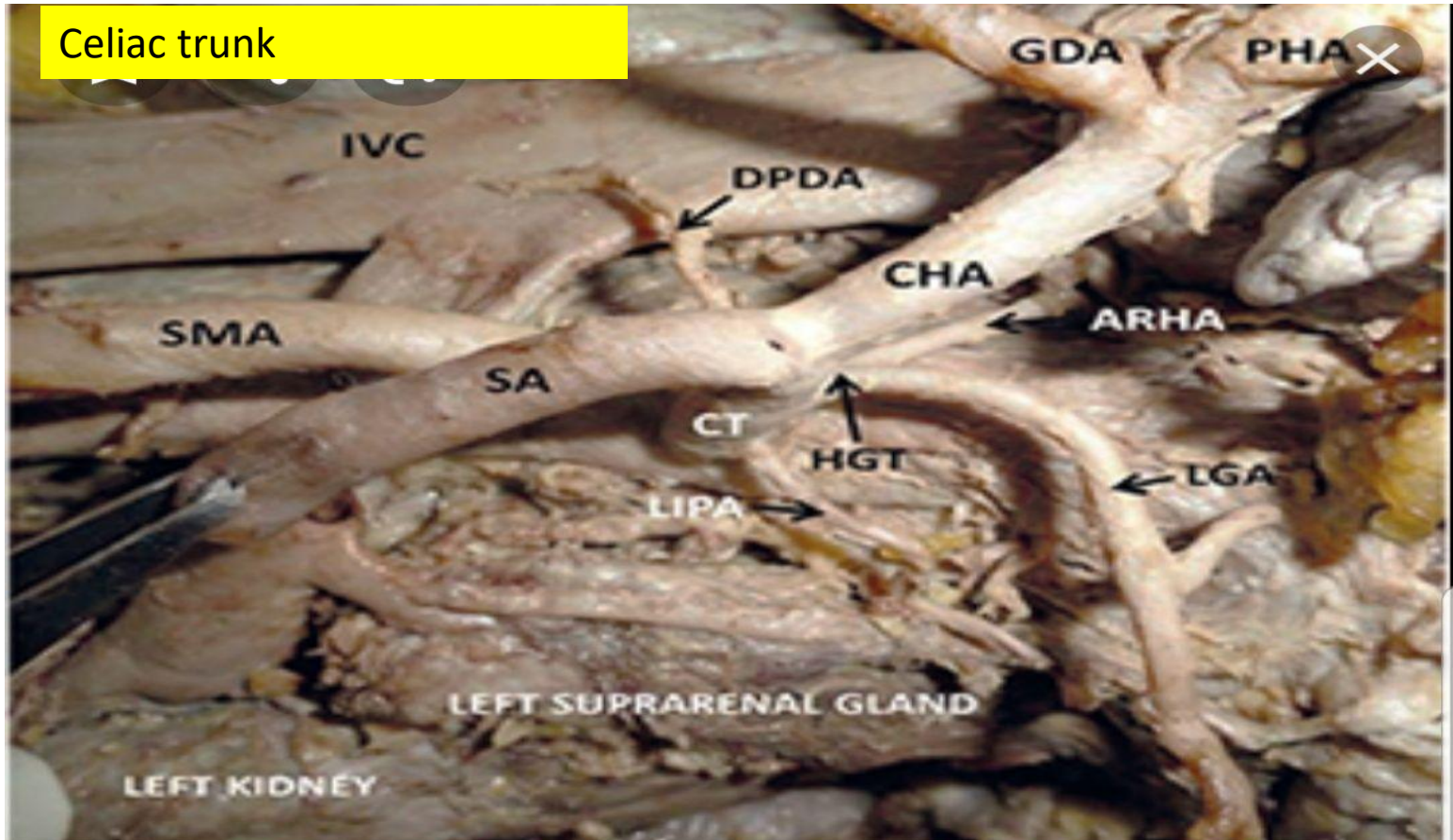
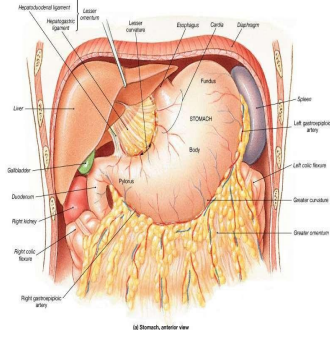
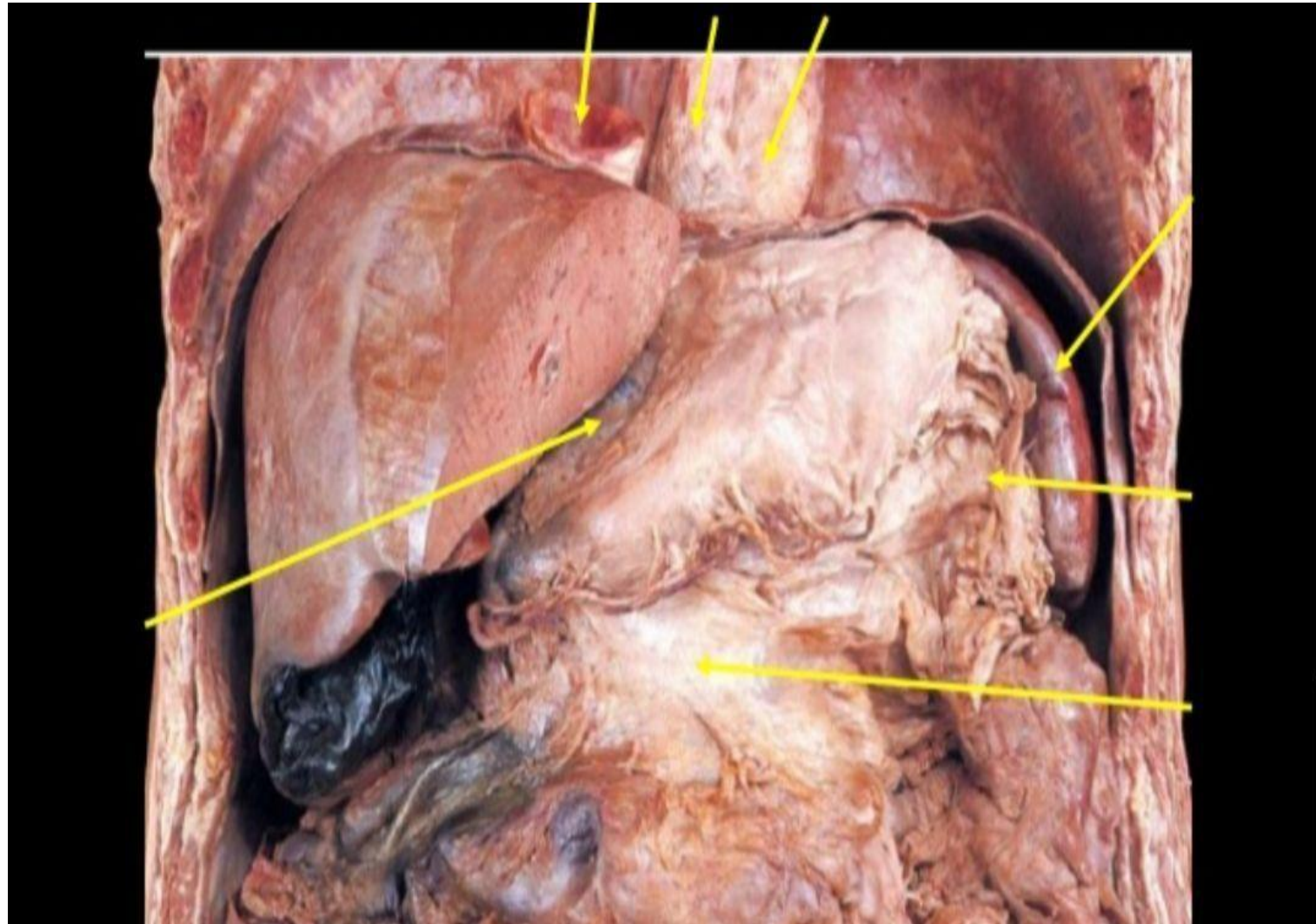


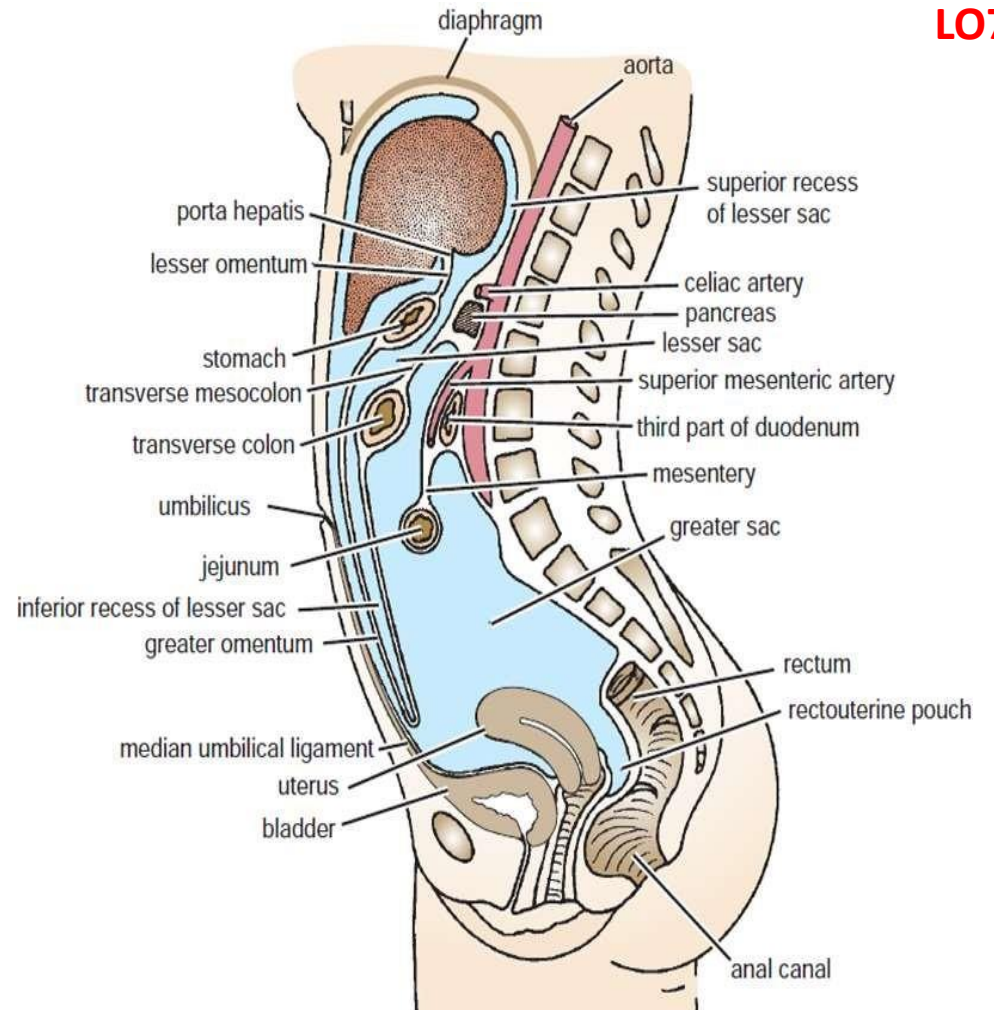
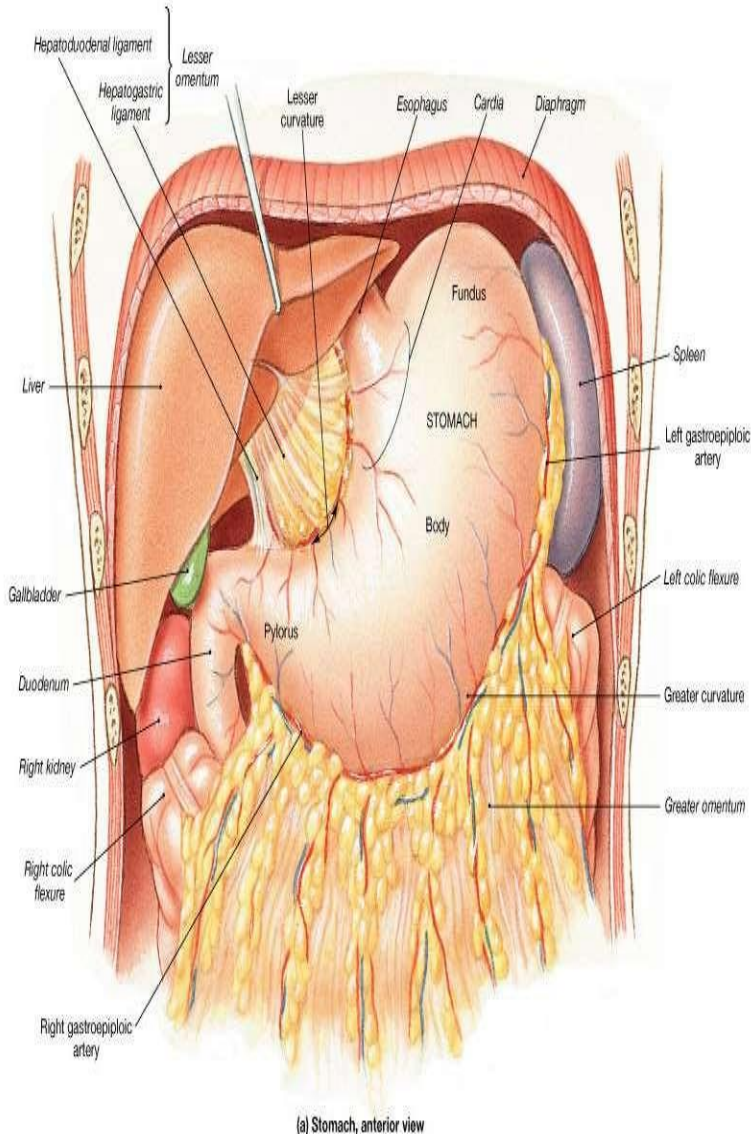
Figure 1 : Dissection of abdomen showing the variant branching pattern of celiac trunk. CT –Celiac Trunk,CHA-Common Hepatic Artery,SA-Splenic Artery,HGT,ARHA,LGA,LIPA,DPDA,GDA,PHA,SMA,IVC



- Lesser omentum.

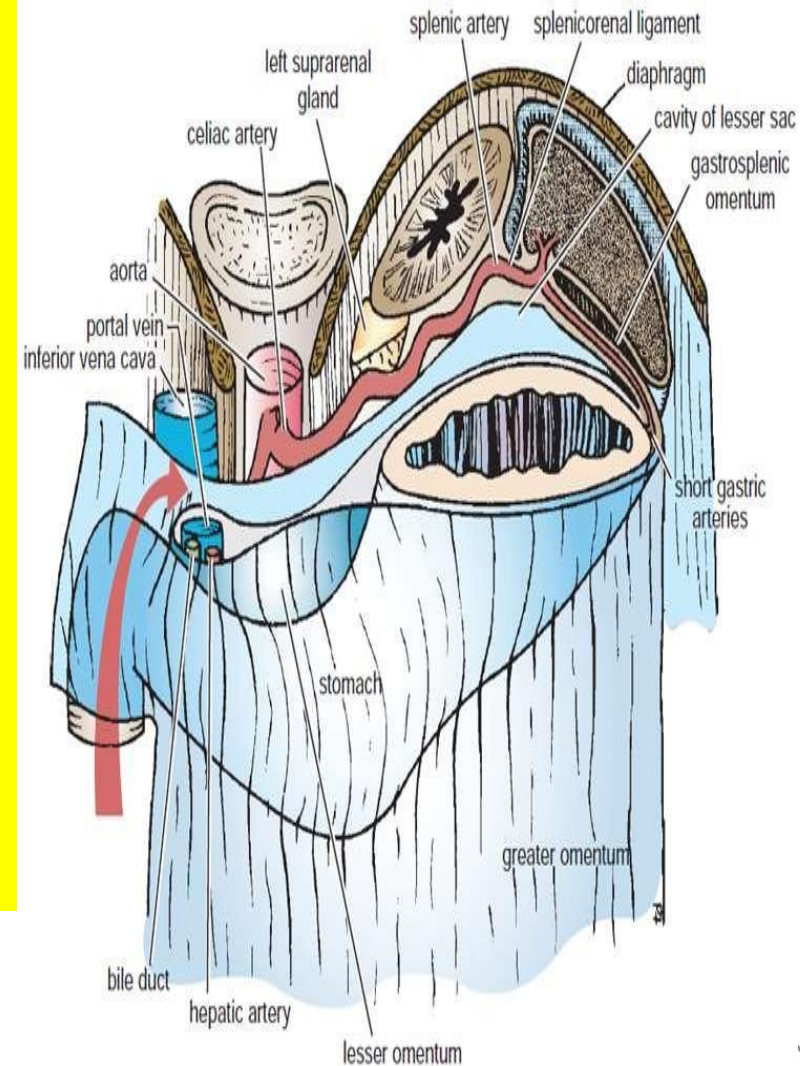
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LO 7

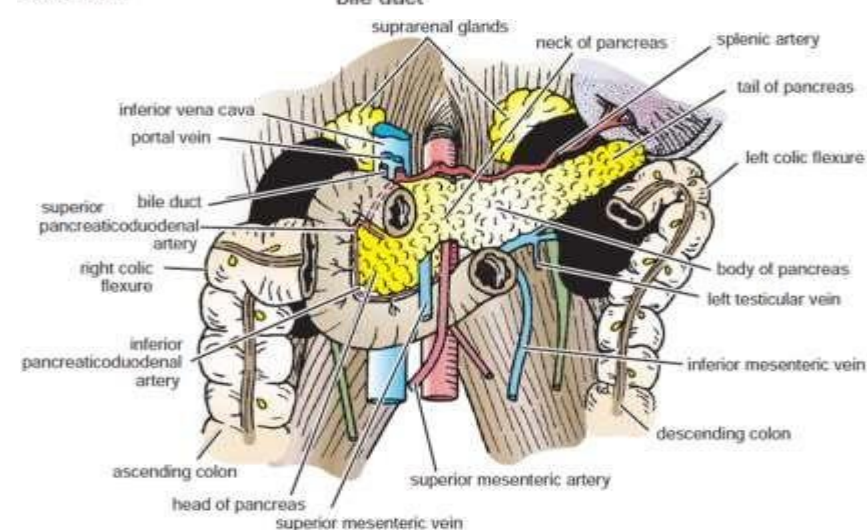
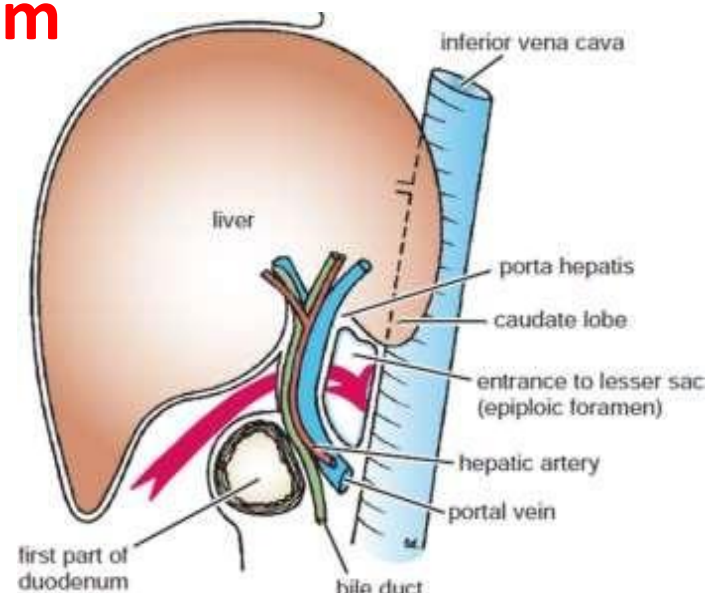
- Contents of lesser omentum :
- Along lesser curvature of stomach : right & left gastric vessels.
- At the right free border :
 - Hepatic artery.
 - Bile duct.
 - Portal vein.
 - Nerves, lymph vessels & fat.



The first part of the duodenum

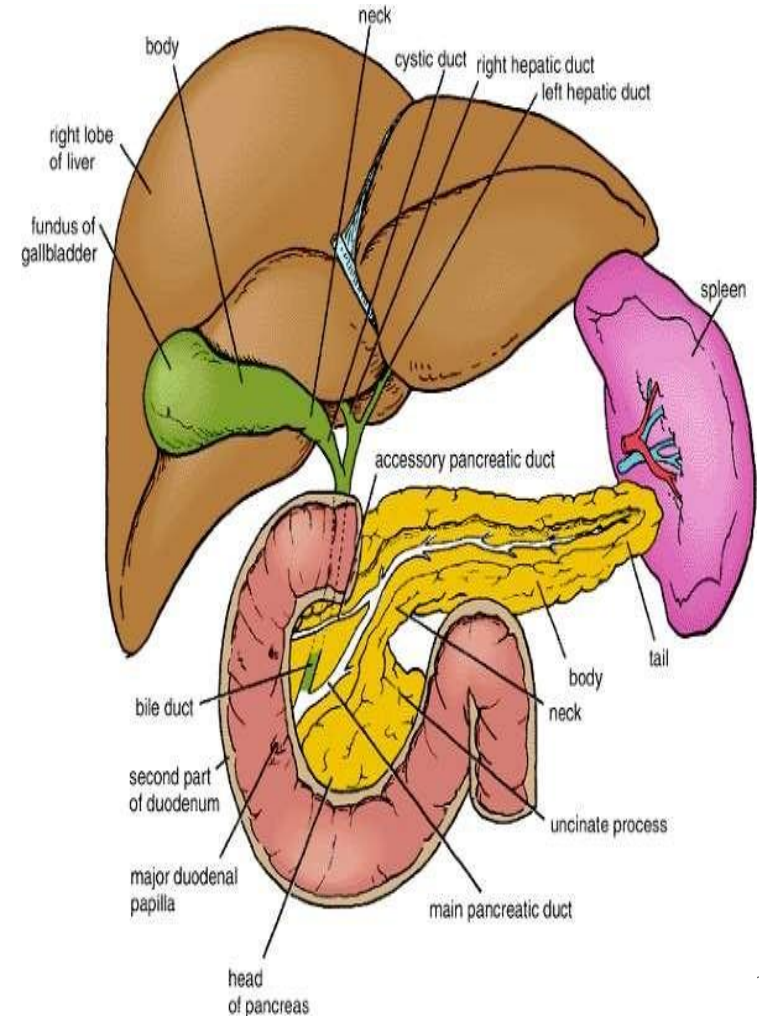
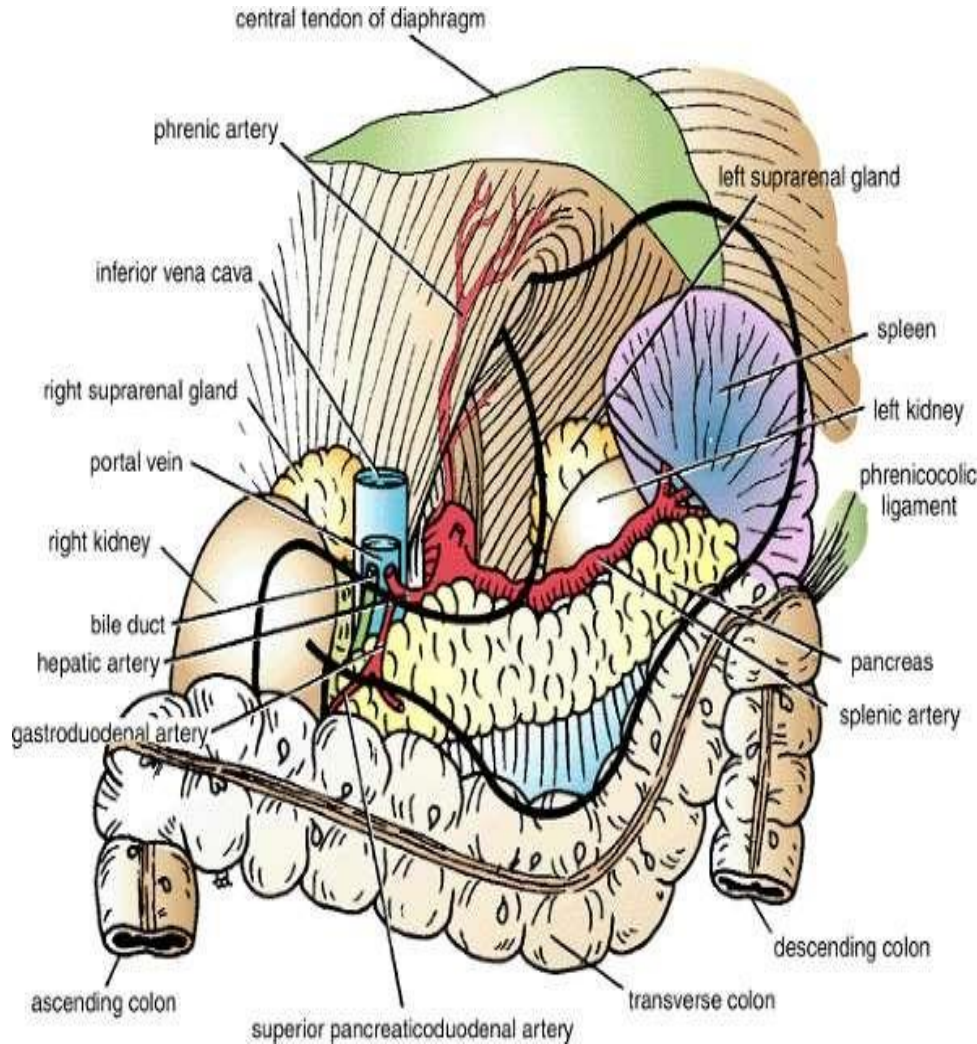
LO8

- begins at the pylorus and runs upward and backward on **the transpyloric plane at the level of the 1st lumbar vertebra.**
- **Relations:**
- **Anteriorly:** The quadrate lobe of the liver and the gallbladder.
- **Posteriorly:** The lesser sac (first inch only), the gastroduodenal artery, the bile duct and the portal vein, and the inferior vena cava.
- **Superiorly:** The entrance into the lesser sac (the epiploic foramen)
- **Inferiorly:** The head of the pancreas



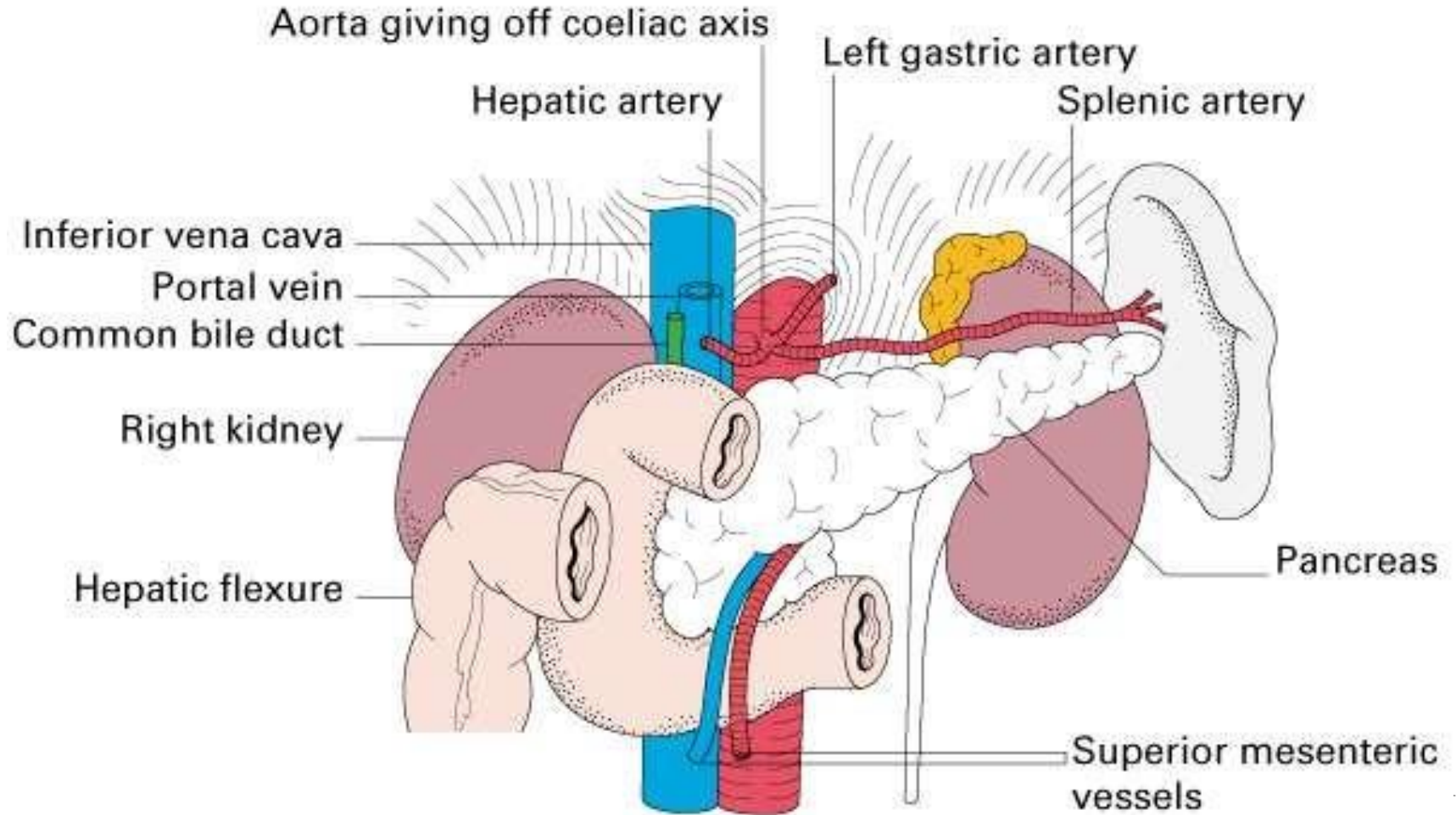
Relation of spleen to the tail of pancreas and blood vessels

Lo9



Relation of duodenum to Pancreas

LO10



Relation of pancreas

Relation:

Superior border:

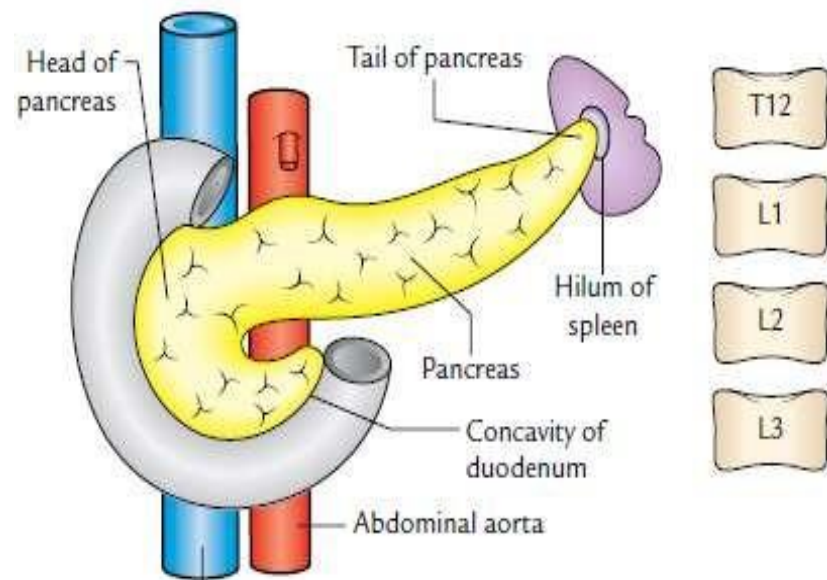
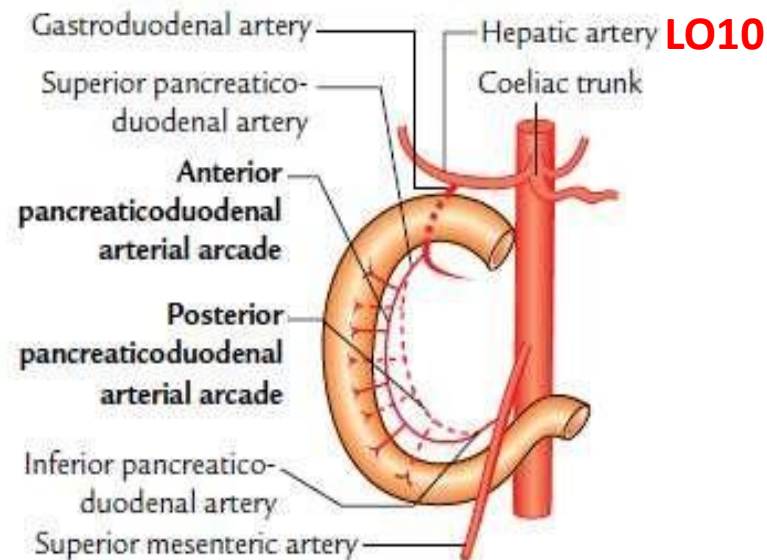
- (a) first part of the duodenum, and
- (b) superior pancreaticoduodenal artery.

Inferior border:

- (a) third part of the duodenum, and
- (b) inferior pancreaticoduodenal artery.

Right lateral border:

- (a) second part of the duodenum
- (b) Anterior & posterior pancreaticoduodenal arterial arcades
- (c) Terminal part of bile duct



Relation of Superior mesenteric artery to the 3rd part of duodenum .:

Lo11

