Nerve supply of palate

Motor

cranial part of accessory nerve through vagus → all muscles of palate except tensor palati

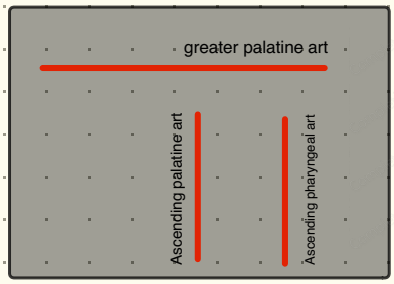
mandibular branch of the trigeminal nerve → for tensor palati

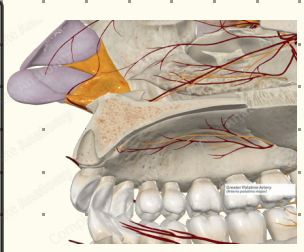
Sensory

Lesser palatine nerves of pterygopalatine ganglion

Tonsillar branch of Glossopharyngeal n

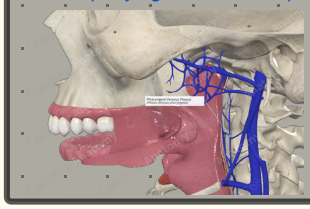
Blood supply

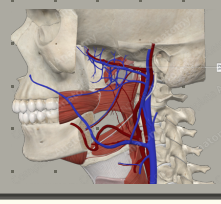


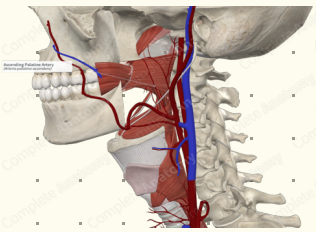


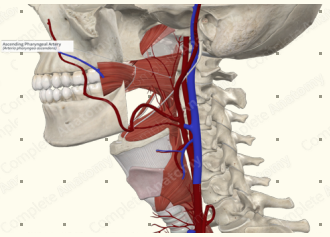
Veins

Accompanying veins end in: pterygoid and pharyngeal venous plexuses









Nerve supply of tongue

Motor

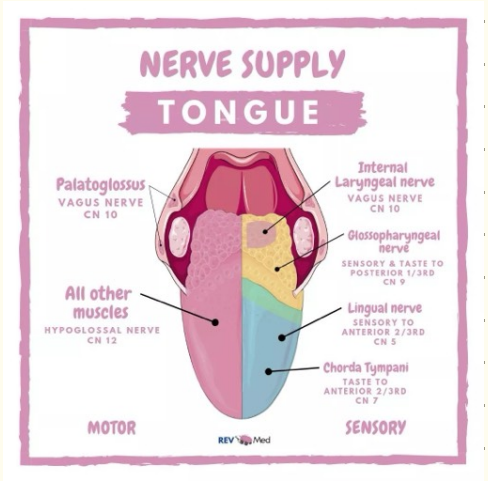
all muscles (extrinsic and intrinsic) are supplied by hypoglossal nerve except palatoglossus

cranial part of accessory n through vagus for palatoglossus

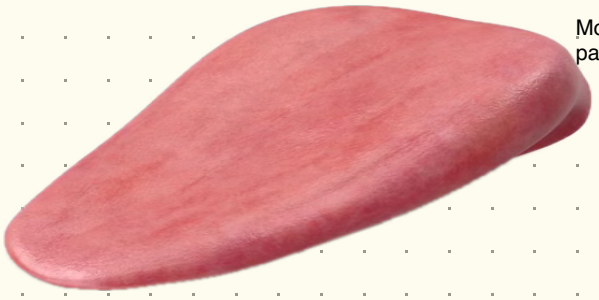
Sensory

General sensation:- lingual nerve
taste sensation:- chorda tympani n

general & taste sensation by glossopharyngeal

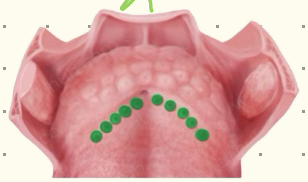


Ant. 2/3:



Post. 1/3

Most lower part of pharyngeal part: by vagus n



vallate papilla are supplied by glossopharyngeal nerve

Blood supply

Dorsal lingual vein

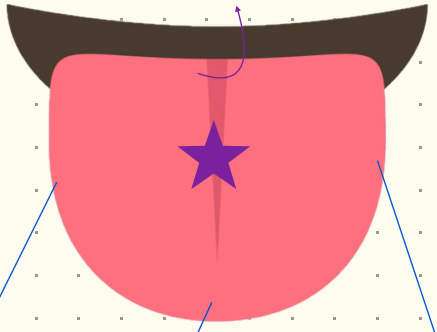
Deep lingual vein

Mainly by lingual artery

ECA IJV

Lymphatics

Posterior part:- to Deep cervical L.N

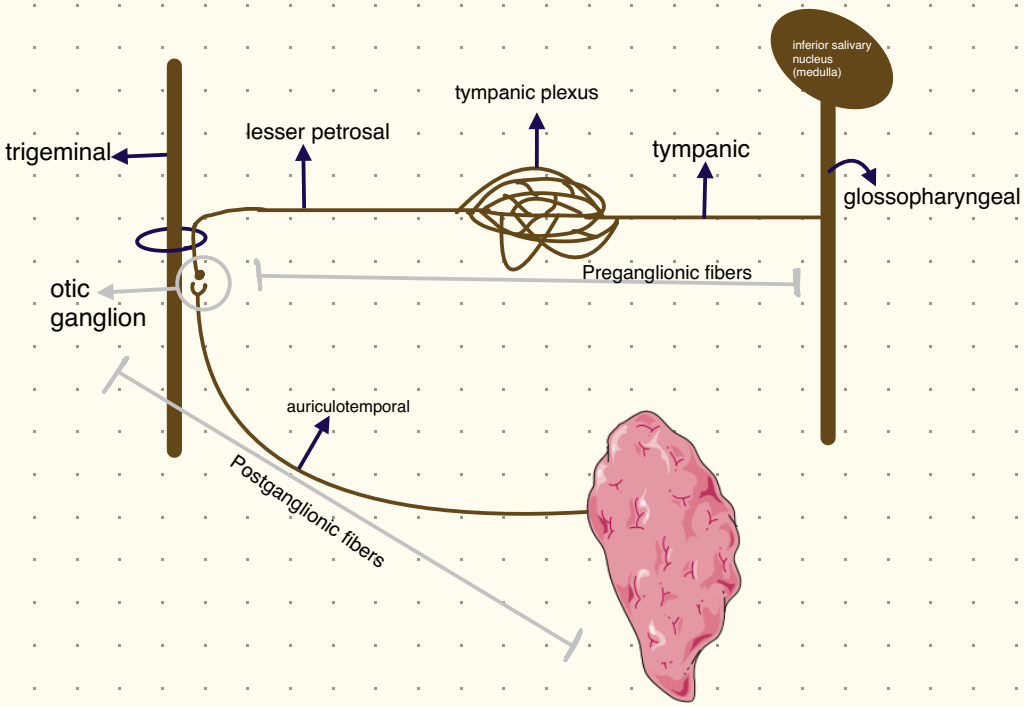


Tip:- to Submental lymph nodes

Sides :- to Submandibular L.N. of the same side

Central part :- to Submandibular L.N. of both sides

NERVE SUPPLY of Parotid gland



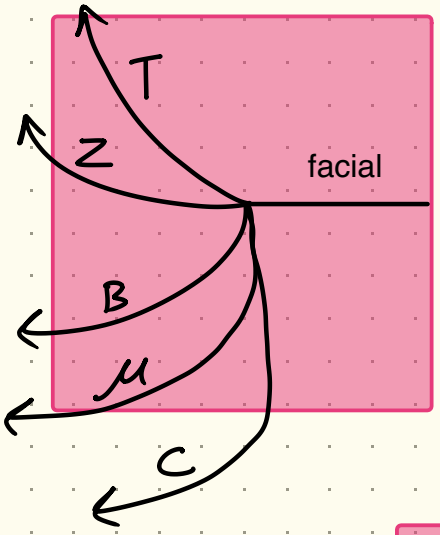
PARASYMPATHETIC (SECRETORY):

1. **Origin:** inferior salivary nucleus (medulla)
2. **Preganglionic fibers:** run along the lesser petrosal nerve (branch of tympanic of glossopharyngeal (9th cranial)
3. **Ganglion:** fibers relay in the otic ganglion (infratemporal fossa)
4. **Postganglionic fibers:** reach the parotid gland along auriculotemporal nerve (branch of mandibular of trigeminal)

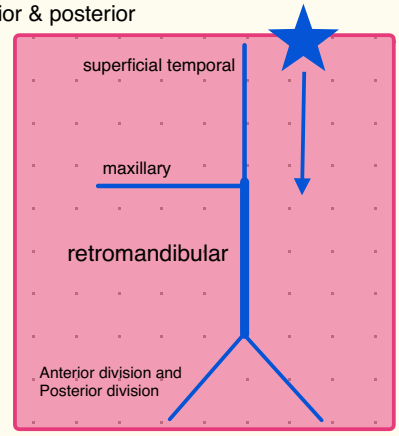
SYMPATHETIC: Postganglionic sympathetic fibers reach the gland as a plexus around external carotid artery

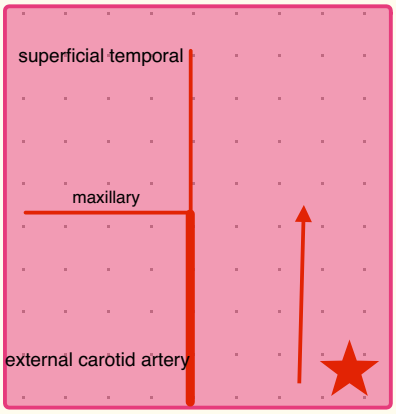
STRUCTURES WITHIN THE PAROTID GLAND

Termination of facial nerve & beginning of its five terminal motor branches : most superficial structures



Terminations of superficial temporal & maxillary veins + the whole retromandibular vein + beginning of its two divisions (anterior & posterior





Termination of external carotid artery & beginning of its two terminal branches (superficial temporal & maxillary): deepest structures

Nerve supply of Pharynx

Motor

All muscles of the pharynx are innervated by the pharyngeal plexus
cranial part of the accessory nerve (CN XI) via the pharyngeal branch of the vagus nerve (CN X)

Exceptions:
Stylopharyngeus
Tensor palatini

Stylopharyngeus is innervated by the glossopharyngeal nerve (CN IX)

Tensor palatini is innervated by the mandibular branch of the trigeminal nerve (CN V_3)

Sensory

Nasopharynx – Supplied by the maxillary nerve (CN V2), a branch of the trigeminal nerve

Oropharynx – Supplied by the glossopharyngeal nerve (CN IX)

Laryngopharynx – Supplied by the vagus nerve (CN X).

Mnemonic

Pharynx
↓
vagus nerve (CN X)

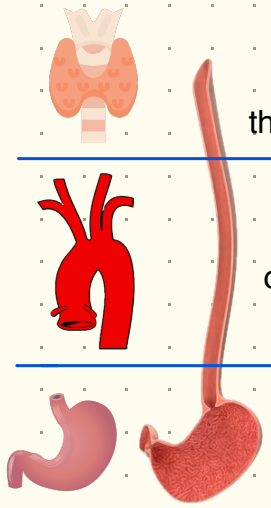
Exception:
Stylish is glossy
Stylopharyngeus (Stylish)
glossopharyngeal nerve (Glossy)

Blood supply of pharynx

From branches of Ext.Carotid artery.
-Ascending Pharyngeal.
-Ascending palatine a.
-Maxillary a.branches:
-Dorsalis linguae

Veins form plexus communicates with pterygoid plexus above and drains into common facial and IJV

Blood supply of OESOPHAGUS



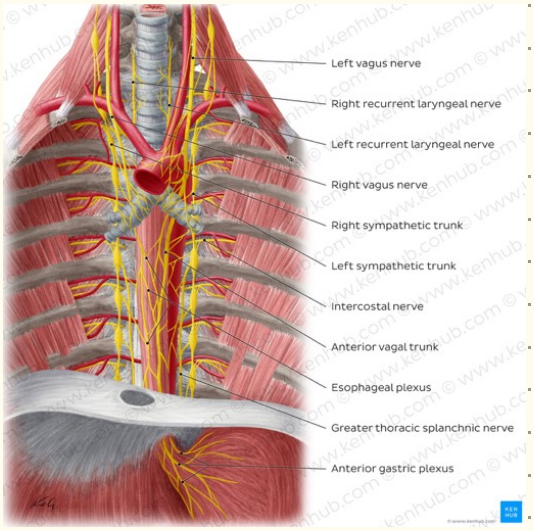
the inferior thyroid artery

descending thoracic aorta

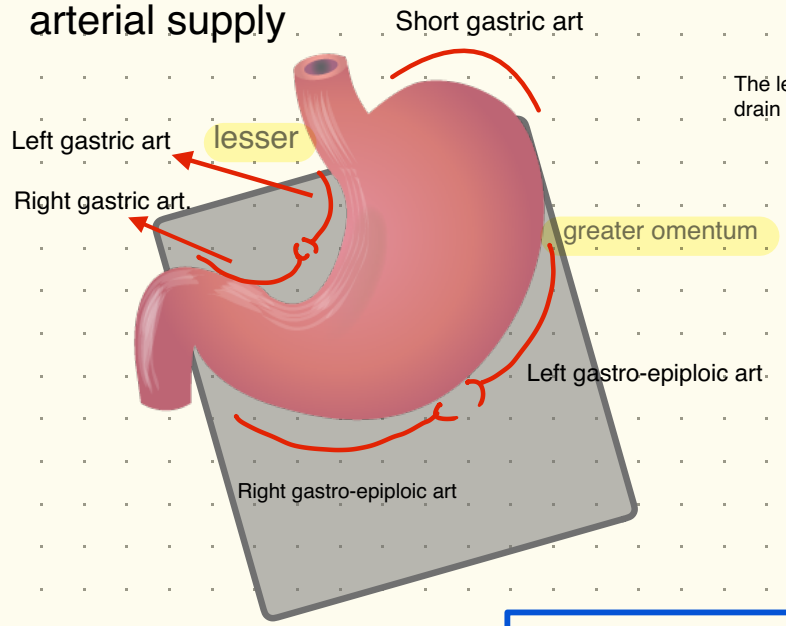
left gastric artery

N.S.:- parasympathetic and sympathetic fibers via the vagi and sympathetic trunks that form oesophageal plexus

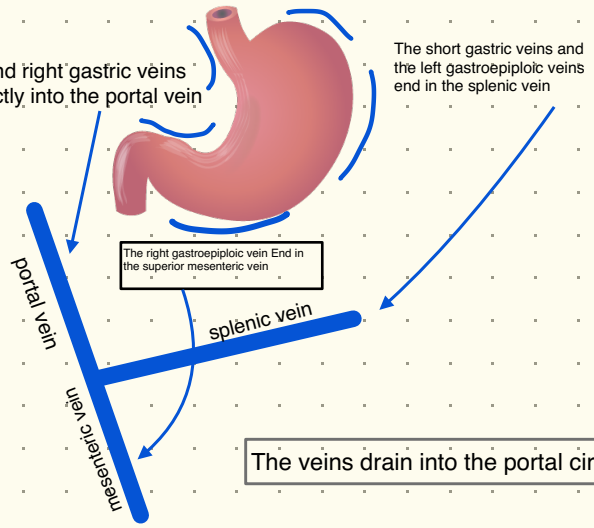
V.D.:-
Inferior thyroid vein
azygos v. &
lt. gastric vein



STOMACH arterial supply



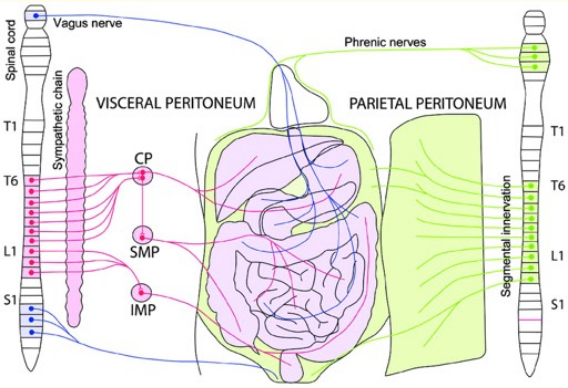
Venous drainage



The veins drain into the portal circulation

nerve supply of stomach:
sympathetic:
•from T6- 10 segments of spinal cord
parasympathetic:
•from 2 vagi that continue as 2 gastric nerves

Nerve Supply of the Peritoneum



The parietal peritoneum lining the anterior abdominal wall is supplied by the lower six thoracic and first lumbar nerves

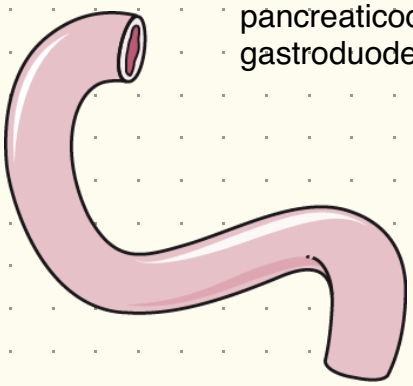
The parietal peritoneum in the pelvis is mainly supplied by the obturator nerve, a branch of the lumbar plexus

The central part of the diaphragmatic peritoneum is supplied by the phrenic nerves; peripherally, the diaphragmatic peritoneum is supplied by the lower six thoracic nerves

The visceral peritoneum, is supplied by autonomic afferent nerves that supply the viscera or are traveling in the mesenteries

Blood supply of Duodenum

Arteries:



The upper half is supplied by the superior pancreaticoduodenal artery, a branch of the gastroduodenal artery

The lower half is supplied by the inferior pancreaticoduodenal artery, a branch of the superior mesenteric artery

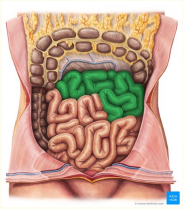
Veins:
The superior pancreaticoduodenal vein drains into the portal vein
The inferior vein joins the superior mesenteric vein

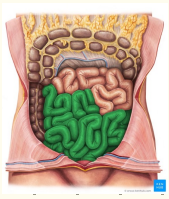
Nerve Supply:
sympathetic from
the celiac and superior mesenteric plexuses
and parasympathetic (vagus) nerves

Mnemonics

See me at 10, dude!
C (vegus)
C(celiac)
M(superior Mesenteric)
parasympathetic
Sympathetic
Duodenum

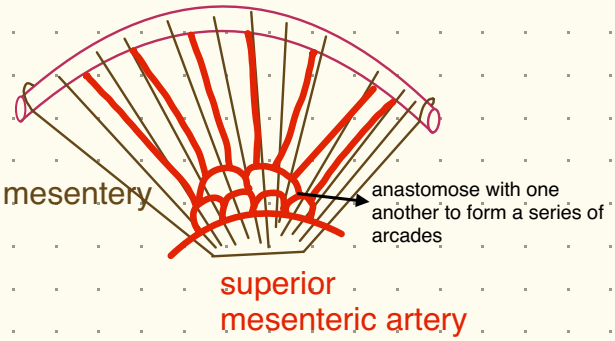
Jejunum and Ileum

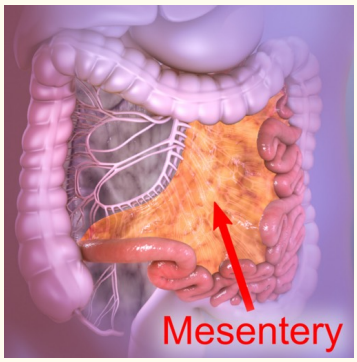




The arterial supply is from branches of the superior mesenteric artery

The intestinal branches arise from the left side of the artery and run in the mesentery to reach the gut



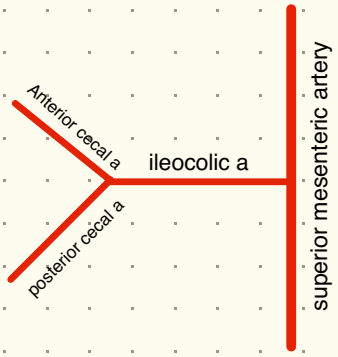


The lowest part of the ileum is also supplied by the ileocolic artery

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

The nerves are derived from the sympathetic and parasympathetic (vagus) nerves from the superior mesenteric plexus

Cecum

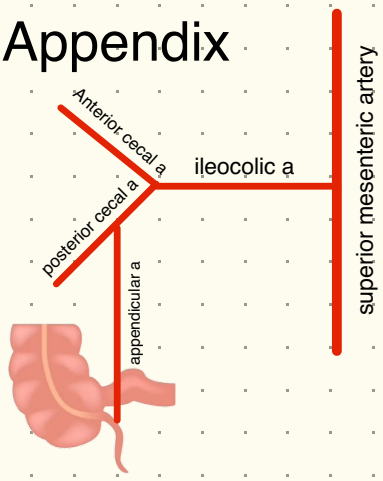


Blood Supply
Arteries
Anterior and posterior cecal arteries form the ileocolic artery, a branch of the superior mesenteric artery

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

Nerve Supply
Branches from the sympathetic and parasympathetic (vagus) nerves form the superior mesenteric plexus

Appendix



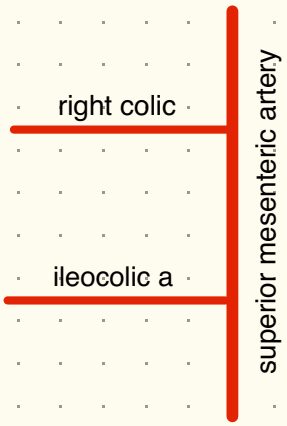
The appendicular artery is a branch of the posterior cecal artery

Veins
The appendicular vein drains into the posterior cecal vein

also mentioned:

Appendicular artery is a branch of Ileocolic a

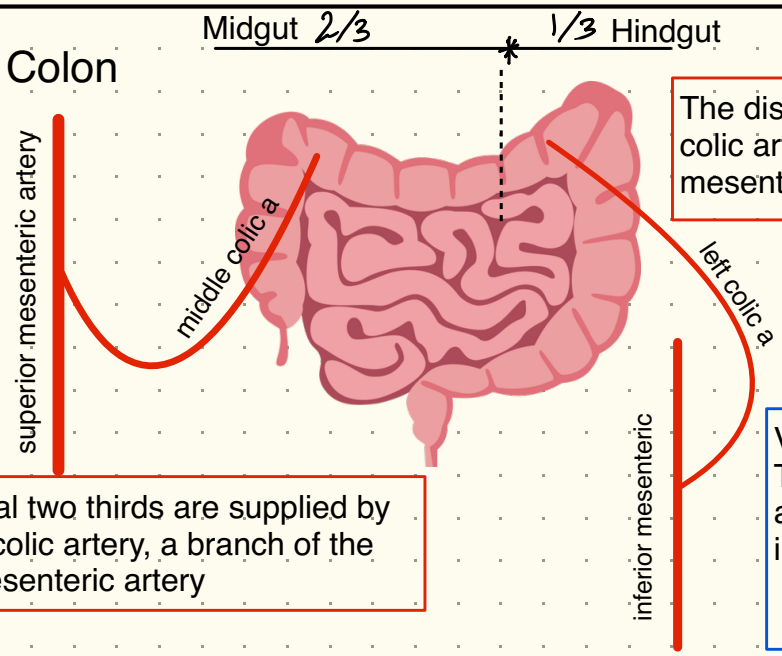
Ascending Colon



Arteries
The ileocolic and right colic branches of the superior mesenteric artery supply this area

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

Transverse Colon

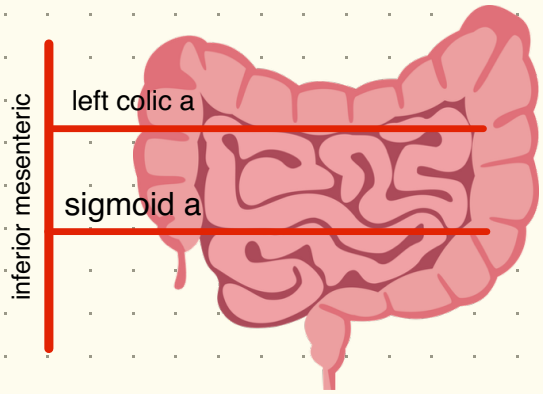


The distal third is supplied by the left colic artery, a branch of the inferior mesenteric artery

The proximal two thirds are supplied by the middle colic artery, a branch of the superior mesenteric artery

Veins
The veins correspond to the arteries and drain into the superior and inferior mesenteric veins.

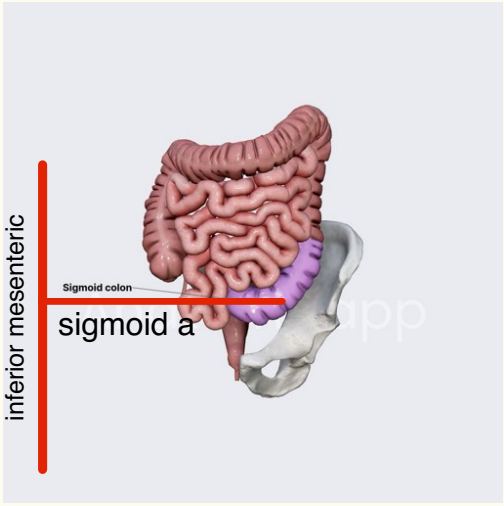
Descending Colon



Arteries
The left colic and the sigmoid branches of the inferior mesenteric artery supply this area

Veins
The veins correspond to the arteries and drain into the inferior mesenteric vein

Sigmoid Colon

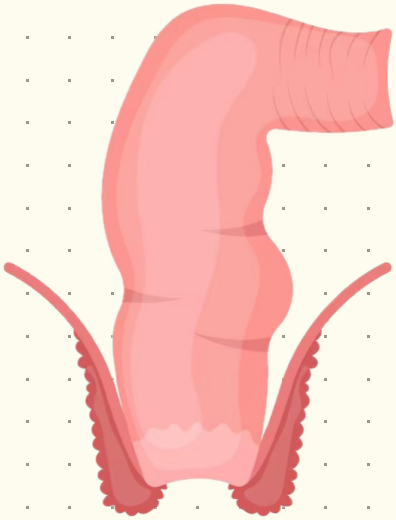


Arteries
Sigmoid branches of the inferior mesenteric artery

Veins
The veins drain into the inferior mesenteric vein, which joins the portal venous system

Nerve Supply
The sympathetic and parasympathetic nerves from the inferior hypogastric plexuses

Rectum and Anal canal



Median sacral artery(single br from abdominal aorta)

Superior rectal artery (single;continuation of the IMA)

Middle rectal artery (right and left branches from internal iliac artery)

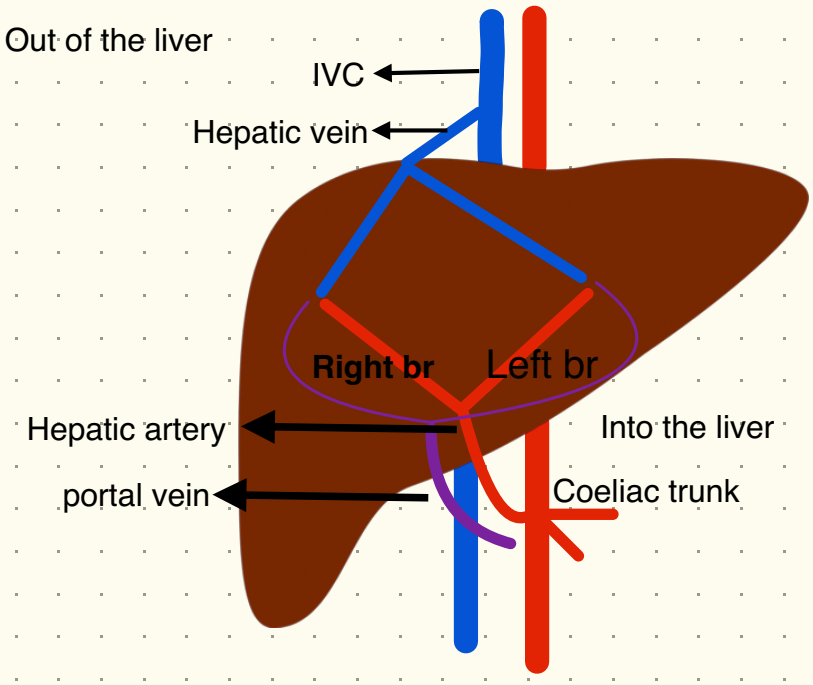
Inferior rectal artery (right and left branches from internal pudendal artery)

Venous drainage
Portal — Superior rectal v into IMV
Systemic — Middle rectal v into Internal iliac v
Systemic — Inferior rectal v into Internal pudendal v
Median sacral vein — Ends in left common iliac vein or IVC
Six radical veins
Internal rectal venous plexus
External rectal venous plexus

Sphincters of anal canal nerve supply:
Internal anal sphincter innervated by autonomic:
Para; fibers from S2,3,4
Sympathetic; fibers from inferior hypogastric plexus

External sphincter by Inferior rectal from pudendal nerve

Blood supply of liver

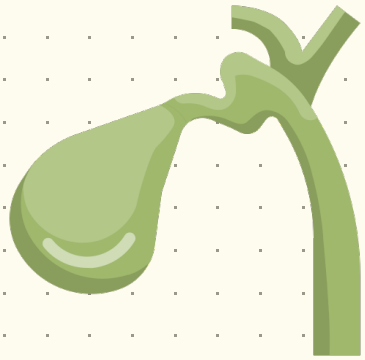


Hepatic Artery
- Arises from the celiac trunk
- Divides into right and left branches
- Carries oxygenated blood

Portal Vein
- Carries venous blood from the gastrointestinal tract, pancreas, and spleen

Hepatic Veins
- Drain deoxygenated blood from the liver
- Empty into the inferior vena cava (IVC)

Gall bladder

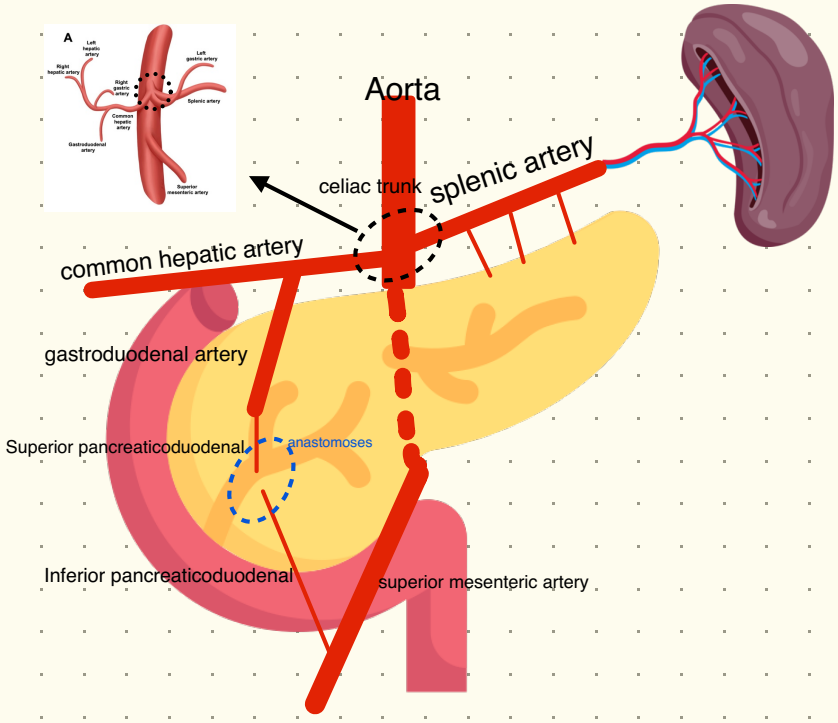


Arterial supply: cystic artery, from right branch of hepatic artery

Venous drainage: cystic vein ends in right branch of portal vein

Small veins from gall bladder pierce liver to join tributaries of hepatic veins.

Nervous supply:
Sensory: right phrenic(C3,4,5) (pain referred to right shoulder)
Sympathetic: greater splanchnic nerve(T7-T9),(pain is referred to as to inferior angle of scapula
Para : Right Vagus (pain is referred to stomach)



pancreatic blood supply

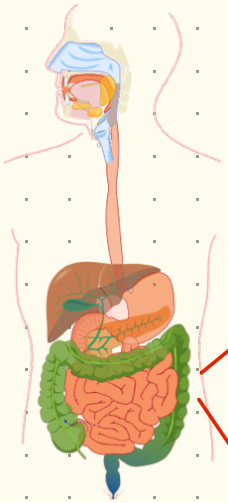
1. Pancreatic branches of the splenic artery

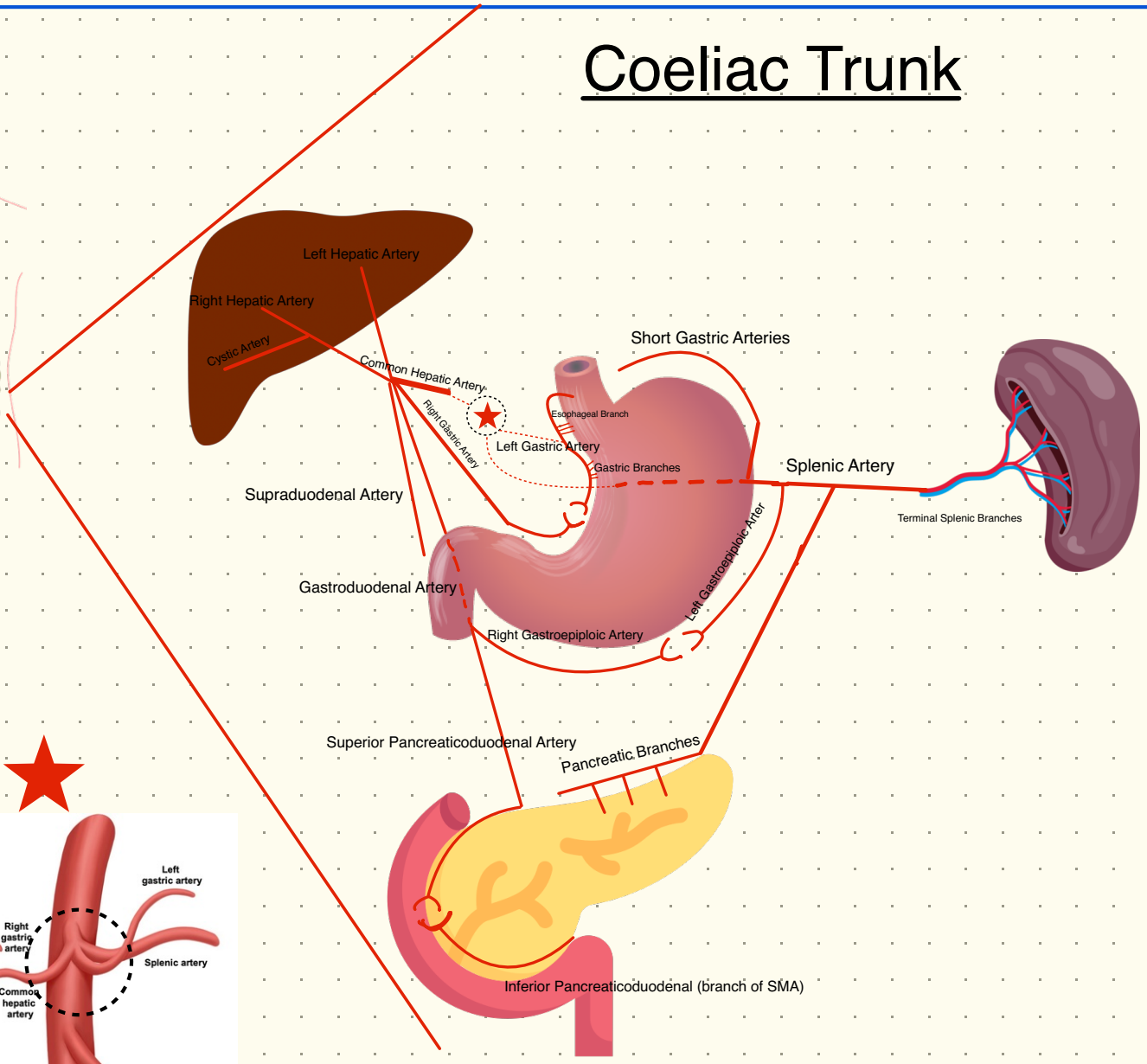
2. Superior pancreaticoduodenal artery, a branch of the gastroduodenal artery

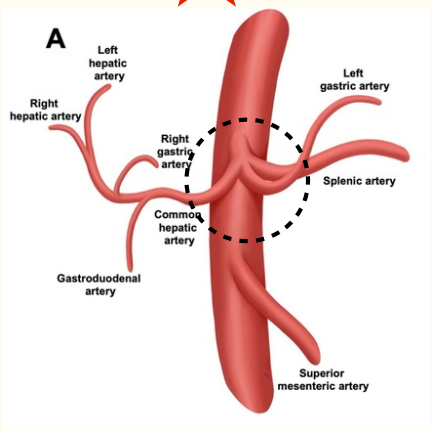
3.Inferior pancreaticoduodenal artery, a branch of the superior mesenteric artery

Venous Drainage of the Pancreas:
1. Pancreatic veins drain into the splenic vein.
2. Pancreaticoduodenal veins drain into the superior mesenteric vein (SMV)

Coeliac Trunk





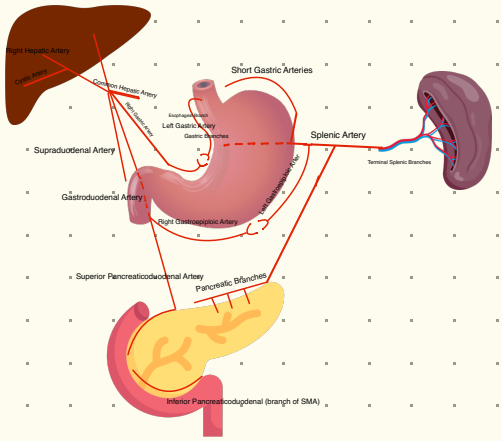


Coeliac Trunk

Branches:

1. Left gastric artery

1. Esophageal branches to the lower end of the esophagus.
2. Gastric branches to both surfaces of the stomach.

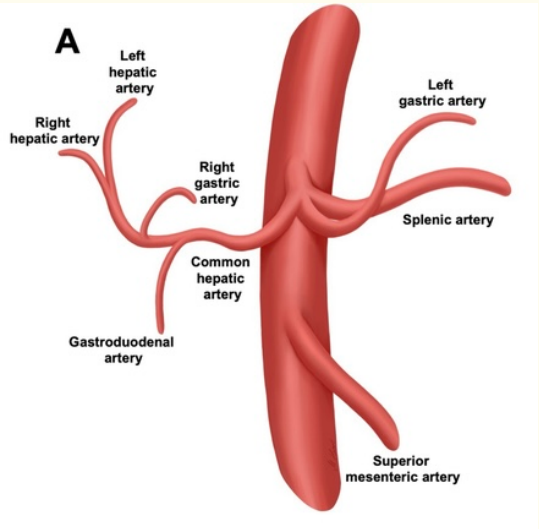


2. Common Hepatic artery

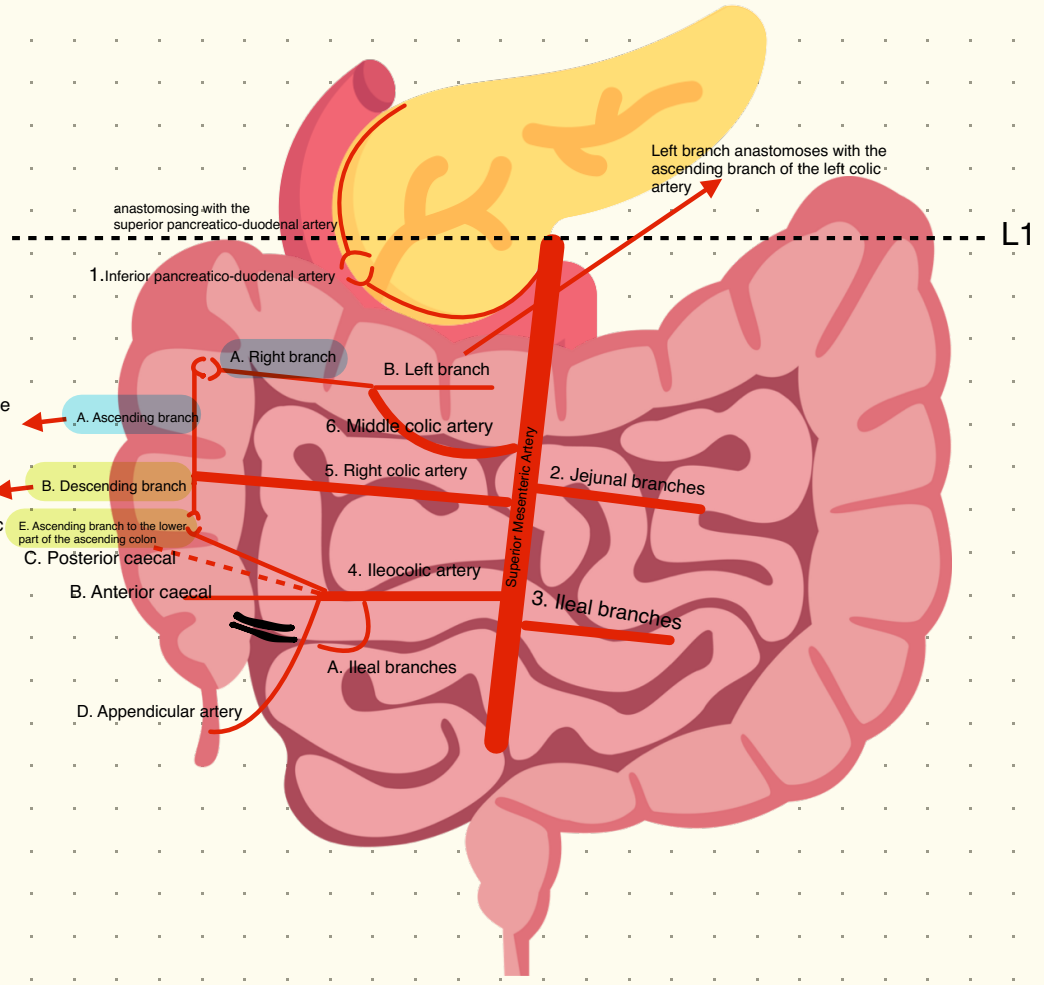
1- Right gastric artery
2- Gastroduodenal artery:
A. Right gastroepiploic artery
B. Superior pancreaticoduodenal artery
3. Supraduodenal artery
4. Left terminal hepatic branch
5. Right terminal hepatic branch
6. Cystic artery to the gall bladder from the right hepatic branch

3. Splenic artery

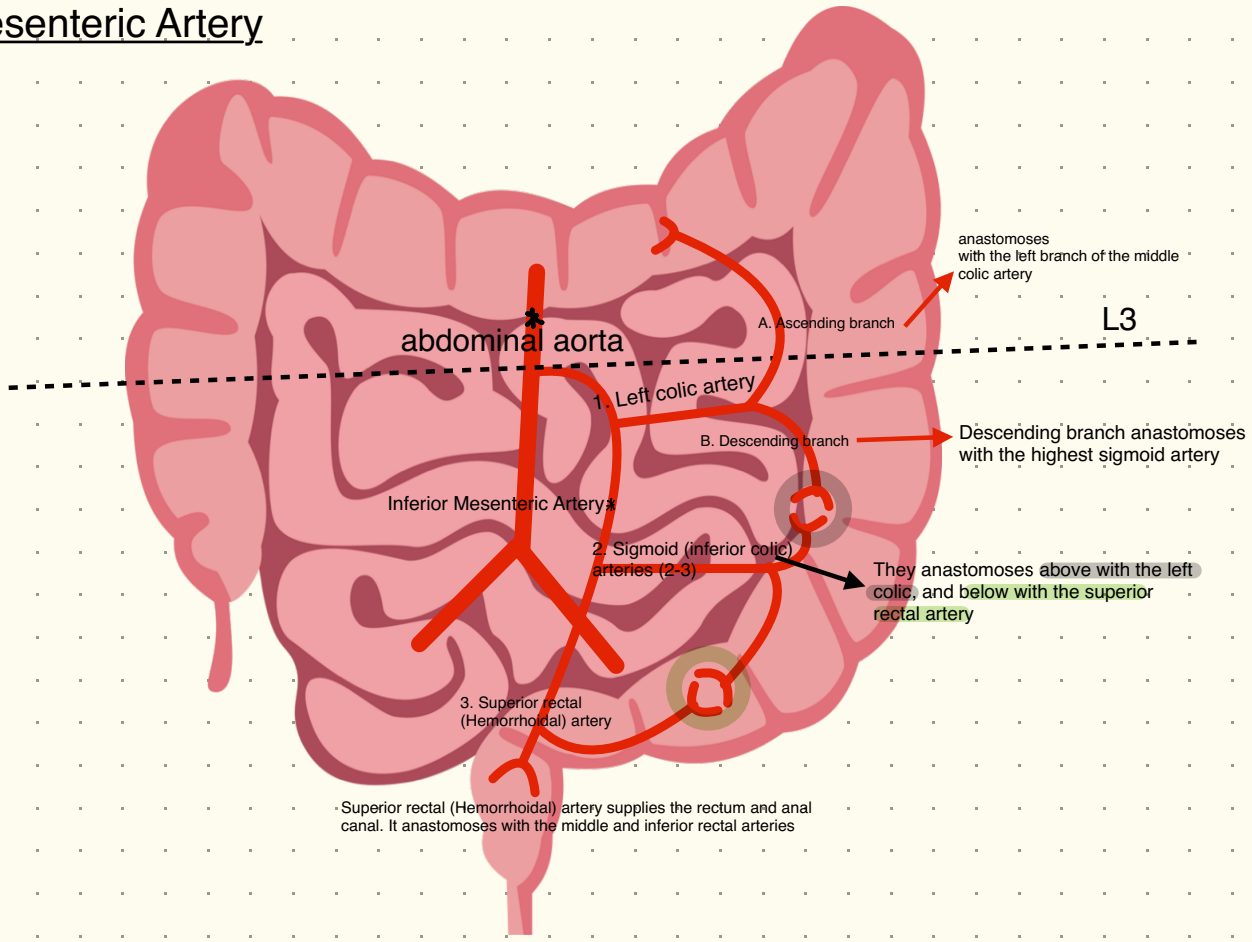
1. Pancreatic branches
2. Short gastric arteries
3. Left gastroepiploic artery
4. Terminal splenic branches (5 to 6 branches)

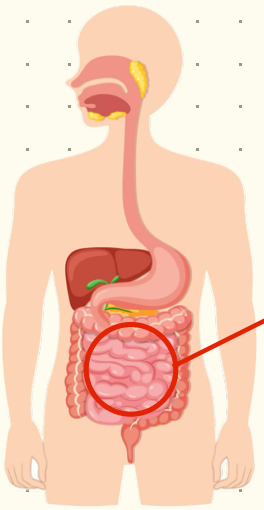


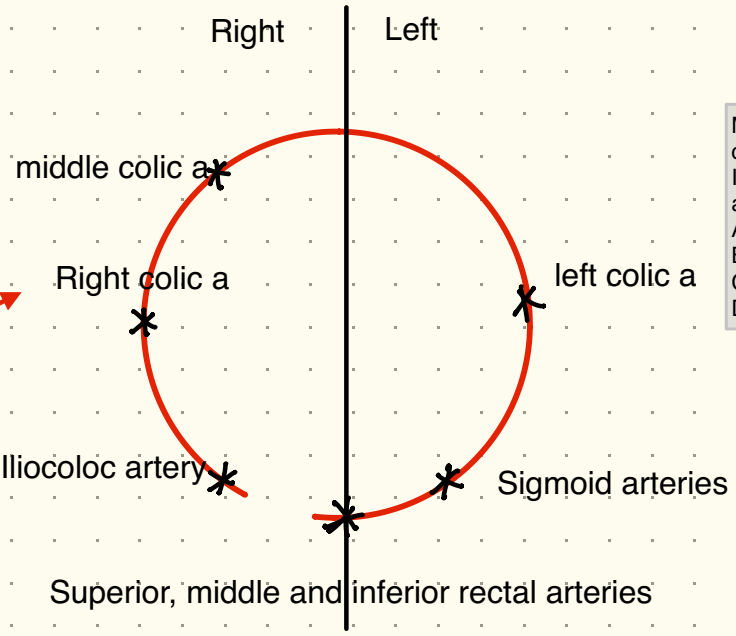
Superior Mesenteric Artery



Inferior Mesenteric Artery

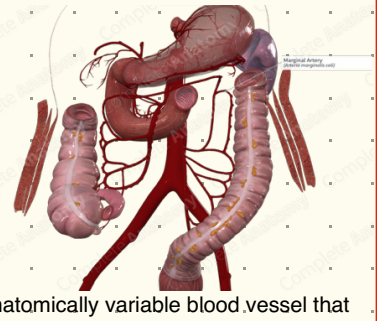






Marginal artery

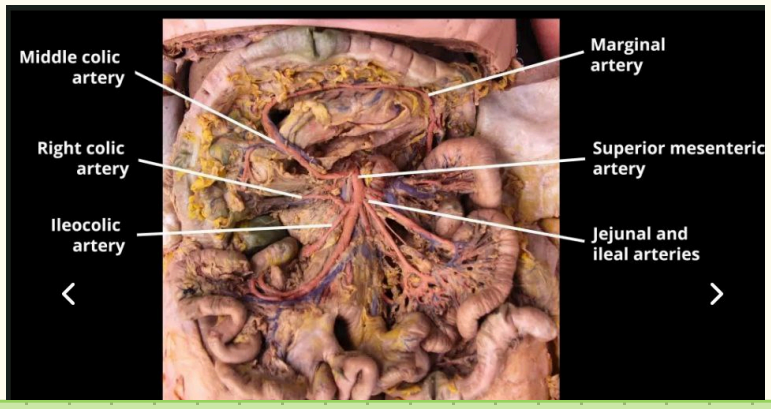
Marginal artery: is the serial anastomoses close to the wall of the colon.
It is formed by the branches of the superior and inferior mesenteric arteries
A. Iliocoloc artery.
B. Right, middle and left colic arteries.
C. Sigmoid arteries.
D. Superior, middle and inferior rectal arteries



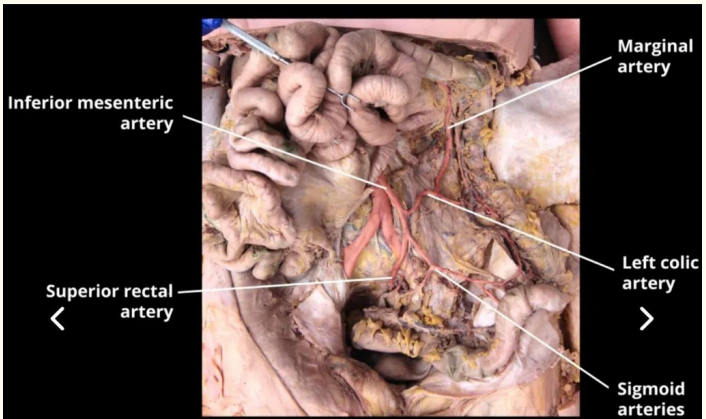
an anatomically variable blood vessel that forms a major anastomotic network between the superior and inferior mesenteric arteries

Sum up

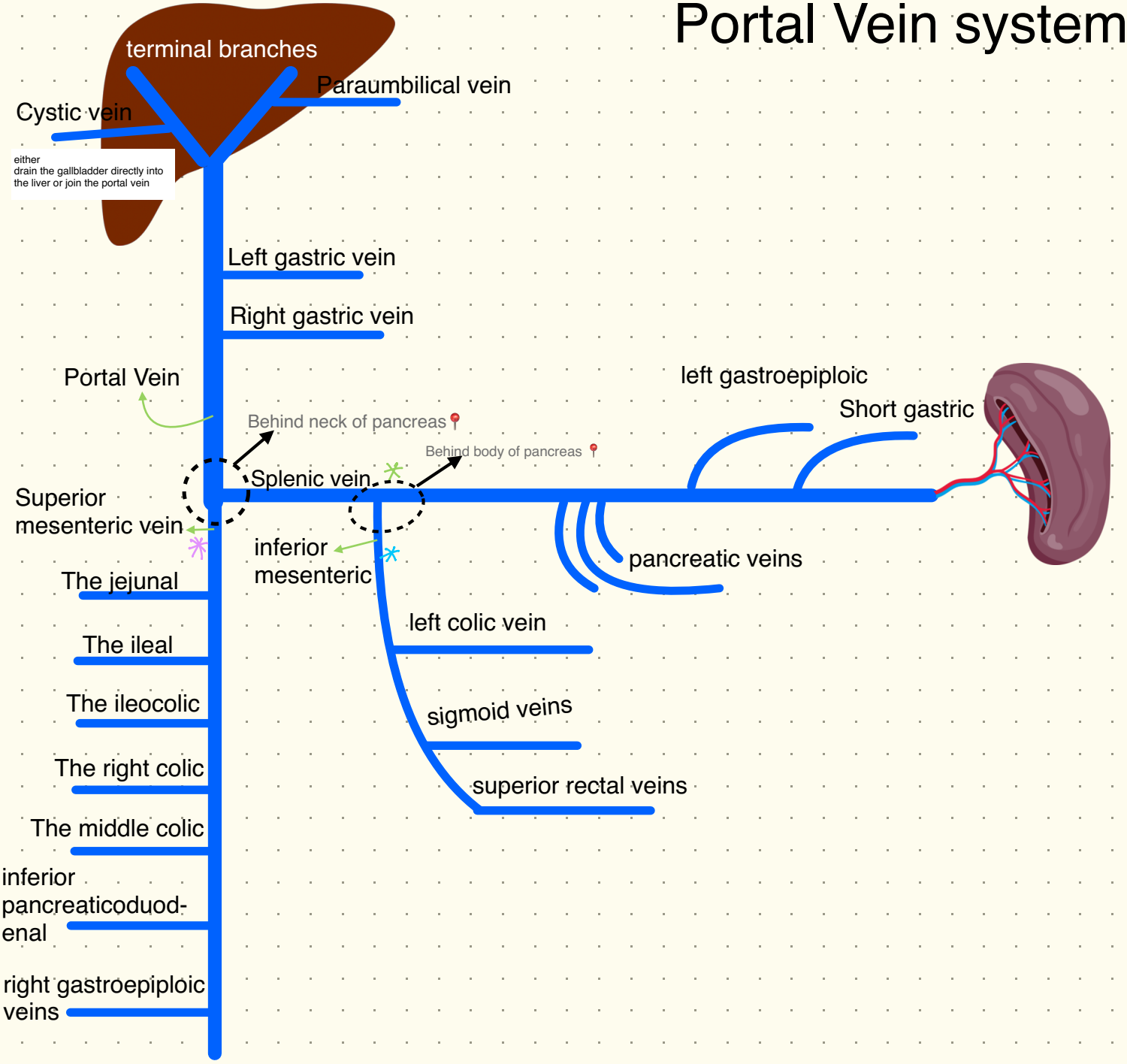
Superior Mesenteric Artery
Branches:
1- Inferior pancreatico-duodenal artery (It ends by anastomosing with the superior pancreatico-duodenal artery)
2. Jejunal branches
3. Ileal branches
4. Ileocolic artery(gives the, A. Ileal branches, B. Anterior caecal, C. Posterior caecal, D. Appendicular artery, E. Ascending branch to the lower part of the ascending colon)
5. Right colic(A. Ascending branch and Descending branch)
6. Middle colic artery(A. Right branch and B. Left branch)



Inferior Mesenteric Artery
Branches:
1. Left colic artery(A. Ascending branch and B. Descending branch) 2. Sigmoid (inferior colic) arteries (2-3)
3. Superior rectal (Hemorrhoidal) artery



Portal Vein system



Tributaries
A- 2 veins join each other to form the portal vein.
1- Superior mesenteric vein.
2- Splenic vein.
B- 2 veins from the lesser curvature of the stomach;
3- Right gastric vein.
4- Left gastric vein.
C- 2 veins end into the terminal branches;
5- Paraumbilical vein to the left terminal branch.
6- Cystic vein to the right terminal branch

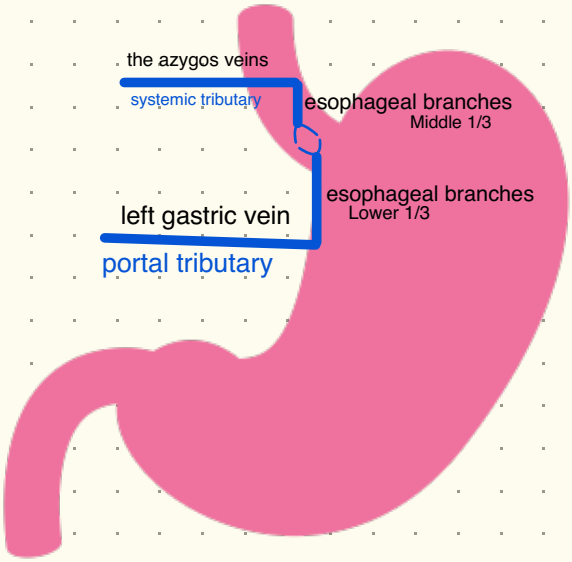
Splenic vein, It receives the
✓Short gastric,
✓left gastroepiploic,
✓inferior mesenteric,
✓pancreatic veins

Inferior mesenteric vein, It receives the superior rectal veins, the sigmoid veins, and the left colic vein

Superior mesenteric vein, It receives :
✓The jejunal,
✓The ileal,
✓The ileocolic,
✓The right colic,
✓The middle colic,
✓The inferior pancreaticoduodenal,
✓The right gastroepiploic vein

HEPATIC PORTAL VEIN AND PORTAL-SYSTEMIC ANASTOMOSES

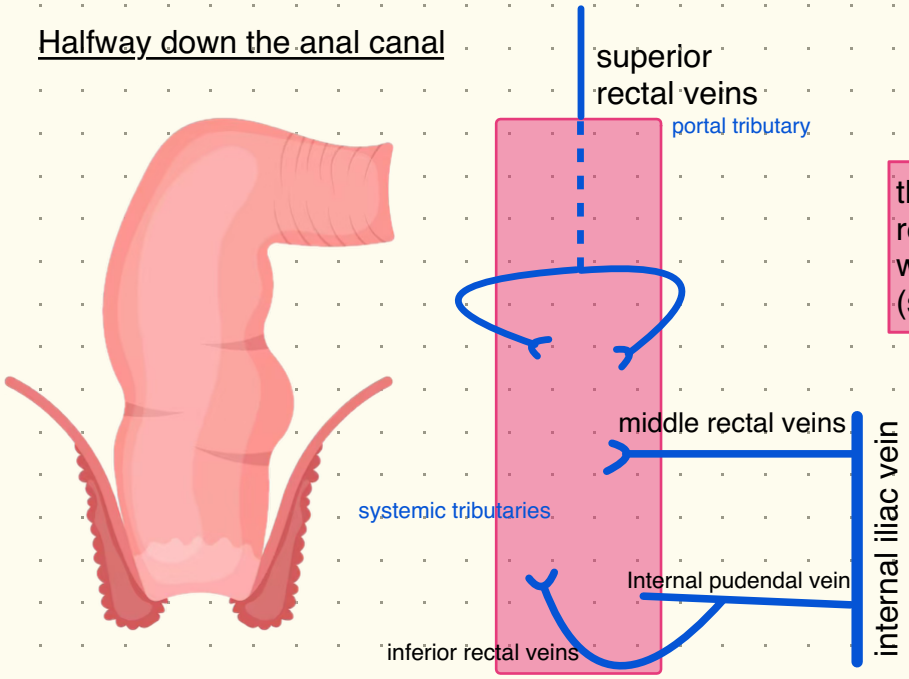
At the lower third of the esophagus



the esophageal branches of the left gastric vein (portal tributary) anastomose with the esophageal veins draining the middle third of the esophagus into the azygos veins (systemic tributary).

Enlargement of these anastomoses result to oesophageal varices leading to hematemesis (vomiting of blood)

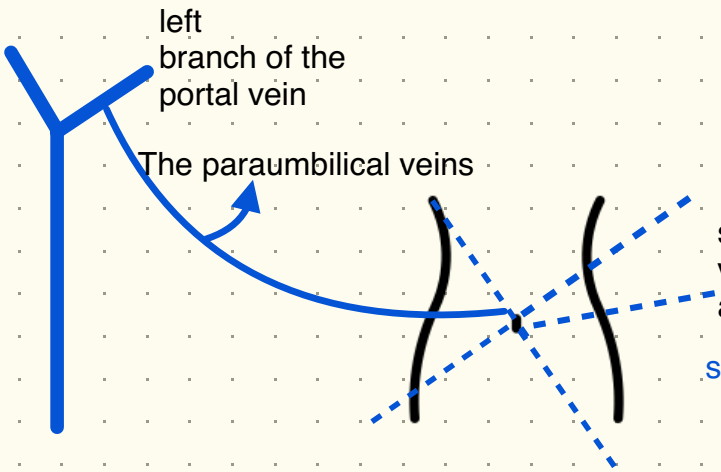
Halfway down the anal canal



the superior rectal veins (portal tributary) anastomose with the middle and inferior rectal veins (systemic tributaries),.

Enlargement of these anastomoses leads to formation of piles

The paraumbilical region



The paraumbilical veins connect the left branch of the portal vein with the superficial veins of the anterior abdominal wall (systemic tributaries).

paraumbilical veins travel in the falciform ligament and accompany the ligamentum teres

Enlargement of these anastomoses produces caput medusae (dilated veins radiating around the umbilicus)

HEPATIC PORTAL VEIN AND PORTAL-SYSTEMIC ANASTOMOSES

At the posterior abdominal wall, between
a- Veins of the colon and duodenum (portal).
b- Veins of the posterior abdominal wall and left renal vein (systemic).
At the bare area of the liver, Between
a- Veins of the liver (portal).
b- Inferior phrenic veins of the diaphragm (systemic)