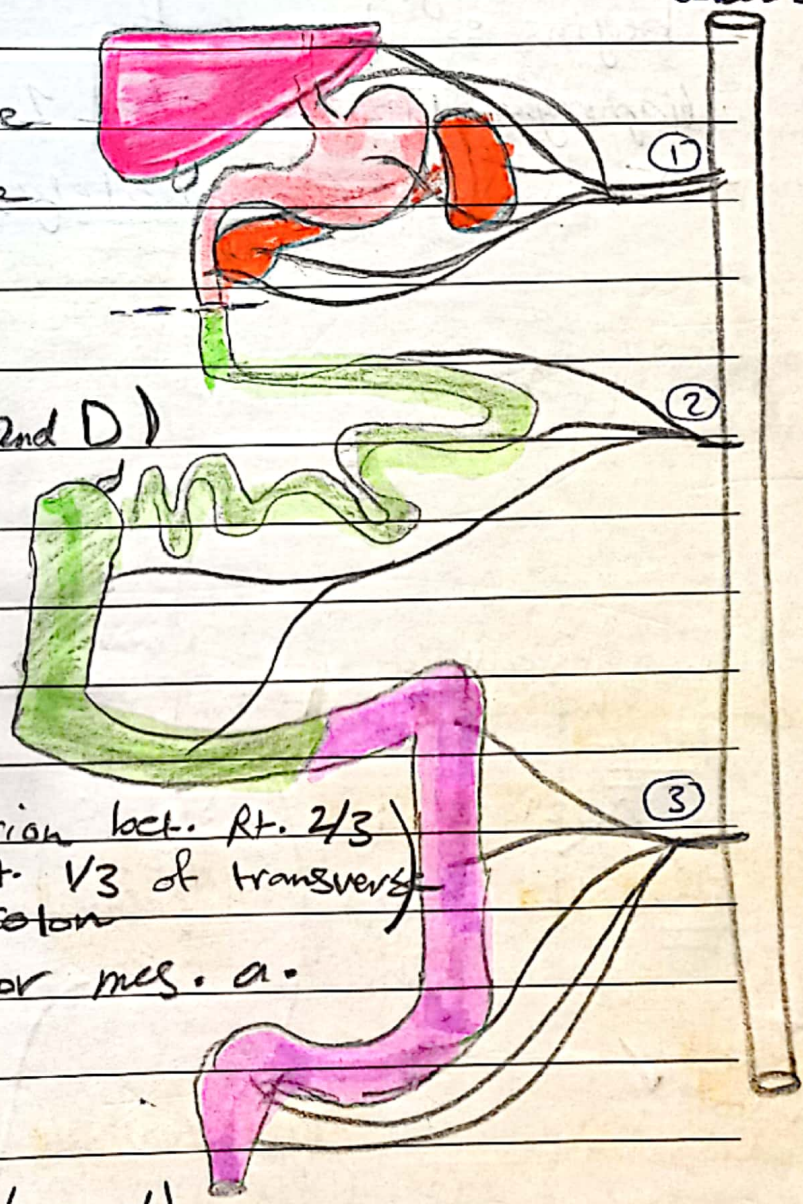


[Arterial blood supply of the gut tube]

The gut tube is supplied by 3 single ant. branches of the abdominal aorta.

abdo. a.



① Foregut

* (abdominal part of esophagus → mid of 2nd D)

* supplied by the celiac trunk.

② mid gut

* (Mid of 2nd D - junction bet. Rt. 2/3 & Lt. 1/3 of transverse colon)

* supplied by superior mes. a.

③ Hindgut

* (junction - anal canal)

* supplied by inf. mes. a.

① celiac trunk

- begins ^{just} below the aortic hiatus (through diaphragm - T12) at L1

- Terminates (immediately) to give

Common hepatic a. (CT)

Lt. gastric (upwards)

Splenic a. (Lt.)

- medium
- to the liver

- the smallest
- ascends to GEJ

The largest

then it's called Common hepatic a. proper

2 terminal br. to the functional lobes.

Rt. Lt.

+ Cystic br. to the gallbladder

Rt. gastric a.

- descends along the lesser curvature & anastomose with the

gives esophageal branches, supply the stomach & anastomose with the

- tortuous course up & splits into 2

pancreatic branches & ends in spleen in 2 branches

gastroduodenal (concavity of D & pylorus)

superior pancreaticoduodenal

Rt. gastroepiploic

is (omental) (greater curvature).

gastro splenic ligament - short gastric br. (Fundus) - Lt. gastroepiploic

(anastomose with)

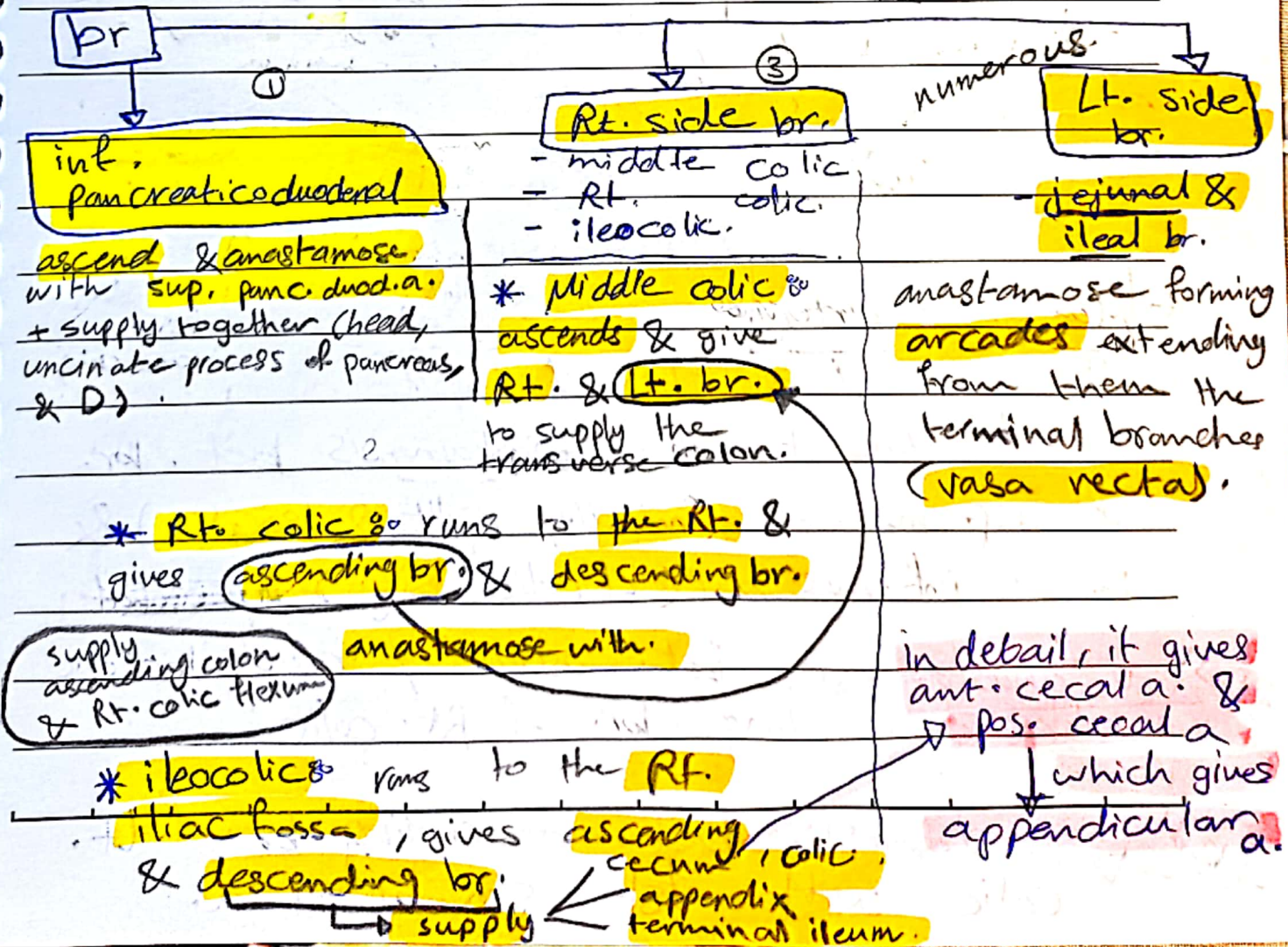
② Superior mesenteric artery. (SMA)

- begins just below the celiac trunk, at the lower border of L1.

- Relations → ant = neck of pancreas / splenic vein.
 ↳ pos = Lt. renal vein / uncinete process of pancreas / 3rd part of D.

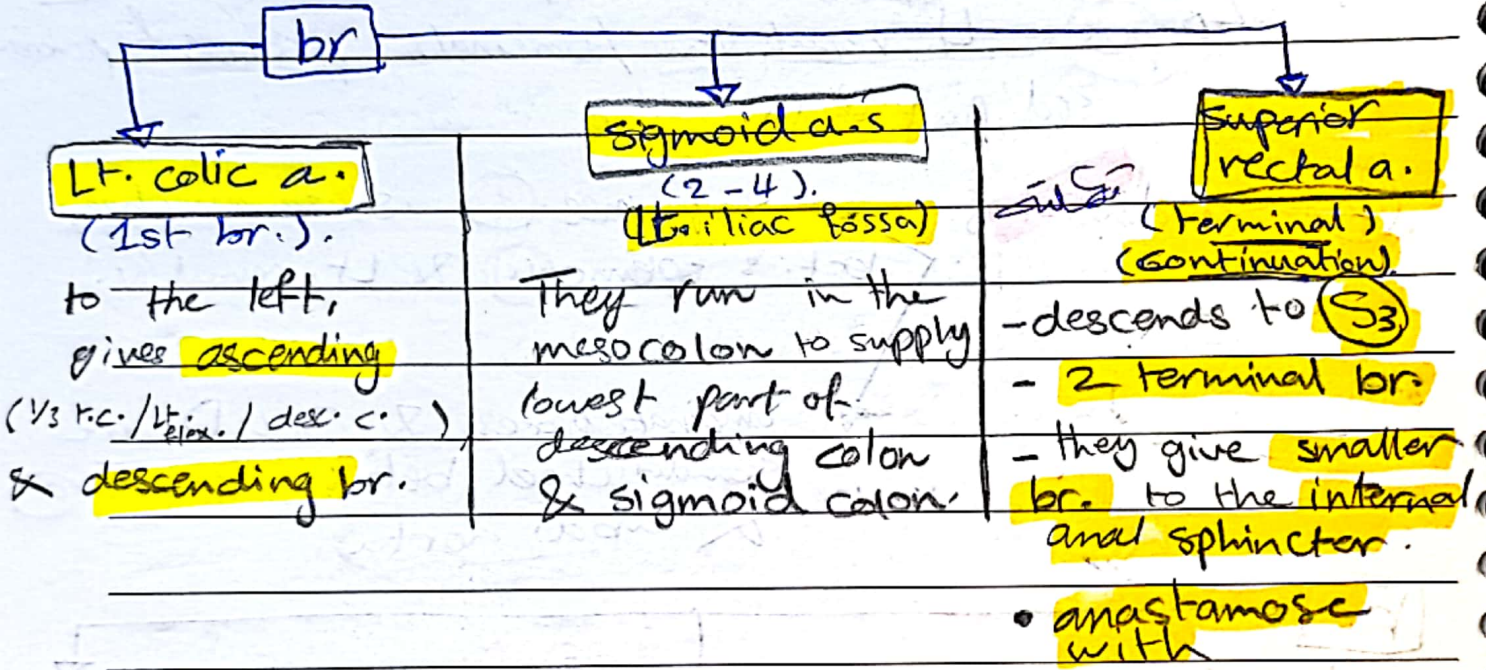
② Sandwiches
 Sup. mes. (a) is sandwiched bet. = splenic (v.) & Lt. renal (v.)

uncinate process & 3rd D are sandwiched bet. = sup. mes (a) & abd. aorta



③ inferior mesenteric artery

- begins at the level of L3
- The smallest, go to the left side to supply
- hind gut.

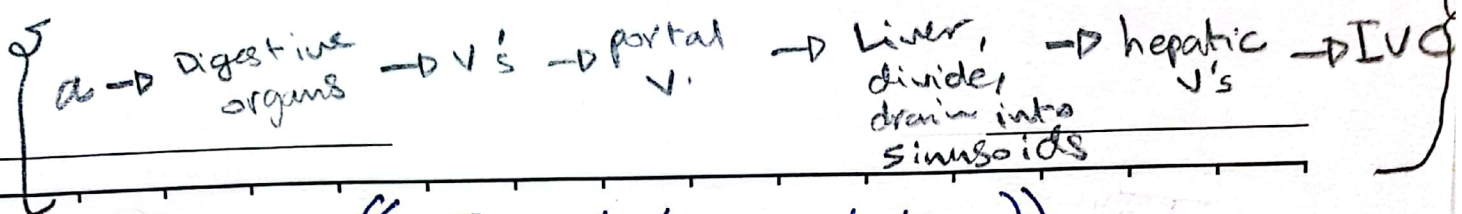


* Marginal artery

The connecting channel formed due to the anastomosis bet. br. of sup. mes. a. (middle right & ileocolic) & br. of inf. mes. a. (Lt. colic sig.)

→ anastomosis bet. ascending br. of ileocolic with descending br. of Rt. colic.

→ anastomosis bet. descending br. of Lt. colic with 1st. sigmoidal a.



((The portal circulation))

The abdominal part of the gut tube, spleen & gallbladder drained by portal v. → Liver → hepatic v. → IVC

① The portal vein is

- begins behind the neck / by union of splenic v. & sup. mes. v.

- upwards / 3 anatomical regions:

behind 1st D.

RT. border of lesser omentum

in the porta hepatis

↳ 2 terminal br. (Rt & Lt) to the functional lobes.

ant

Relations of structures

- infra duodenal (neck of pancreas).
- retro duodenal (behind 1st D, CBD, gastroduodenal a.)
- supra duodenal (CBD, hepatic a. proper).
- in the porta hepatis (The most posterior structure)

[Along this course, portal v. is anterior to the IVC (always)]

V. are always lat. to the a.

Tributaries 80

① Lt & Rt. gastric v.

② cystic veins (into Rt. terminal of portal)

③ para-umbilical v. (obliterated. lig. teres).

may be. * superior pancreaticoduodenal v.

• Spleenic V.

- begins at hilum of spleen by union of many small splenic veins.

pass to the right side / straight course / behind body of pancreas

- ends behind the neck of pancreas,

uniting with sup. mes. v. → portal v.

→ Tributaries 80 (a v. ap. 10/15)

1- pancreatic v.

2- short gastric v.

3- Lt. gastroepiploic.

4- inf. mes. v.

• Superior mes. v.

- begins at the Rt. iliac fossa by union of v. draining (terminal ileum, appendix, cecum).

- ascends upwards, Rt. to the a.

- ends behind the neck of pancreas.

- Tributaries ∞

↳ 1 - inferior pancreaticoduodenal v.

↳ 2 - jejunal, ileal, ileocolic, Rt - colic / middle colic

↳ 3 - Rt - gastroepiploic.

★ [superior pancreaticoduodenal drain into Rt - gastroepiploic or portal v.]

• inf mes. v.

- begins as continuation of superior rectal v.

- upwards with the a.

- ends behind the body of pancreas draining (usually often) into the splenic v.

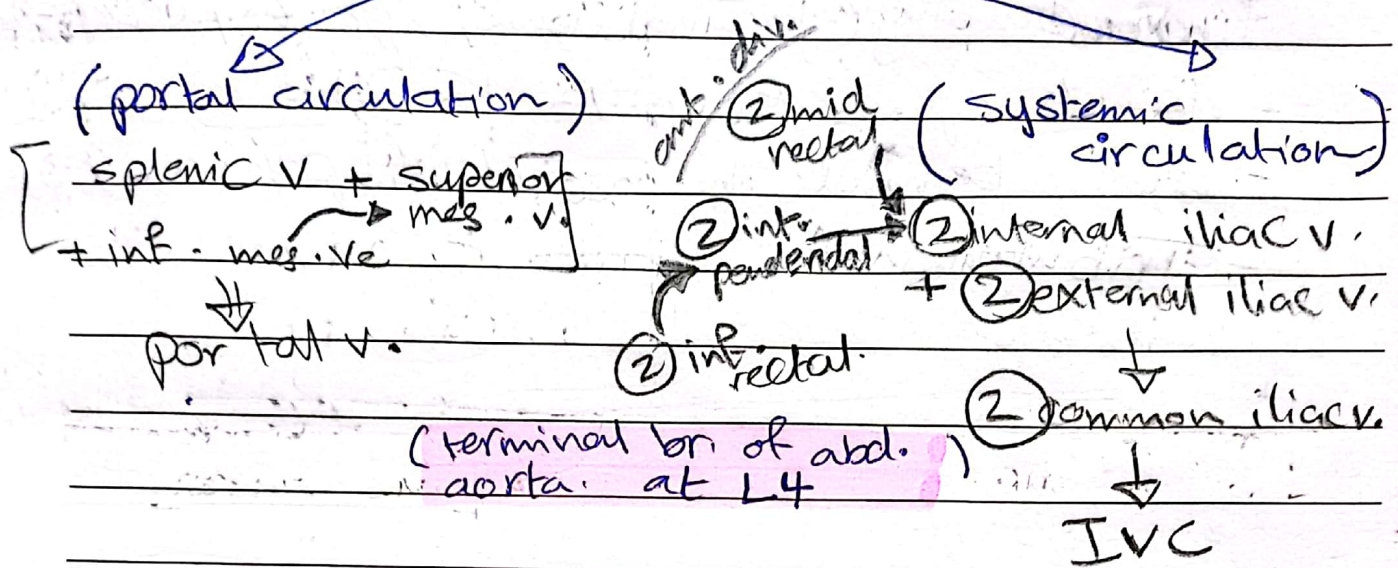
as a. • Tributaries ∞

1 - upper rectum (as superior rectal v.)

2 - sigmoid v.

3 - Lt. colic v.

Components of ∞



* areas of anastomosis ∞

- ① At abdominal esophagus ∞ bet. Lt gastric v. (portal v.) + esophageal v. (azygos v.)
- ② At rectum ∞ bet. superior rectal v. (inf. mes. v.) + mid & inf. rectal v. (internal iliac v.).
mid & inf. rectals
- ③ Umbilicus ∞ bet. para-umbilical v. (portal v.) + superficial epigastric v. (ant. abd. wall)
- ④ Bare area & inside liver ∞ bet. veins inside the liver (portal) + phrenic v. (sys. diaphragm).
[Lt. br. of portal v. + IVC]
- ⑤ pos. abd. wall ∞ bet. colonic v. (portal) + v. of pos. abd. wall (sys)
- [Rt. mid, Lt colic v + renal, suprarenal, paravertebral, gonadal v.]

- cirrhosis
- tumors
- LN. enlargements

* when the portal v. is compressed, this increases pressure inside it & its tributaries, & since it's valveless, blood will pass back to cause (back pressure) leading to congestion & engorgement reaching the porto-systemic anastomosis sites.

- (e.g.)
- ① At esophagus [esophageal varices] *treated by endoscope/chemotherapy*
 - ② At rectum [hemorrhoids]
 - ③ Around umbilicus [Caput medusae]
 - ④ intrahepatic [patent ductus venosus]

* common → Lt. / medial border of psoas ms.

* bifurcation → in front of sacroiliac joint.

↳ in front of it → ureter.

relations of sigmoid mesocolon (apex)

- sacroiliac joint.
- bifurcation of Lt common ili.
- Lt. ureter.
- apex of sigmoid mesocolon

* 2 external iliac a. give **inf.**

epigastric a. then go to the lower limb. as femoral a. (under the ing. lig.).

deep circumflex a. (to ASIS).

within the content of rectus sheath, distinguish bet. direct & indirect hernia.

(Lymphatics)

Afferent

Afferent

GIT

(from lower 1/3 of esophagus to the upper 1/2 of anal canal)

كلى
الغذاء
والشحم

celiac LN

sup. mes. LN

inf. mes. LN

spleen

pancreas

GB

greater part of liver

organs

Kidneys

- **suprarenals**

- **testes**

- **ovaries**

- **uterine tube & fundus**

Deep vessels of the abdominal wall

Common iliac LN

pre-aortic LN.

para-aortic LN.
or (RT/Lt. lumbar LN)

efferent

efferent

Large intestinal trunk

Lumbar trunks

cisterna chyli

continues as

thoracic duct

drains into

the junction between the internal jugular v. & subclavian v.

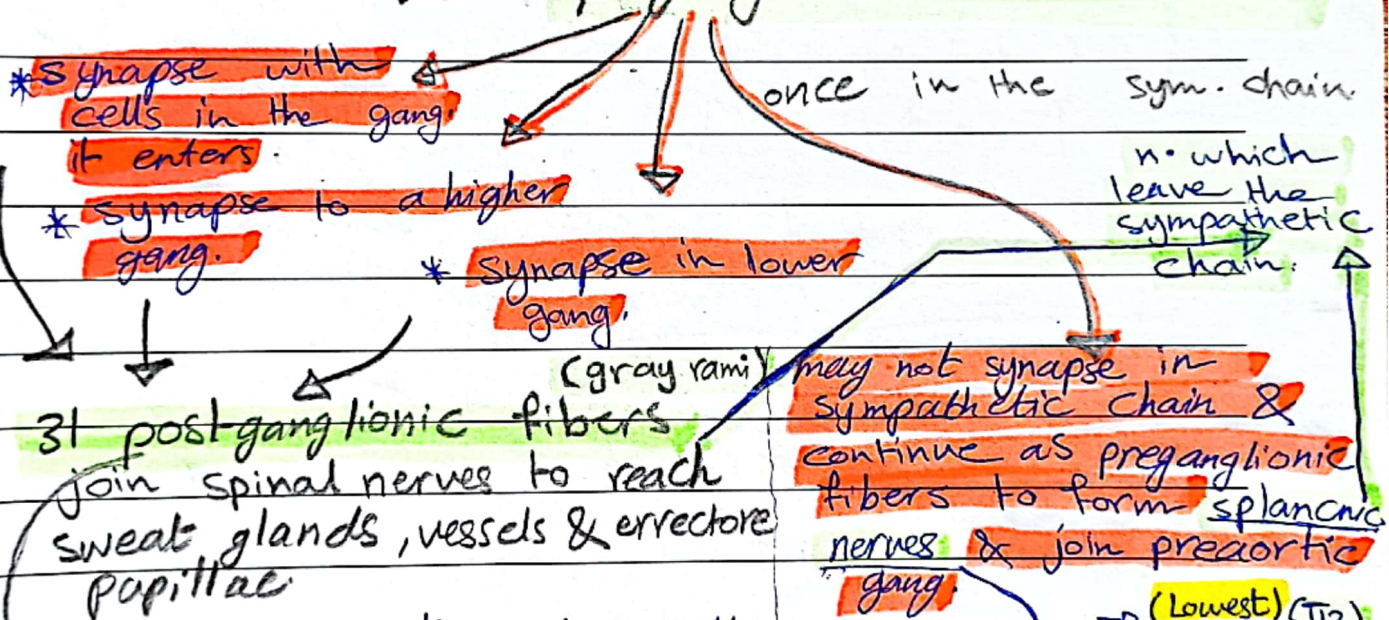


draining Lt. 3/4 of the body

Nerve supply of the GI

① Sympathetic \circ° originate from the lateral horn of thoracic & upper 2 lumbar region of spinal cord, "thoracolumbar".

The nuclei leave the ¹³ spinal ² cord from the anterior root then leave the spinal nerves as white rami to join the sympathetic chain as "preganglionic 14 white rami".



- SC SG (lower 4 cranial, upper 4 cervical)
 - MC SG (5th, 6th cervical)
 - IC SG (7th, 8th cervical)
 - Thoracic lumbar sacral gang
- corresponding n.

	(lowest) (T12)	(renal plex)	
	(greater) (T5 - T9)	(lesser) (T9 & T10)	(lumbar) (L1 & L2)
	celiac gang.	sup. mes. gang.	inf. mes. gang.
	follow br. of celiaca.	Mid gut.	hind gut

They go to these gang. to form plexuses along with parasympathetic n.

② vagus S2,3,4 (Hindgut)

descending hypogastric plex. → bladder rectum genitalia