

اللهم ارزقنا قوة الحفظ، وسرعة الفهم، وصفاء الذهن، اللهم ألهمنا الصواب في الجواب، وبلغنا أعلى المراتب في الدين والدنيا والآخرة، واحفظنا وأصلحنا وأصلح بنا الأمة.

بسم الله الرحمن الرحيم

Anatomy GI - 1

* ال portal vein بجمل ال absorptive material بوظيفها لا Liver .

* ال Liver من فوق يوصل ال right fifth 5th rib و من تحت ال right ninth 9th rib
 # مشابهة هيكل ال diaphragm رافع عن البيت ثمن من اليسار / من تحت ←

* ال diaphragm شو يغطي من ال Liver ؟ ← جميع ال surfaces ما عدا Visceral surface .

* ال diaphragm يمتد ال Liver عن ① pleura ② Lungs ③ pericardium ④ heart
 right side : heart, Pericardium, right pleura, right lung
 left side : left pleura, left lung

* ما بين ال Superior surface of the Liver = Coronary ligament = bare area

* Falciform ligament → between Right & Left lobe

* ال Fundus تابع ال Gallbladder كونه ممتد في Anterior

* duct يوصل ال IVC ال Left branch of portal vein ← ductus venosus
 فتولدوة بتصلها fibrosis obliteration ال ligament .

* بين ال IVC ال Caudate lobe & Ligamentum venosum

* بين ال Gallbladder & Round ligament ال Quadrate lobe

* Four Lobe → ① right ② left ③ Caudate ④ Quadrate
 Anatomically → Right lobe
 Functionally → Left lobe

ما تنسب ليشوي كلال impression فلك بين ال حدته

* حوايين ال coronary ligament
 حوايين ال porta hepatis
 * bare area

* ال Celiac artery (عظاني) ال splenic artery ال upper border ال pancreas

* ال vein ال posterior surface ال pancreas

* ال Portal vein ال behind the neck of pancreas
 ① Superior mesenteric
 ② splenic

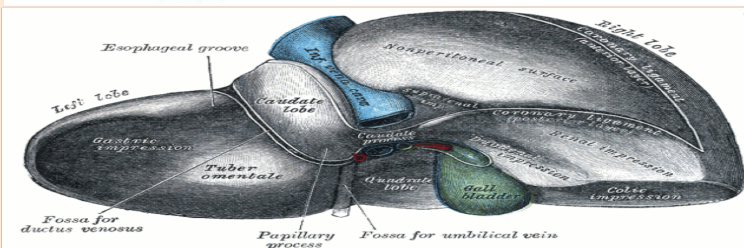
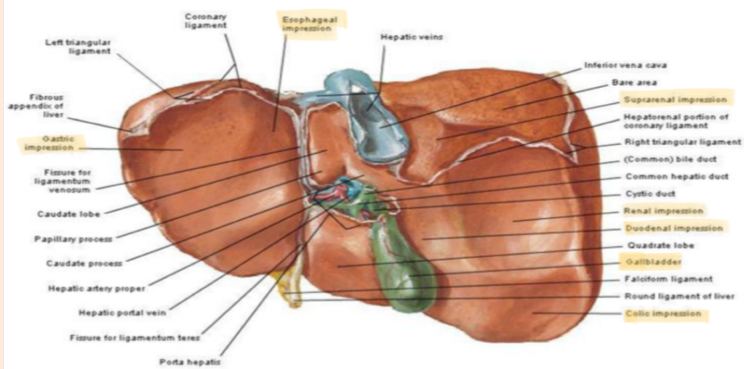
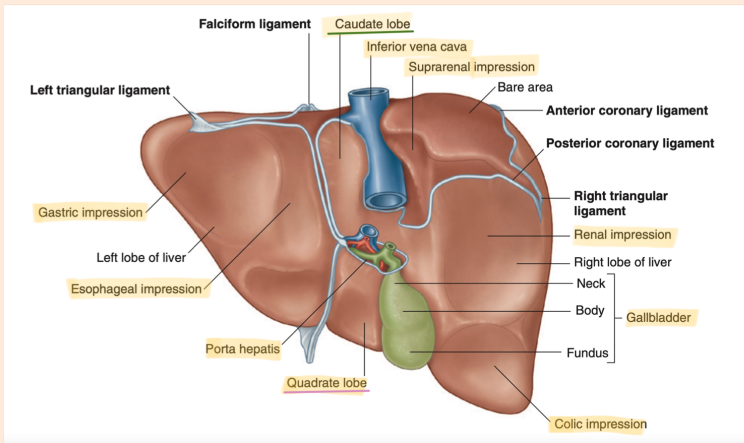
* ال posterior ال small ال Visceral surface
 ال surface ال surface

* ال Caudate ال two جايين ال C-Process
 ال Papillary Process ال porta hepatis

* ال Quadrate lobe related to ال Gallbladder

Identify the pointed impression:

* فهم دايعاً بجي بالعربي



Gal bladder → Peritonium → حوائطه في Peritonium → direct blood supply + Gange → يتبع ال Gallbladder

Porta hepatis = مكونات ال

*** The ligaments of the liver**

- 1- The Falciform ligament of liver → Ant. Abdominal + diaphragm ال
- 2- The Ligamentum teres hepatis → obliterated Umbilical vein
- 3- The coronary ligament → انتفاخ في
- 4- The right triangular ligament
- 5- The left triangular ligament
- 6- The Hepatogastric ligament } → lesser omentum
- 7- The hepatoduodenal ligament
- 8- The Ligamentum Venosum → obliterated ductus venosum

- ① bile duct ② hepatic artery ③ portal vein
nerve + lymphatic vessels + lymph nodes + fat

لها 8 Lobe

4 Lobe ال و ال 8 Lobe

Liver Histology :- Hexagonal structure

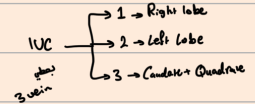
بين ال Hepatocytes حاجية هياكل

- ① adjacent canaliculi → hepatocytes ال
- ② blood sinusoids → hepatic artery ال portal vein ال

hepatocytes ال ينقل ال absorbative material ال

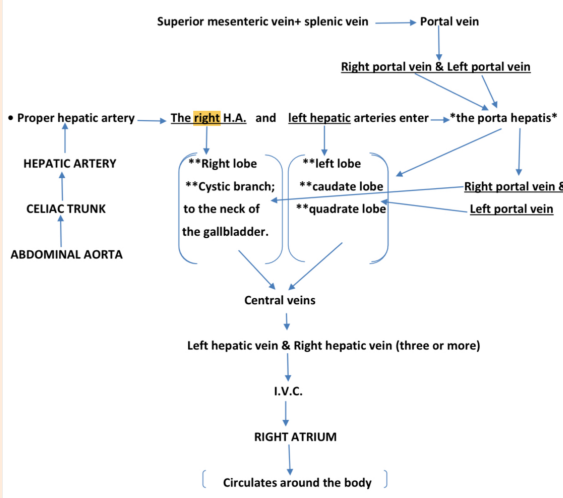
central vein في

Waste products و CO₂ يوصل ال
ما يتخلص وظيفتها



central vein → hepatic vein → IVC → Right atrium

***Blood supply of the liver... The blood movement through the liver:**

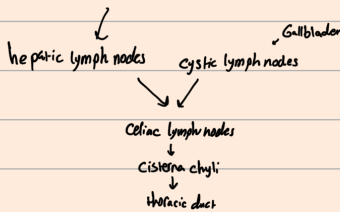


① hepatic artery → in the porta hepatis
Right → Right lobe + cystic branch of the Gallbladder
Left → Left lobe + Caudate + Quadrate

portal vein → Right → Cystic ...
Left → central vein → IVC → Right atrium

Lesser omentum ال Liver ال

nerve supply ال



vagus ال Para
celiac ganglion ال sym
plexus distribution with blood supply
celiac ال trunk

cholecystectomy → Cutting + ligation to Cystic duct, Cystic vesicles.

Callois triangle • cystic duct (right) • common hepatic duct (left) • cystic vessels (superior)

relation كمشة

<p>Postero- infero surface = visceral surface</p> <p>Relations</p> <ul style="list-style-type: none"> • I.V.C • the esophagus • the stomach • the duodenum • the right colic flexure • the right kidney • Rt. Suprarenal gland • the gallbladder. • Porta hepatica (bile duct, H.A, V) • Fissure for lig. Venosum & lesser omentum • Lig.teres 	<p>Relations of the liver Anteriorly</p> <ul style="list-style-type: none"> • Diaphragm • Rt & Lt pleura and lung • Costal cartilage • Xiphoid process • Ant. abdominal wall 	<p>Relations of Sup. surface of liver</p> <ul style="list-style-type: none"> • Diaphragm • Pleura & lung • Pericardium & heart 	<p>Posterior relation of the liver</p> <ul style="list-style-type: none"> • Diaphragm • Rt. Kidney • Supra renal gland • T.colon/hepatic flexure • Duodenum • Gall bladder • I.V.C • Esophagus • Fundus of stomach
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<p>-present in the posterior surface from the Rt. Lobe</p> <p>Two processes</p> <ol style="list-style-type: none"> 1- c- process 2- papillary process <p>Relations of caudate lobe</p> <ul style="list-style-type: none"> - Inf. → the porta hepatis - The right → the fossa for the inferior vena cava - The left → the fossa for the lig.venosum. 	<p>Quadrante lobe</p> <p>Present on the inferior surface from the AL Lobe</p> <p>Relation</p> <ul style="list-style-type: none"> - Ant. → anterior margin of the liver - Sup. → porta hepatis - Inf. → fossa for the gallbladder - Lt → by the fossa for lig.teres
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- * **Right sagittal fossa** –groove for inferior vena cava and gall bladder
- **left sagittal fissure** –contains the **Ligamentum Venosum** and **round ligament of liver**
- **Transverse fissure (also porta hepatis)** –bile ducts, portal vein, hepatic arteries

Inferior surface covered with peritoneum of greater sac except porta hepatis, G.B & Lig.teres fissure

* يعني هو Intra-peritoneal Lo عدا ٣ مواقع .

If you put the liver in the anatomical position the liver lies Superior to the gallbladder & the ligamentum teres”!

surface of the liver

The GALLBLADDER: anatomically & physiologically: related to the right lobe of the liver

• في سؤال السنوات مكرر كثير وكل مرة بطريقة شكل ← خلاصته : ارته ال Liver ما يصب بال portal vein ، بيوجد منه عكس الباقي .

” اعفاء ← portal ← Liver

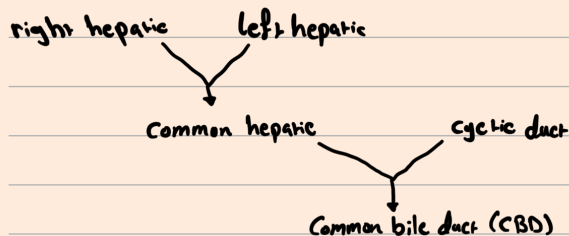
Anatomy GI 2

Gallbladder

• Histology → mucosa: honeycomb appearance

• Hartman's pouch.

Secretions of the gallbladder can accumulate in this bulge and get stuck (stasis), which will then accumulate and lead to the formation of a single stone.



(?) This provides it with direct blood supply, other than the cystic artery, so complete cut of blood supply and gangrene happening in the GB is very rare.)

• Arterial supply to the Gallbladder

cystic artery branch of Right hepatic.

posterior branch of superior pancreaticoduodenal.

• vein supply

cystic vein drain into Right portal

• Nerve supply

Sym (celiac ganglia)

para (vagus)



• lymphatic supply

cystic lymph nodes drain into hepatic lymph nodes in the lesser omentum

→ then go to the celiac nodes around the celiac ganglia.

• between Quadrate & right lobe.

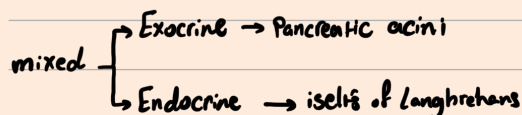
• simple columnar without goblet cells.

If a stone occurs in Hartmann's pouch, it can enter the CBD and obstruct it, leading to jaundice (yellow appearance)

Gangrene of gall bladder rare (has blood supply from both the cystic artery and directly from liver, as the GB is embedded in it)

Pancreas

the uncinat process to the left of head, behind the sup. Mesenteric vessels)



سُجَّان اللِّمَّة

• موجود بال epigastric يردع ال left hypocondrium region

• قلنا مباشرة خلفه ال Stomach ← lesser sac و بعده ← Pancreas وصوبي على ال upper border of splenic artery
 • وجاي خلفه كما بين ال left kidney & left suprarenal



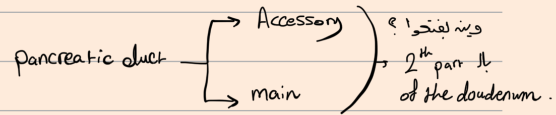
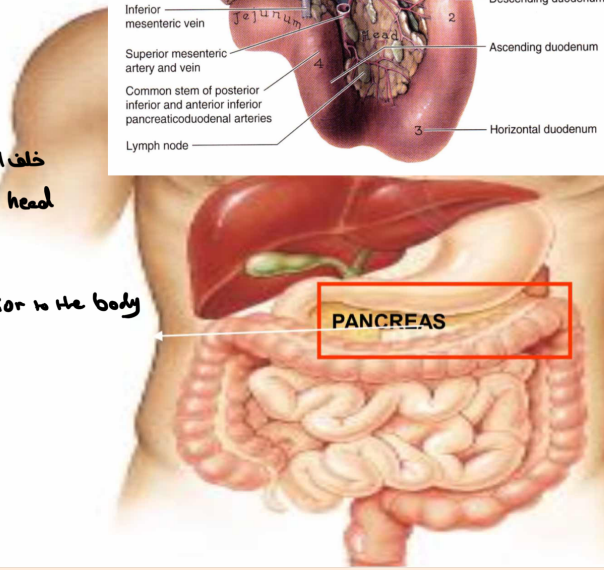
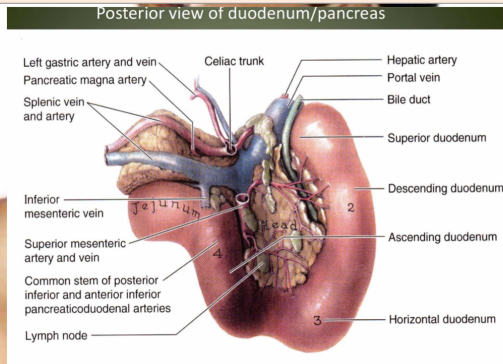
Common relation

Anterior

- Transverse colon
- Transvers mesocolon → Ant. border by mesocolon of pancreas
- Lesser sac
- Stomach

Posterior

- Bile duct → خلف ال head وتخرقه
- Portal vein → Posterior to the head
- Splenic vein
- IVC
- Aorta
- origin of Sup. mesenteric a. → Posterior to the body
- Lt. Psoas muscle
- Lt. Suprarenal gland
- Left kidney
- Hilum of the spleen



Congenital defects of pancreas

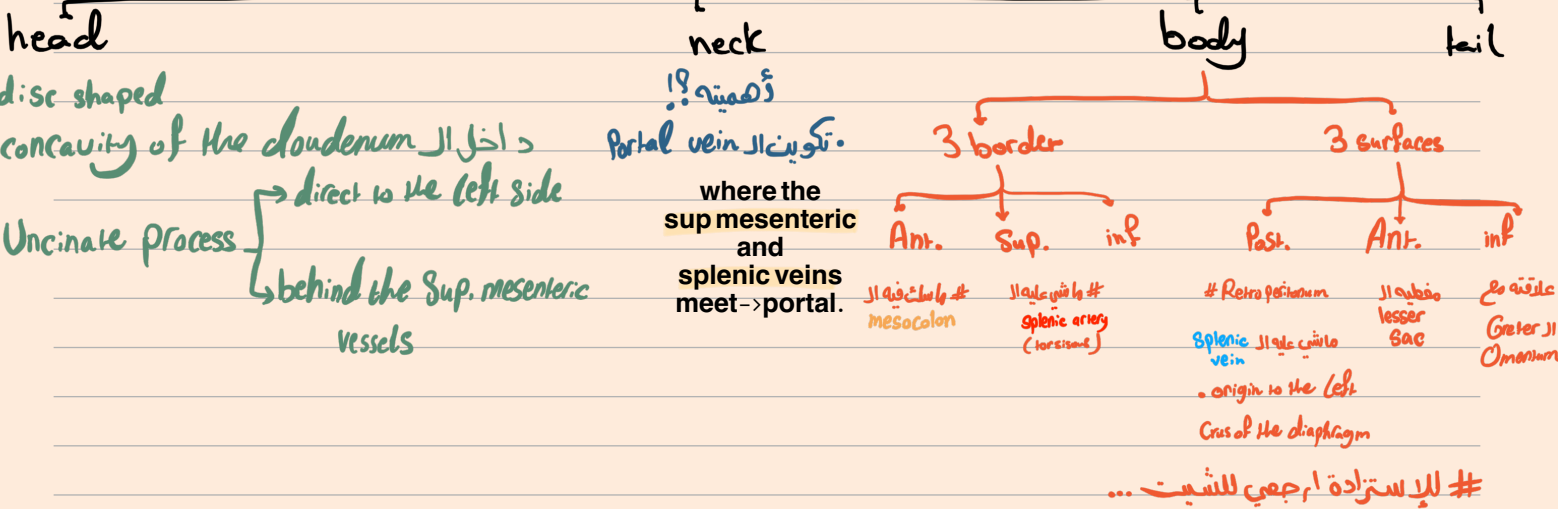
- ⇒ Annular Pancreas (rare): occurs when the pancreas encircles duodenum (2nd part), instead of the pancreas being surrounded by the duodenum as normal. This obstructs the duodenum.
- ⇒ Ectopic Pancreas (very common) = Outside the gastrointestinal tract. This is the occurrence of pancreatic tissue outside the pancreas's normal site.

Clinical notes

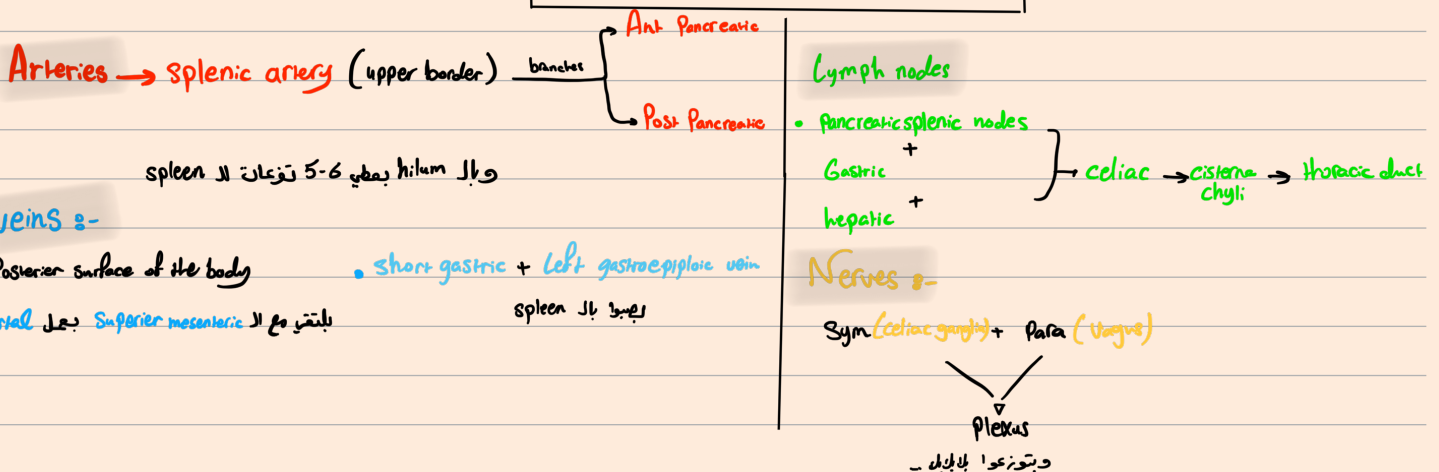
- ⇒ Cancer of the head of pancreas ⇒ Obstruction and jaundice. A tumor in the head will close the CBD, which pierces the head from behind.
- ⇒ Cancer body of pancreas ⇒ pressure on the I.V.C & portal vein (which are behind the body)
- ⇒ Acute pancreatitis ⇒ inflammation of pancreas, due to stasis of secretions of the pancreatic duct.

Passes forward in the splenicorenal/lienorenal ligament (along with the splenic vessels) and comes in contact with the hilum of the spleen.

Parts of the Pancreas

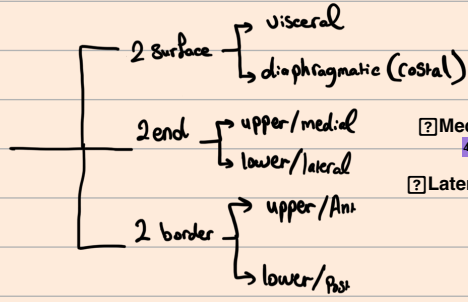


Blood supply of the pancreas.



Spleen

- in the left hypochondric region
- related to the ribs in the left side (9,10,11)
- axis parallel to the 10th rib
- covered completely by the peritoneum except the hilum
- notched on the upper surface (sharp)
- inferior (rounded) → left kidney
- tail of the pancreas below the hilum



- Ends
 - Medial end is directed superiorly and back, 4 cm away from midline / mid sagittal line posteriorly.
 - Lateral end is along left mid axillary line.

- 2 ligament
 - splenicorenal → with kidney
 - gastrosplenic → with stomach

- Size
 - 1 inch → thick
 - 3 inches → broad (width)
 - 5 inches → long

اعمال فنية

- weight → 7 ounces

- impression
 - above the hilum → Stomach (greater curvature)
 - below the hilum → left kidney
 - below the hilum → tail of the pancreas (very close to it)
 - at the inferior angle → left colic flexure ***
"splenic flexure"

blood supply

Arteries → spleen (5-6 branches) يوصل إلى hilum

Veins → splenic vein يتجمعوا إلى tributaries

Lymph nodes → Pancreaticosplenic → celiac lymph node

Nerves → Para-sym + splenic artery

عن أبي هريرة رضي الله عنه عن رسول
الله صلى الله عليه وسلم قال: "كَلِمَتَانِ
خَفِيفَتَانِ عَلَى اللِّسَانِ، ثَقِيلَتَانِ فِي
المِيزَانِ، حَبِيبَتَانِ إِلَى الرَّحْمَنِ: سُبْحَانَ
اللَّهِ وَبِحَمْدِهِ، سُبْحَانَ اللَّهِ الْعَظِيمِ."

Anatomy GI 3

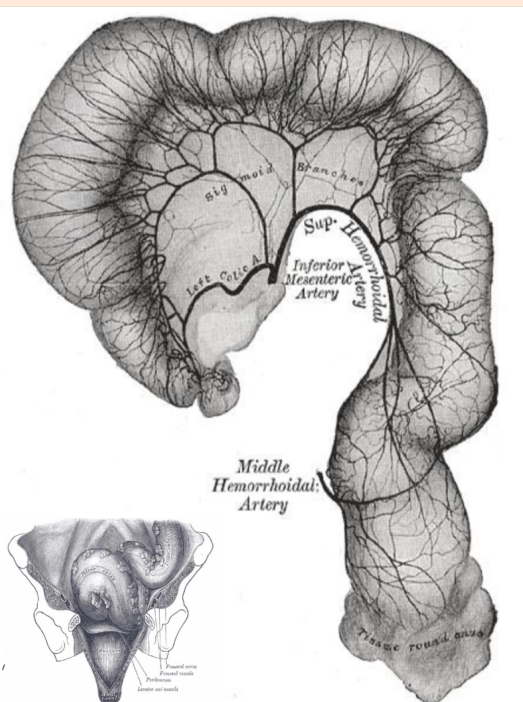
parts of the pelvic colon :-

- ① sigmoid colon
- ② Rectum
- ③ upper part of anal canal

- upper half of anal canal → endodermal in origin
- lower " " " " → ectodermal in origin.

Sigmoid

- inferior mesenteric artery
 - Left colic Artery → (descending colon)
 - sigmoidal → (sigmoid colon)
 - Superior rectal artery → (rectum)
- End in the third sacral vertebra (mid of the sacrum)



- mesentery → inverted V shaped mesocolon.
- curved to the Right → mid line
- lateral limb → contains lower **left colic artery**.
- medial limb → contains **superior rectal artery**.

* sigmoid mesocolon → fan shaped → Attachment

- medially → (middle piece of Sacrum)
- laterally → Bifurcation of **left Common iliac artery**
- most laterally → middle of **lateral External iliac artery**

• يمتد في نفس اتجاه mesocolon إلى mesocolon artery.

• Relations of sigmoid c

• Left

- Lt. Ext. iliac vessels
- Lat. wall of pelvis
- Vas deference or ovary

• Right

- Small intestines

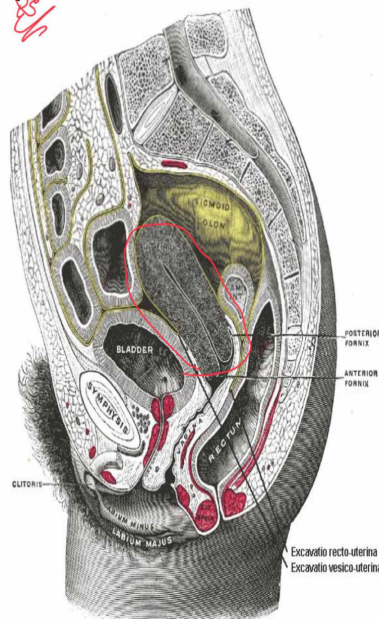
• Superior

- Coils of small intestine

• Inferior

- In mal: urinary bladder

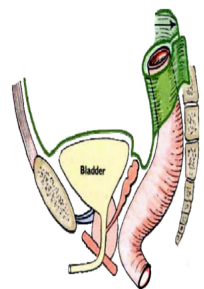
- ☆ - In femal : uterus



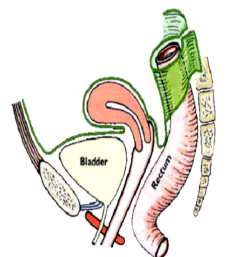
Relations of sigmoid colon

• Posteriorly:

- The rectum
- the sacrum.
- the lower coils of the terminal part of the ileum
- Sacral plexus
- Lt. periformis muscle
- Lt. external iliac vessels
- Lt. Ureter
- Lt. internal common iliac artery



- The sigmoid colon usually occupies the **rectovesical pouch** in males and the **rectouterine pouch** in females

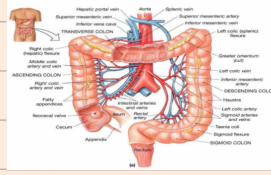


Blood supply of sigmoid :-

تاج ال inf. mesenteric art. ال يفتي جاجه من ال

- **Arteries** → (branches of the **inf. mesenteric artery**)
 - most superior sigmoid artery
 - left colic artery
- **veins** → inf. mesenteric veins → splenic veins → portal vein
- **Lymph nodes** → around origin of inf. mesenteric artery → inf. mesenteric nodes
- **nerves** → Para (S_{2,3,4}) → splanchnic nerves → End in inferior hypogastric as plexus
 - Sgm (L₁-L₂) → inferior mesenteric ganglia → بعضا يلتقي مع

Blood supply for sigmoid colon

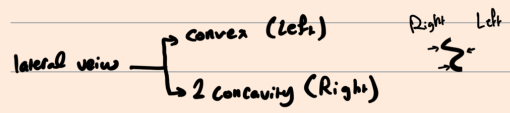


• داء ال **Arteries**
 تكونه **medial** و ال
venis lateral

ثم يتوزعوا

Rectum (5 inches)

• Anterior vein → coccyx ال Sacrum وينتهي بعد انشعابه ال



- **puporectalis muscles** → Rectum is anal canal ال landmark *
 (Volume) defecation ال *
 Levator ani muscle هو ال *
 pelvic diaphragm ال *

ischorectal fossa between ischioanal tuberosity, anal canal, rectum

information about this → medial → levator ani muscle
 lateral → obturator internus
 base → skin
 contain → fat

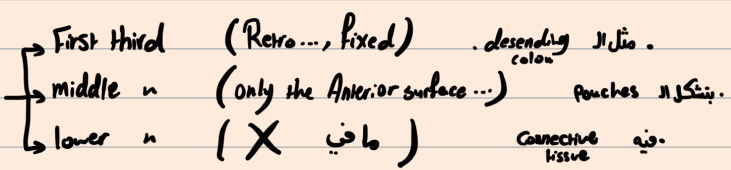
Advantages → ... defecation ال
 disadvantages → infection (sinuses, Abscess, fistulas)

A question suggested by the doctor: in per rectal examination in male what structures can be felt anterior to the index? سؤال عادةً بيجي 8-

- 1 Prostate
- 2 seminal vessels
- 3 Vas deference

There are 3 structures, the most important is the prostate, vas deferens can be felt especially if there was calcification in addition to the seminal vesicle. The ureter CANNOT be felt because it opens into the urinary bladder which is far from what can be felt.

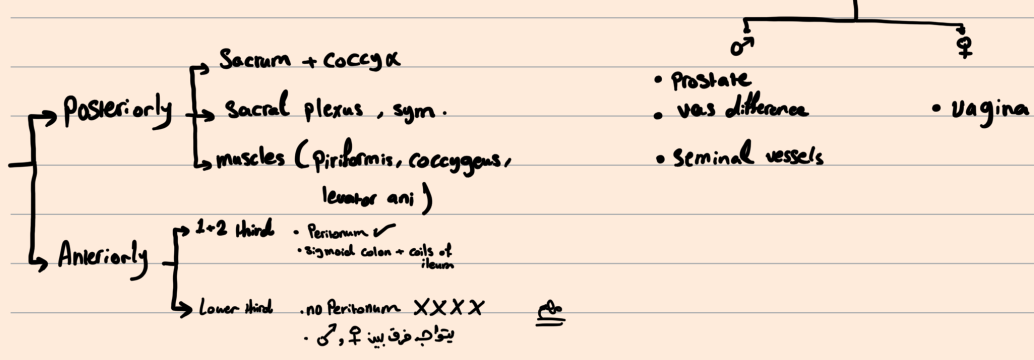
The peritoneum of the rectum is divided into 3 parts:



- **Themuscularcoat** of the rectum is arranged in 1 outer longitudinal of smooth muscle
- 2 inner circular layers of smooth muscle → internal sphincter
- The three taenia coli of the sigmoid colon however, come together so that the longitudinal fibers form a broad band on the anterior and posterior surfaces of the rectum. No taenia coli
- **transverse folds of the rectum** (semicircular permanent folds) The mucous membrane of the rectum + the circular muscle layer

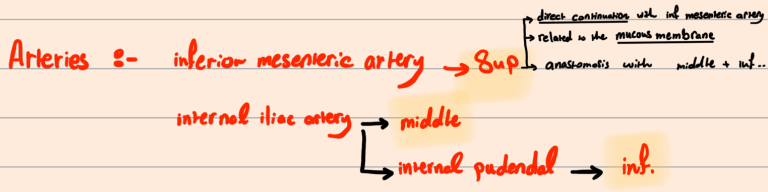
Relations :-

in male & female are same except → Anteriorly → lower third of the rectum

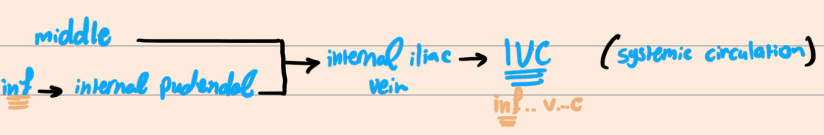


- rectum → no taenia coli
- lamina propria → crypt of la... عيب
- defecation ال مucus ال
- muscularis externa → inner circular... → internal sphincter...

Blood supply of the rectum &

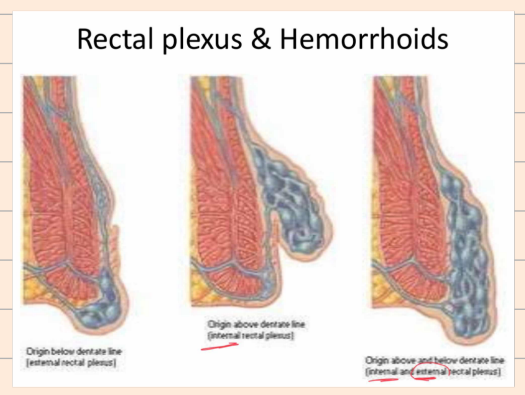
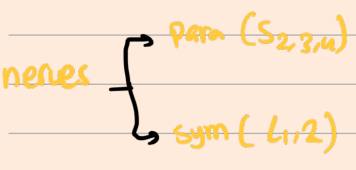
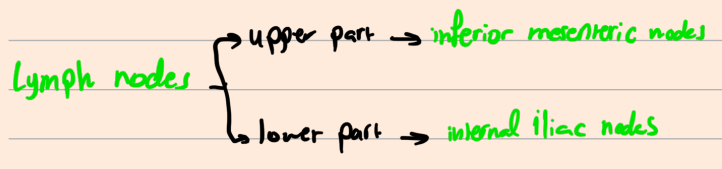


veins :- مدم



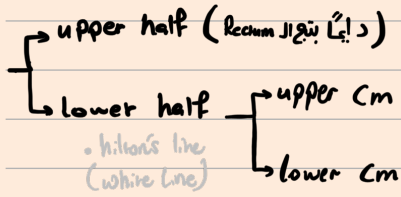
• متى يصير Portal hypertension وش تمانها ؟
 • LL يكون في block في ال liver ← وجي يصب فيه ال Portal
 • ما يظبط فنبرج ورجل hyper...
 • ال6 يرجع بسوي anastomosis مع middle + inf وصيد
 • لسير البواسير hemorrhoids or Piles

Internal (sup) **External (inf, middle)**

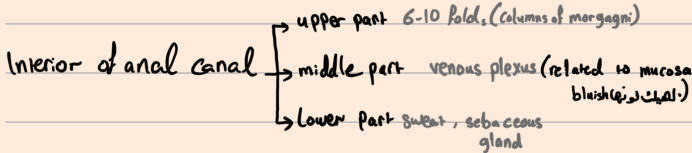


Anatomy GI 4

Anal canal (حوالي 4cm)



upper half	Lower half	
	upper cm	lower cm
Simple columnar with goblet cells (mucus)	Stratified squamous non keratinized	Stratified squamous keratinized
Endodermal in origin	ectodermal in origin	
Sensitive to the stretch (Autonomic)	to pain, temperature, touch (inferior rectal nerve)	
Superior rectal	inf. + middle	
portal	systemic	
inferior mes. lymph.	superficial	inguinal

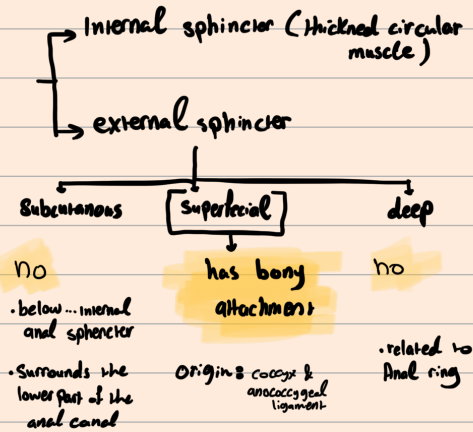
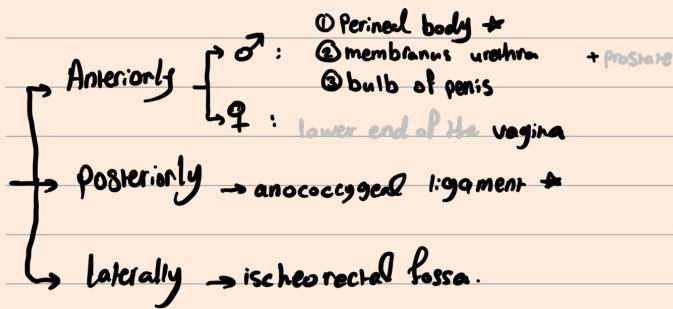


Anorectal ring

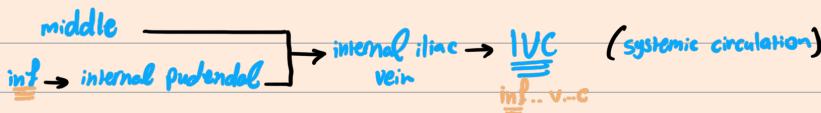
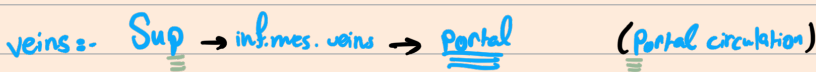
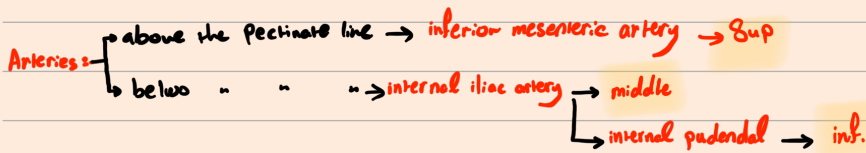
Internal anal sphincter	Deep external anal sphincter	PuPorectalis
Involuntary	voluntary	
Autonomic innervation	inferior rectal nerve (S4) (العصب المستقيم السفلي)	
Not led to incontinence	led to incontinence (فشل في التحكم)	led to incontinence

قد تؤدي إصابة العصب المستقيم السفلي إلى إسهال
 ... injury of the nerve ...

Relation.



blood supply of the anal canal



Lymphatic drainage :-

- upper → inf. mes. lymph nodes
- lower → superficial inguinal nodes

فيلم

Somatic inferior rectal nerve القناة العصبية السفلى للبراز	Autonomic inferior hypogastric plexus & pelvic splanchnic القناة العصبية السفلى للبراز • sigmoid colon • Rectum Pelvic vesicles ← Splanchnic
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• كتاب كيتابا على sheet لاني انا انا انا

nerves :-

- upper half → autonomic (sym + para) → inferior hypogastric plexus + pelvic splanchnic
- lower half → Somatic (inferior rectal nerve) → sensitive to pain touch temperature

Anal Hemorrhoids

- dilated vein •
- tortuous •
- مملوءة بالدم •

- 1- Straining to move stool ← متى ممكن يتغير
- 2- Pregnancy
- 3- constipation, ...
- 4- Cancer in the rectum

Internal h.
Superior rectal vein
• Painless
defecation ← كايطلع برا مع ال defecation
Painless

• Bleeding

3,7,11 o'clock ← anal columns

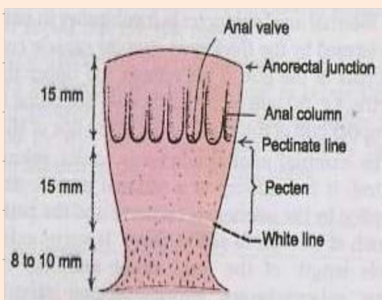
External h.
Inferior rectal vein
• Painful
• Subcutaneous
• Thrombosis

Anal fissure

- hard piece of stool → sinuses → mucosa تنخر او
- longitudinal injury to mucosa - كيفة تنكس - downward
- extremely painful •
- Ulcer ← medline ← حوات بجاني بال

Perianal abscess

- common in ischioanal fossa
- trauma in the mucosa → abscess وتكونه (Blood + Puss ← stool)
- painful



from me :-
Anal column ← الذي زي القود
• valve ← التي زي حرة ال
اللي بقده حرة ال لا ري الحبة ← Sinus ← الحبوب

Anal Triangle

• lymphatic → Superior inguinal nodes

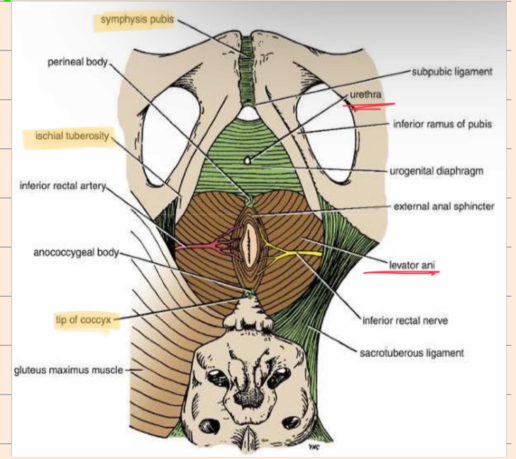
boundries

ant → Perineal membrane

Post → tip of coccyx

midline → anus

each side → ischeal tuberosity

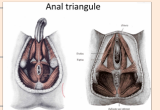


Contents :-

- anal canal (anus)
- ischioanal fossa
- Sacrotuberous ligament } lateral side
- Sacrospinous ligament } lateral side
- Internal pudendal artery + veins } pudendal canal (lateral wall ischioanal fossa)

Muscles :-

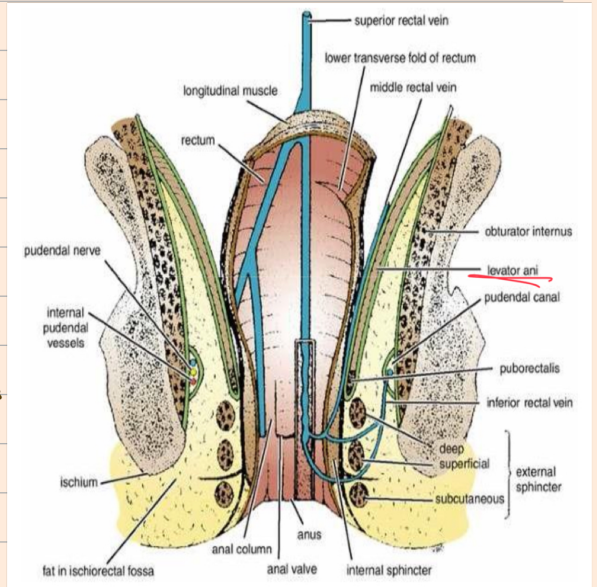
- sphincter ani externus ms.
- Gluteus maximus ms.
- obturator internus ms.
- levator ani ms.
- coccygeus ms.



Ischioanal fossa

- wedge shaped
- lateral wall → obturator internus + fascia
- medial wall → levator ani, anal canal

القناة البعيدة
Pudendal canal.
lateral wall of ischioanal fossa
تحتوي على
- Pudendal nerves
- Pudendal veins
- Pudendal arteries } vessels



Contents :-

- fat
- lateral wall → pudendal canal } Pudendal nerves, Pudendal vessels

• Crossing → inferior rectal vessels } فيني برونو
" " " nerves } External anal sphincter "anal canal"

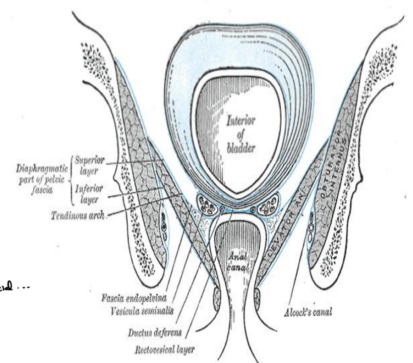
The pudendal canal

Structure

- The pudendal canal (also called Alcock's canal) is an anatomical structure in the pelvis formed by the obturator internus fascia
- Runs in the lateral wall of the ischioanal fossa
- Ends in the deep perineal pouch

Its contents

- Internal pudendal artery
- Internal pudendal veins
- Pudendal nerve
- These vessels and nerve cross the pelvic surface of the obturator internus.



Handwritten note with an arrow pointing to the pudendal canal diagram.

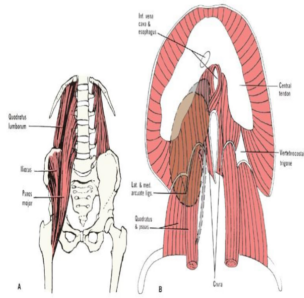
Anatomy GI 5

Posterior abdominal wall

هذا الجدول مهم وخصوصاً ال Psoas major

Structures of post. Abdominal wall:

- 5 lumbar vertebra & their intervertebral disc
- 12th ribs
- Upper part of bony pelvis
- Muscles
 - psoas major
 - psoas minor
 - Quadratus lumborum
- Aponeurosis of transversus abdominis muscles
- iliacus muscle lie in the iliac fossa



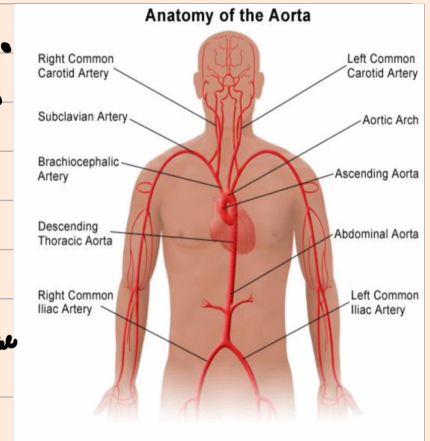
	Psoas major	Quadratus lumborum	Iliacus muscle
Origin	body & transverse process of lumbar vertebrae	• iliolumbar ligament • iliac crest	iliac fossa
Insertion	lesser trochanter of femur	12 th rib	lesser trochanter of femur
N.S	Nerve plexus (T12, L1, L2, L3)	Nerve plexus (T12, L1, L2, L3)	Femoral nerve
Action	Flexion of hip & thigh	Fix or depresses 12 th rib during respiration Lateral flexion of the trunk	lateral flexion of hip & thigh for lying position

- iliolumbar ligament → iliac crest و fifth lumbar spine
- Strong ligament
 - عرق ال origin label →

Arteries on the posterior Abdominal wall

عندي Aorta بعدها Ascending بعدها Arch بعدها ال Thoracic وبعده ال Abdominal وبعده commo iliac

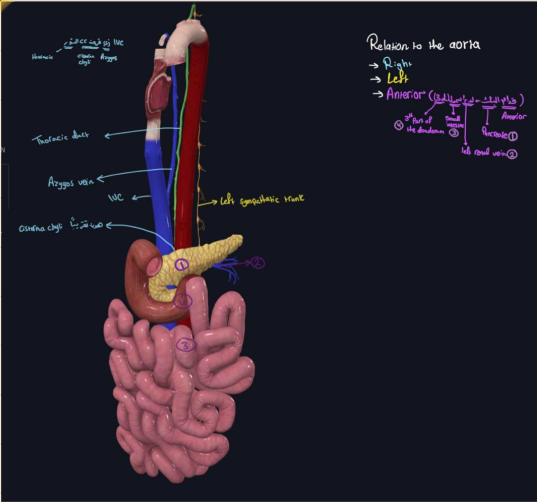
• بعني ال Abdominal التي بتزق ال diaphragm بال midline ب T12



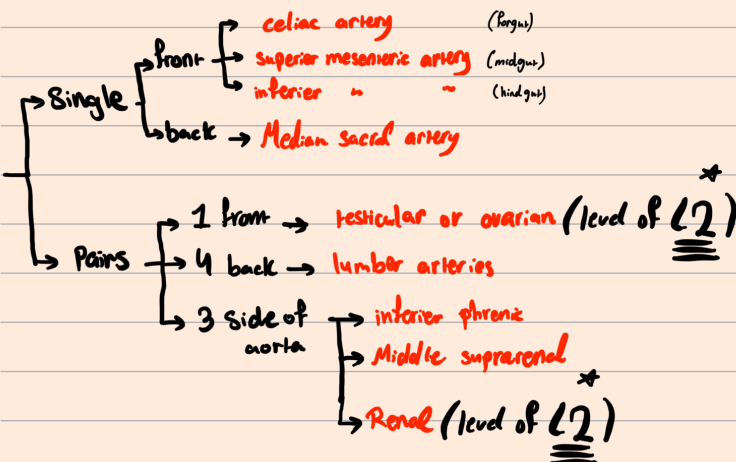
- Retroperitoneal organ
- behind the peritonum
- lumbar vertebrae قدام ال
- End → 4th lumbar vertebrae on left side

• على ال IVC يبدأ عن ال 4th on the right side

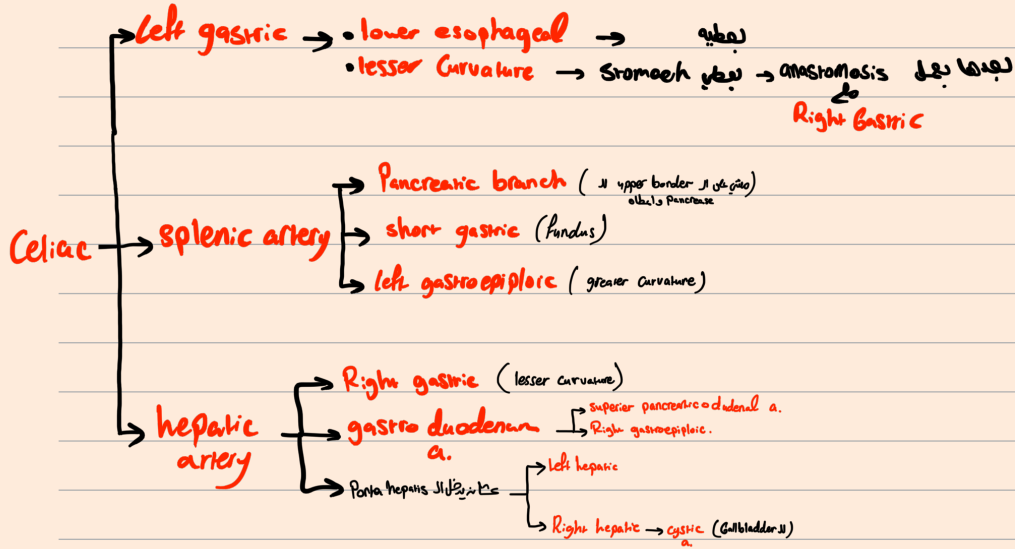
Relation of the aorta



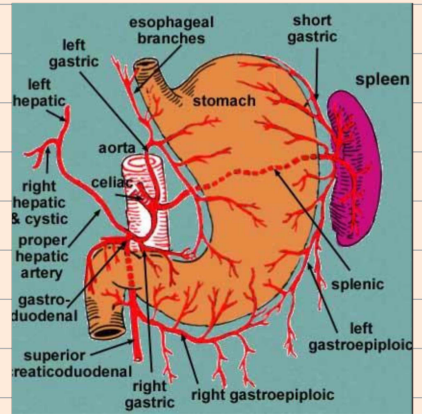
Branches of the abdominal aorta



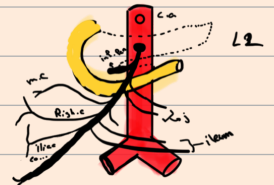
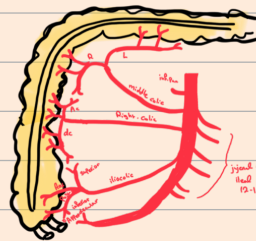
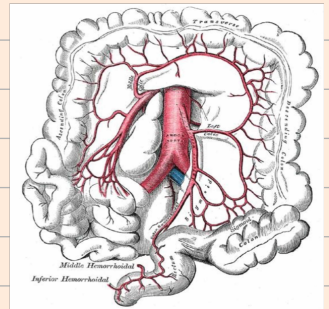
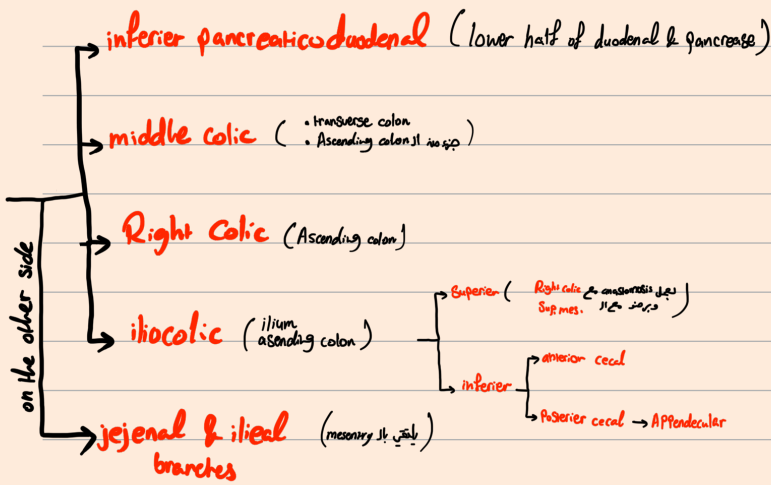
Celiac trunk → 1 cm لونه قيصير كيتير يادوبه . level → upper porder of L1
lower porder of T12



• Right left gastric * = content of lesser omentum

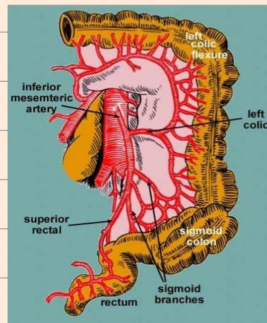
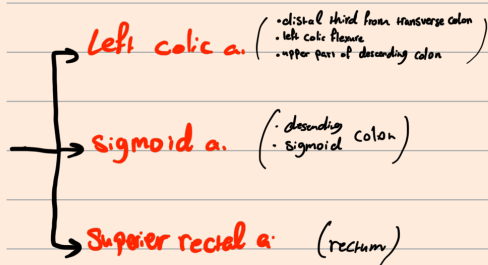


Superior mesenteric artery . level → upper porder of L2
lower porder of L1



رسالتی المواضيعه (بالا مکنه یفتیوا)

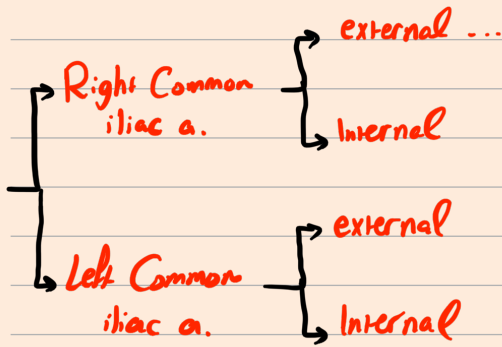
Inferior mesenteric artery . level → upper porder of L3



Marginal artery → anastomosis هه ال
artery لو ما Block ← بهر فی Connection ال

Common iliac artery

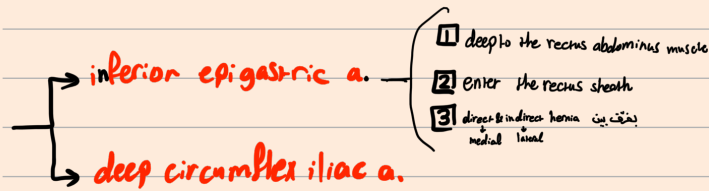
• level → upper border of L4



• ويزن ينقسم الى Int- & ex
- inlet of the pelvis عند

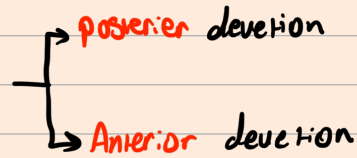
External iliac artery

- medial border to the psoas
- following the pelvic brim
- femoral lower limb يطبق
- inf. epigastric a. قبل ما يروح بمطين ال



Internal iliac artery

- pelvic viscera لل



لو زينة رايح !!
• مشوي بين اسما تقسم
• من السلك يد
- مش كيميائية
• ناقصهم بالاصوات
• انه شاه الله

VEINS on the posterior abdominal wall

IVC

ديوا بالكم عكس القاعدة

in the pelvis → Common iliac vein deep to the artery

- Artery → superficial (thick wall) عشانه عند الجدل الضغط يصير على ال Artery
- vein → deep (the wall is very thin) مش على ال vein

• يكونه من Common iliac vein

• عند ال 5th lumbar vertebrae

• على اليمين (Right side)

• بنتهي عند ال Right atrium

• يخترق ال diaphragm في ال central tendon عند ال T8

• ال Sympathetic trunk يكونه behind the right edge

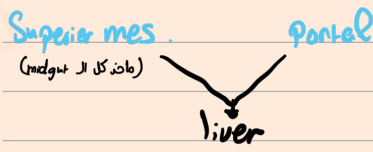
Relations of I.V.C

ال اي عليهم خط مثل Aorta

- Anterior
- Coils of small intestine
- 3rd part & 1st part of d.d
- Head of pancreas & C.B.D
- Related to foramen of Winslow
- Portal vein
- Lies in deep groove of liver

Tributaries of I.V.C

- hepatic vein → IVC (الغرفة الليمف و من الليمفا ينشف في ال)
- Right suprarenal vein (left renal vein ال left يروح و ال left)
- Right testicular or Ovarian (left → left renal vein)
- five lateral abdominal } inferior phrenic
L4 lumbar
- median sacral
- two common iliac v.



liver لوجال
hepatic → IVC

• صلم: يعني ال liver ما بيب
بال Portal بيب بال IVC

Splenic vein

Portal vein ال ديجوا behind neck of ← sup. mes الينقي مع ال the pancrease

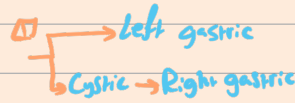
• بيب فيه ال inf. mes. (Inf. mes. v → splenic → portal)

Portal vein "موضع اسئلة"

(ما ف جزع كبير منه ال forger)

- 2 inch (5cm)
- behind neck of the pancrease بيدأ

Righ } Porta hepatis نتهي بال
Left }



للتوارفة تبعته

[2] Superior pancreaticoduodenal vein

[3] Sup. mes splenic "البيجوتة اولت"

• بين ال IVC و left branches of portal duct في ductus venosus ← وصارها obl.

Portal systemic anastomosis "موضع اسئلة برصنو"

لا ييسر في liver cirrhosis و ييسر فيه obstruction to the liver ← blood به يرجع ← يرجع ال Portal و ال tributaries و ام اشئ يرجع ال anastomosis

Left gastric vein → lower third of esophagus

Paraumbilical vein → Umbilicus

Superior rectal vein → Rectum & anal canal

anastomosis
بين ال Portal
وال Systemic

Portal systemic anastomosis.....cont

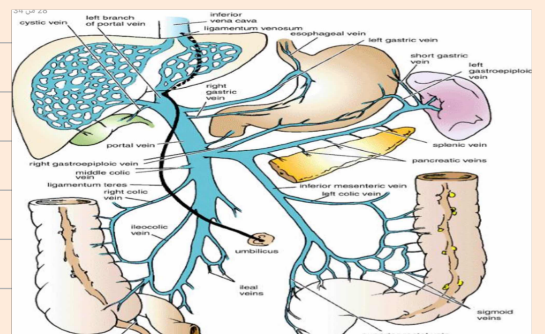
Causes

- Liver diseases → Cirrhosis, fibrosis (bilharzial)
- Valvular diseases of the heart
- Congenital patent

Region	Name of clinical condition	Portal circulation	Systemic circulation
Esophageal	Esophageal varices	Esophageal branch of left gastric vein	Esophageal branches of Azygos vein
Rectal	Hemorrhoids	Superior rectal vein	Middle rectal veins and inferior rectal veins
Paraumbilical	Caput medusae	Paraumbilical veins	Superficial epigastric vein
Retroperitoneal	(no clinical name)	Right colic vein, middle colic vein, left colic vein	Renal vein, suprarenal vein, paravertebral vein, and gonadal vein
Intrahepatic	Patent ductus venosus	Left branch of portal vein	Inferior vena cava



• ركز على اول 3 و خصوصاً ال left gastric vein وكي مدهين (احفظي كلشي و ركزي على اول 2)



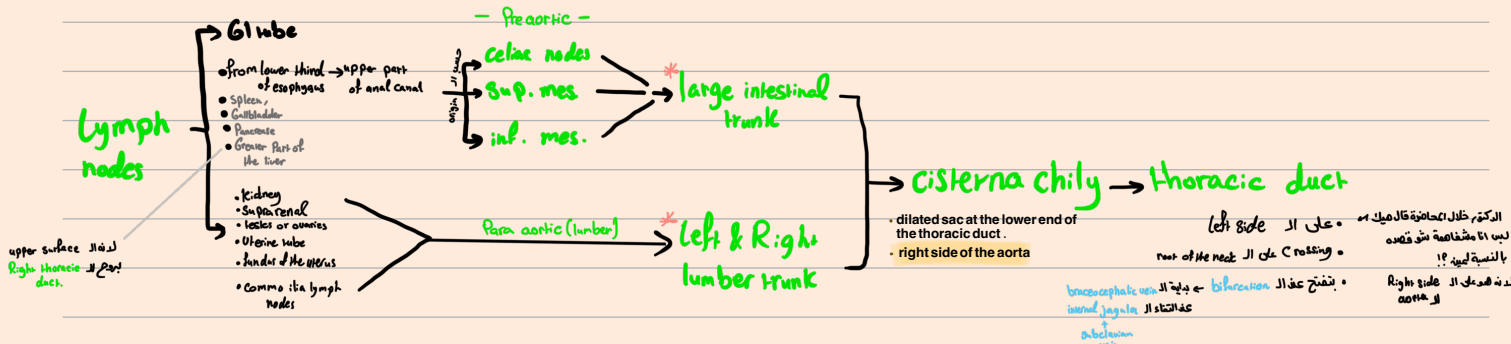
hematemesis (vomiting of Blood)

Anatomy GI 6

وأخيراً 🤔❤️

- **Lymphatics on the posterior abdominal wall**
 - ↳ **Pre aortic** (Aorta 1pl)
 - ↳ **Para aortic** (lateral aortic, lumber) - على جانبي الـ Aorta -

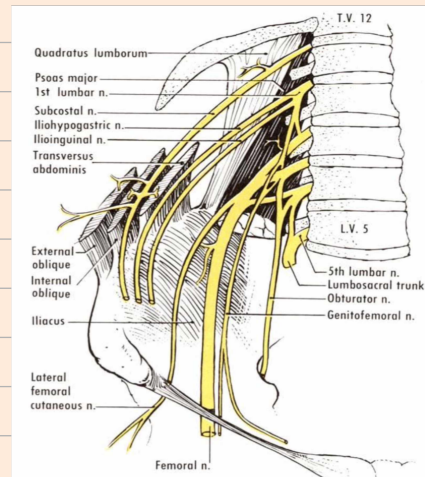
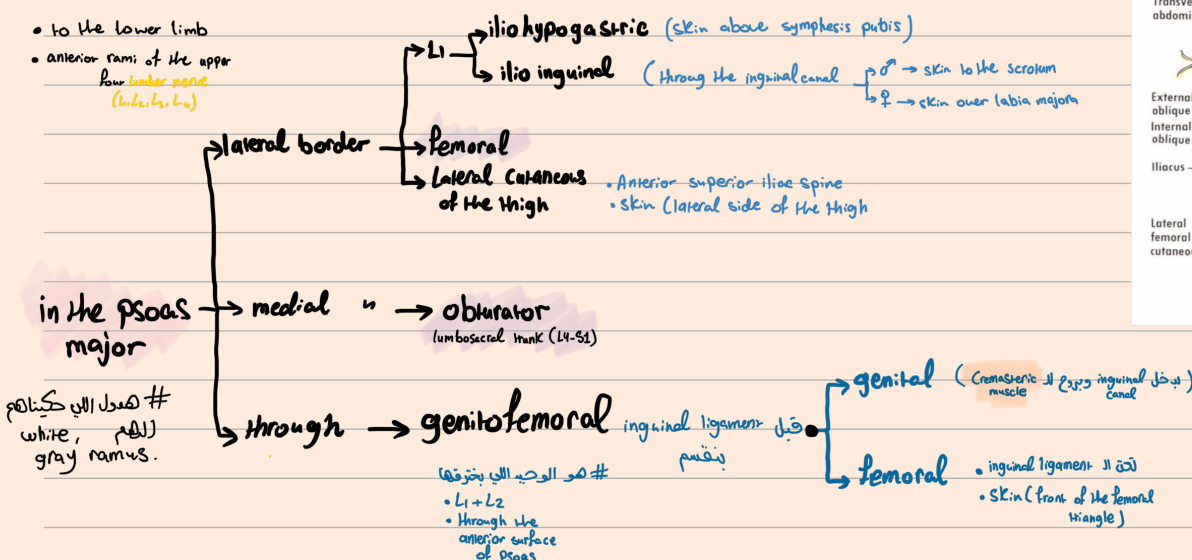
* efferent lymph vesicle



Nerves on the posterior abdominal wall

Lumber plexus

- to the lower limb
- anterior rami of the upper four lumbar nerves (L1-L4)



* femoral

* Obturator

• الـ 2 الـ L2, L3, L4
 • الـ anterior rami الـ L1, L2

Obturator	Femoral
→ Anterior origin.	→ Posterior origin.
* Crossing the pelvis in inside the obturator canal A medial compartment of the thigh	* يقضي الـ inguinal ligament و يروح الـ femoral triangle و يمشي الـ outside the femoral sheath

Cremasteric reflex → upper medial part of the skin → itching

! absent

- testicular torsion
- damage (L1, L2)

contraction of the cremasteric muscle (testis → upward)

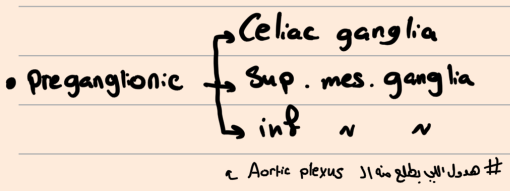
Sympathetic Trunk (Abdominal part)

White ramus (Sympathetic fibers)

- جاي في الThoracolumbar الـ T-L 12
- أي واد طالع في ماد الـ origin و رايح الـ sympathetic ganglia بنسبة الـ White ramus
- الـ vagus abdomin الـ first two lumber

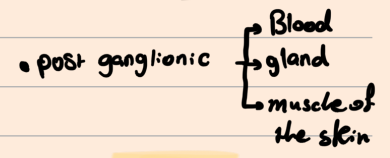
* origin of sympathetic thoracolumbar

• يعني كم عدد الـ (14) (12 thoracic, 2 lumber)

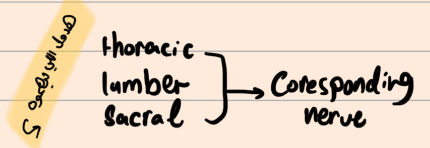
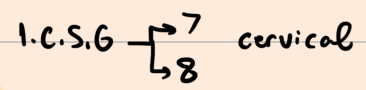
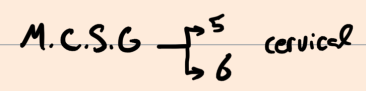
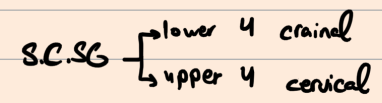


Gray ramus :-

- بعد ما على الـ synapse الـ nerve
- الـ طالع و رايح و يرجع الـ spinal n.
- بنسبة الـ gray ramus

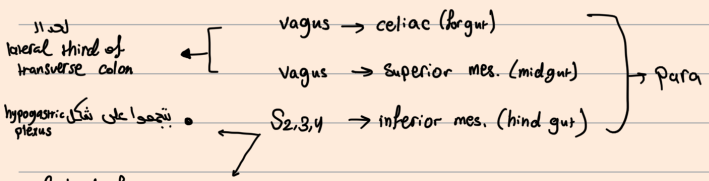
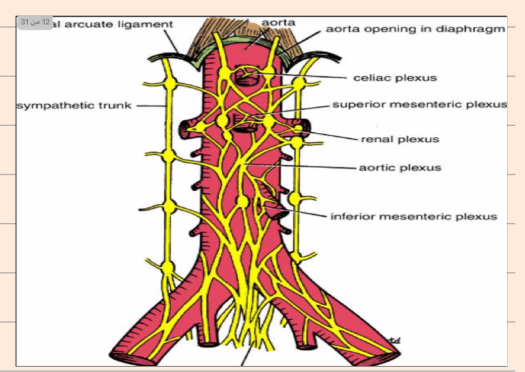
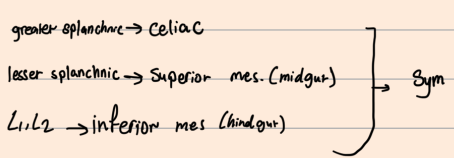
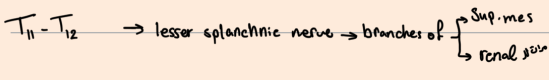
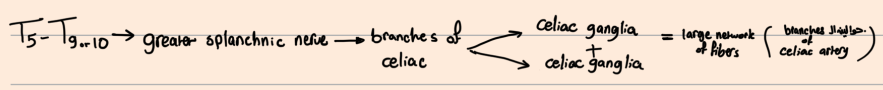


• عدد الـ (31) (الـ spinal n. الـ Post ganglionic الـ)



Aortic plexus (Para + sym)

- celiac ganglia الـ الـ branches الـ
- sup. mes ganglia
- inf. mes ganglia



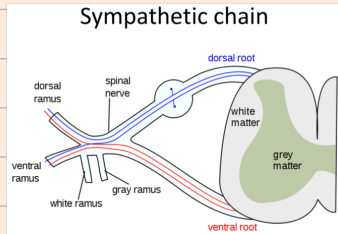
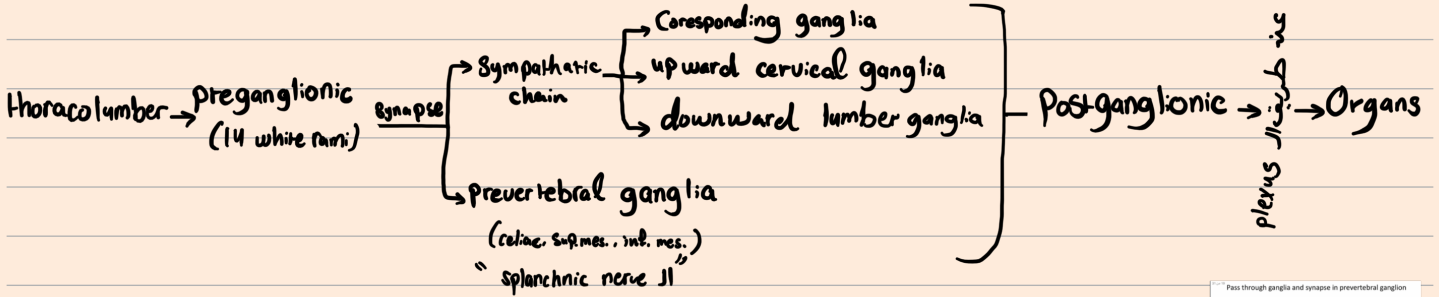
hypogastric plexus = sym + para axis → hind gut الـ

- lateral third of transverse colon
→ descending colon
→ sigmoid, rectum
→ upper half of anal canal } hind gut

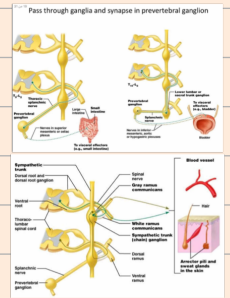
Sympathetic chain

Thoracolumber ← غير عينية (origin)

- C → (3)
 - T → (12)
 - L → (4)
 - S → (4 or 5)
 - Coccygeal → (1 ganglion...)
- Sym chain (ganglia)

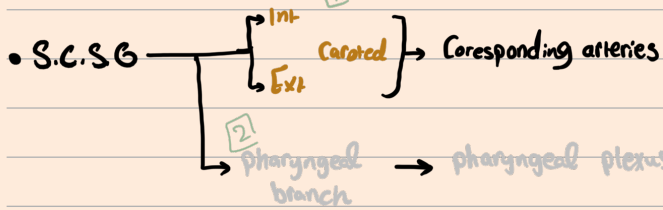


Thoracolumber من الـ spinal nerve اذ اذ ganglia بطول عينية طريق الـ ventral root يدخل على الـ spinal nerve اذ اذ ganglia في white ramus و يدخل الـ ganglia من الـ gray ramus



الفي نظرة بس (كله اشرف فوق)

visceral nerve :-



3 • Pulmonary nerve : 2th, 3th, 4th Thoracic ganglia

4 • Cardiac nerve → + 3 cervical ganglia

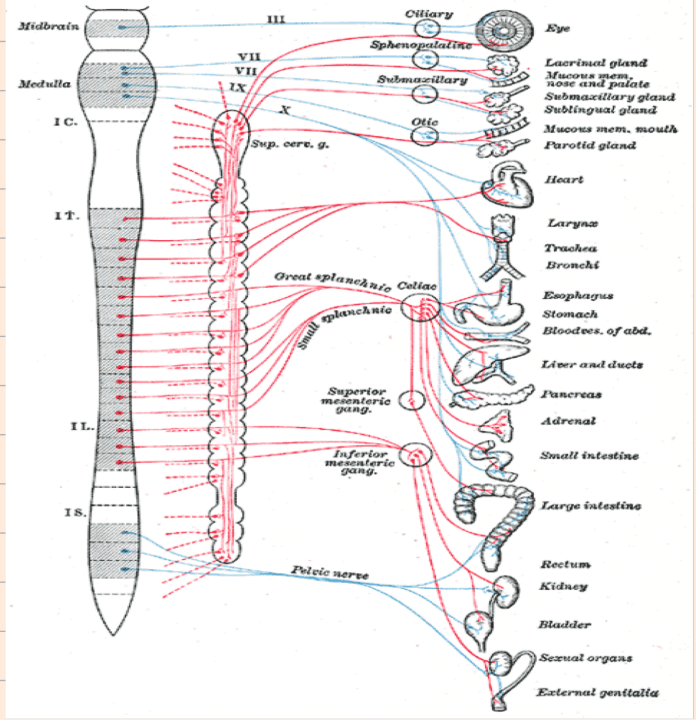
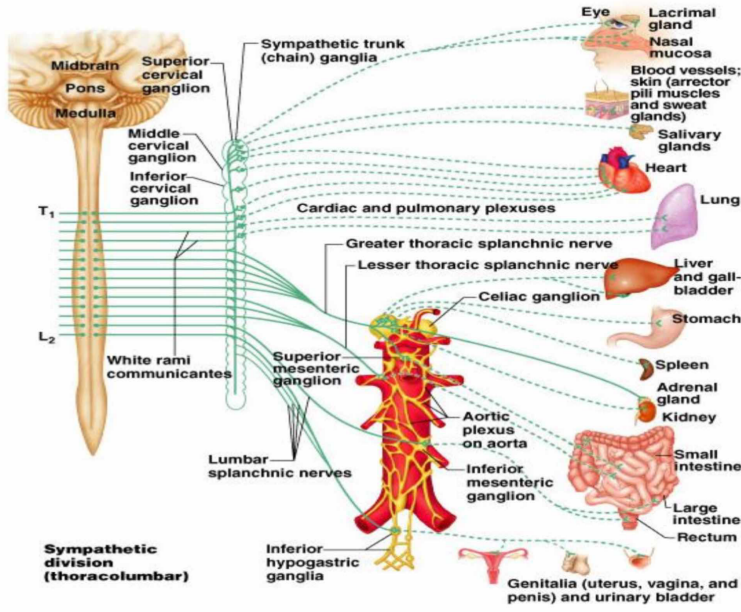
قرايب
1, 3, 5
وركن على 5

5 • splanchnic nerve :

greater	lesser	lowest	lumber splanchnic
<ul style="list-style-type: none"> from thoracic lateral horn 5th - 9th or 10th pierce the cross of the diaphragm End: coeliac ganglia (Post ganglia fibers) → } lung branches of coeliac artery 	<ul style="list-style-type: none"> 9th - 10th pierce the cross of the diaphragm End: Sup. mes. Ganglia → midgut 	<ul style="list-style-type: none"> اذا موجود برج الـ renal plexus 	<ul style="list-style-type: none"> L1, L2 ganglia End: inf. mes. ganglia → bladder + hindgut infeior hypogastric plexus

عينية طريق :-

Sympathetic chain



قَالَ كَذَلِكَ قَالَ رَبِّكَ هُوَ عَلِيَّ هَمِينٌ...

<https://youtu.be/fWDHDLfDJA>

بالتوفيق، ولا تنسونا من صالح دُعائكم