THE GASTROINTESTINAL TRACT

Large Intestine

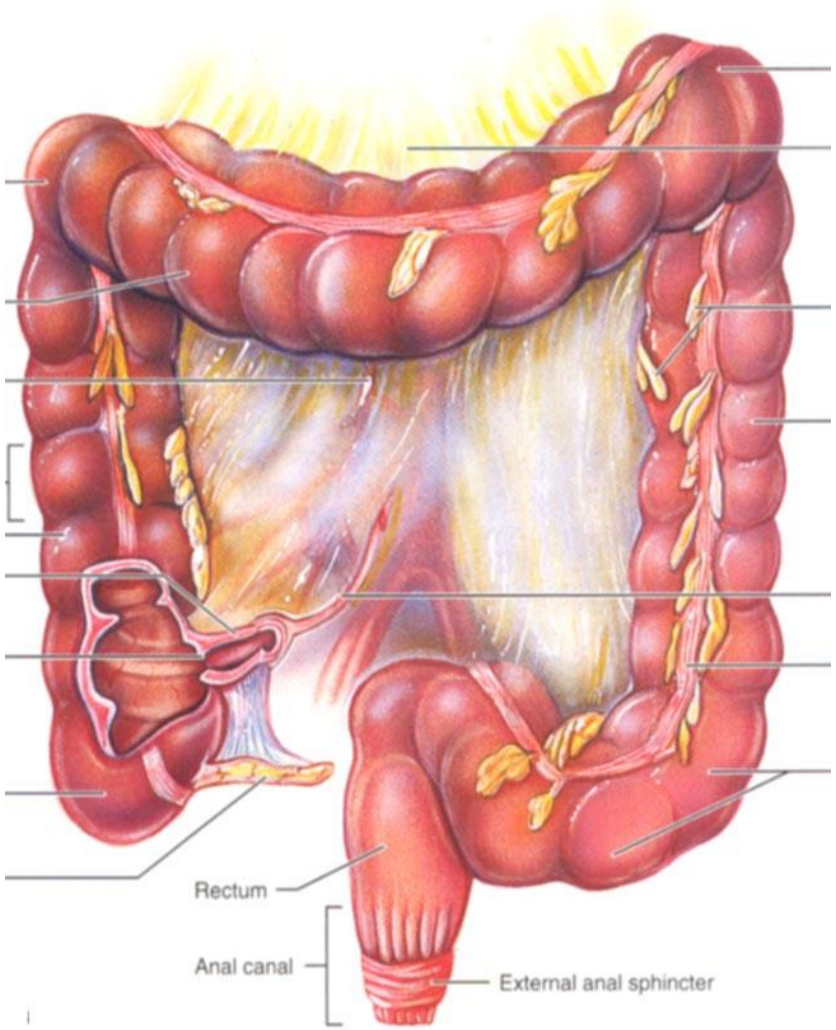

بارك اللحظة التي تعيشها فهي
أهم لحظات حياتك...

كل عام وانتم بالف خير

Happy new year for all student who are so nice and I wish successful for them

Large Intestine

1.5 m length



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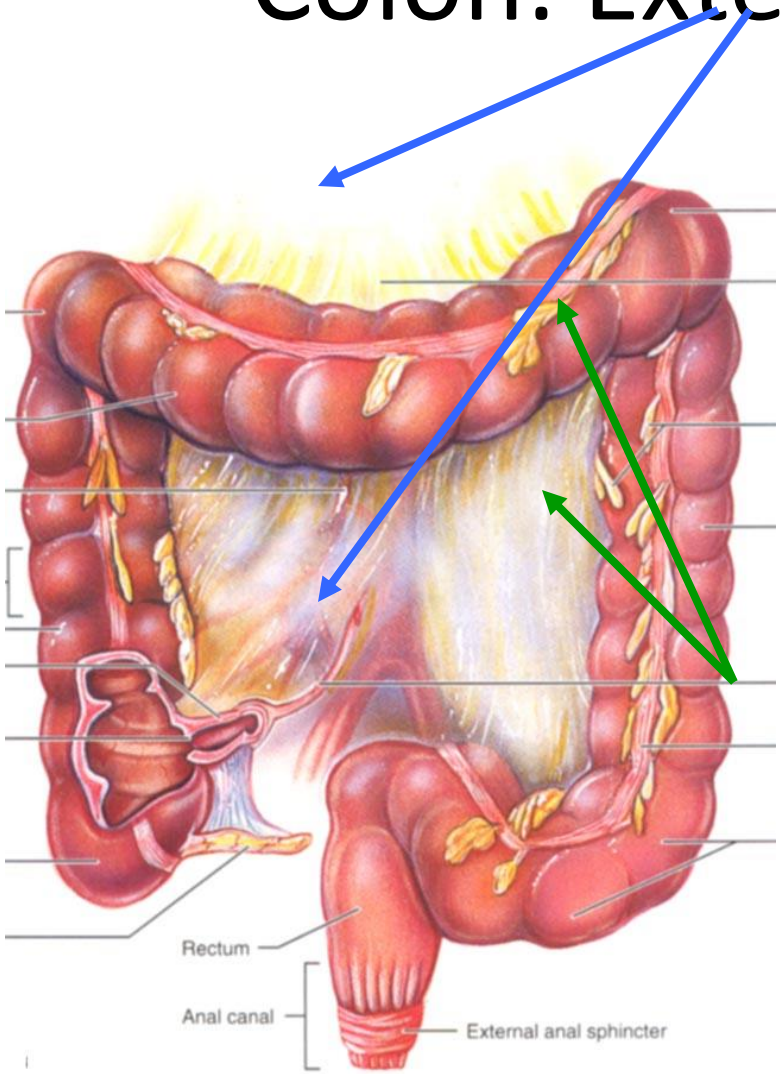
- **Caecum**
- **Vermiform appendix**
- **Colon**
  - **Ascending**
  - **Transverse**
  - **Descending**
  - **Sigmoid**
- **Rectum**
- **Anal Canal**

- **Functions:**
- **Absorb water and electrolytes**
- **Form, store and expel feces from body 2-3 time/day**
- **Internal Features:**
  - **Intestinal flora**
  - **No intestinal villi or modifications for absorption**
  - **Many goblet cells**
  - **Simple columnar epithelium except lower half of anal canal (skin).**
  - **Significant Lymph tissue in mucosa & submucosa**
  - **Muscularis mucosa has 2 layers**
- **Some parasympathetic innervation from Vagus**

Colon: External Features



- Taeniae coli
  - 3 longitudinal strips
  - thickening of longitudinal muscle
  - maintain muscle tone
  - create haustra
- Haustra
  - saclike divisions
- Epiploic Appendages
  - fat-filled pouches
  - significance unknown

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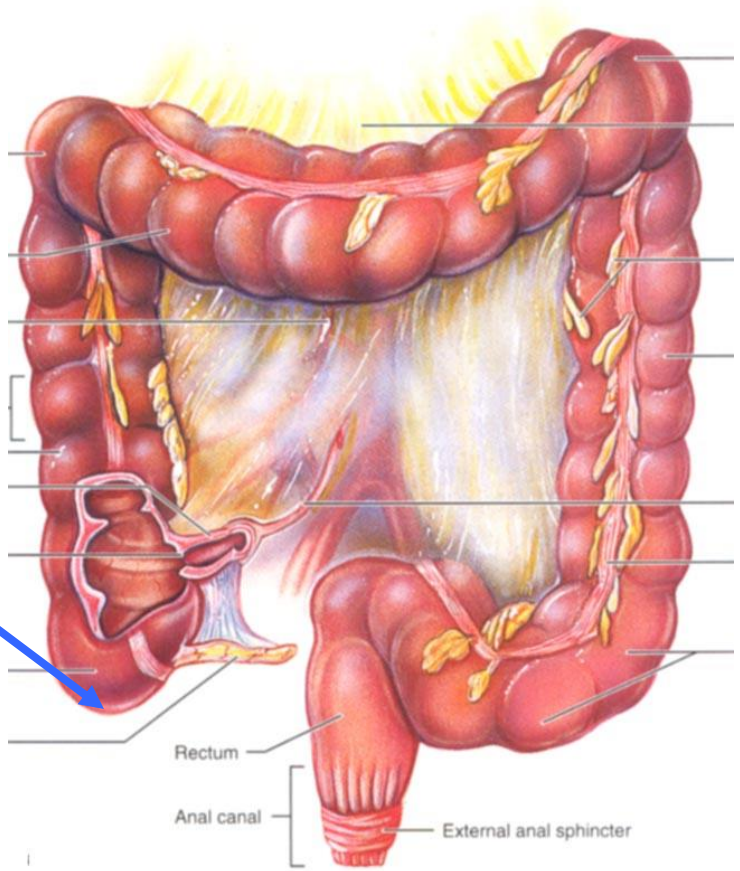
Colon: Function

- **Absorb H_2O and electrolytes**
- **Some digestion by bacteria**
- **Mass Peristaltic Movements (2-3x day)**
- **Moves through in 12-24 hours**
- **1.5 meters**

Caecum

- **Caecum: 5-7 cm**
  - –sac-like, blind pouch
  - –Lies on psoas, iliacus m., genitofemoral nerve, lateral cutaneous n.of thigh , and gonadal vessels,
  - –Overlap external iliac artery.



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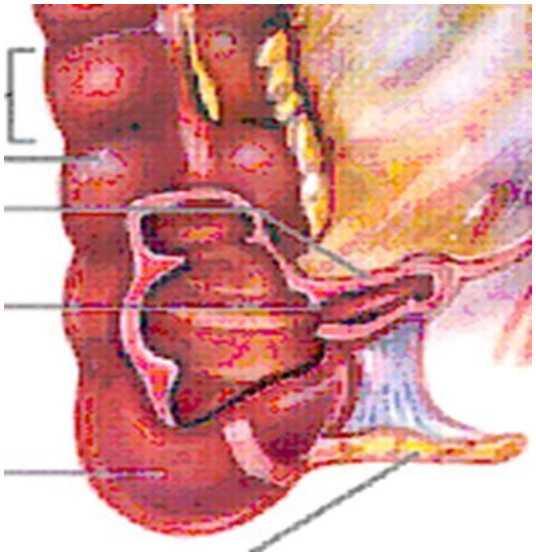
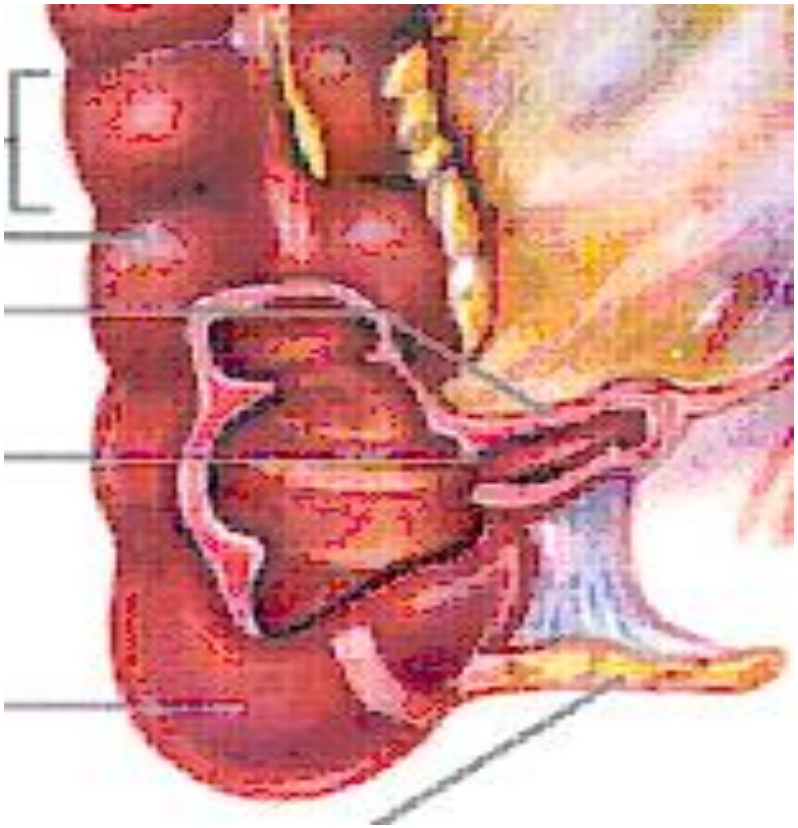
- Mobil relatively
- May lies in lesser pelvis
- Fixed by peritoneal covering medially and laterally, so made retrocaecal recess mostly the appendix lies in it

- Iliocaecal valve
  - raised edges of mucosa
  - prevents feces going back into ileum

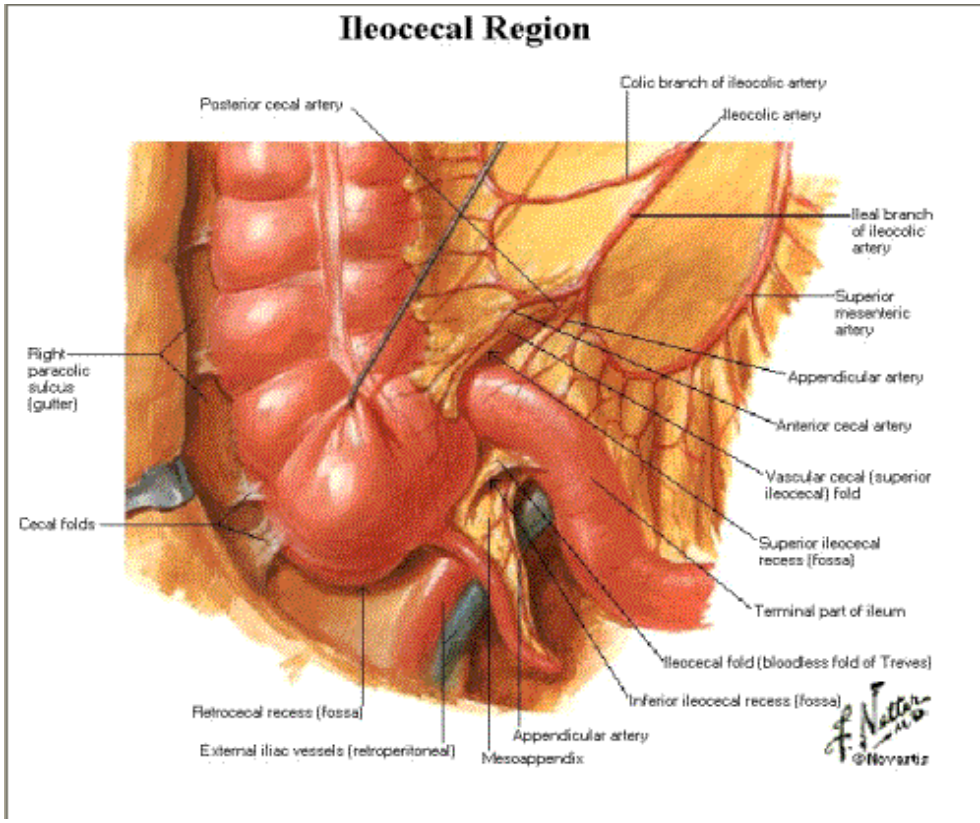


- **within the R.I.F**
- **Completely covered with peritoneum**
- **At the junction of the caecum and the As.Co. joined on the left side by the terminal part of the ileum.**
- **The appendix is attached to its posteromedial surface at end of the three taenia coli.**

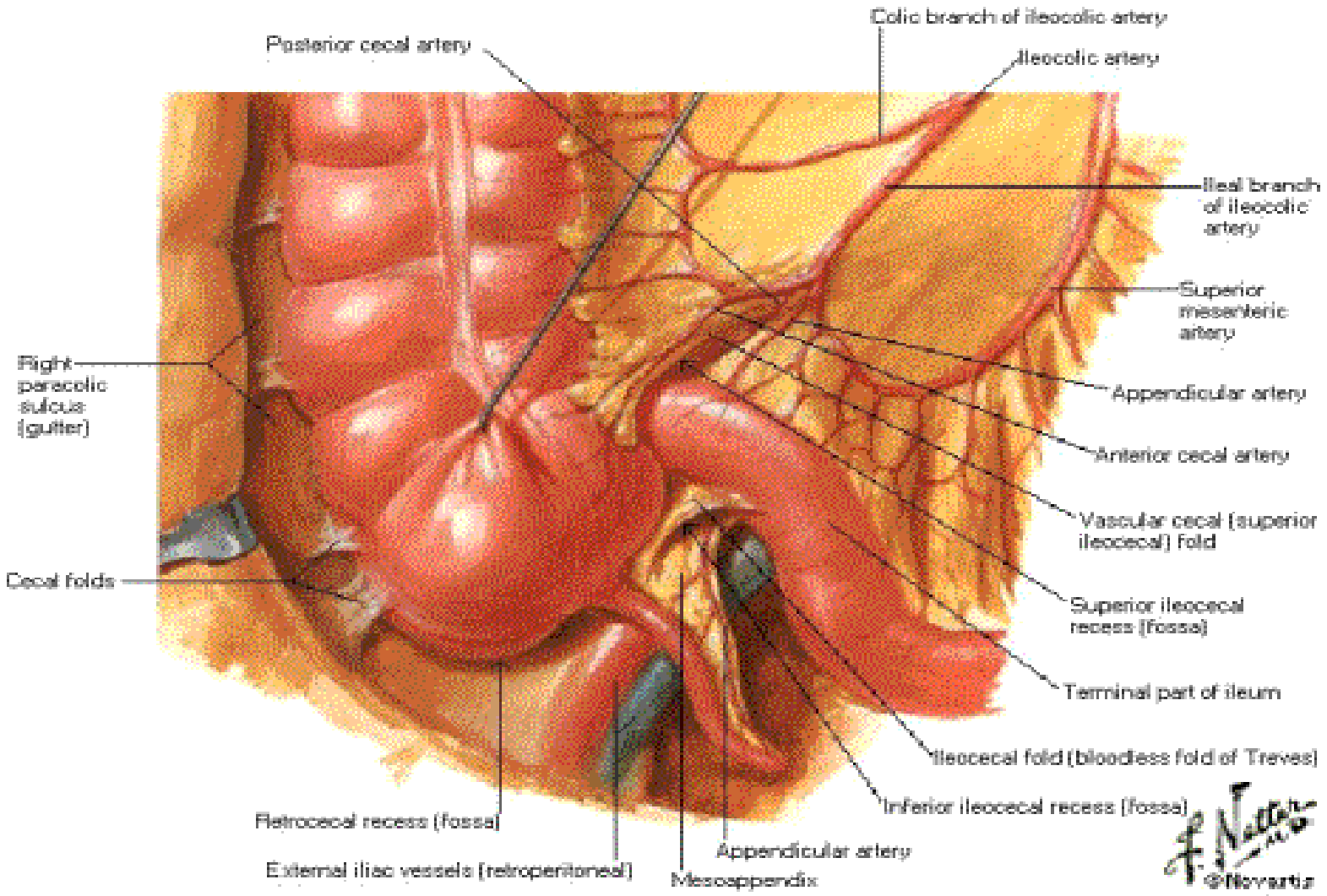
Caecum



- **Blood supply: anterior and posterior cecal aa. from ilial of iliocolic A. from superior mesenteric**
- **Veins**
- **Lymph Drainage**
- **Nerve Supply: autonomic from celiac plexus**

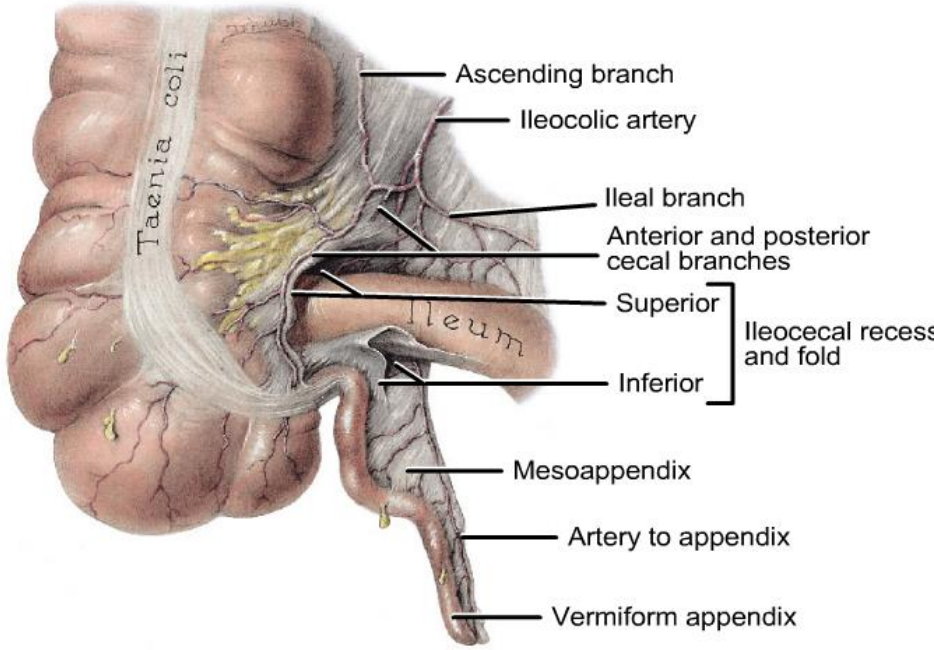


Ileocecal Region



Vermiform appendix

- blind tube opens into caecum
- masses of lymph tissue
- ITS BASE IS LOCATED AT THE UNION OF THE THREE TAENIAE.
- 5-15 cm long
- Suspended by mesentery to posterior terminal ileum

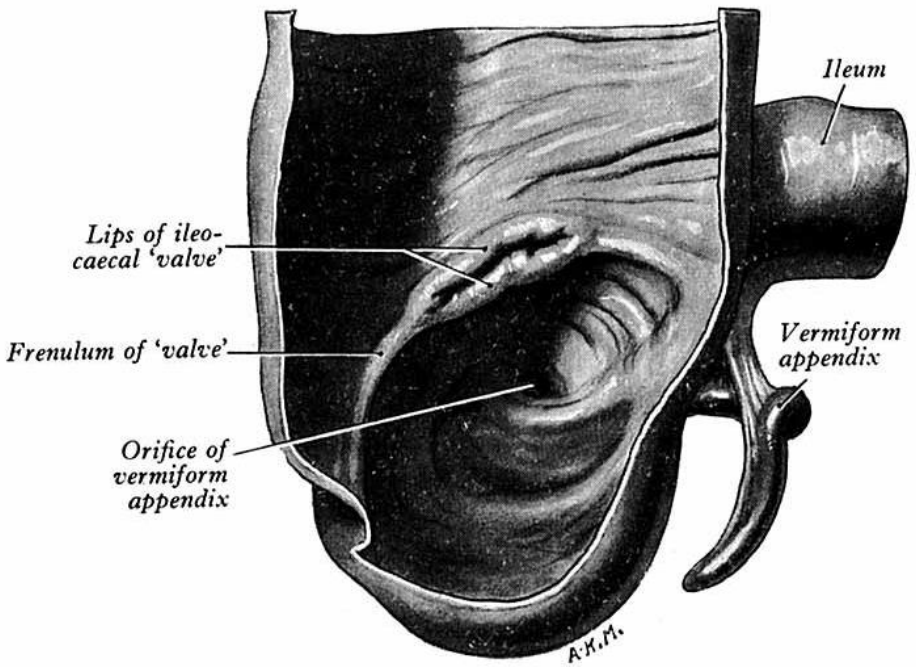


Attach to caecum 2-3 cm below iliocecal junction

Frequently retrocaecal position, but may be in lesser pelvis

Ilieocaecal valve

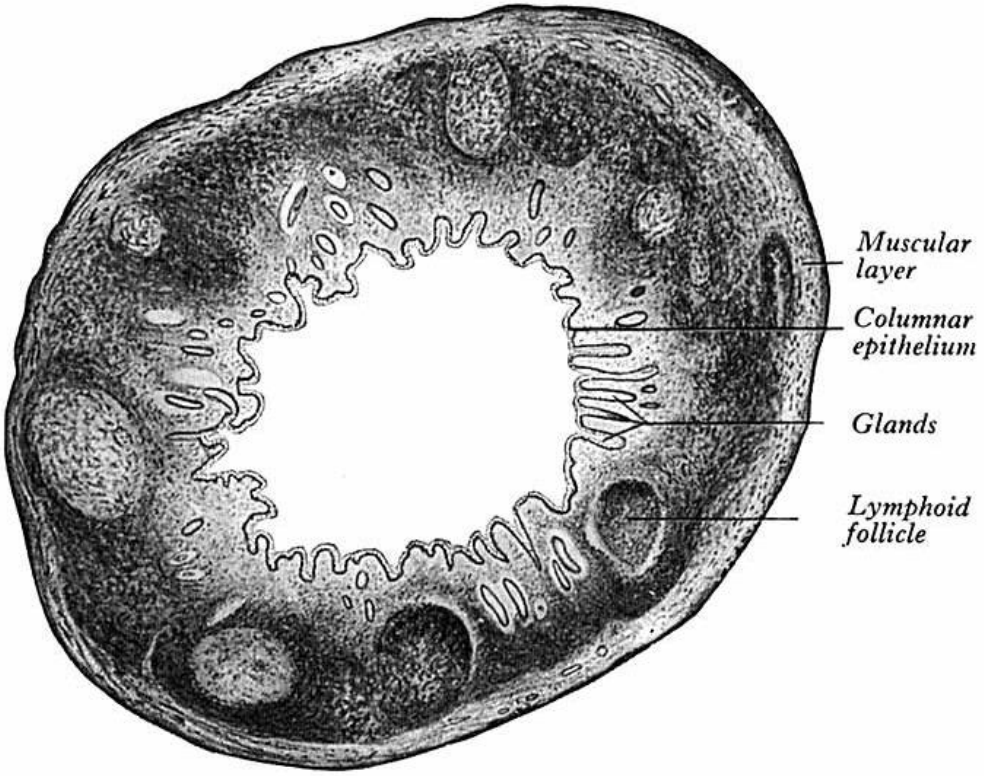
- Ilium enter (invaginated) obliquely through a horizontal slit in the caecal wall to form valve like two folds above and below the opening , medially and laterally meets each other to form frenulum



Reflex of content prevented by contraction of circular muscle of ileum and tightening of the frenulum

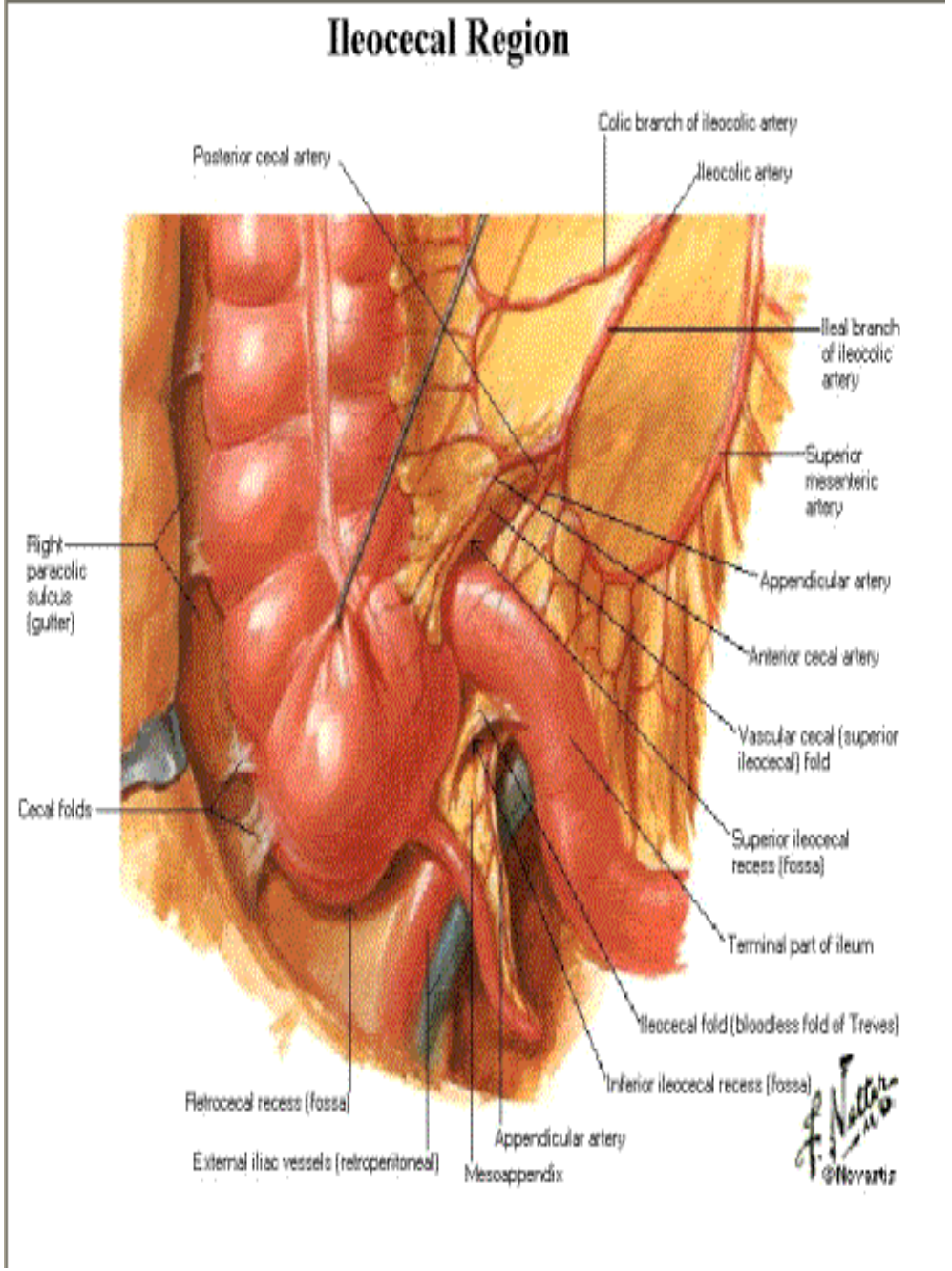
Structure

- same layers like that of small intestine at the base the outer longitudinal continues with the taenia coli of caecum and colon



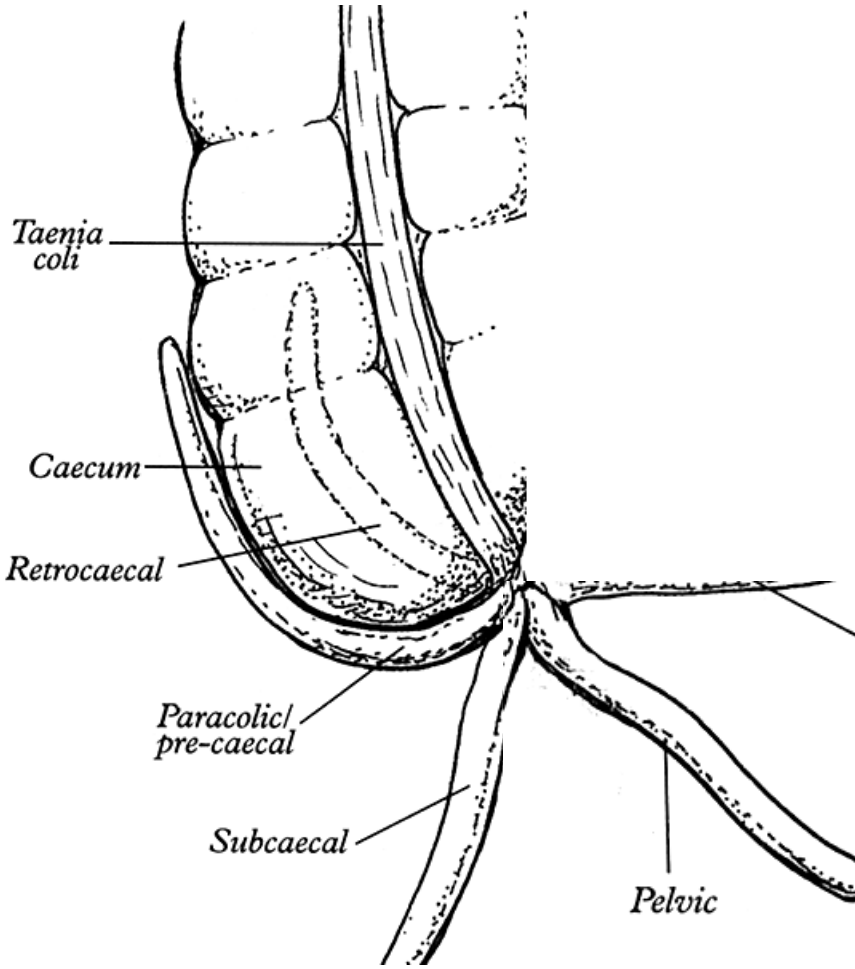
Mucous membrane consist mainly of lymphoid follicles partly separated by crypts of columnar epithelium with many goblet cells when swollen obstruct the lumen of the appendix

- **Blood supply: appendicular br. From ileac of ileocolic A. from superior mesenteric. Posterior to the terminal ileum**
- **Veins**
- **Lymph Drainage; ileal L.n.**
- **Nerve Supply: autonomic from superior mesenteric plexus**

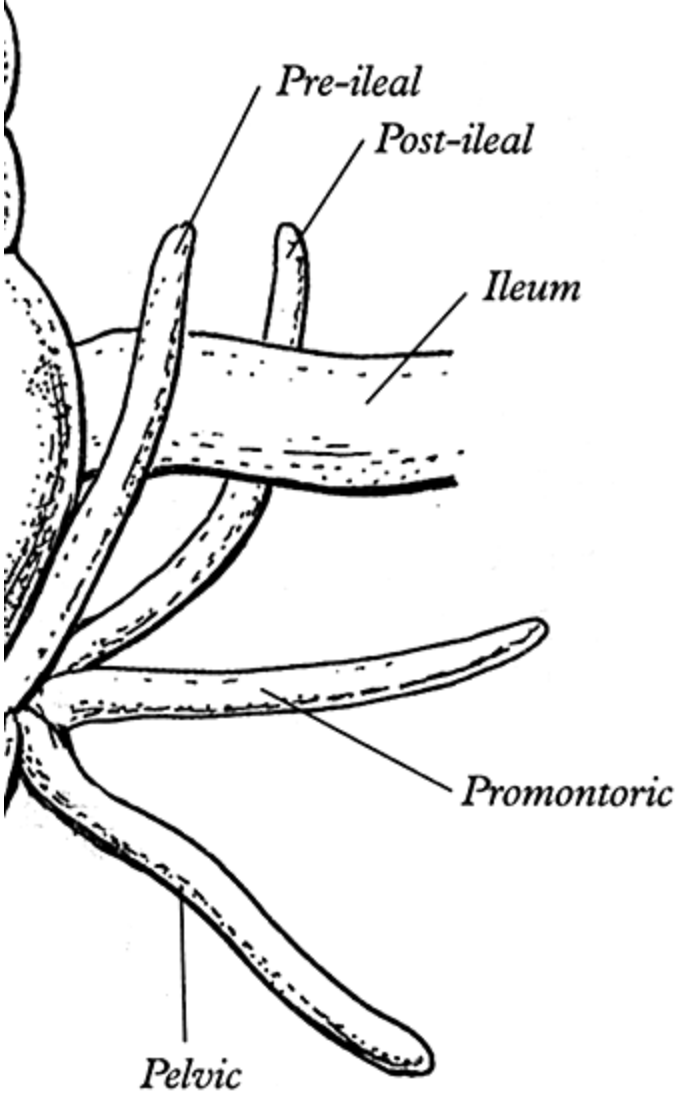


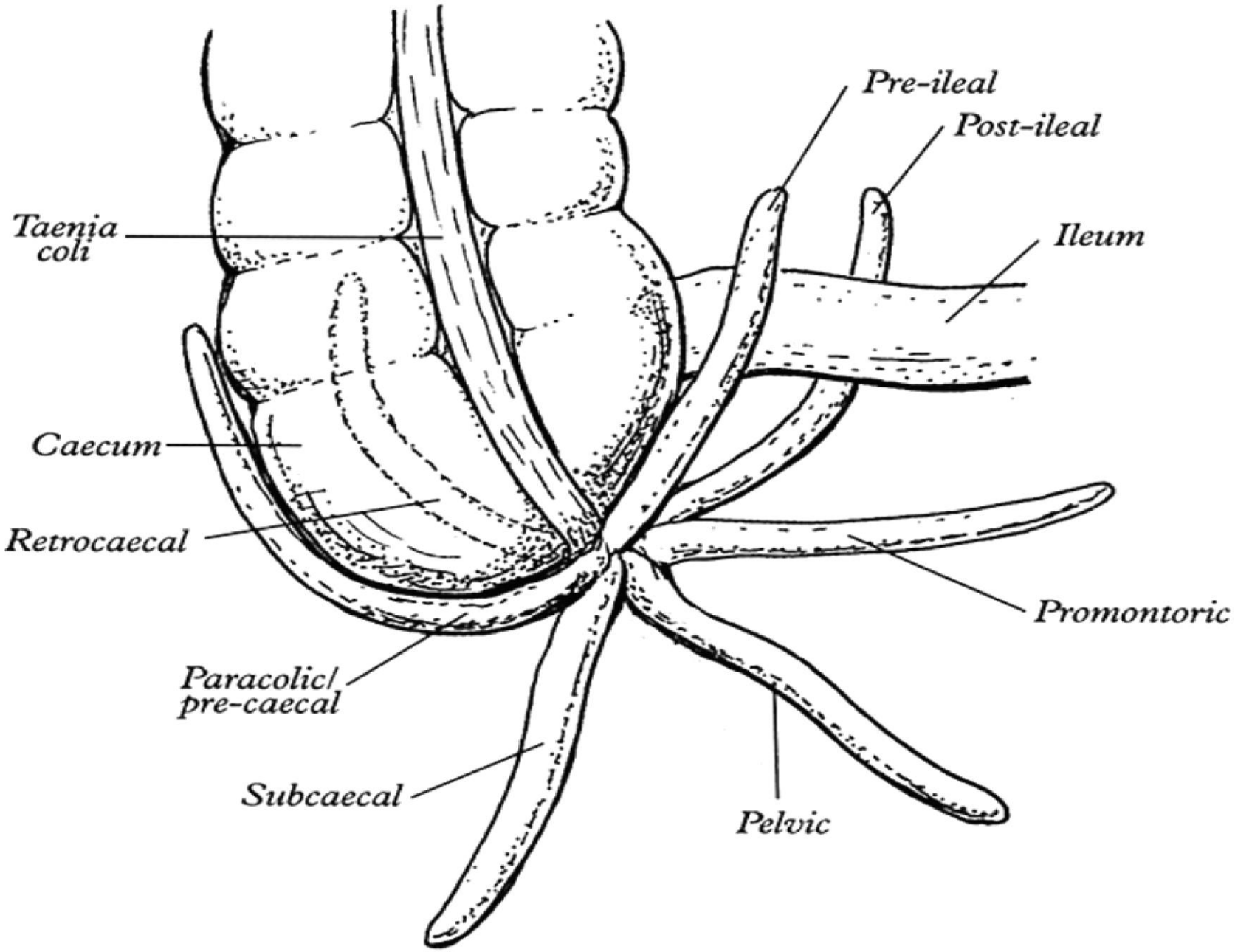
Locations of V.AP

- behind the caecum and lower ascending colon (**retrocaecal and retrocolic);**
- dependent over the pelvic brim (pelvic or Descending) in females in close relation to the right uterine tube and ovary;
- **lying below the caecum (subcaecal);**



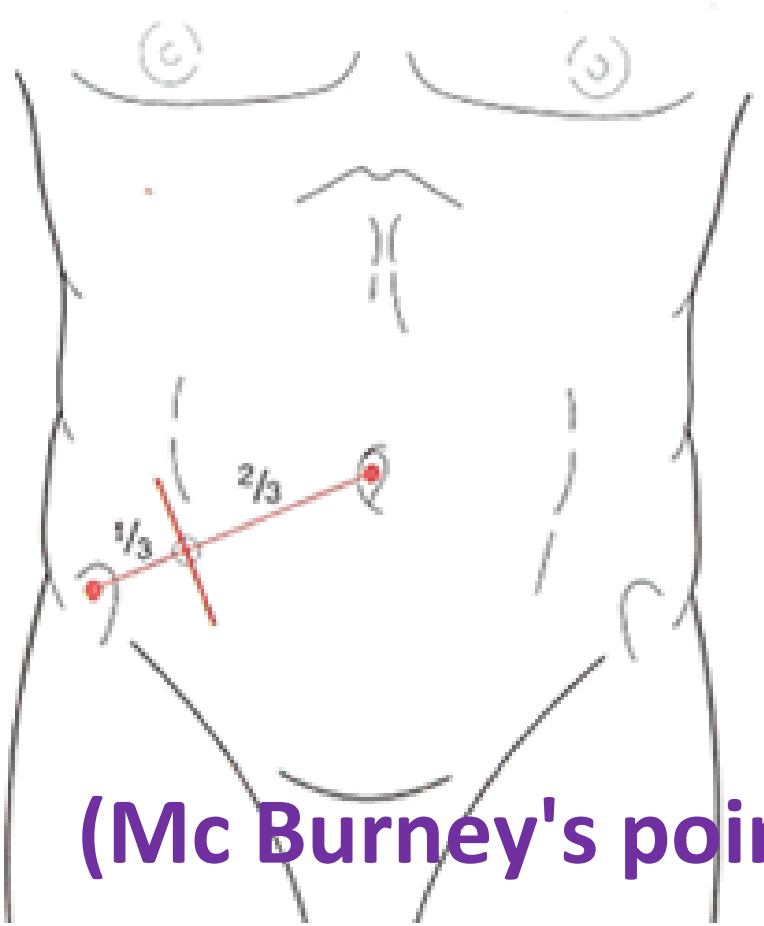
- **in front of the terminal ileum when it may be in contact with the anterior abdominal wall;**
- **behind the terminal ileum.**




Pre-ileal
Post-ileal
Taenia coli
Ileum
Caecum
Retrocaecal
Promontoric
Paracolic/ pre-caecal
Subcaecal
Pelvic

Surface anatomy

base is the junction of the lateral 2 and middle thirds of the line joining the right anterior superior iliac spine to the umbilicus (Mc Burney's point);

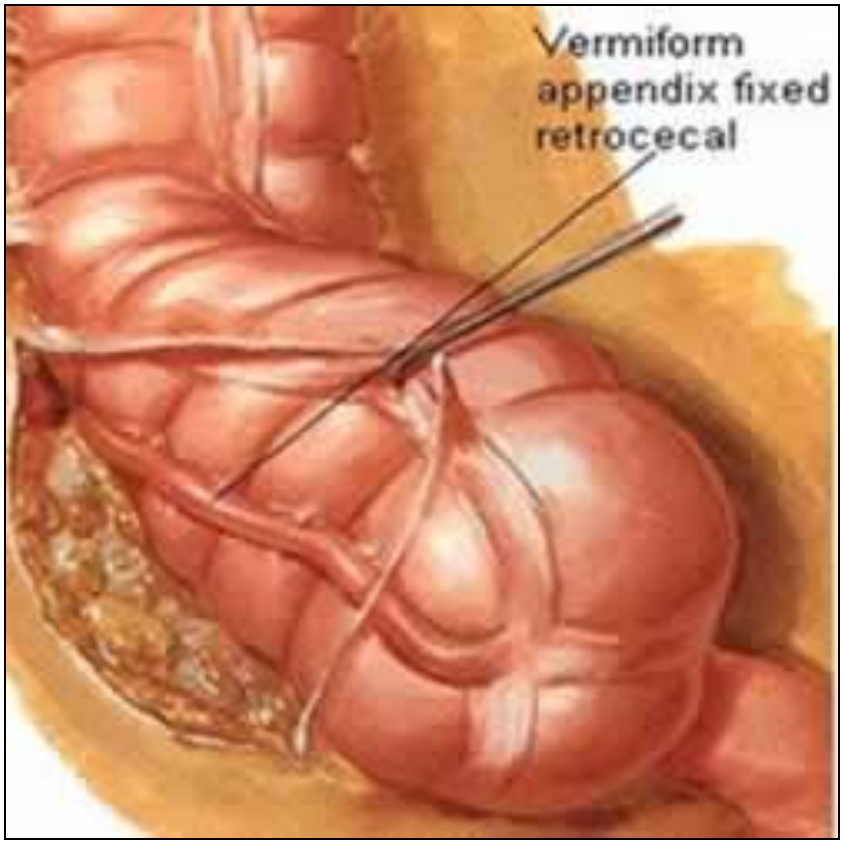


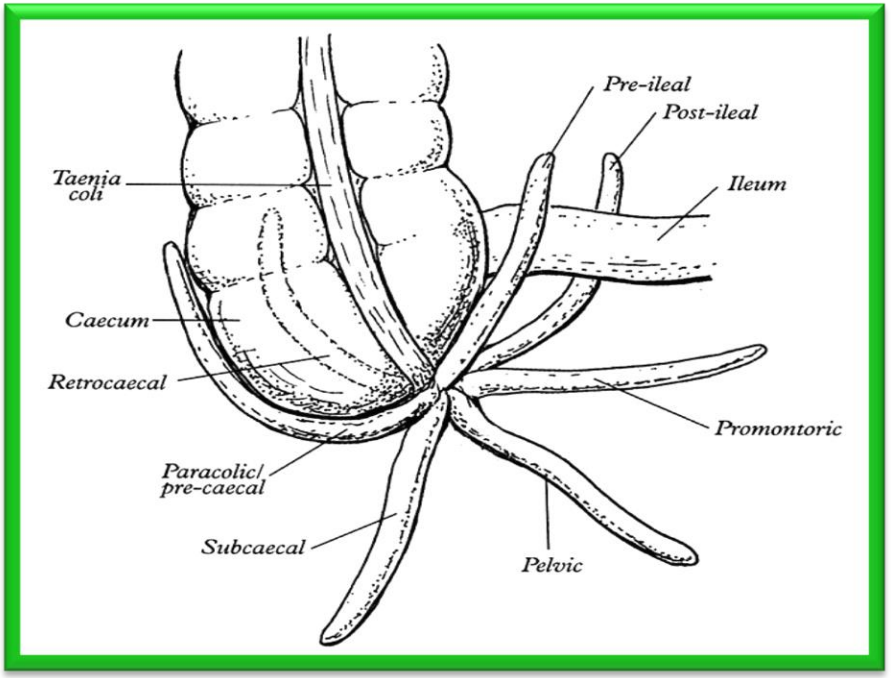
(Mc Burney's point);

but this is merely a useful surgical approximation, with considerable variation.

Variations in the position of the appendix

RETROCECAL APPENDIX





THE MESOAPPENDIX

- **Derived from the posterior side of the terminal ileum**
- **Attach to the caecum and to the ileum and proximal appendix .**
- **IT CONTAINS THE APPENDICEAL VESSELS.**

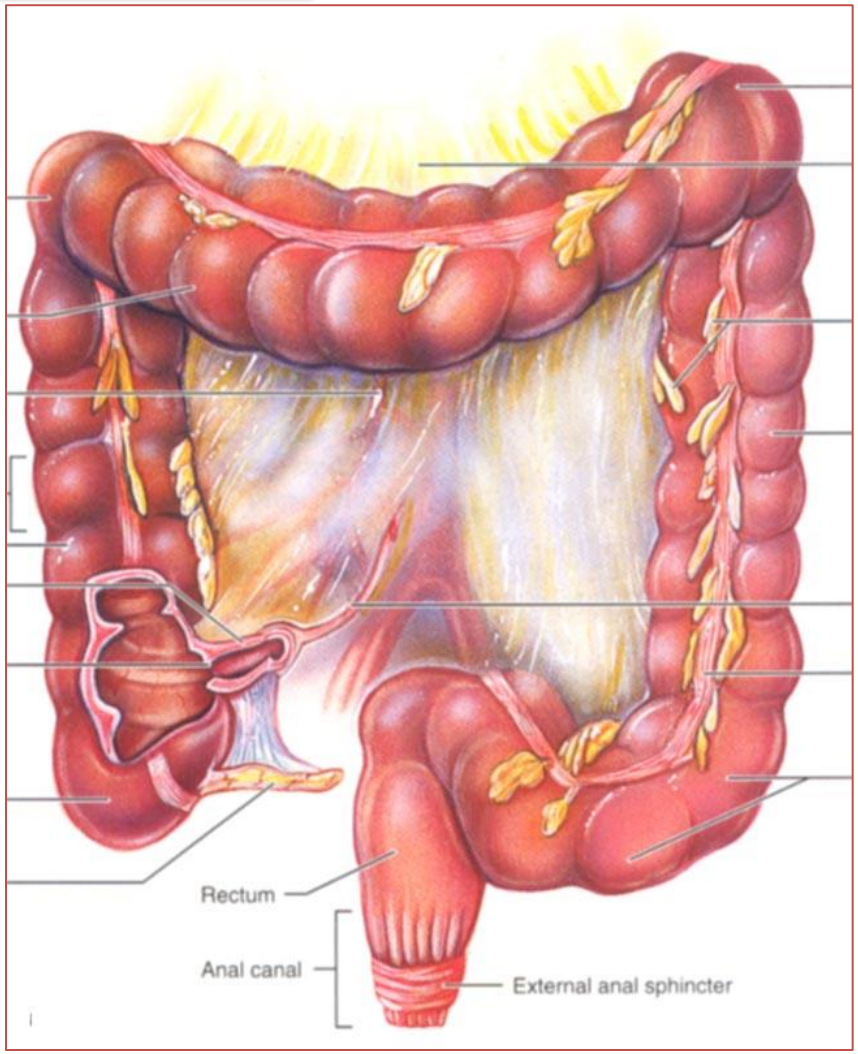
LYMPHATIC DRAINAGE

- APPENDICEAL L.N.→ILEOCOLIC L.N.

→SUP. MESENTERIC L.N

→CYSTERNA CHYLI.

Colon



- Ascending colon
- - 12-20cm
- Begins in the right iliac fossa ------Hepatic flexure (= right colic flexure)
- Transverse colon:
- 40-50cm
  - Across cavity
- Descending colon
  - Left side
  - Splenic flexure (= left colic flexure)
- Sigmoid colon: 15-80cm
  - Enters pelvis
  - “S” shape

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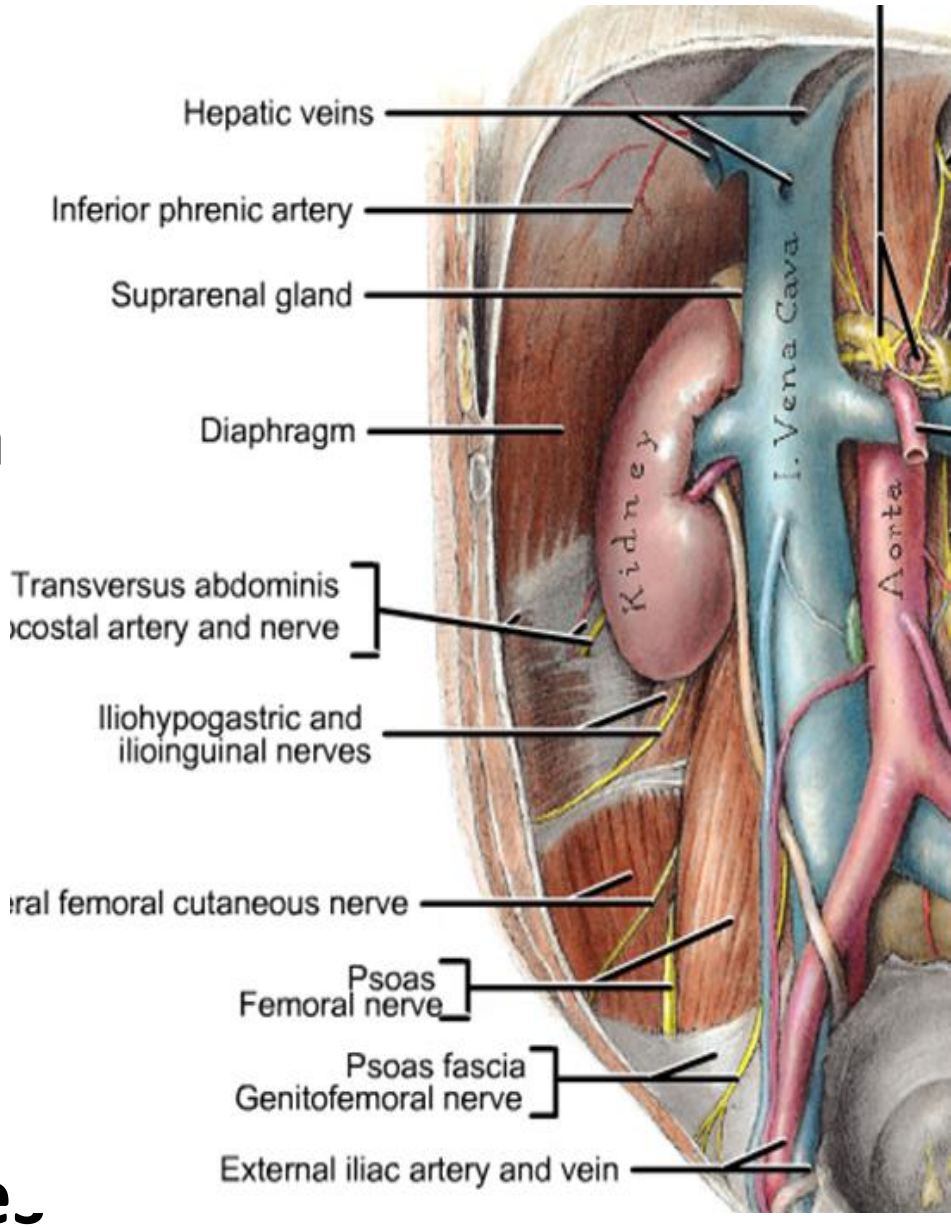
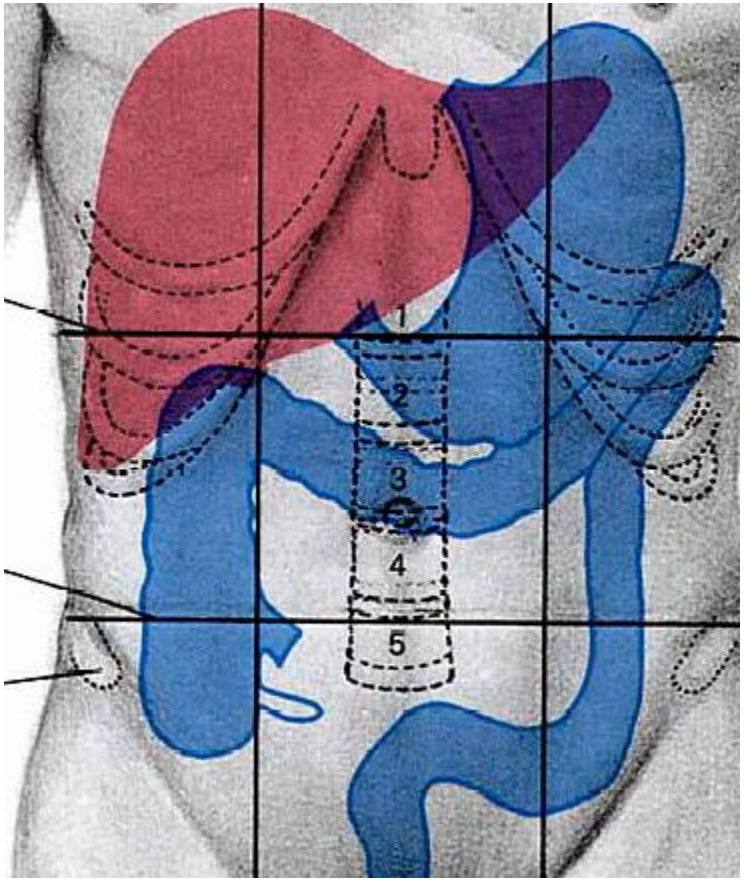
Ascending Colon

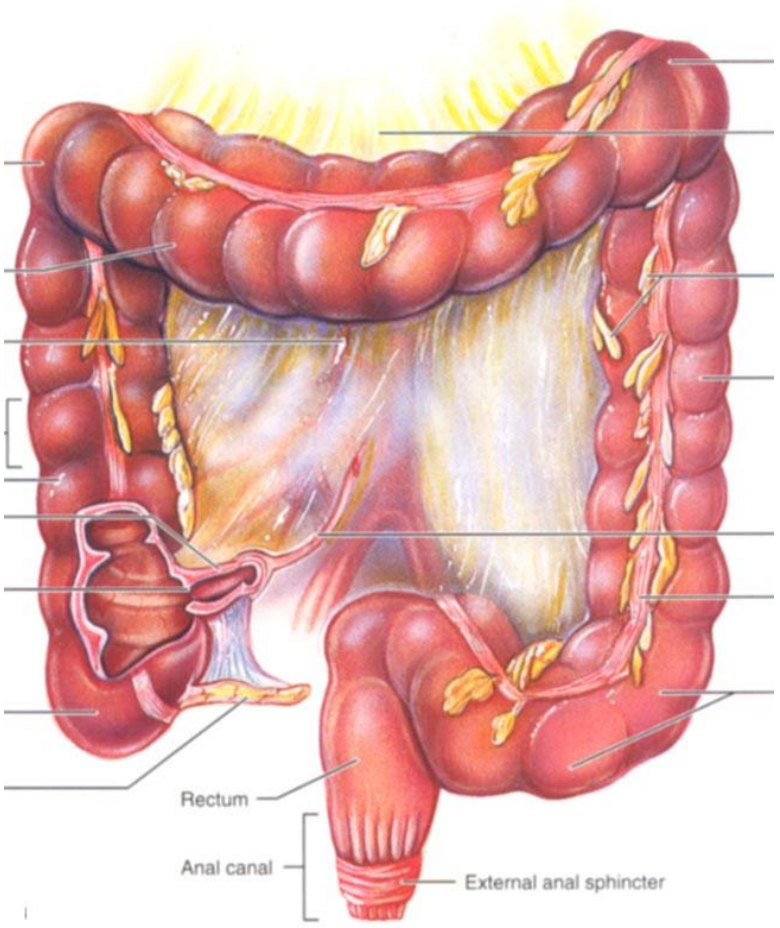
- **Approximately 13 cm in length**
- **Begins in the R iliac fossa**
- **ascend anterior to the iliacus, iliac crest, quadratus lumborum, in the paravertebral gutter,**
- **Crosses : lateral cutaneous, ilioinguinal , and iliohypogastric nerves**



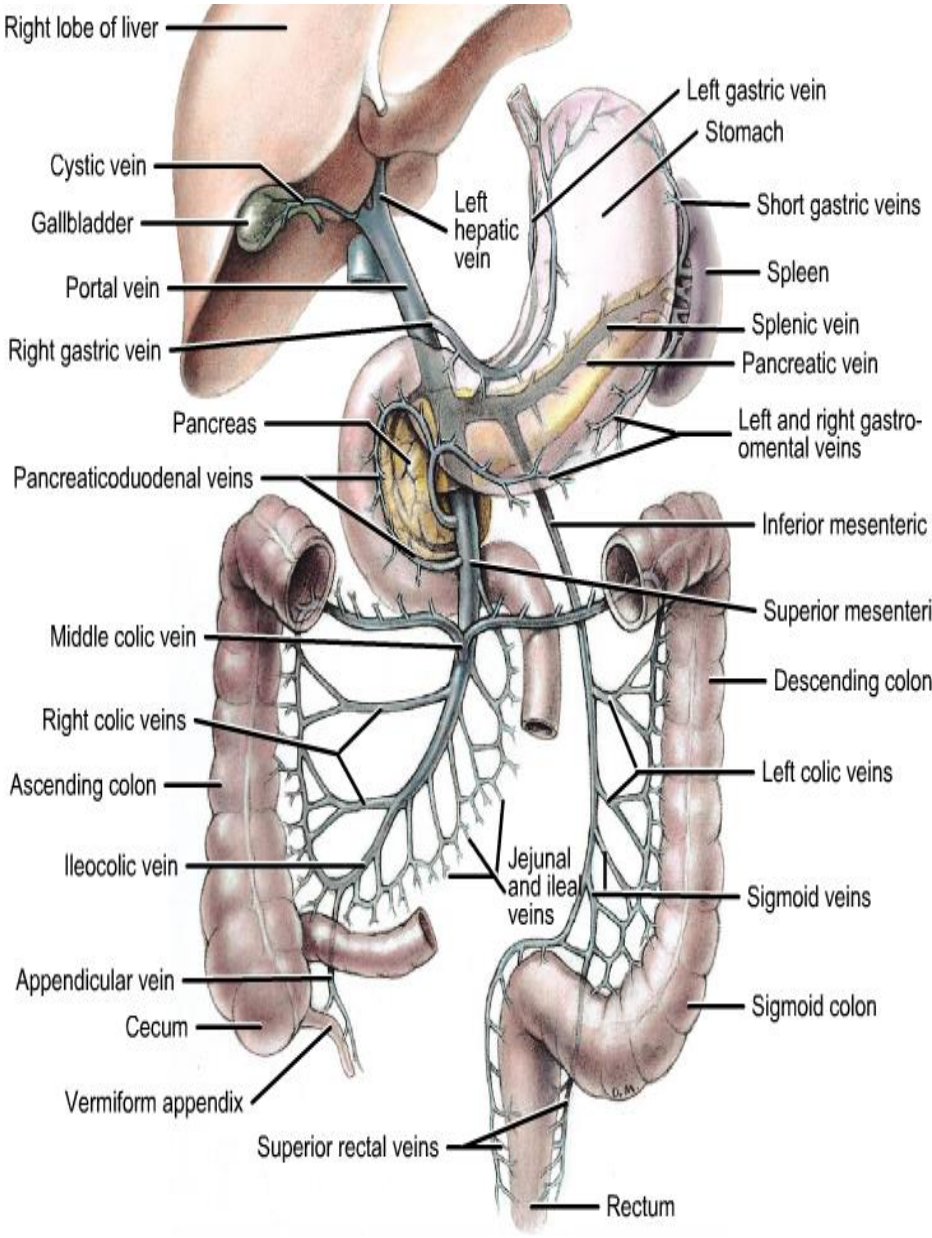
- Extend upward fro cecum to the inferior surface to the Rt.lobe of the liver.
- Here, it turns to the left (forming the Rt. Colic flexure) Continuous with the Tr. colon

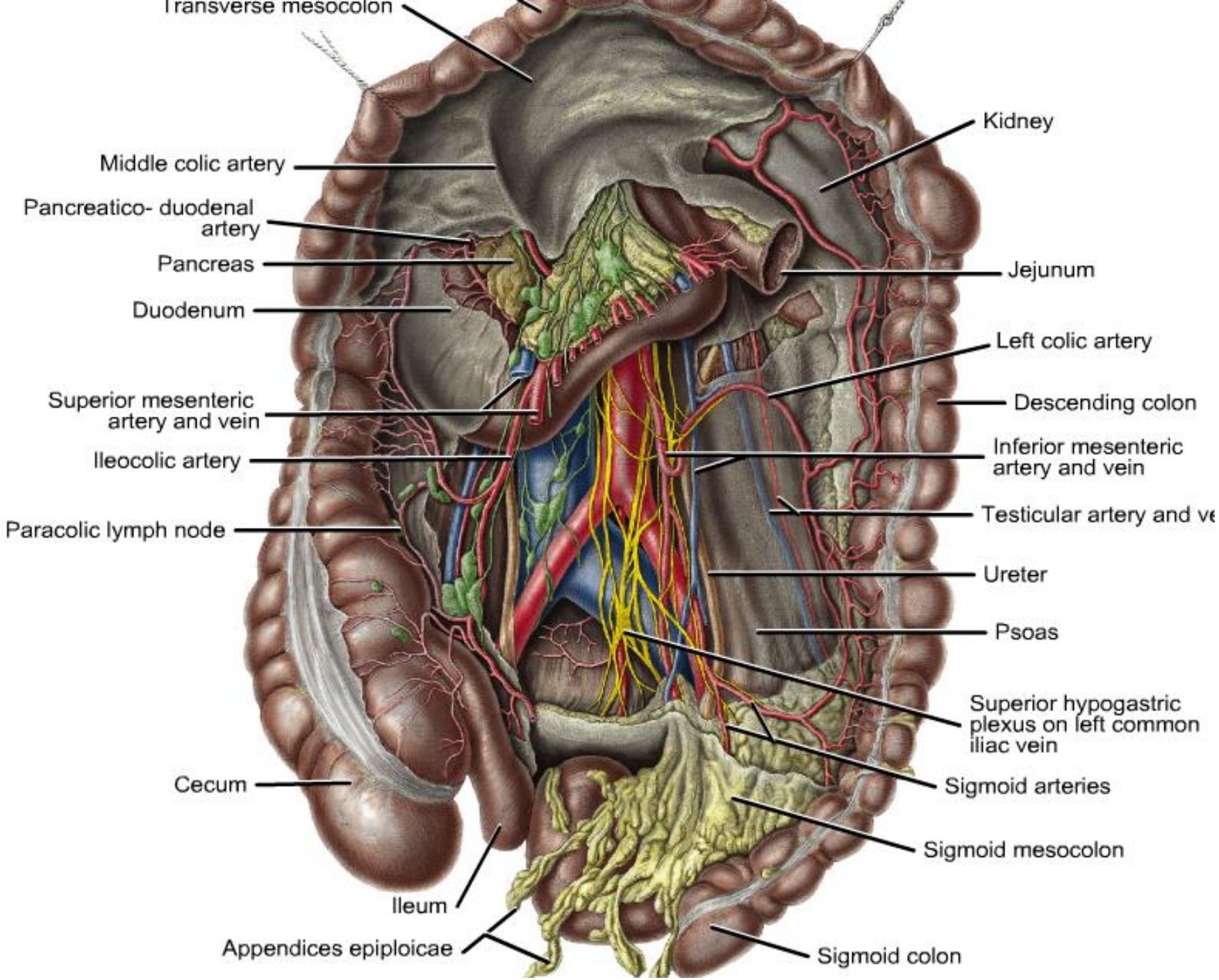


- Peritoneum covers the infront and the sides of the Asc.colon, binding it to the posterior abdominal wall
- Anterior to it are ant. Abd. Wall, small intestine, and greater omentum.



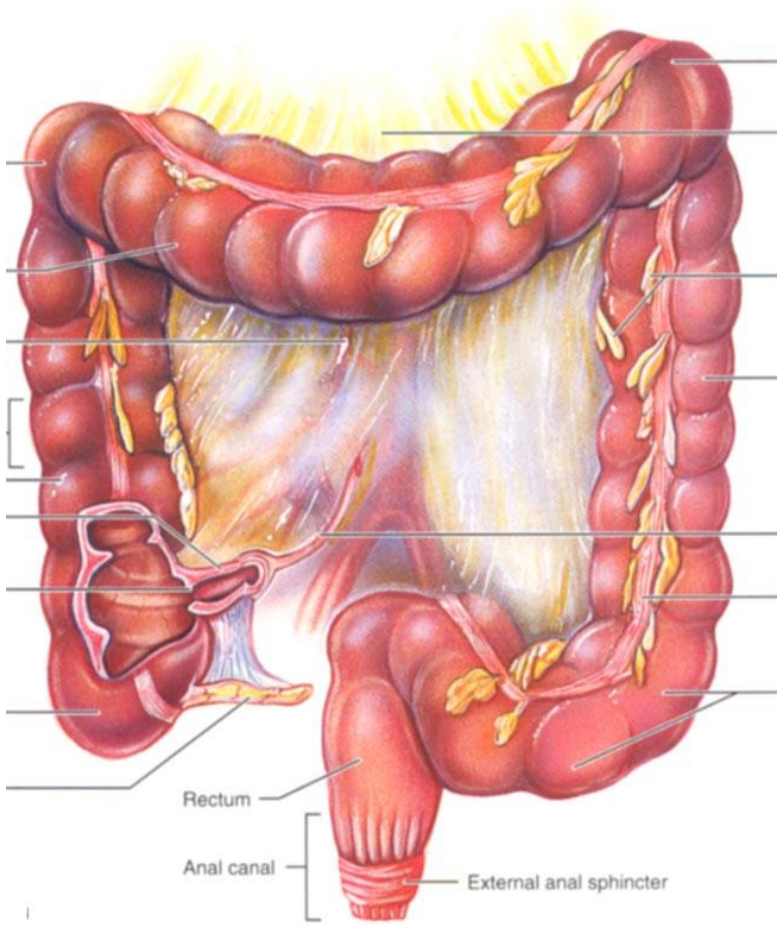
- Blood Supply ileocolic and Rt. colic artery
- Veins drain into the S.M.V
- Lymph.Drainage into colic and S.M.N
- N.supply sympathatic and Vagus.N




Transverse mesocolon
Kidney
Middle colic artery
Pancreatico- duodenal artery
Pancreas
Jejunum
Duodenum
Left colic artery
Superior mesenteric artery and vein
Descending colon
Inferior mesenteric artery and vein
Ileocolic artery
Testicular artery and ve
Paracolic lymph node
Ureter
Psoas
Superior hypogastric plexus on left common iliac vein
Cecum
Sigmoid arteries
Sigmoid mesocolon
Ileum
Appendices epiploicae
Sigmoid colon

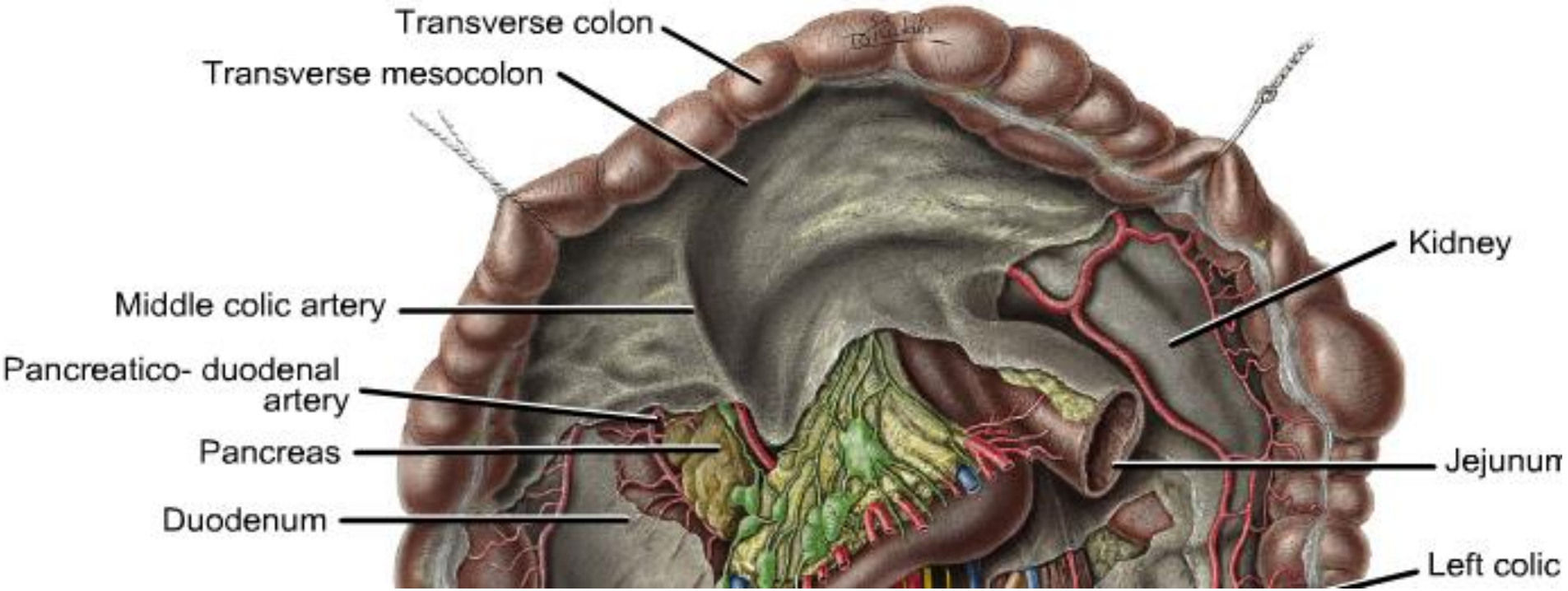
Transverse Colon

- **Approximately 40-50 cm in length**
- **Occupying the umbilical and the hypogastric region**
- **It begins at the Rt.colic.flexure to Lt.colic flexure**

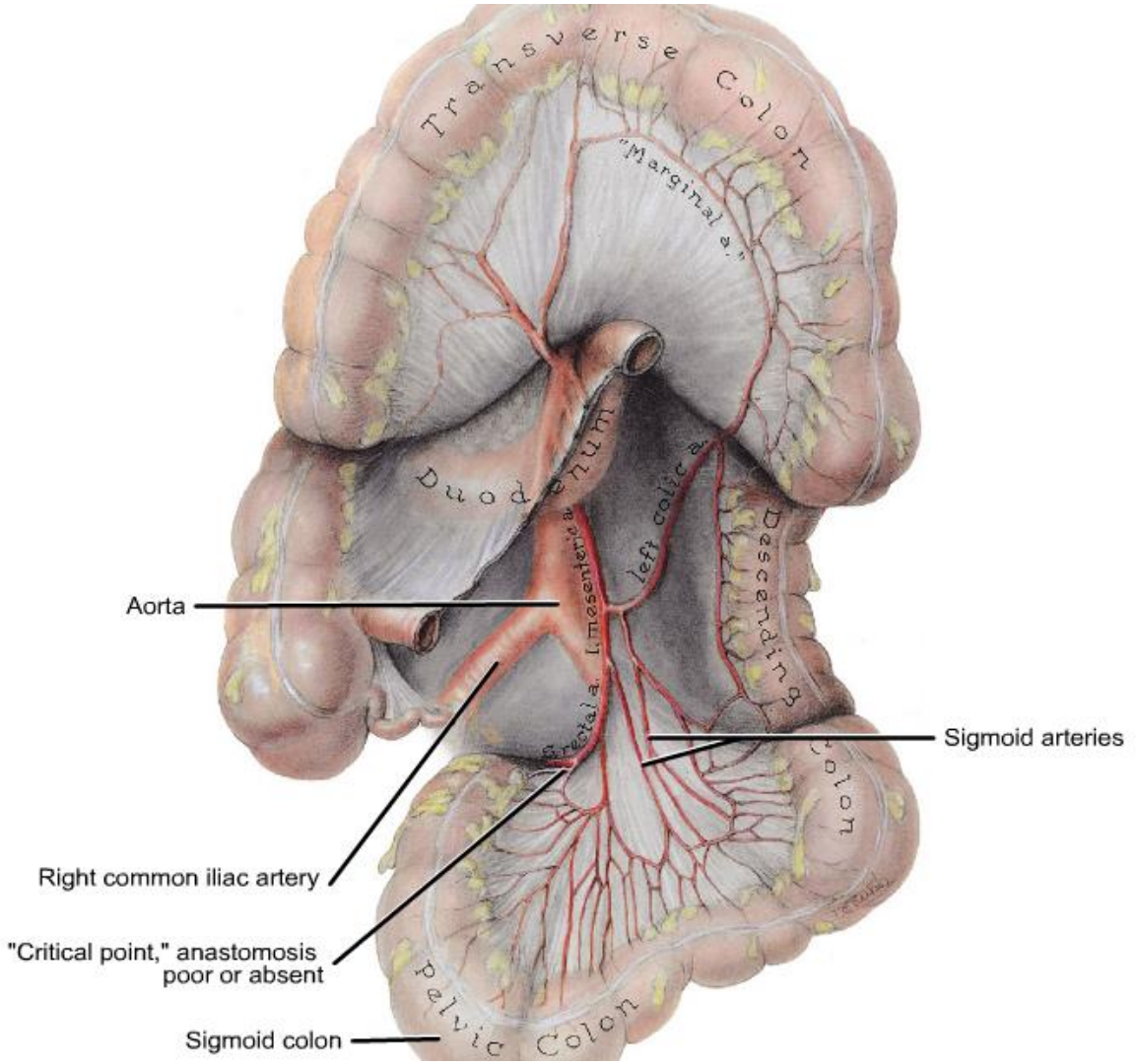


- **Transversus mesocolon:**
- **Attach to:-**

  2nd duodenum , head and lower margin of pancreas, anterior surface of left kidney.
- Contain middle colic vessels, br. Of left and right colic vessels, nerve and lymphatic
- Left colic flexure attach to diaphragm by phrenico-colic ligament.

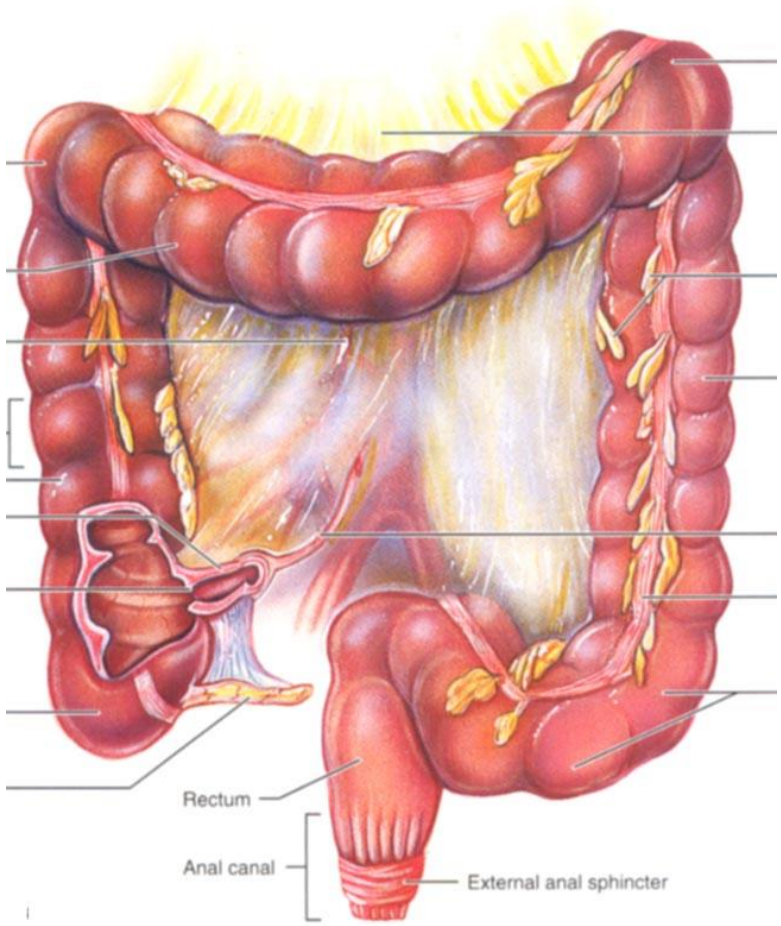


- **Blood Supply**
- **Prximal two thirds by middle colic a br. Su.M.A**
- **Distal one third by left colic : ascending br of I.M.A**



Descending Colon

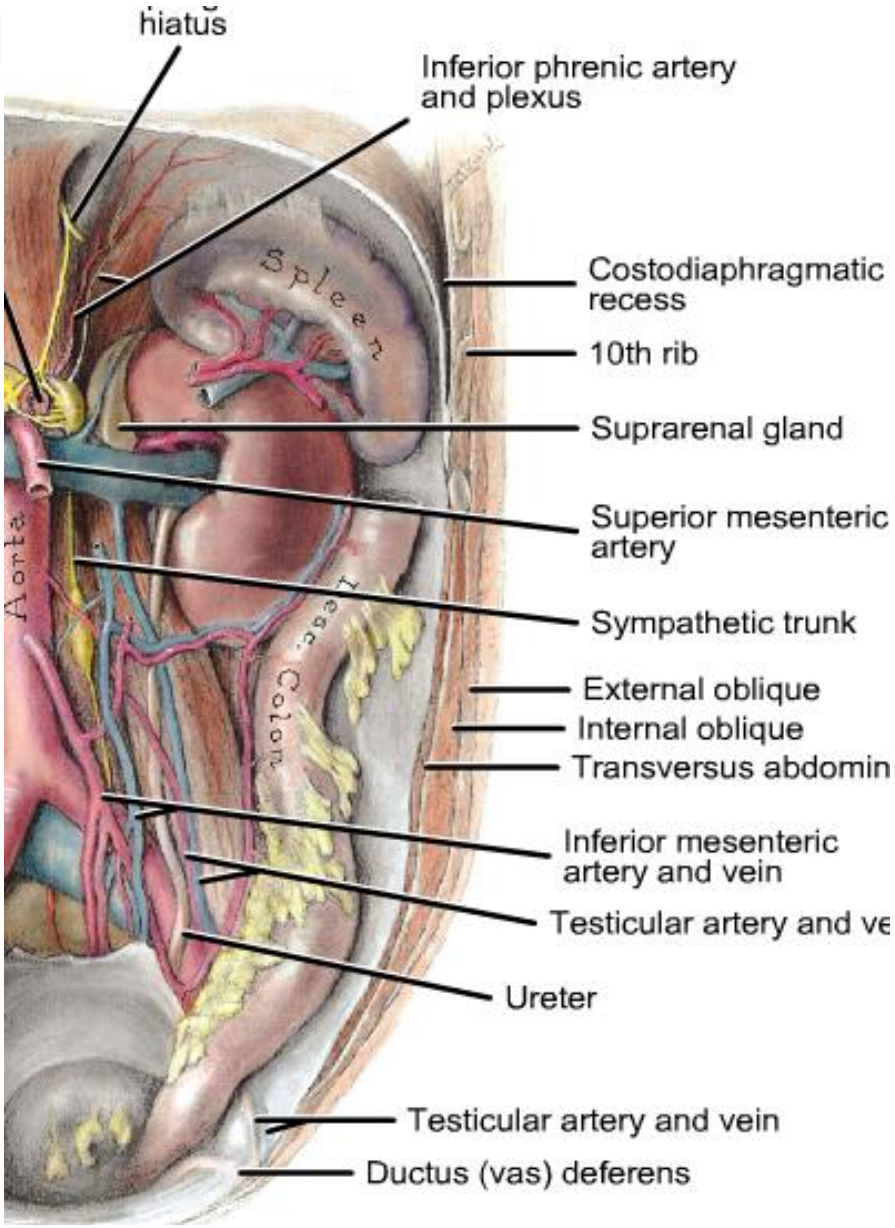
- Approimatly 25cm in length
- Extend downward from the L.C.F to the pelvic brim
- Peritoneum covers its front and the sides ,binding it to the posterior abdominal wall



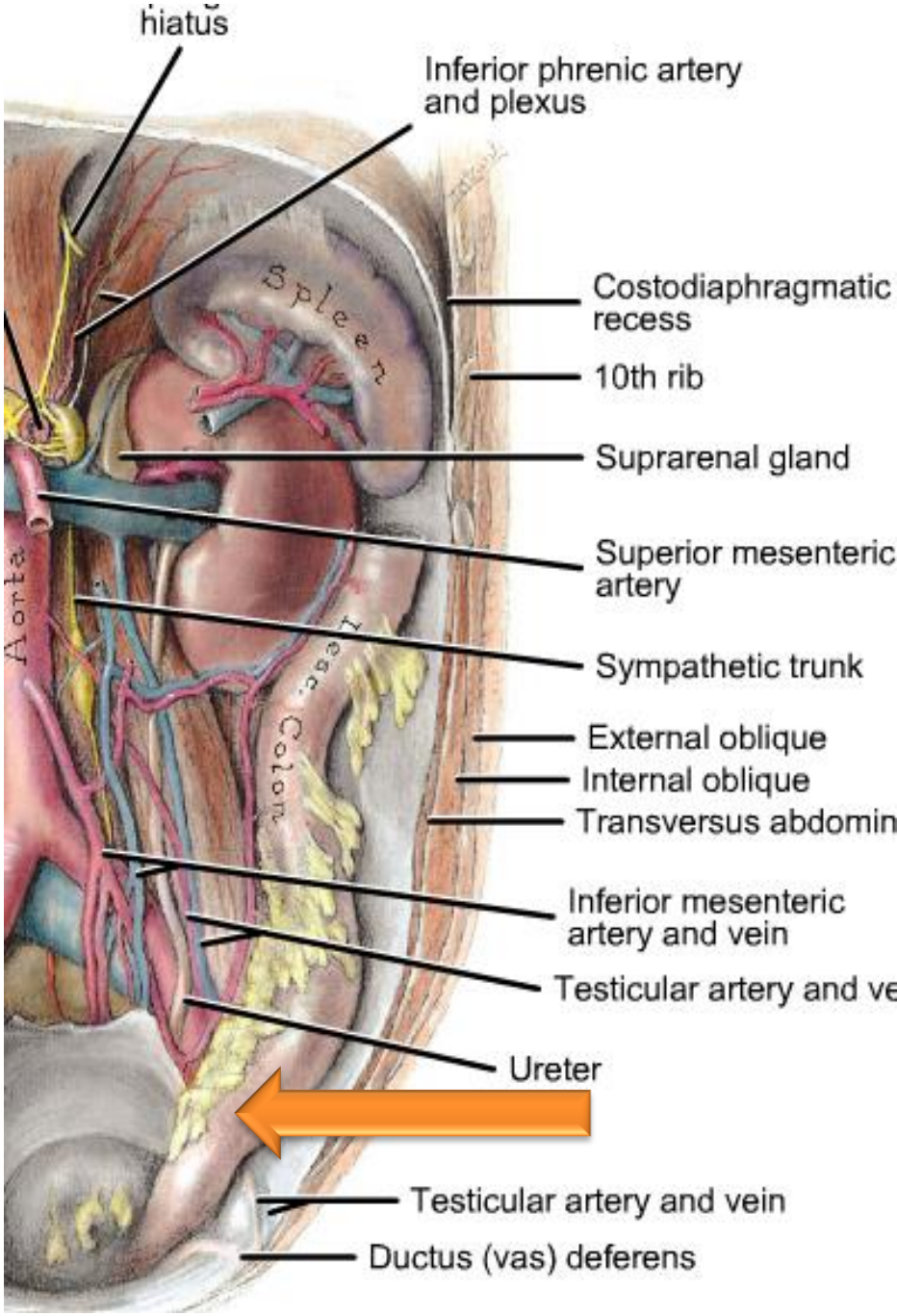
- Descend in **front to and medial to the diaphragm,**

Lateral surface of :- left kidney, transversus abdominis , quadratus lumborum, iliac crest,

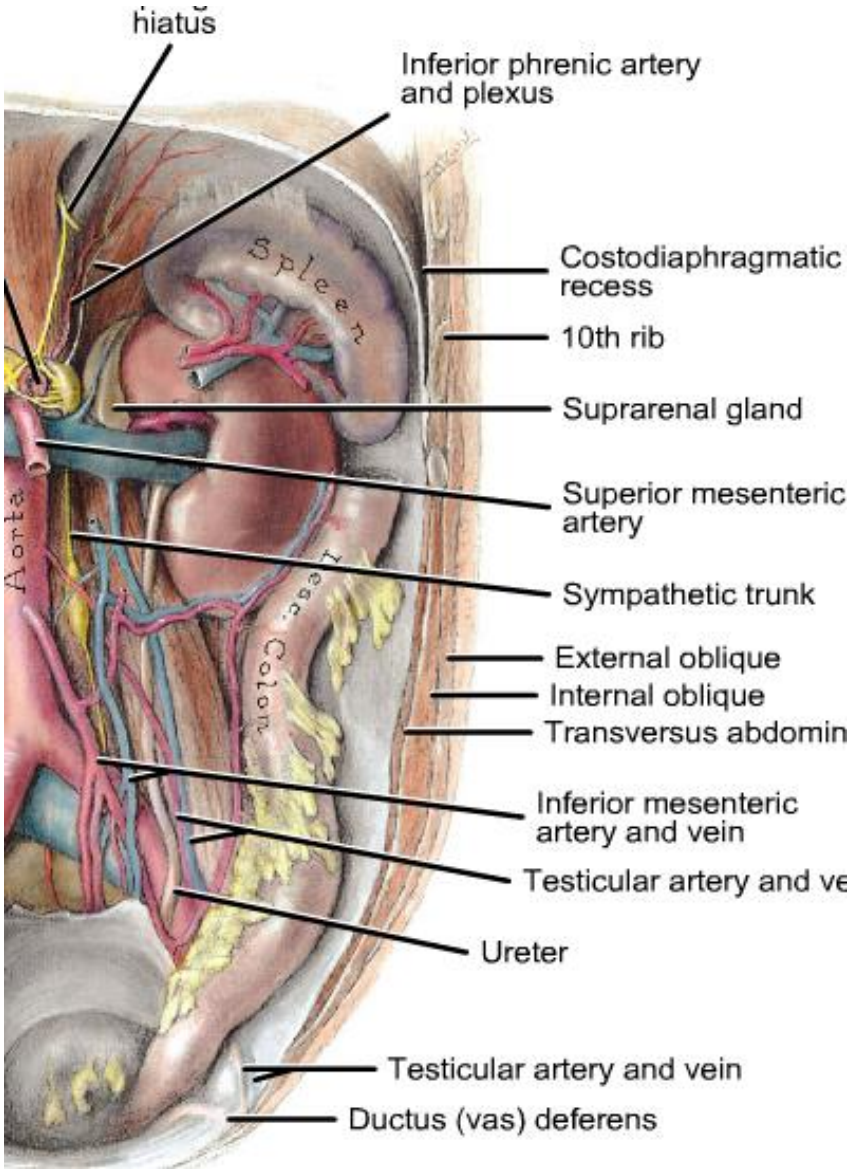
Crosses : lateral cutaneous, ilioinguinal , and iliohypogastric nerves , testicular vessels,



- descend to left iliac fossa, anterior to anterior superior iliac spine , join sigmoid colon anterior to external iliac vessels



- **Pressure on the testicular and external ileac veins may be a factor to cause varicose veins in spermatic cord and lower limb on left side.**



Descending Colon

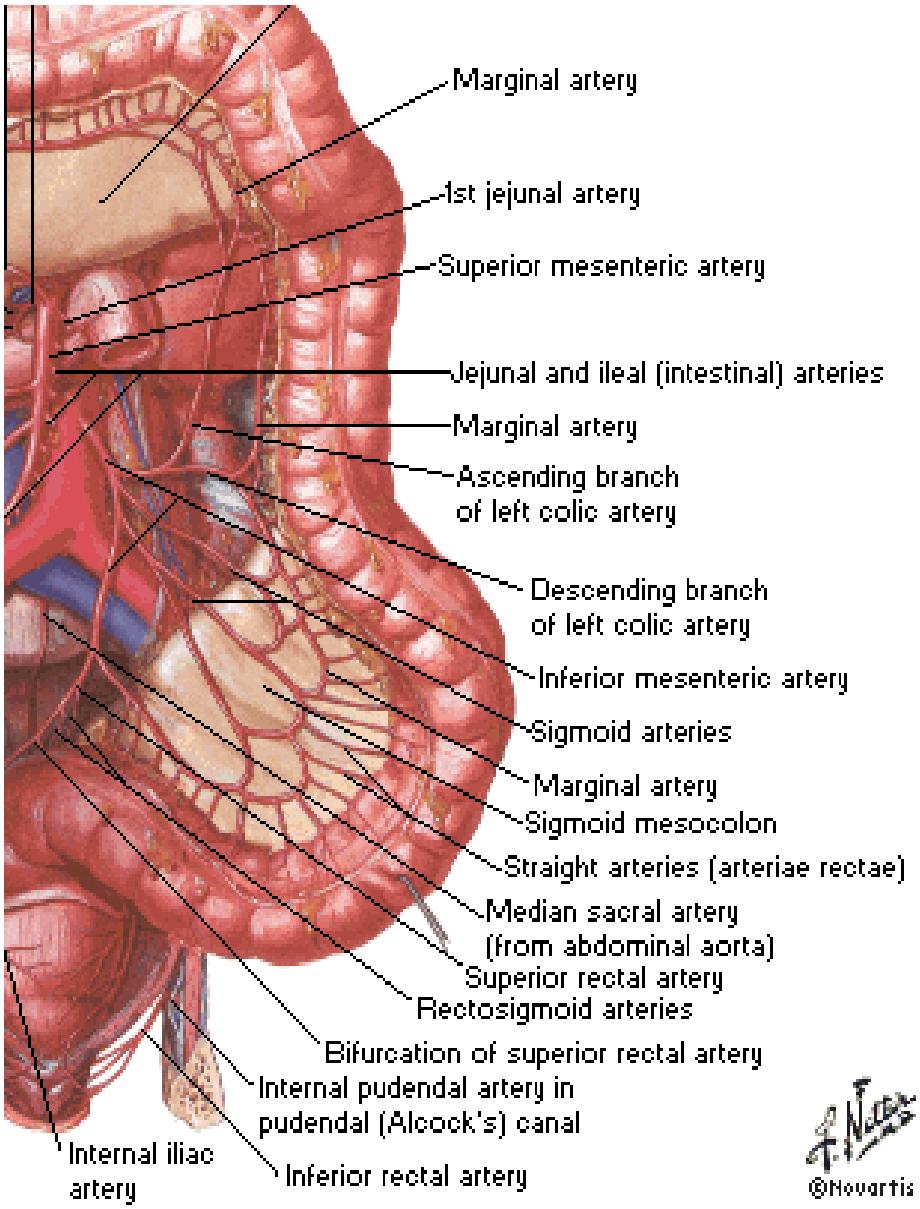
- **Blood :**

  inferior mesenteric:-

  sigmoid

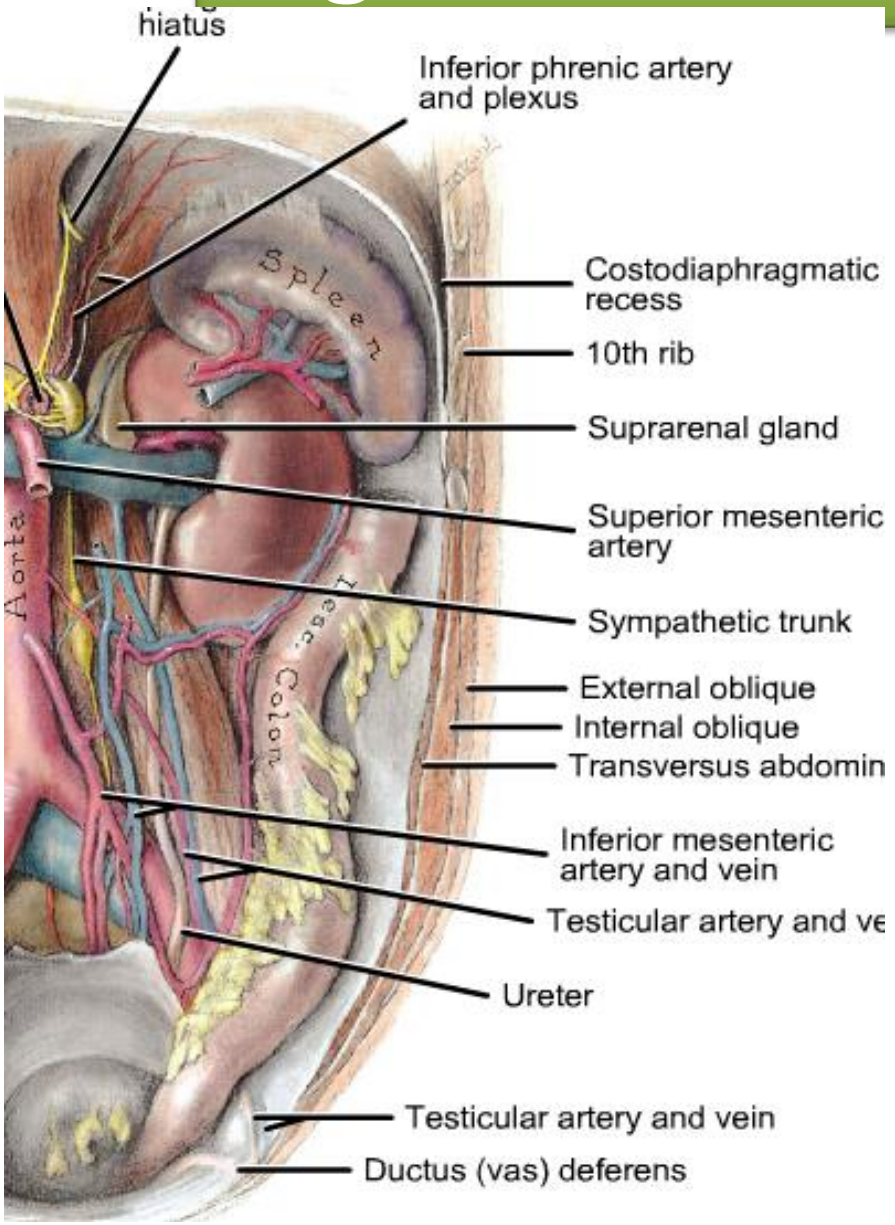
  left colic

- **Veins drain into I.M.V**
- **Lymph Drainage to the colic and inferior mesenteric node**
- **N. supply sympathetic and Para sympathetic pelvic splanchnic nerves &I. M.plexus.**



Sigmoid Colon

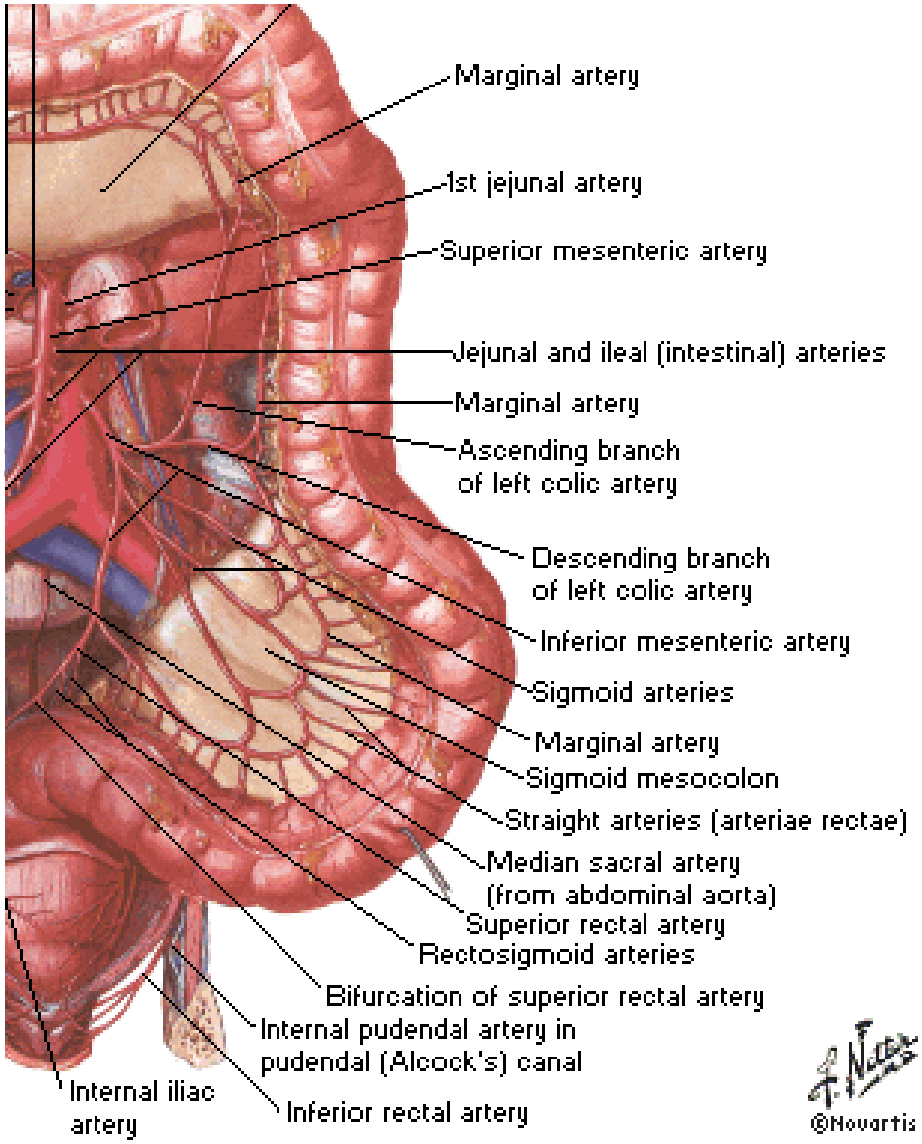
- 25 to 38cm in length
- It begins as continuation of the D.C infront of the pelvic brim.
- Below it becomes continuous with the rectum in front of the S3
- Attached to the posterior pelvic wall by fan shaped Sigmoid mesocolon.



- **Blood supply:**

  sigmoid branches of the I.M.A
- **Veins drains into I.M.V**
- **Lymph drainage:**
- **into colic and I.M.node**
- **N.supply sympathatic and para sympathetic nerves through the inferior hypogastric plexuses supply the area.**

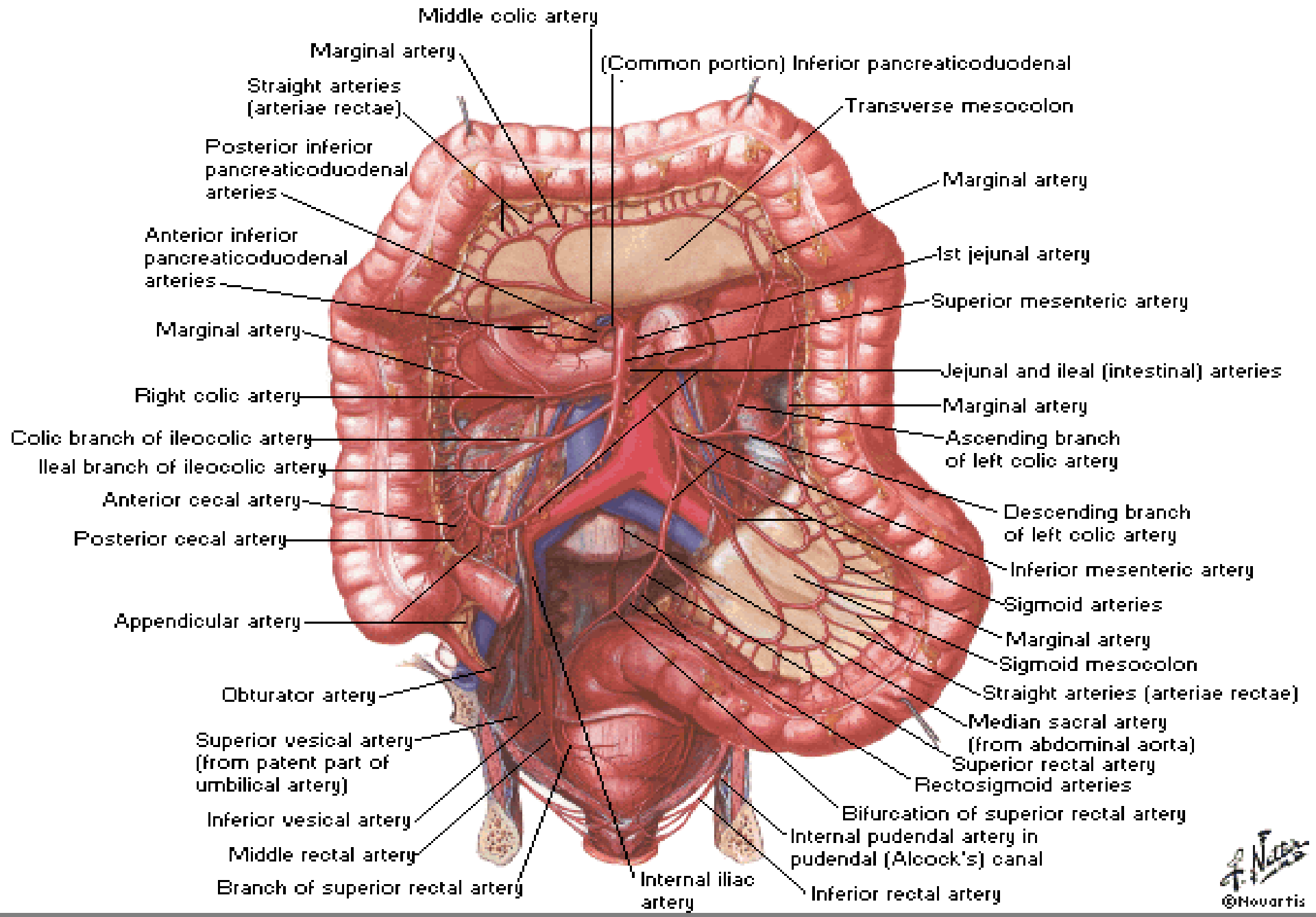
Sigmoid Colon

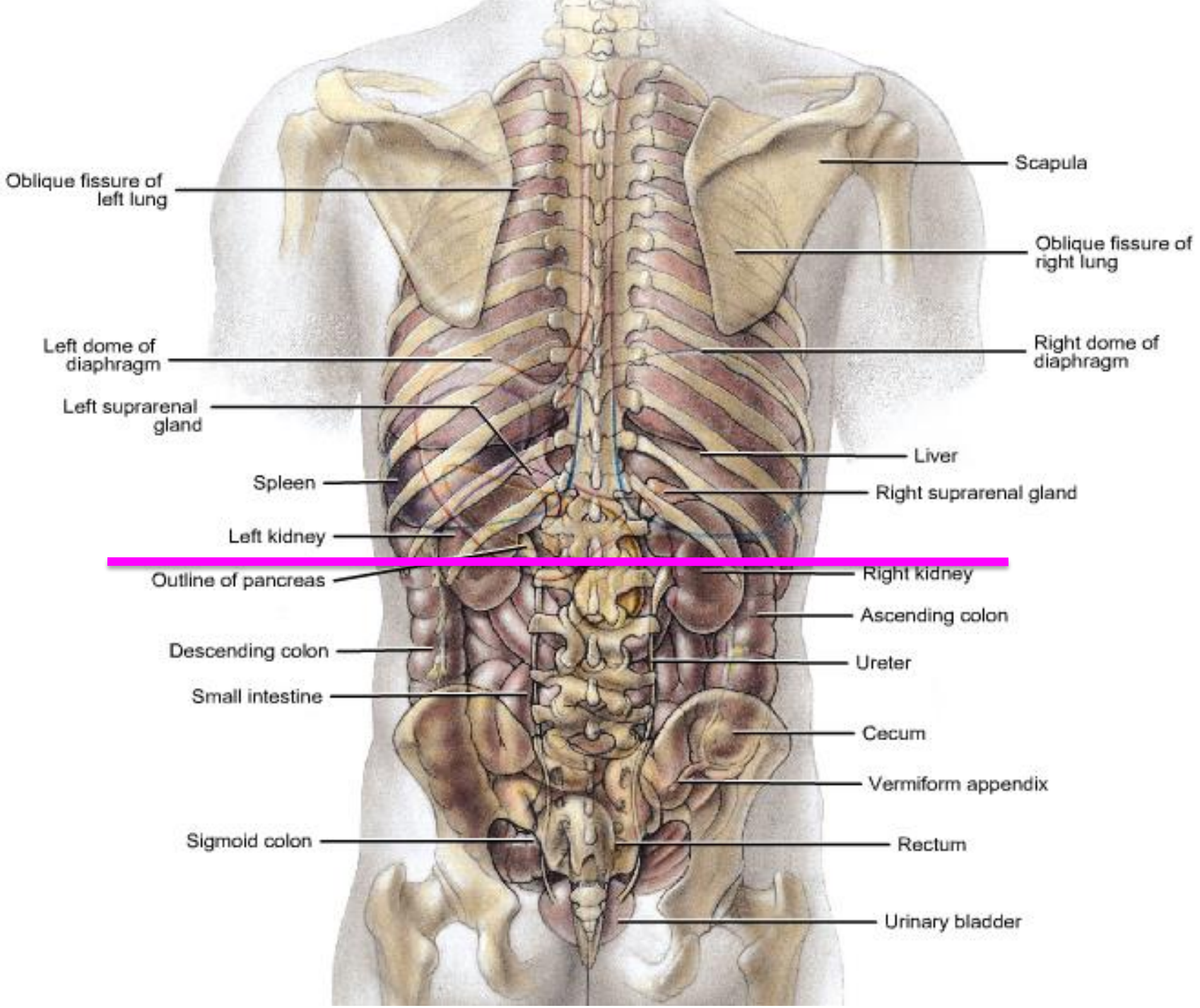


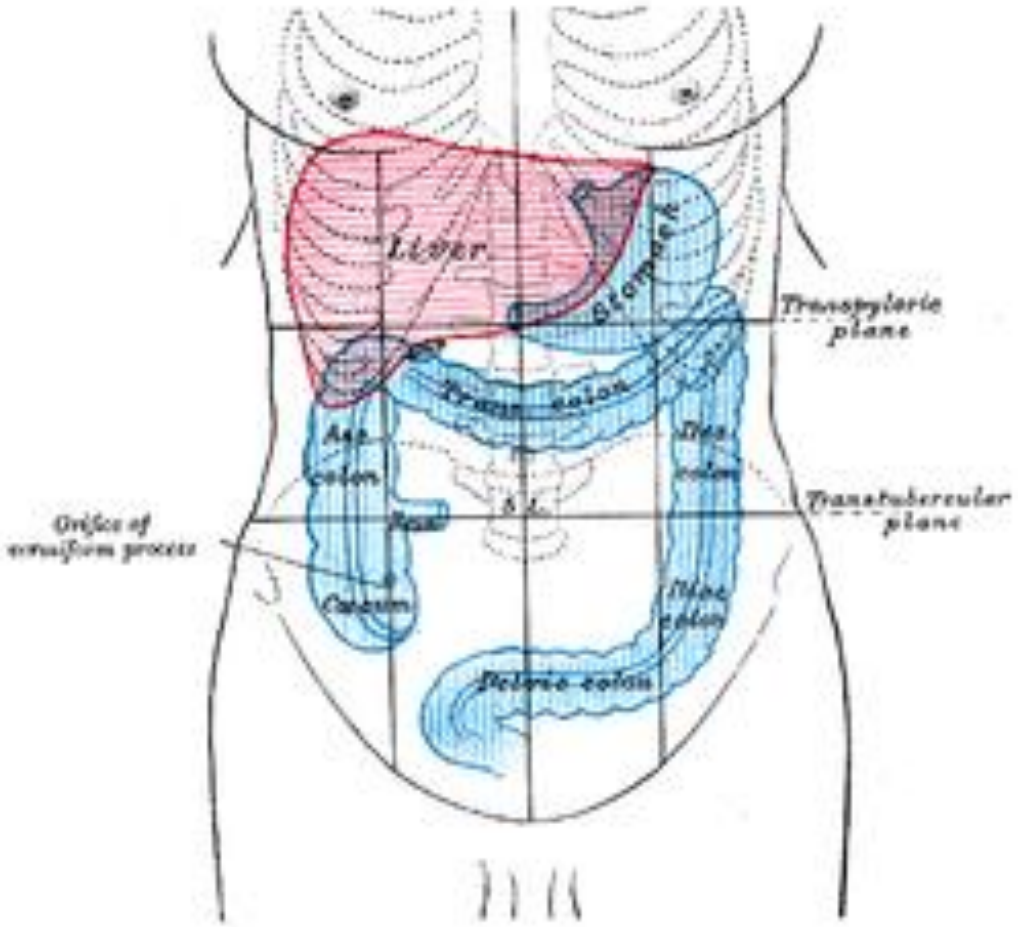
Parasympathetic rami from the pelvic splanchnic nerves (S2, 3, 4) pass forwards as long strands (about 3 cm long) from the sacral nerves to join the inferior hypogastric plexuses on the sides of the rectum, being motor to the rectal musculature and inhibitory to the internal anal sphincter.

In rectal surgical excision, dissection must be kept close to its wall to avoid damage to these nerves with consequent bladder dysfunction and, in males, loss of penile erection.

Arteries of Large Intestine

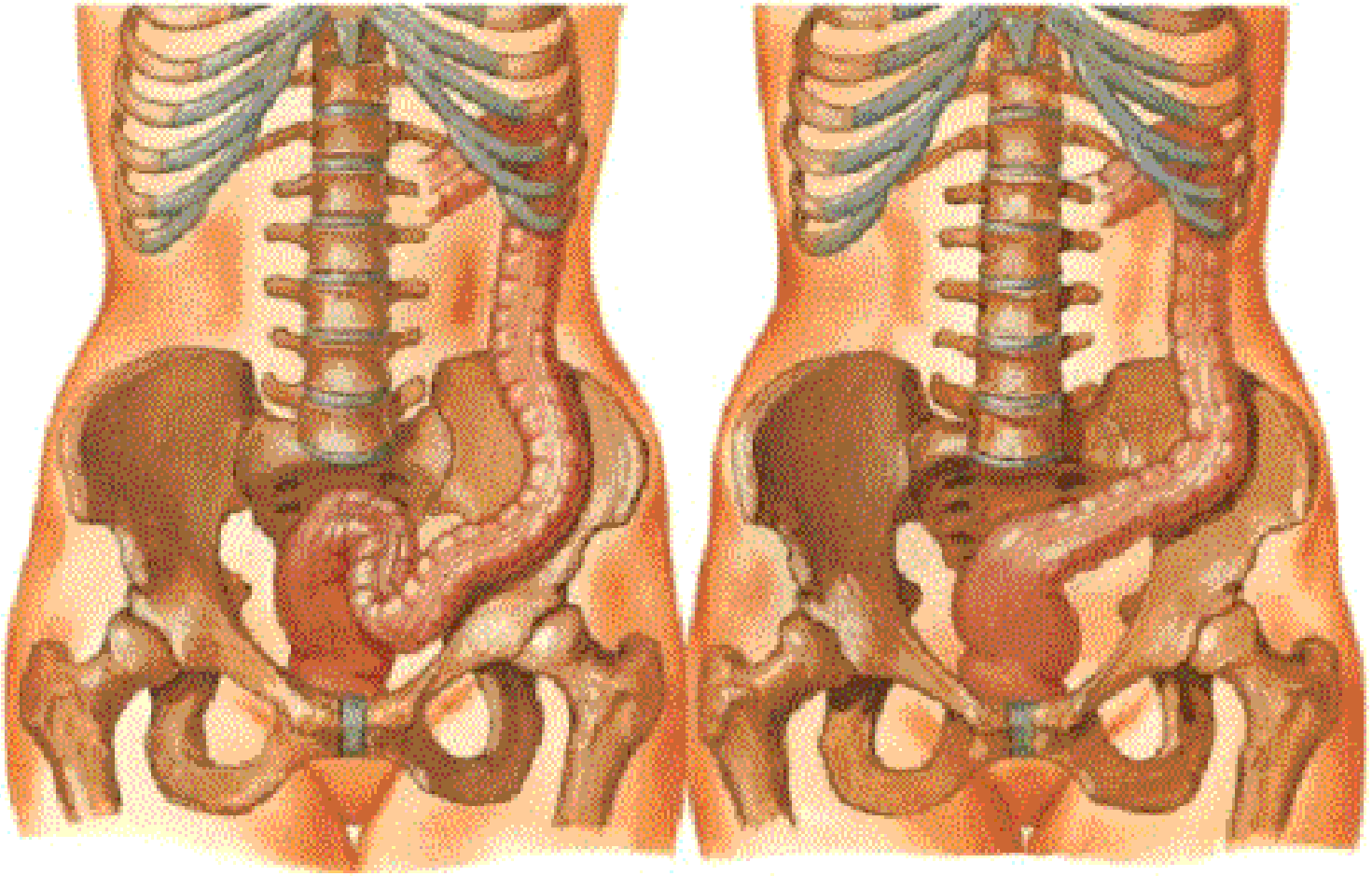



Oblique fissure of left lung
Scapula
Oblique fissure of right lung
Left dome of diaphragm
Right dome of diaphragm
Left suprarenal gland
Liver
Spleen
Right suprarenal gland
Left kidney
Outline of pancreas
Right kidney
Ascending colon
Descending colon
Ureter
Small intestine
Cecum
Vermiform appendix
Sigmoid colon
Rectum
Urinary bladder


Liver
Stomach
Transpyloric plane
Transverse colon
Asc. colon
Des. colon
Transtubercular plane
Orifice of vermiform process
Caecum
Ileum
Pelvic colon

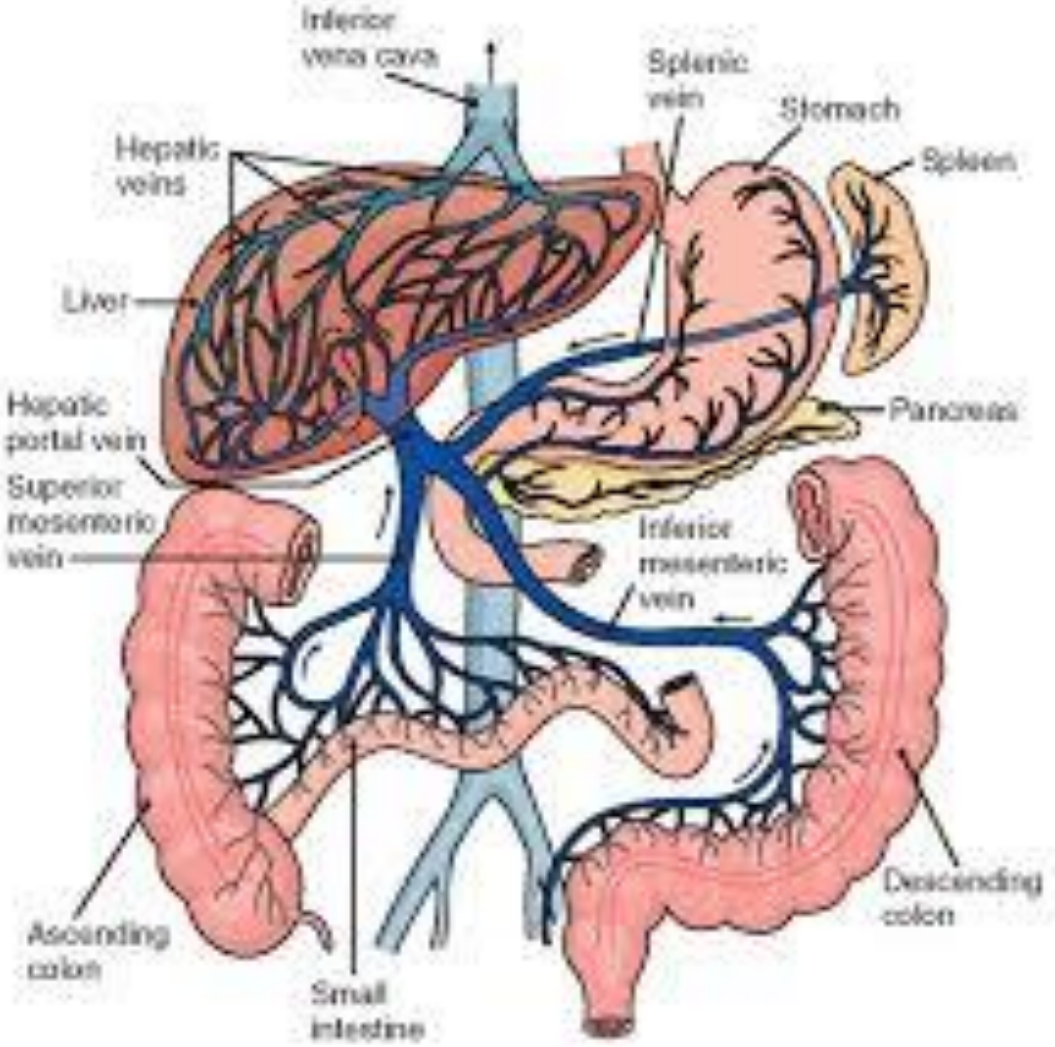
Sigmoid Colon

Variations in Position



Typical

Short, straight, obliquely into pelvis


Inferior vena cava
Splenic vein
Stomach
Spleen
Hepatic veins
Liver
Pancreas
Hepatic portal vein
Superior mesenteric vein
Inferior mesenteric vein
Ascending colon
Small intestine
Descending colon

- https://en.wikipedia.org/wiki/Large_intestine

- https://www.google.com/search?q=portal+circulation+anatomy&oq=portal+circulation+&aqs=chrome.3.69i59j69i57j0l4.14884j0j8&sourceid=chrome&ie=UTF-8


THANK
YOU