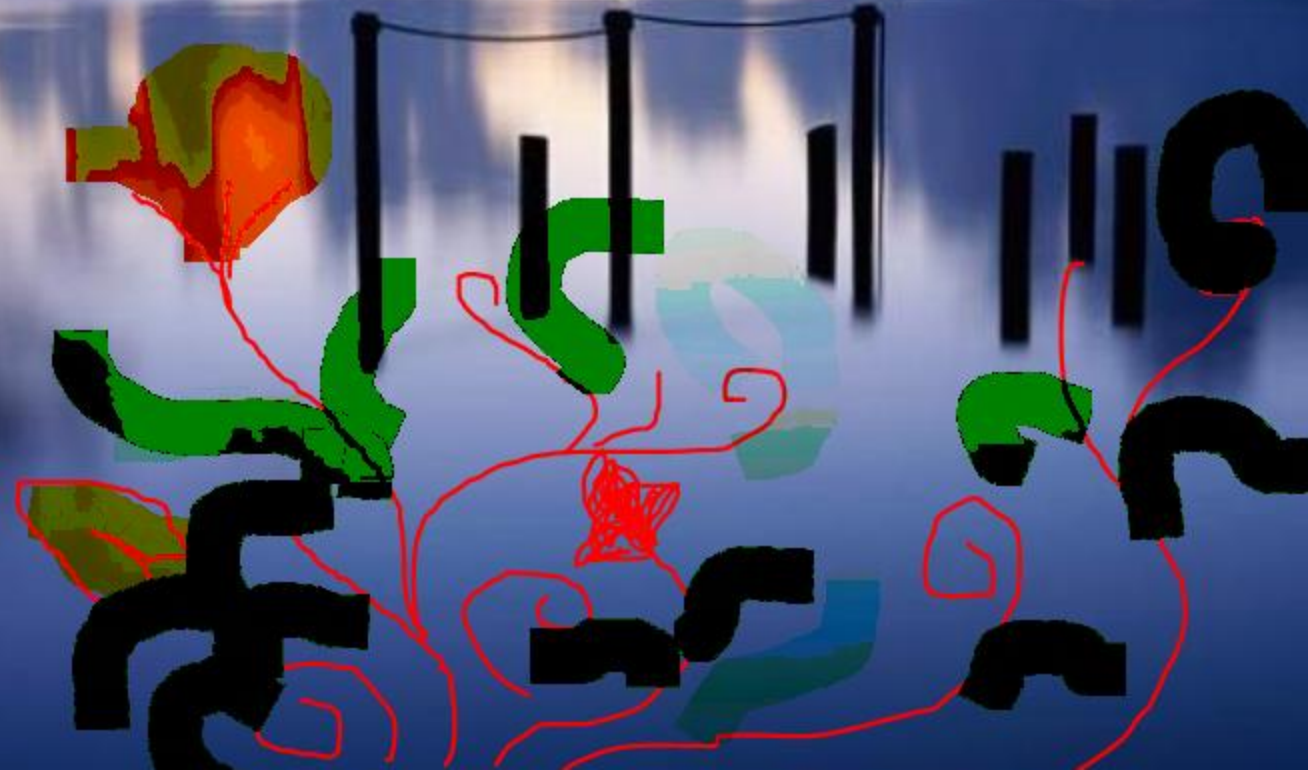


# **THE GASTROINTESTINAL TRACT**

## **Large Intestine**

بارك اللحظة التي تعيشها فهي  
أهم لحظات حياتك...



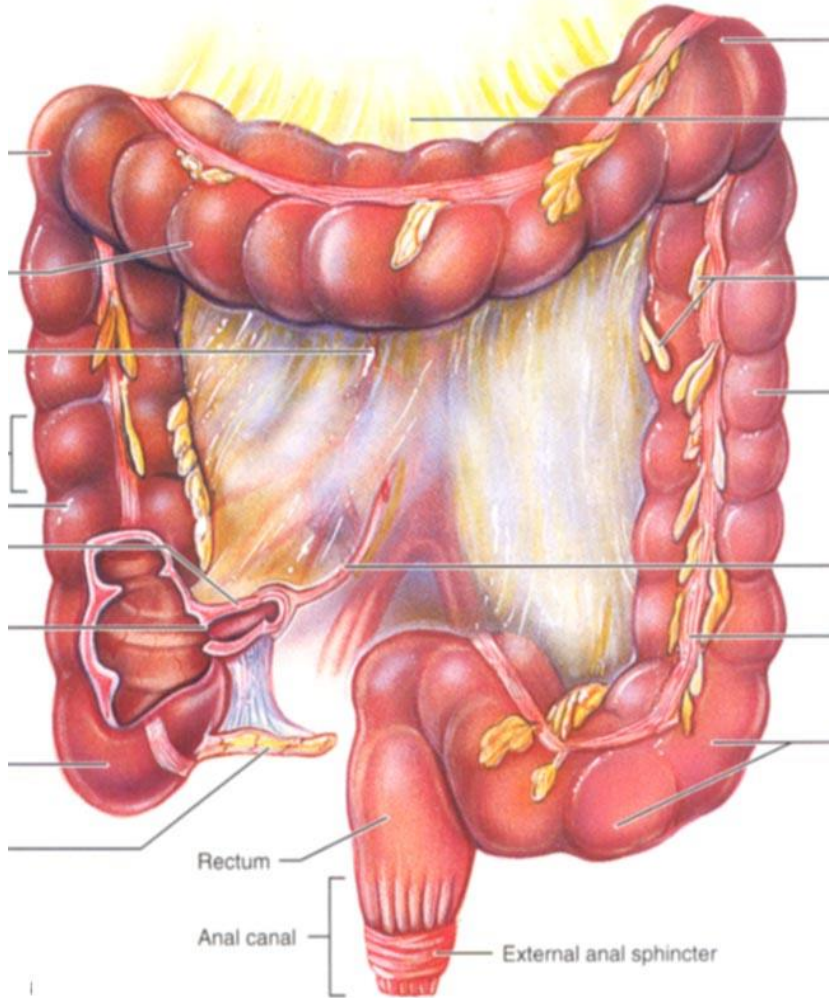


كل عام وانتم بالاف خير

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

# Large Intestine

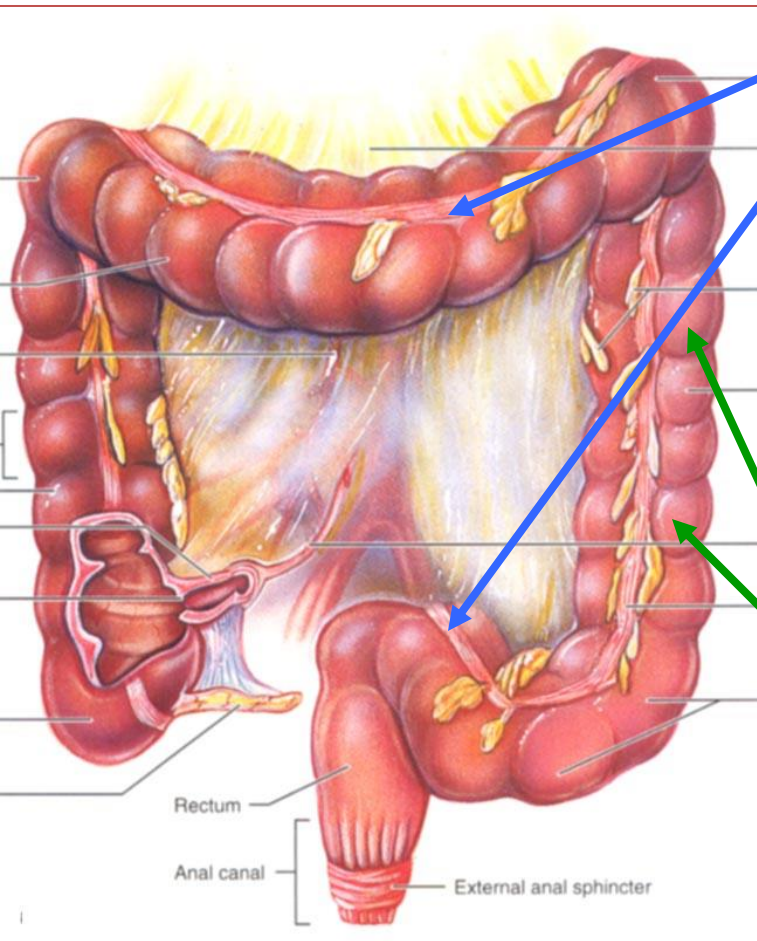
1.5 m length



- **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
  - 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**

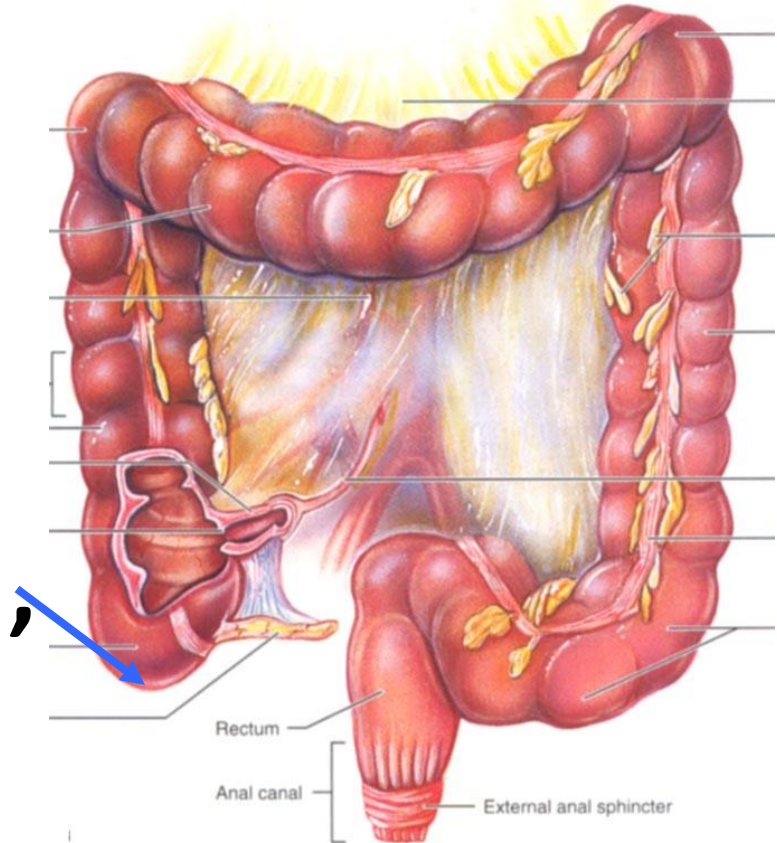
- fat-filled pouches
- significance unknown

## 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.

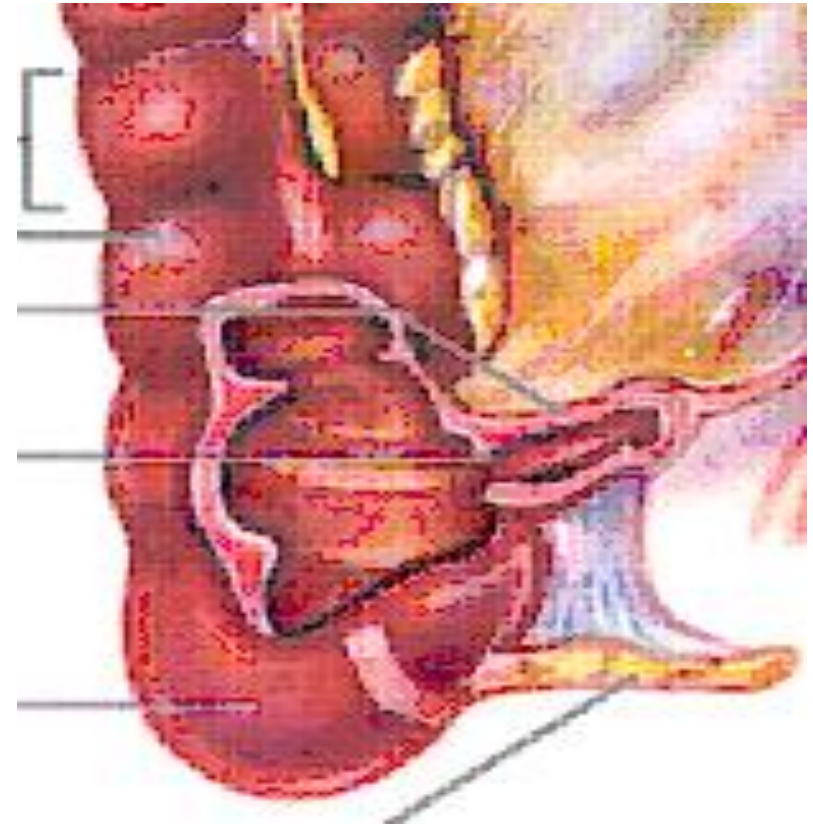




- Mobil relatively
- May lie in lesser pelvis
- Fixed by peritoneal covering medially and laterally, so made retrocaecal recess mostly the appendix lies in it

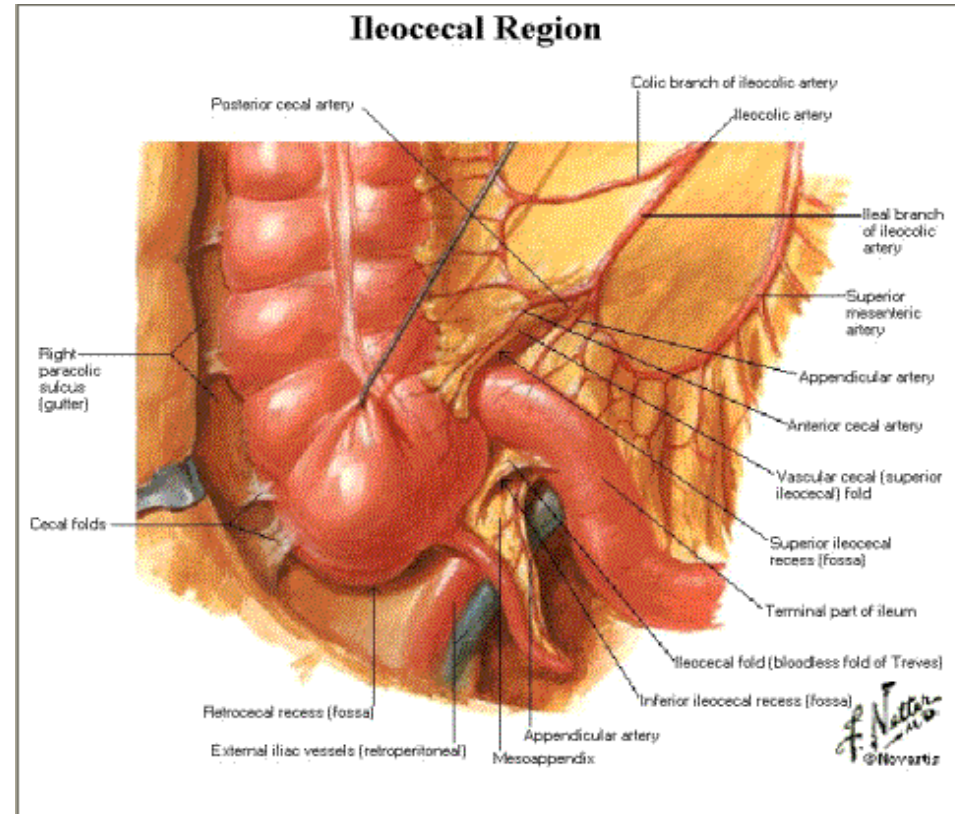
- Iliocaecal valve
  - raised edges of mucosa
  - prevents feces going back into ileum

## Caecum

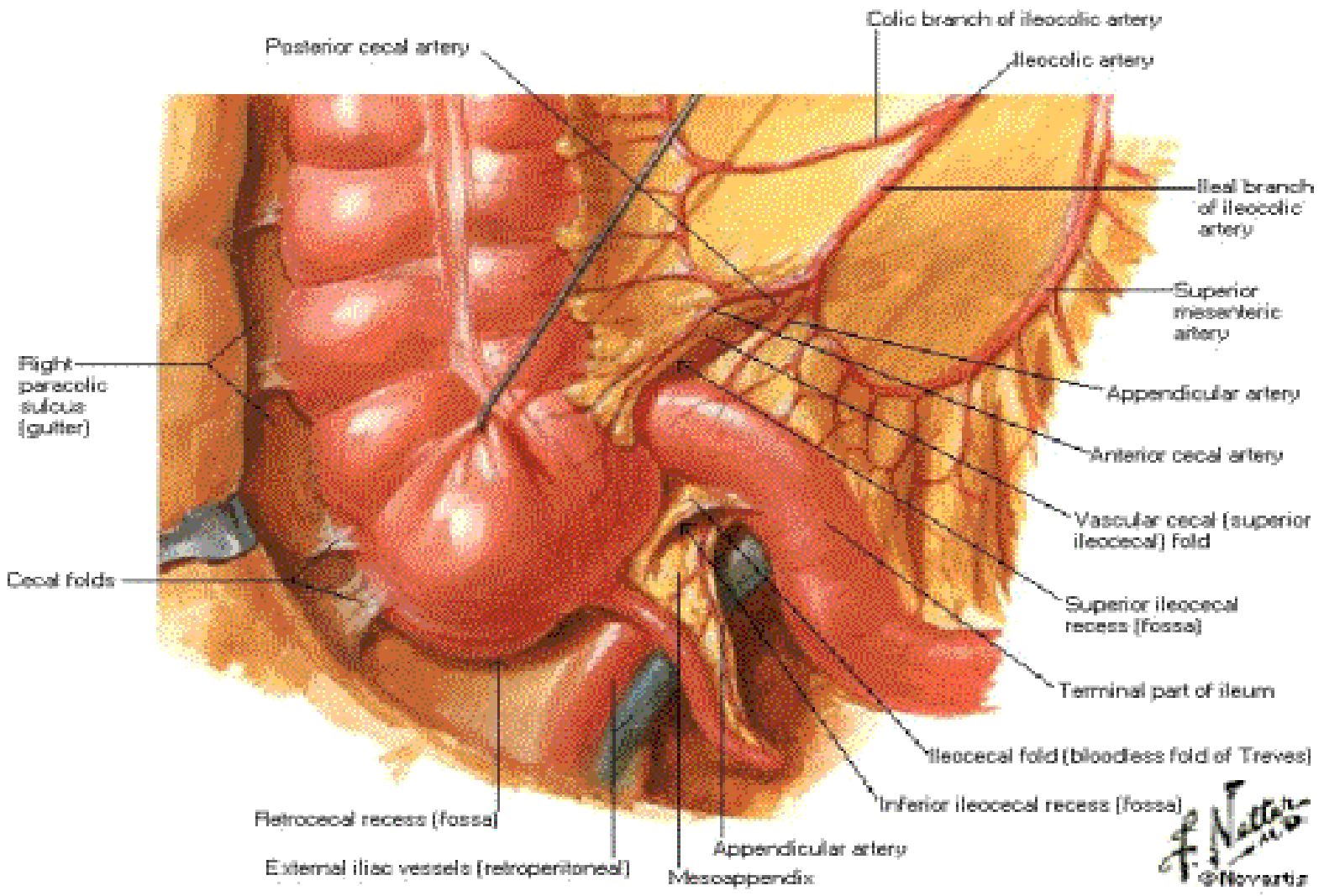


- **within the R.I.F**
- **Completely covered with peritoneum**
- **At the junction of the caecum and the As.Co. joined on the left side by the terminal part of the ileum.**
- **The appendix is attached to its posteromedial surface at end of the three taenia coli.**

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



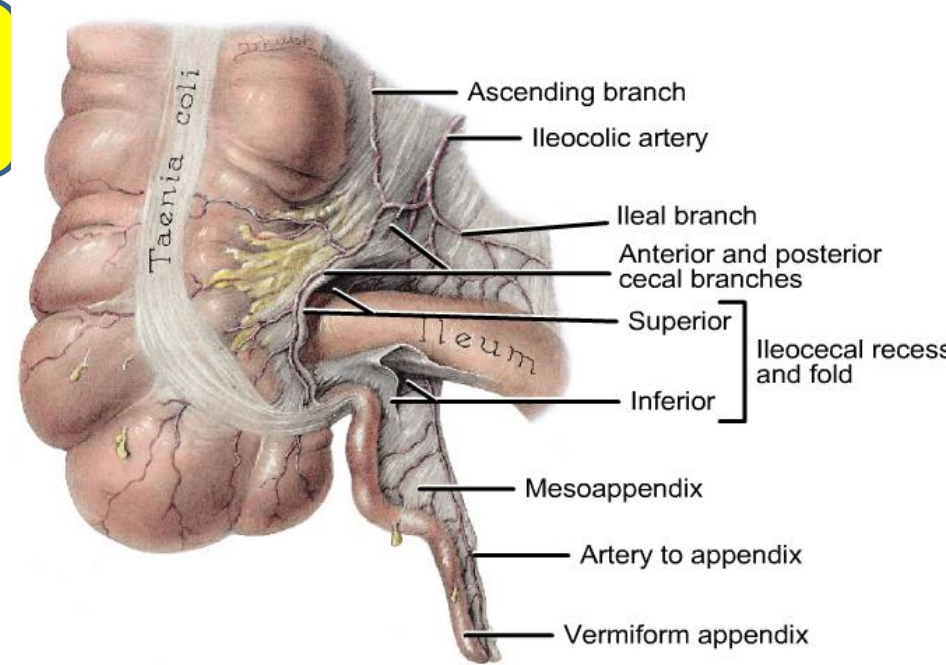
# Ileocecal Region



*F. Netter M.D.*  
© Netter

# Vermiform appendix

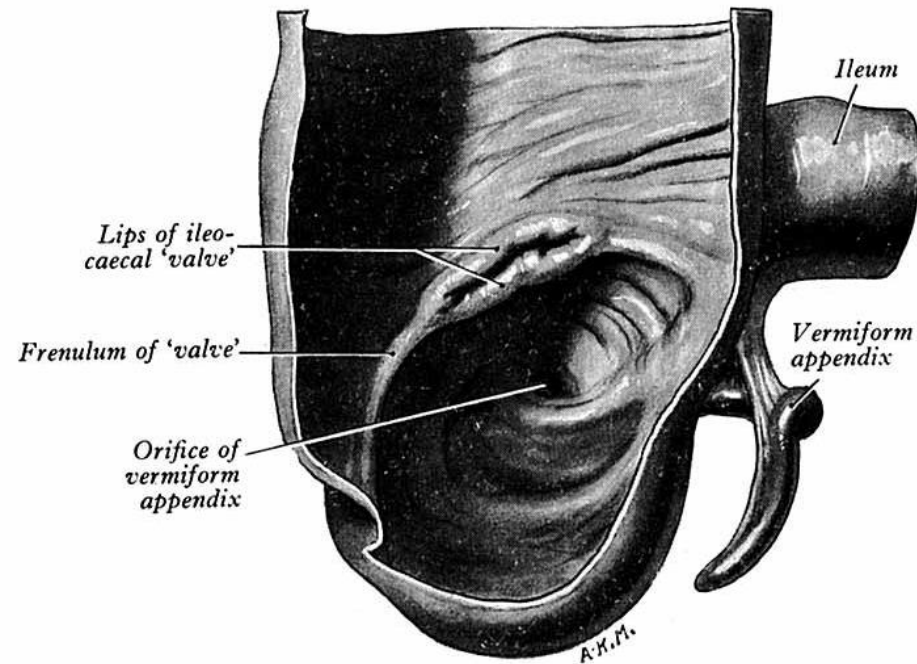
- blind tube opens into caecum
- masses of lymph tissue
- **ITS BASE IS LOCATED AT THE UNION OF THE THREE TAENIAE.**
- **5-15 cm long**
- **Suspended by mesentery to posterior terminal ileum**



**Attach to caecum 2-3 cm below iliocecal junction**  
**Frequently retrocaecal position, but may be in lesser pelvis**

# Ilieocaecal valve

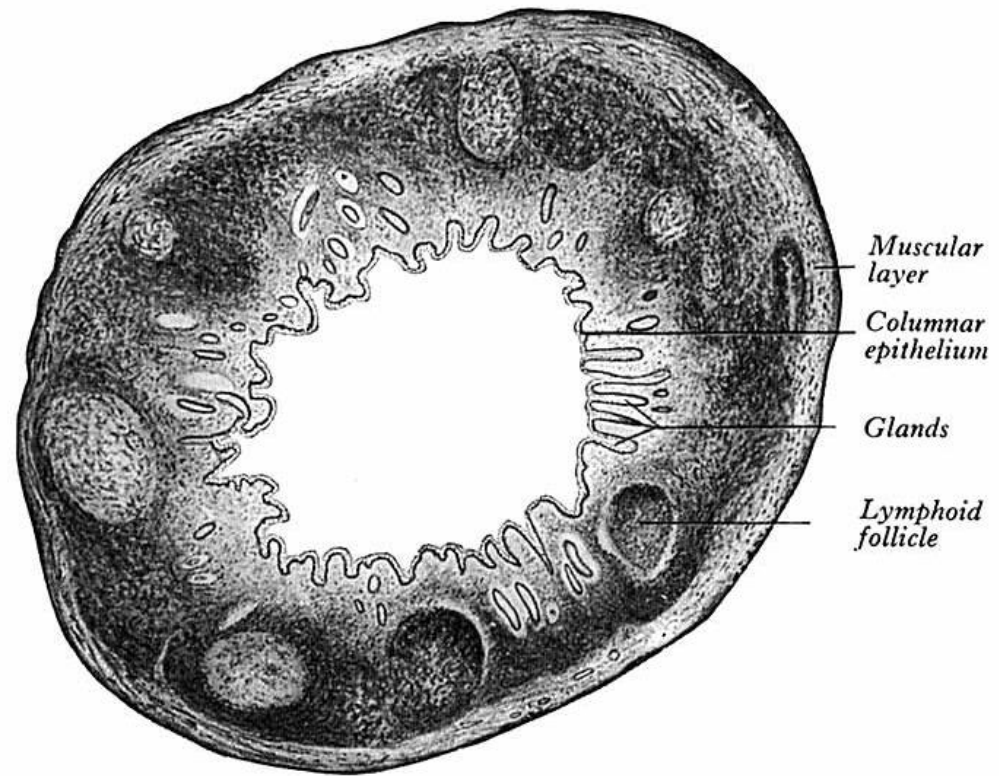
- Ilium enter (invaginated) obliquely through a horizontal slit in the caecal wall to form valve like two folds above and below the opening, medially and laterally meets each other to form frenulum



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

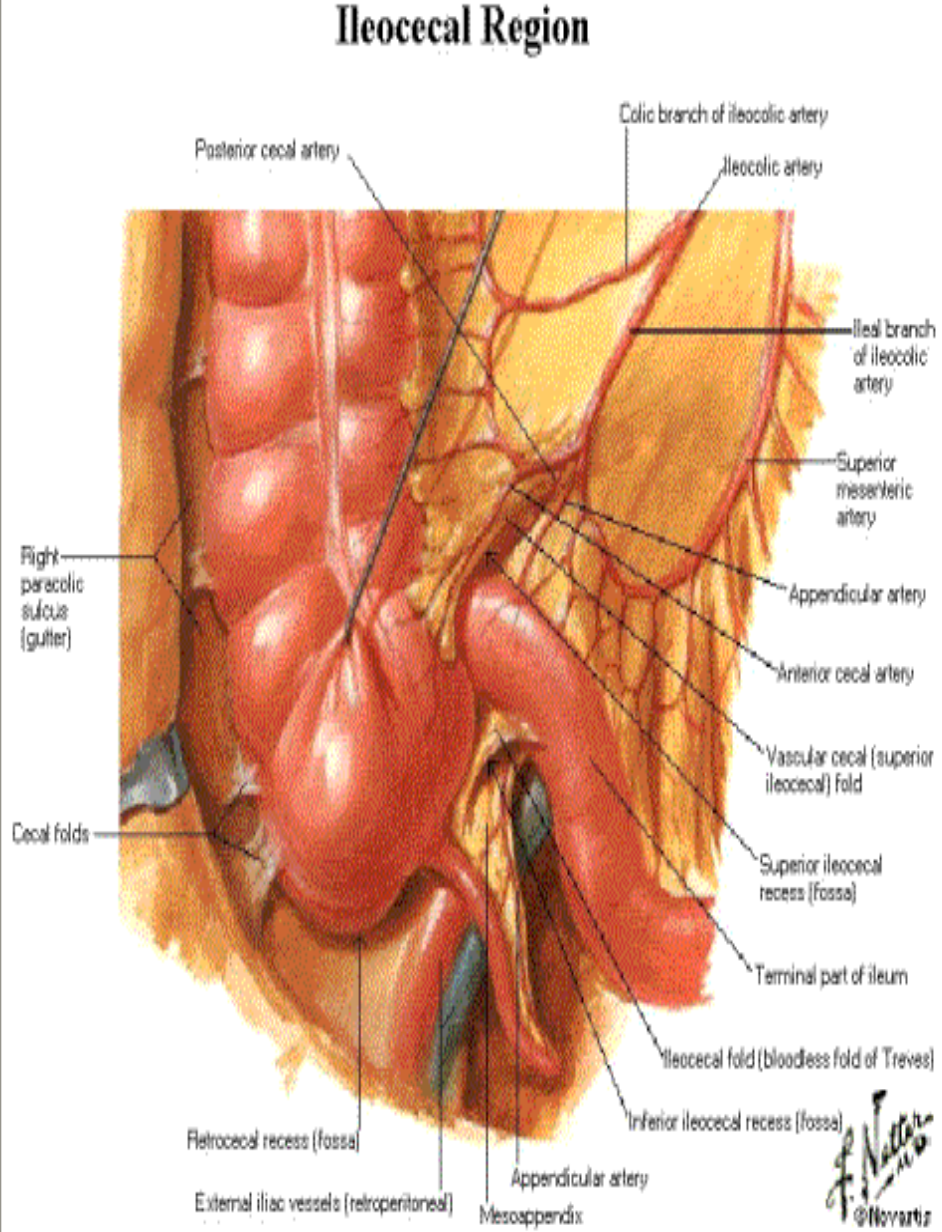
# Structure

- 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**

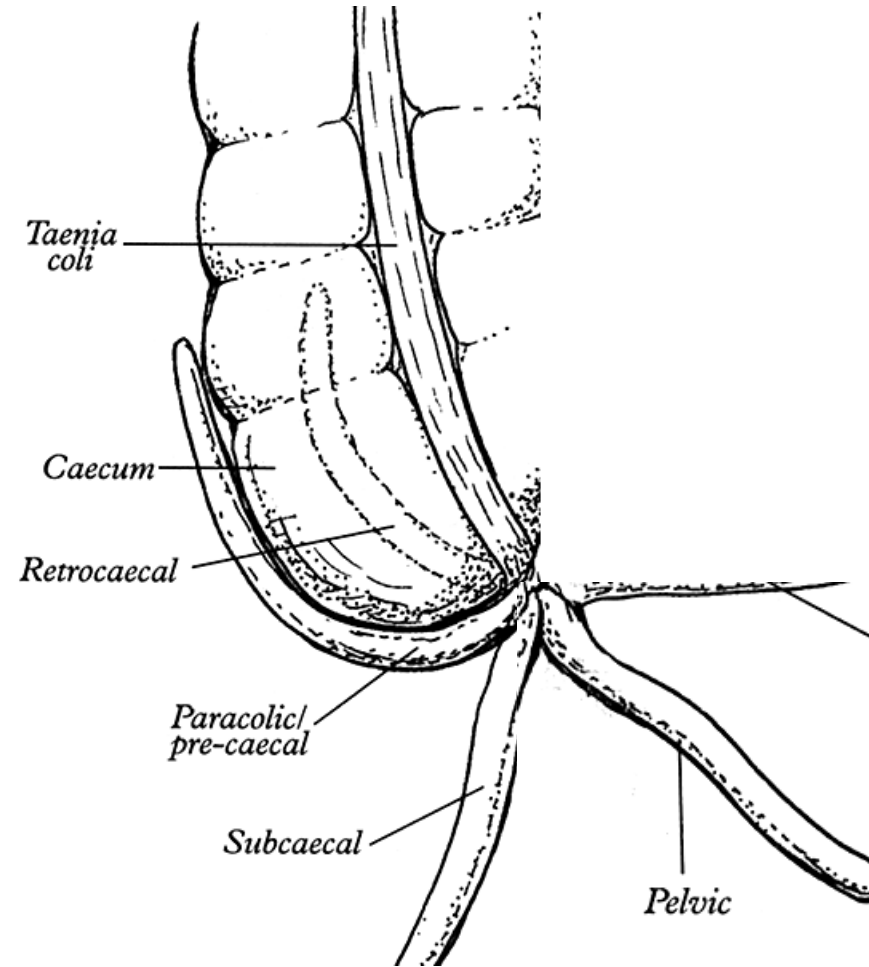
- **Blood supply:** appendicular br. From ileac of ileocolic A. from superior mesenteric. Posterior to the terminal ileum
- **Veins**
- **Lymph Drainage;** ileal l.n.
- **Nerve Supply:** autonomic from superior mesenteric plexus



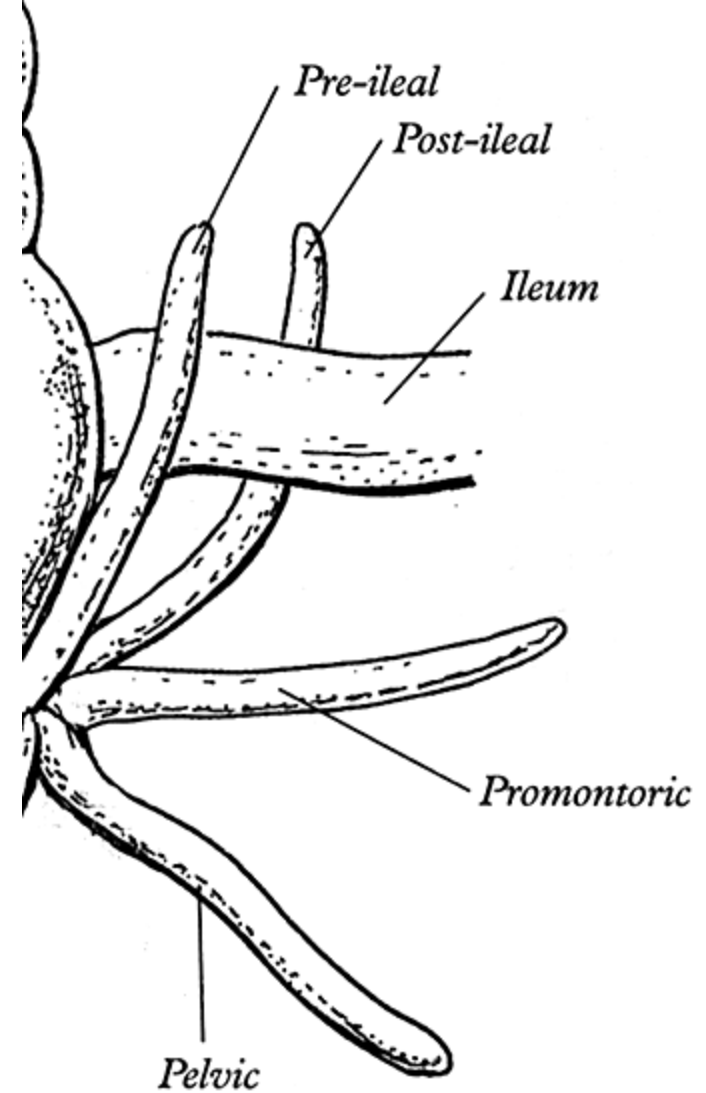


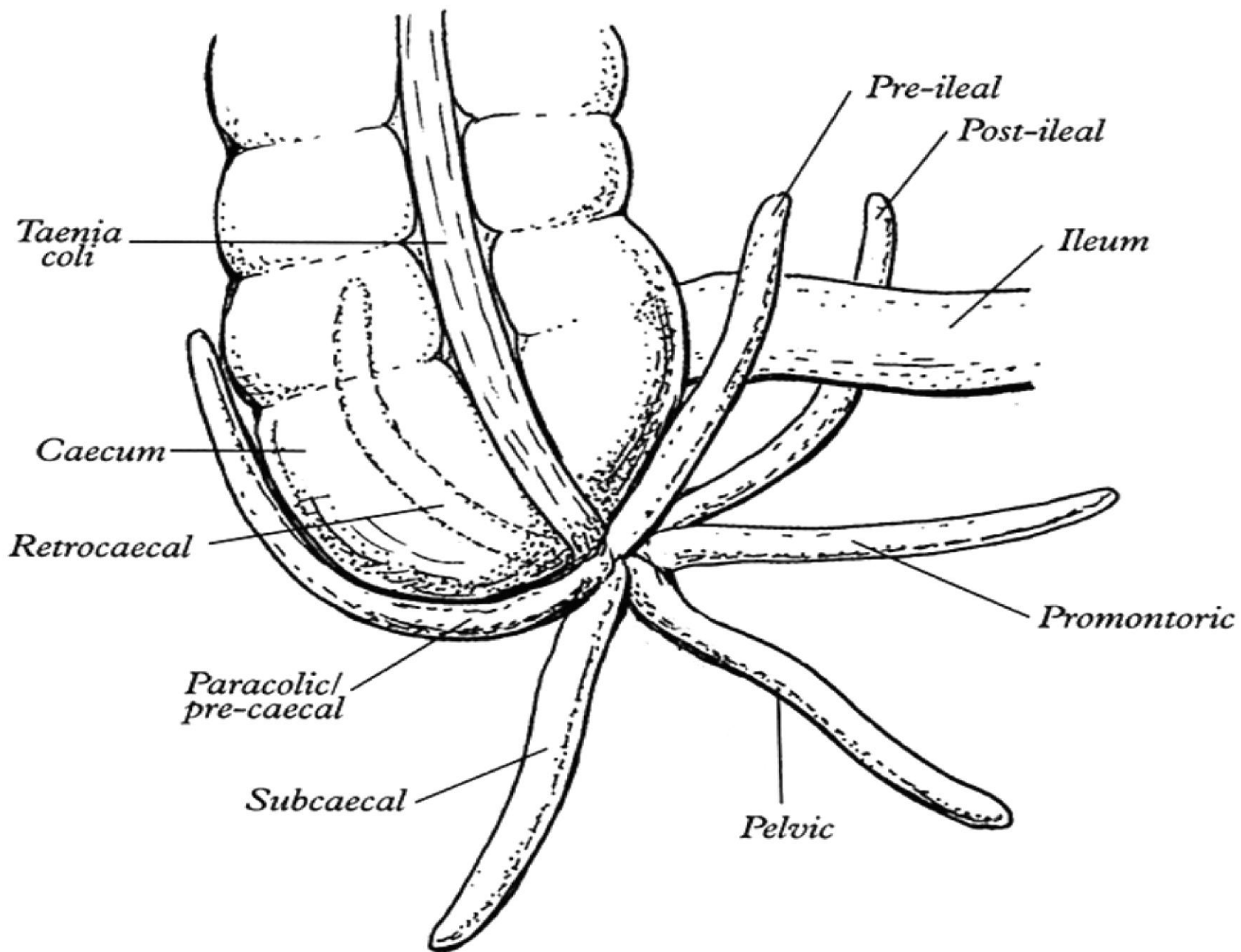
# Locations of V.AP

- 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.**

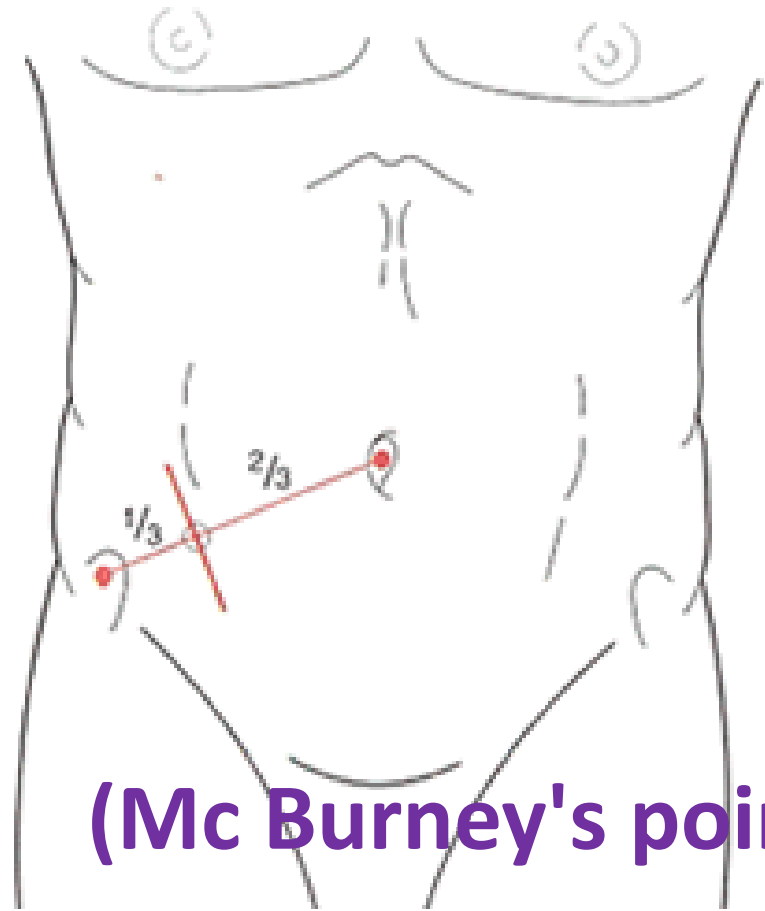




base is the junction of the **lateral** and **middle thirds** of the line joining the right anterior superior iliac spine to the umbilicus (**Mc Burney's point**);

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

## Surface anatomy

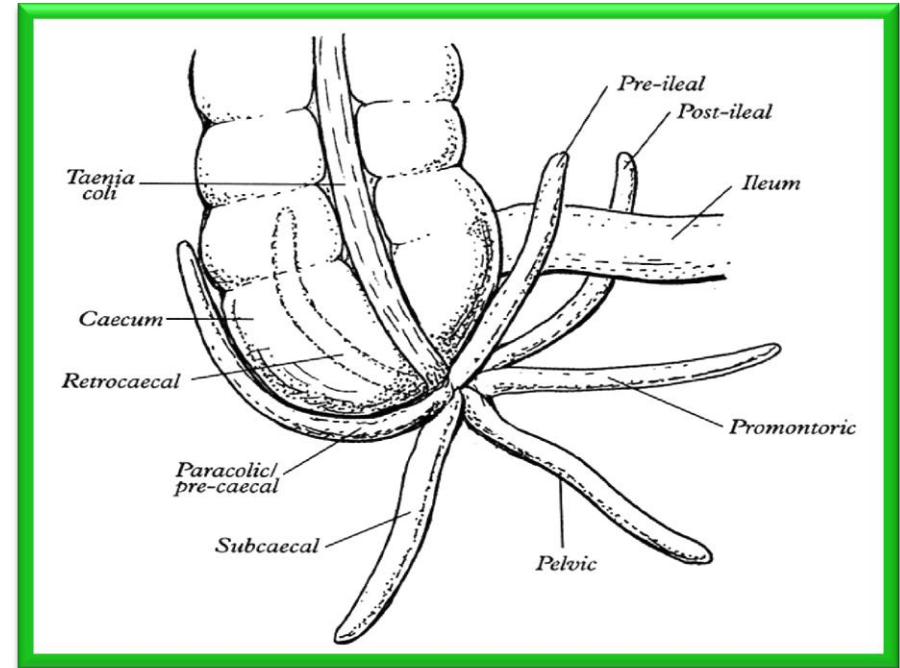
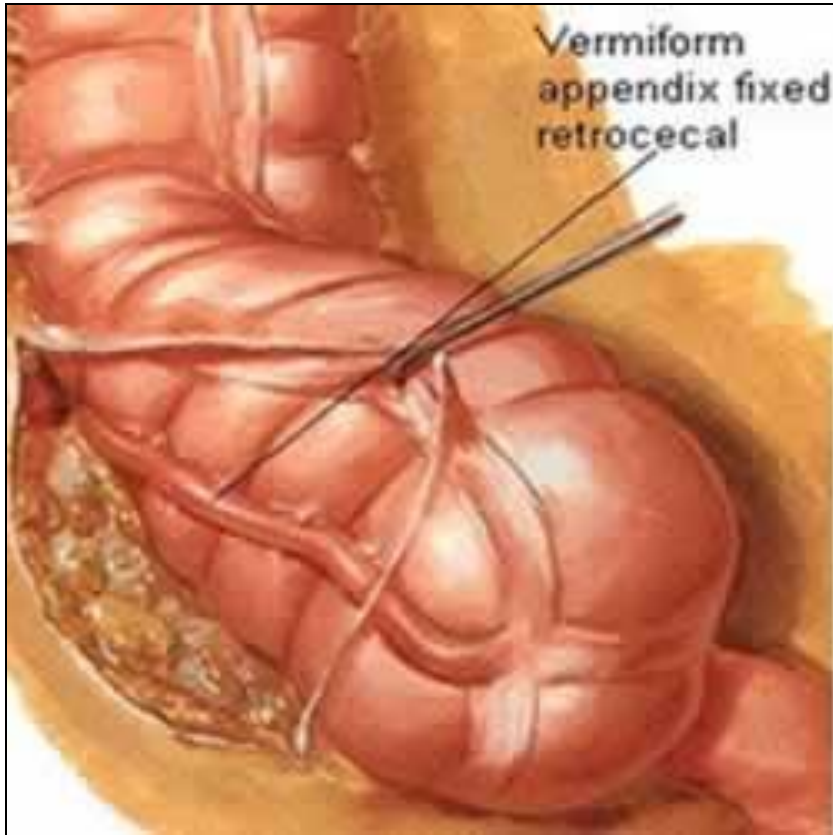


(Mc Burney's point);

## 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.**

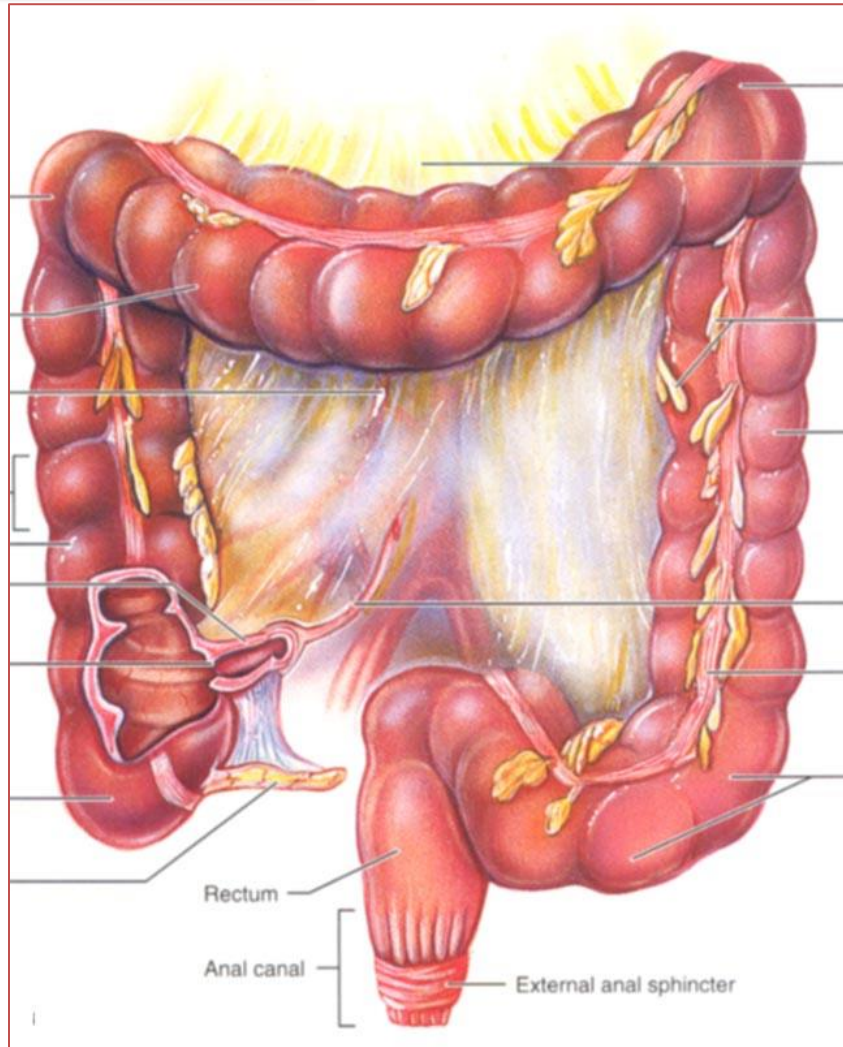


# LYMPHATIC DRAINAGE

- APPENDICEAL L.N. → ILEOCOLIC L.N.  
→ SUP. MESENTERIC L.N.  
→ CYSTерна CHYLI.



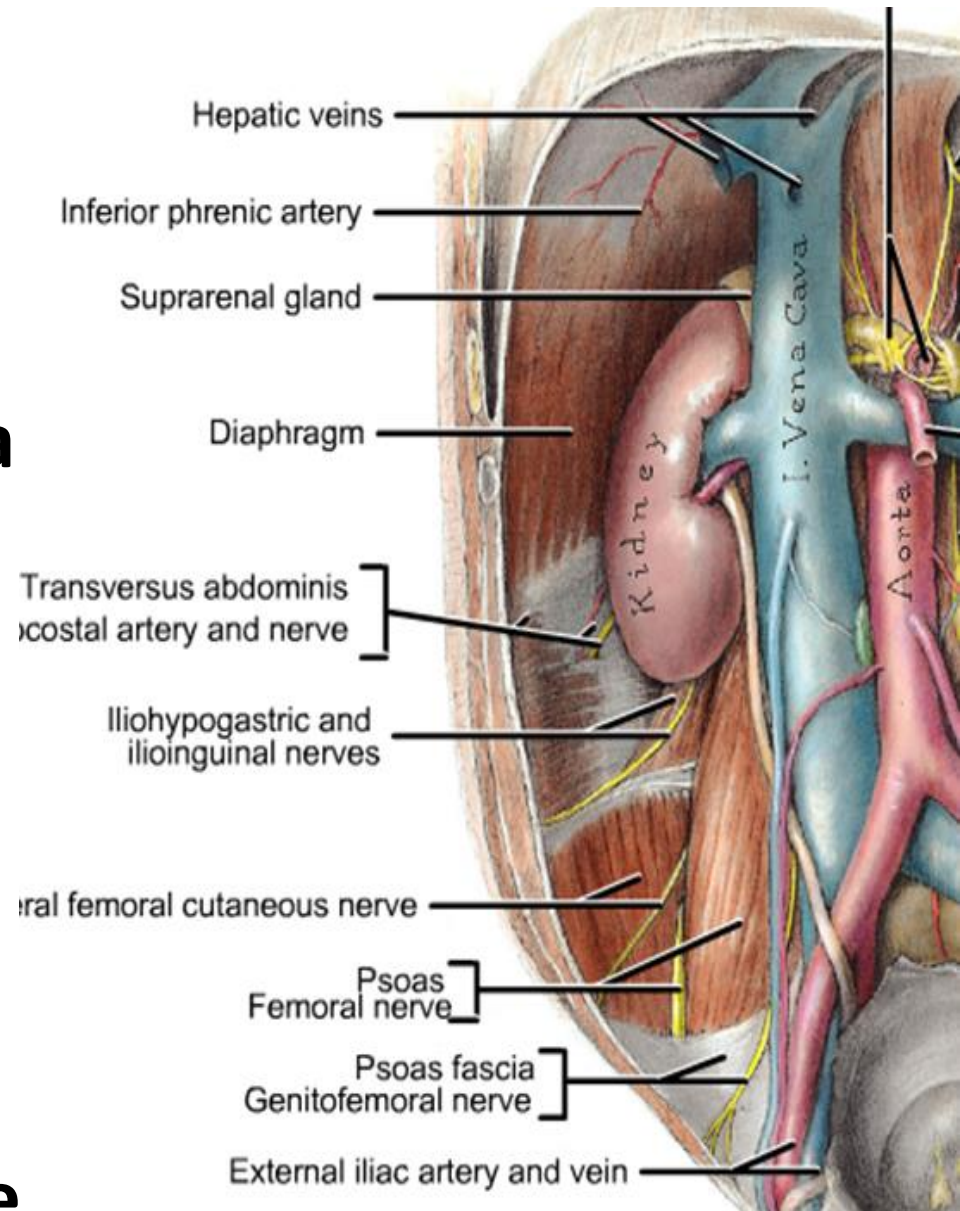
# Colon



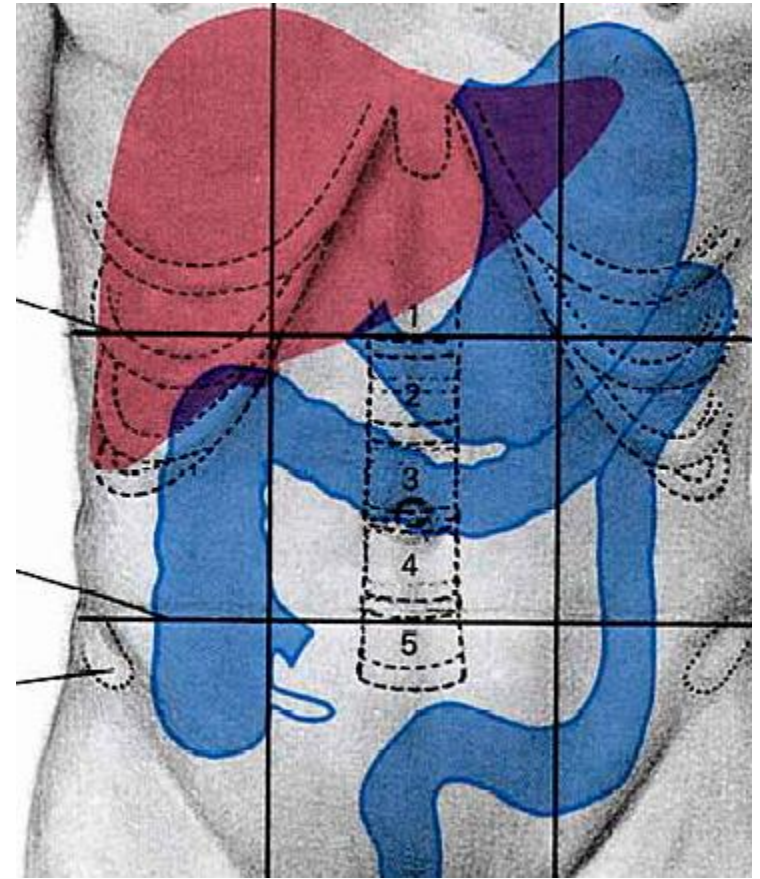
- Ascending colon
- - 12-20cm
- Begins in the right iliac fossa -----Hepatic flexure (= right colic flexure)
- Transverse colon:
  - 40-50cm
  - Across cavity
- Descending colon
  - Left side
  - Splenic flexure (= left colic flexure)
- Sigmoid colon: 15-80cm
  - Enters pelvis
  - “S” shape

# Ascending Colon

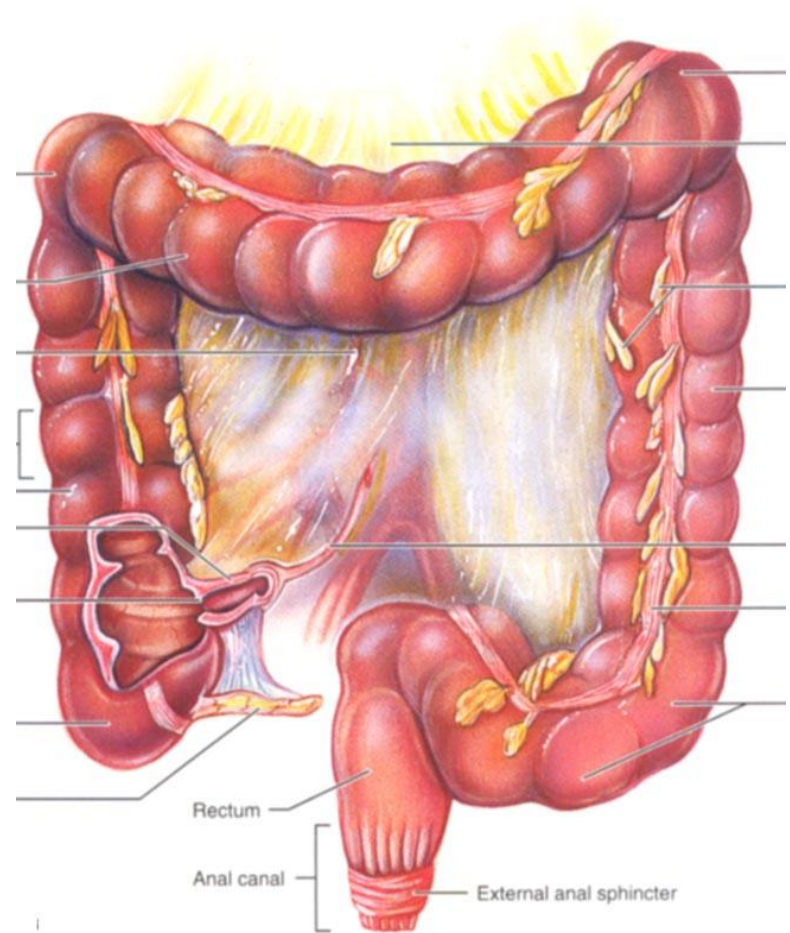
- **Approximately 13 cm in length**
- **Begins in the R iliac fossa**
- **ascend anterior to the iliacus, iliac crest, quadratus lumborum, in the paravertebral gutter,**
- **Crosses : lateral femoral cutaneous, ilioinguinal, and iliohypogastric nerve.**



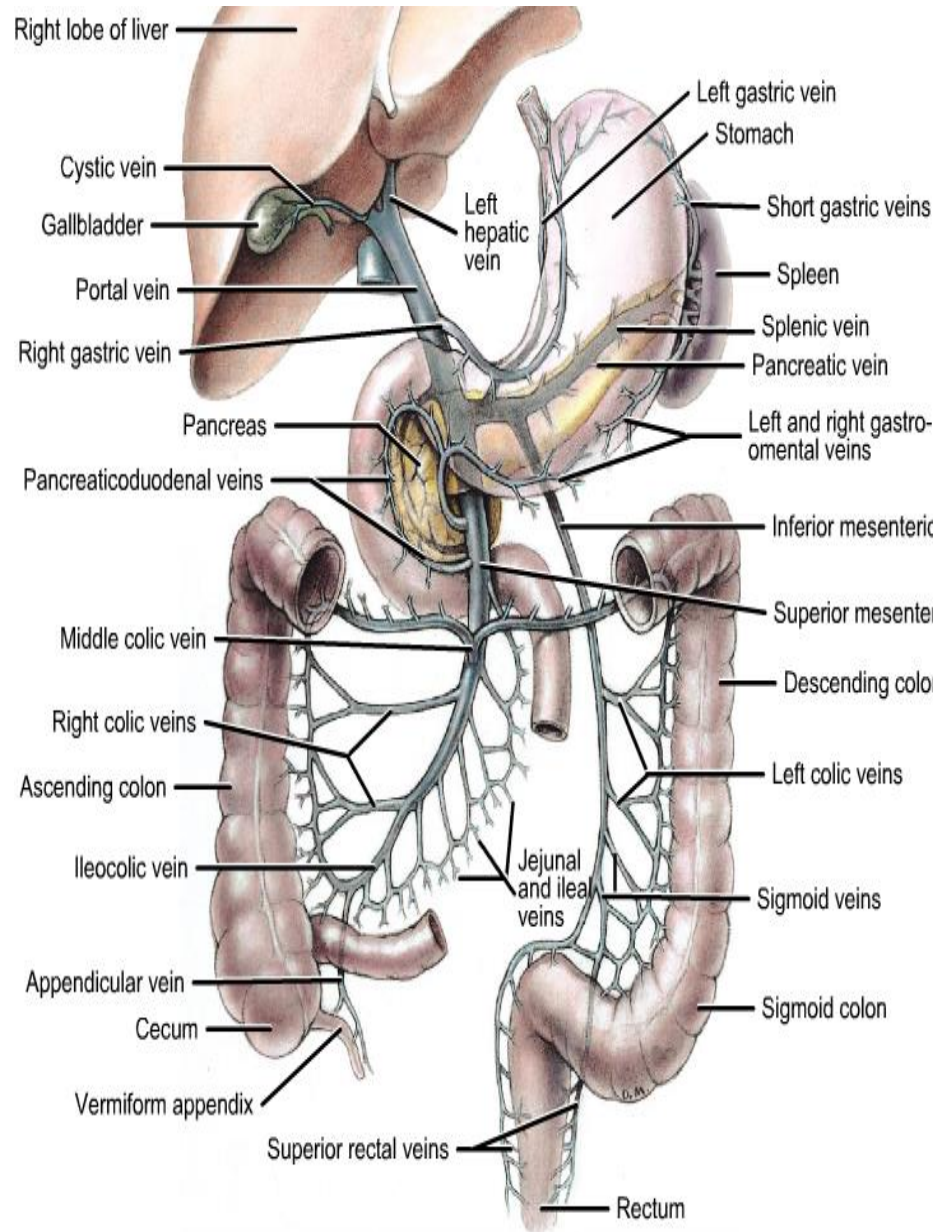
- Extend upward from cecum to the inferior surface to the Rt. lobe of the liver.
- Here, it turns to the left (forming the Rt. Colic flexure)  
Continuous with the Tr. colon

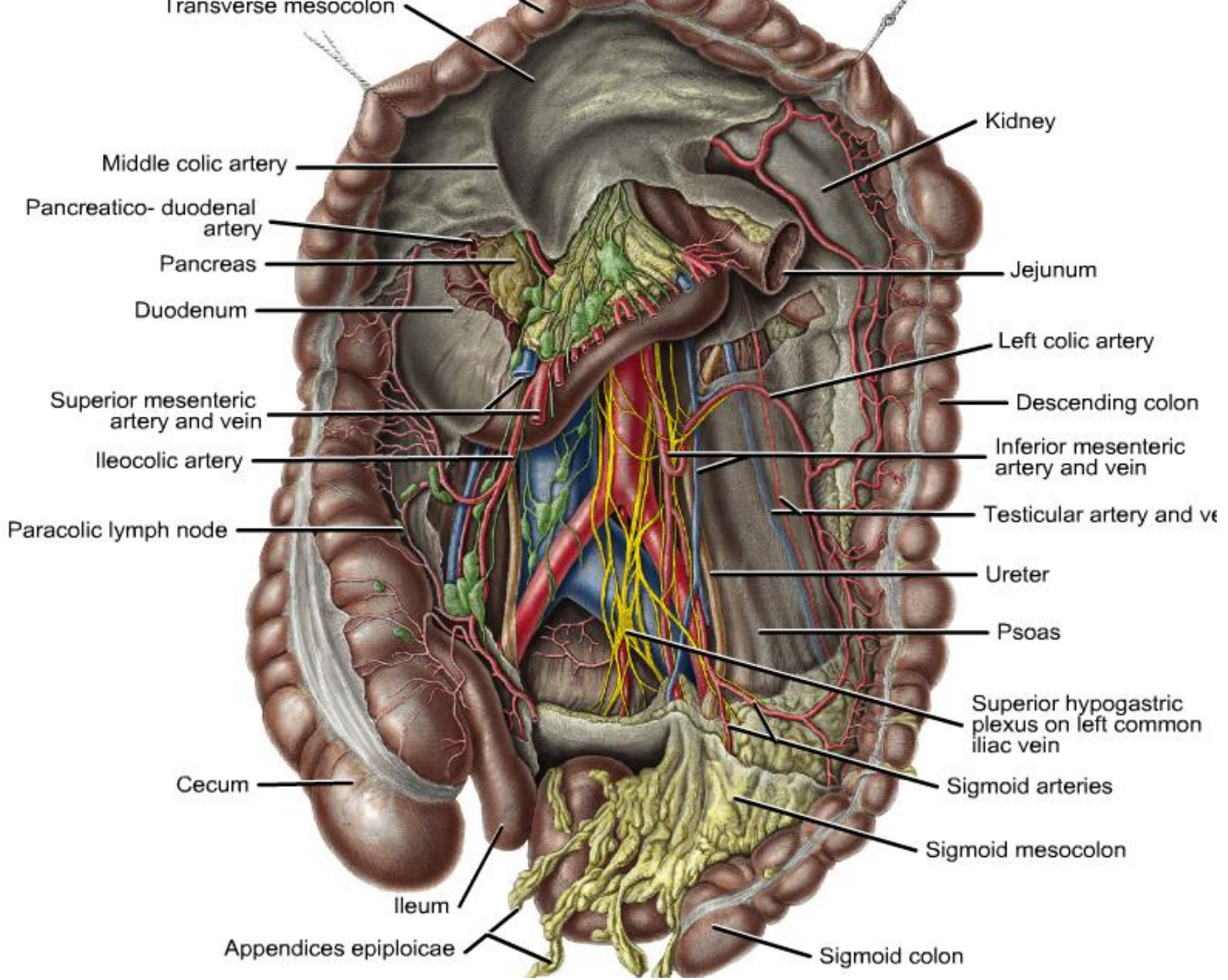


- **Peritoneum covers the in front and the sides of the Asc.colon, binding it to the posterior abdominal wall**
- **Anterior to it are ant. Abd. Wall, small intestine, and greater omentum.**



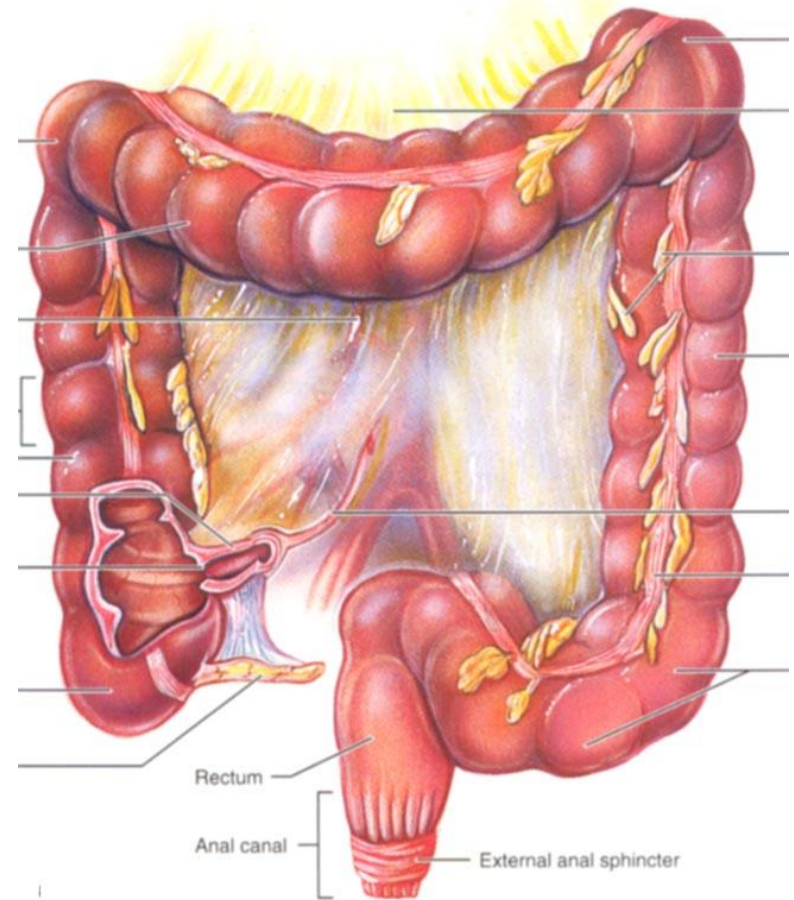
- Blood Supply ileocolic and Rt. colic artery
- Veins drain into the S.M.A
- Lymph.Drainage into colic and S.M.N
- N.supply sympathetic and Vagus.N



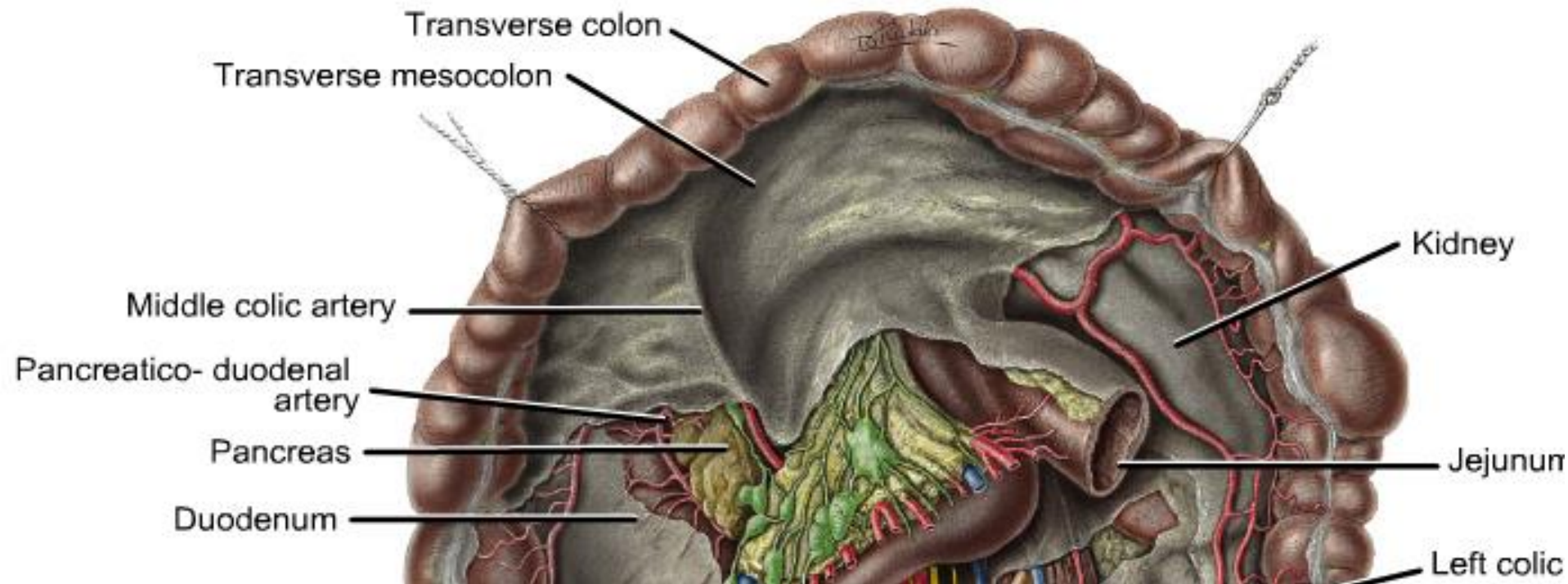


# Transverse Colon

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

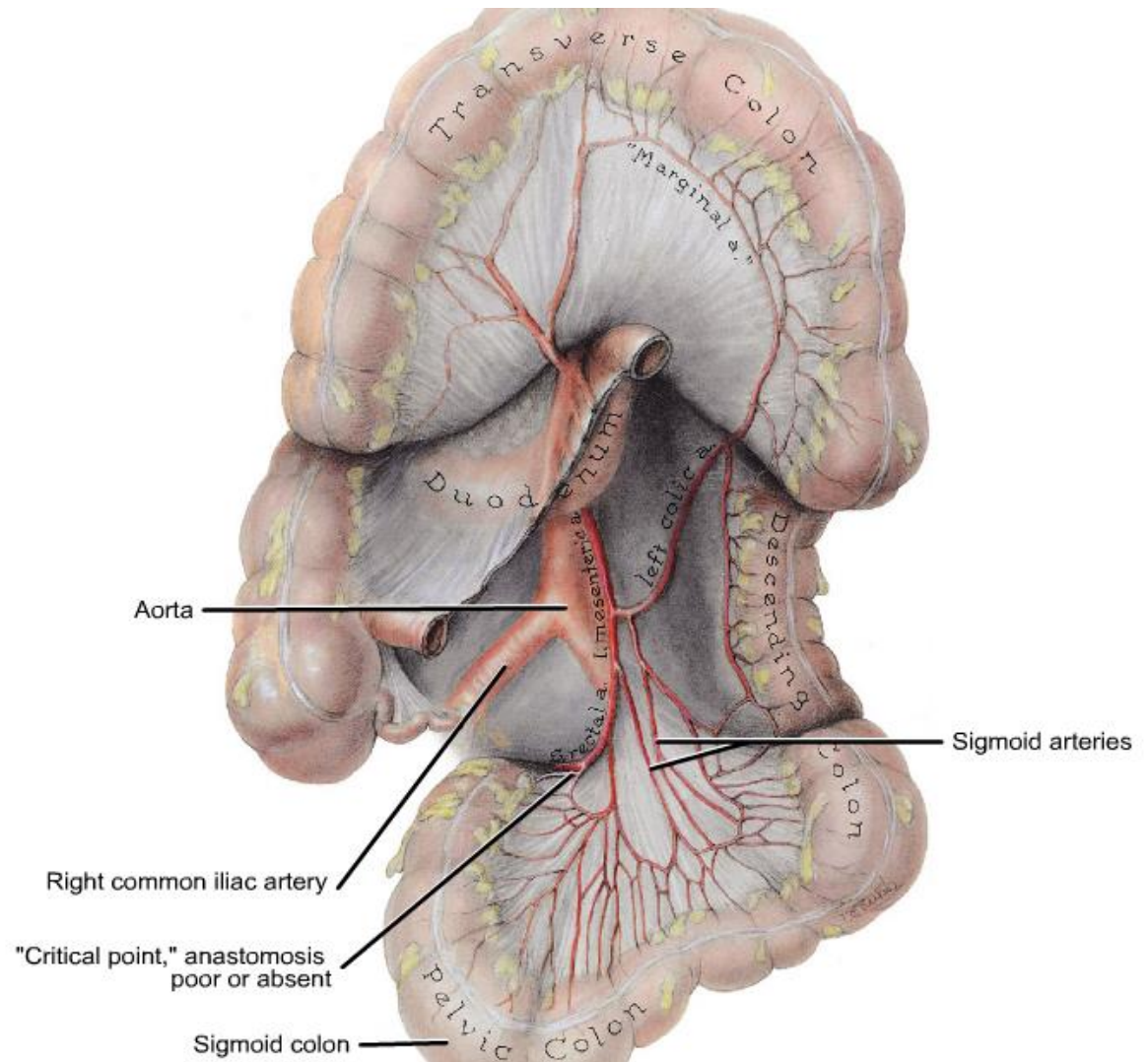


- **Transversus mesocolon:**
- **Attach to:-**  
**2<sup>nd</sup>** duodenum , head and lower margin of pancreas, anterior surface of left kidney.
- Contain middle colic vessels, br. Of left and right colic vessels, nerve and lymphatic
- Left colic flexure attach to diaphragm by phrenico-colic ligament.



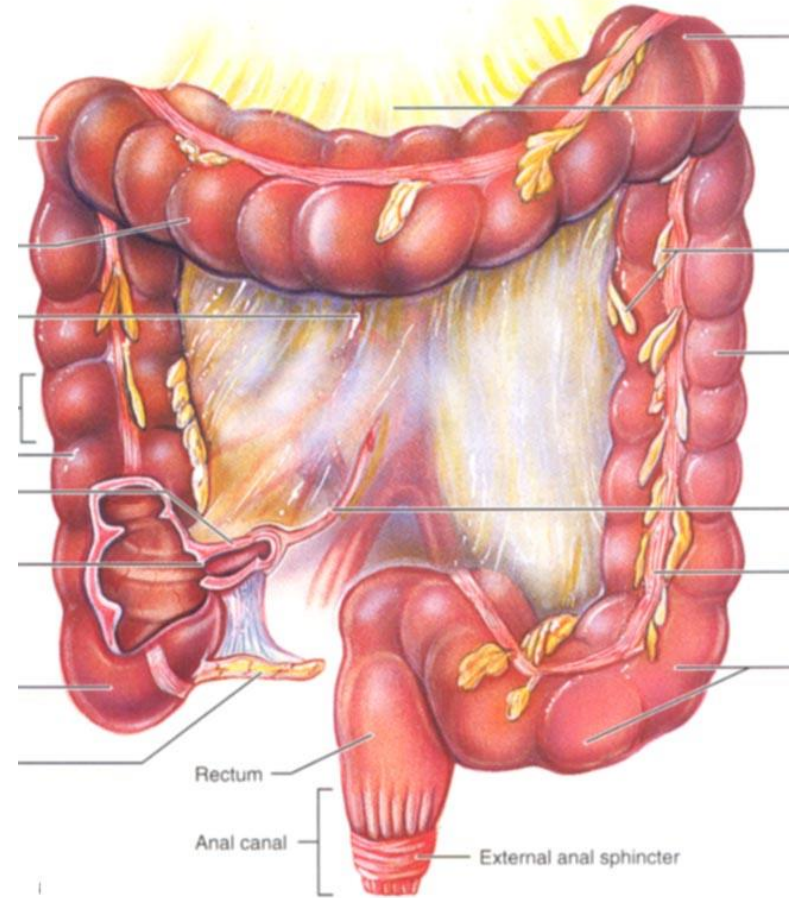


- **Blood Supply**
- **Proximal two thirds by middle colic a br. Su.M.A**
- **Distal one third by left colic : ascending br of I.M.A**

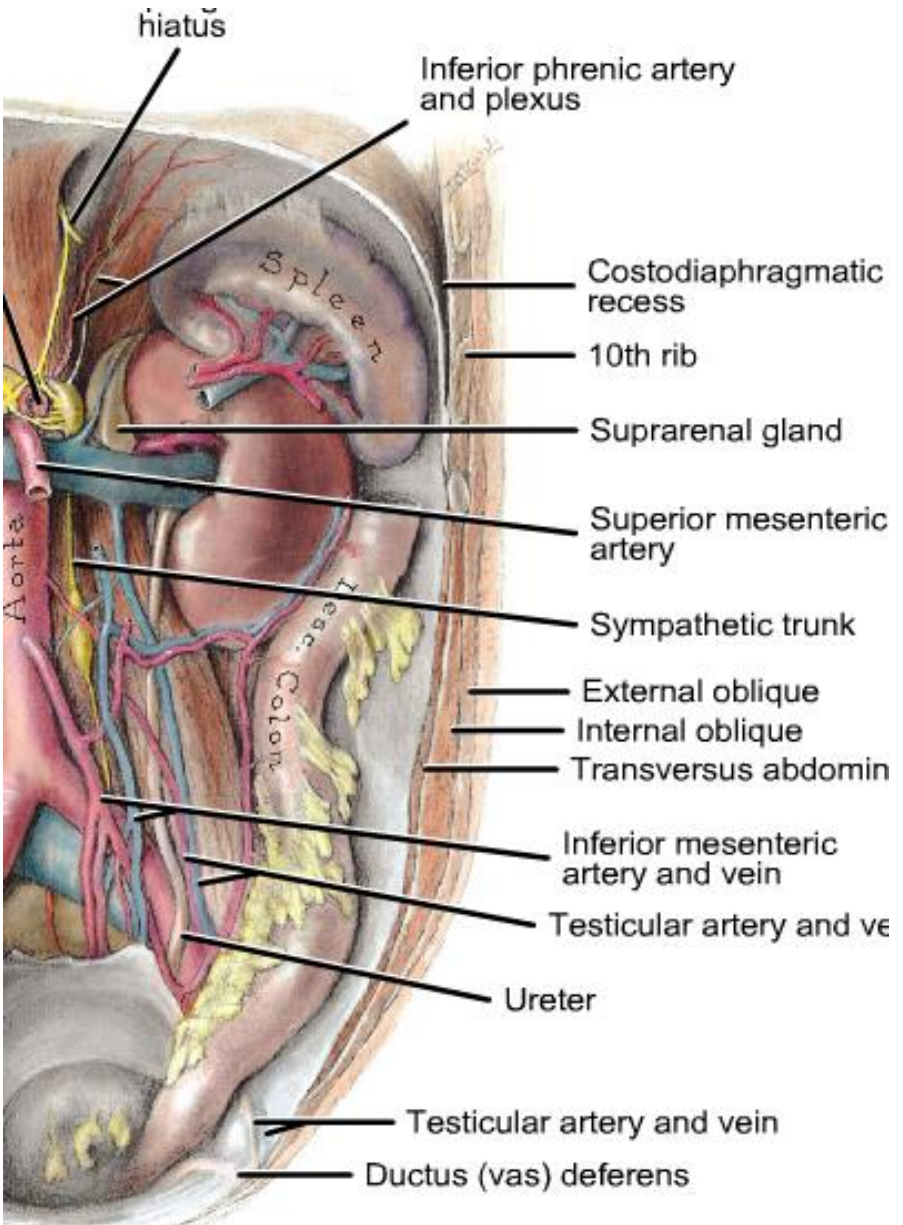


# Descending Colon

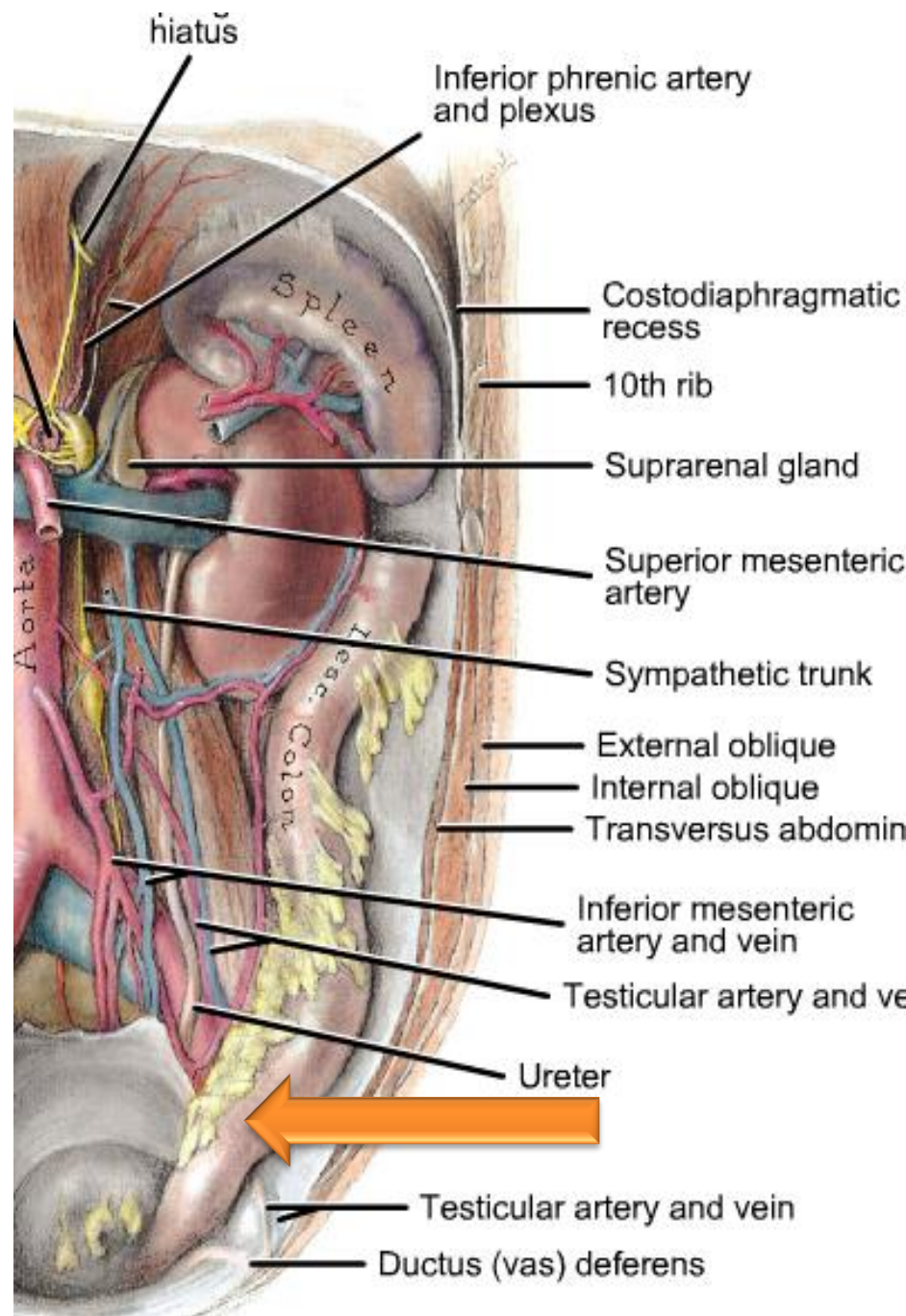
- Approximately 25cm in length
- Extend downward from the L.C.F to the pelvic brim
- Peritoneum covers the its front and the sides ,binding it to the posterior abdominal wall



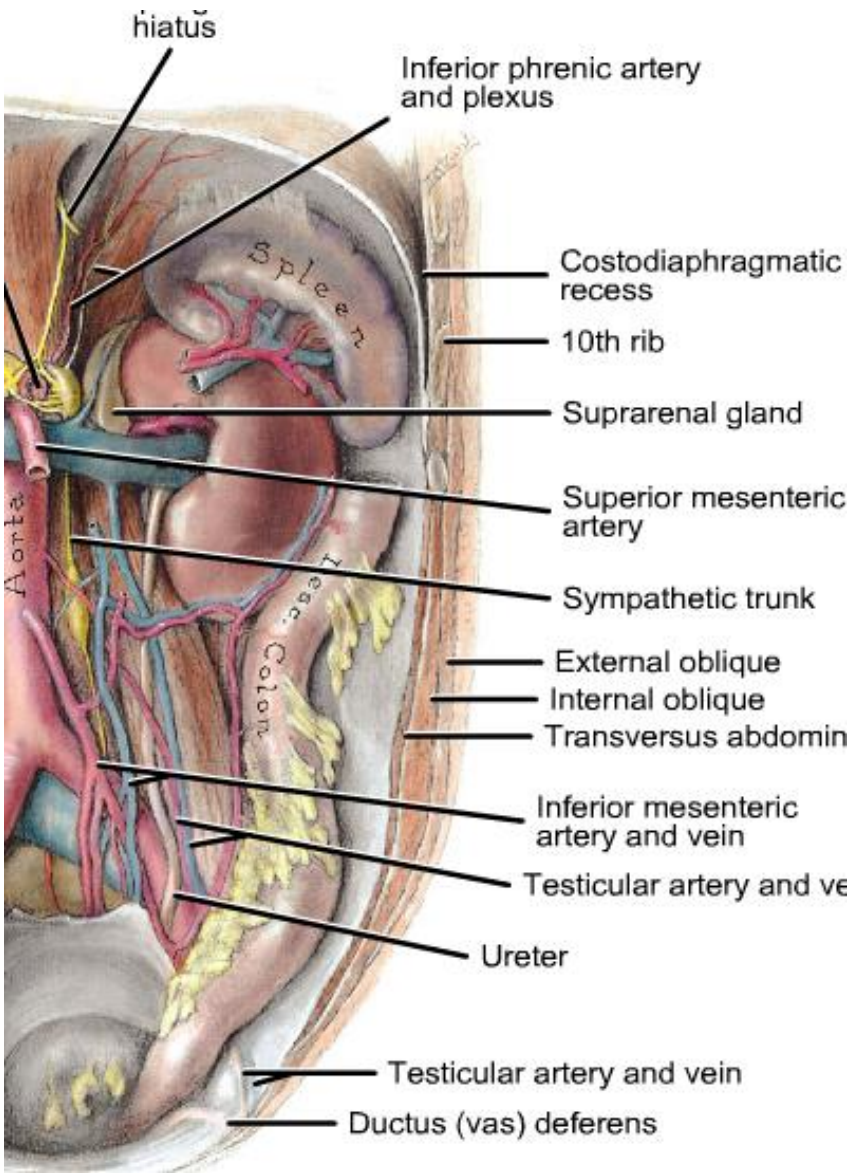
- Descend in **front to medial to diaphragm,**  
**Lateral surface of :- left kidney, transversus abdominis , quadratus lumborum, iliac crest,**  
**Crosses : lateral cutaneous, ilioinguinal , and iliohypogastric nerves , testicular vessels,**



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

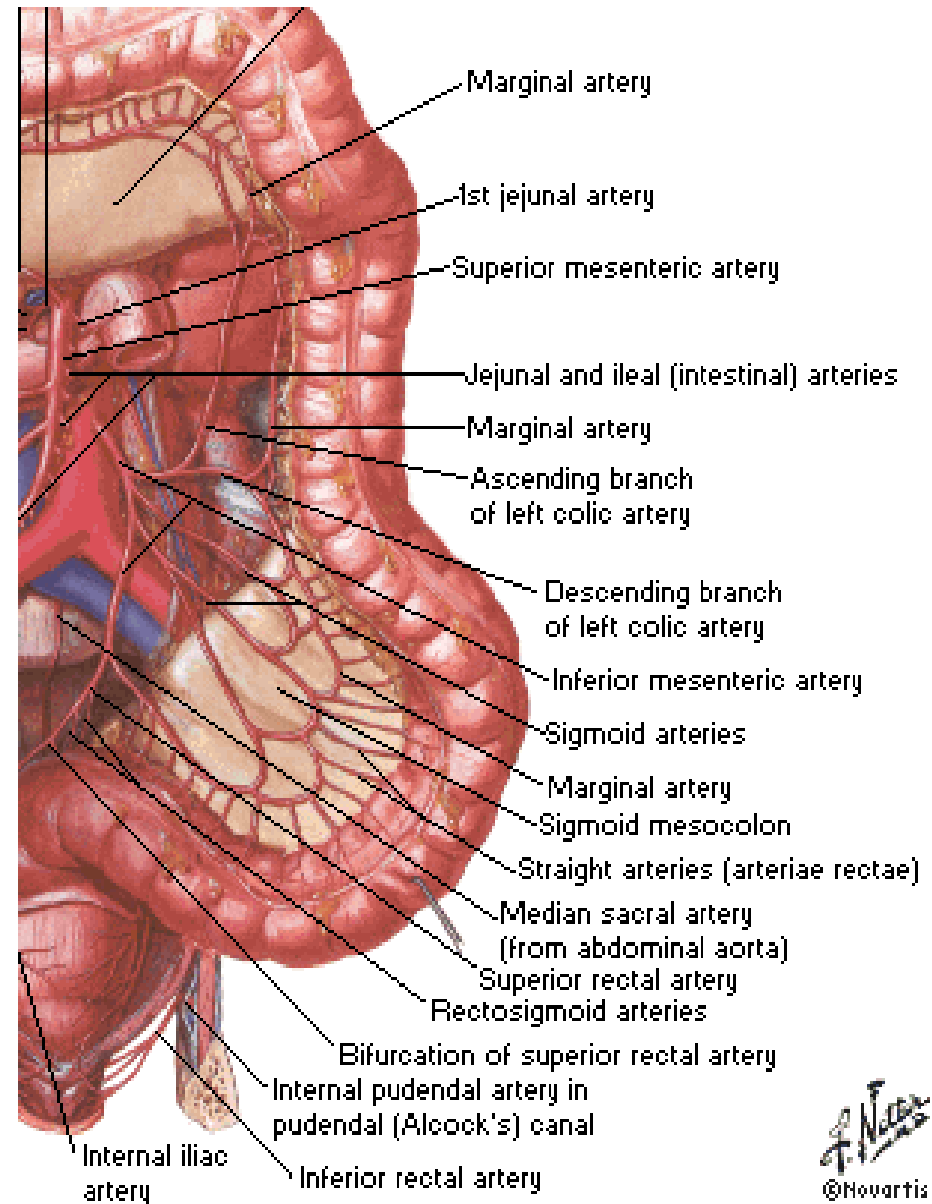


**• Pressure on the testicular and external iliac veins may be a factor to cause varicose veins in spermatic cord and lower limb on left side.**



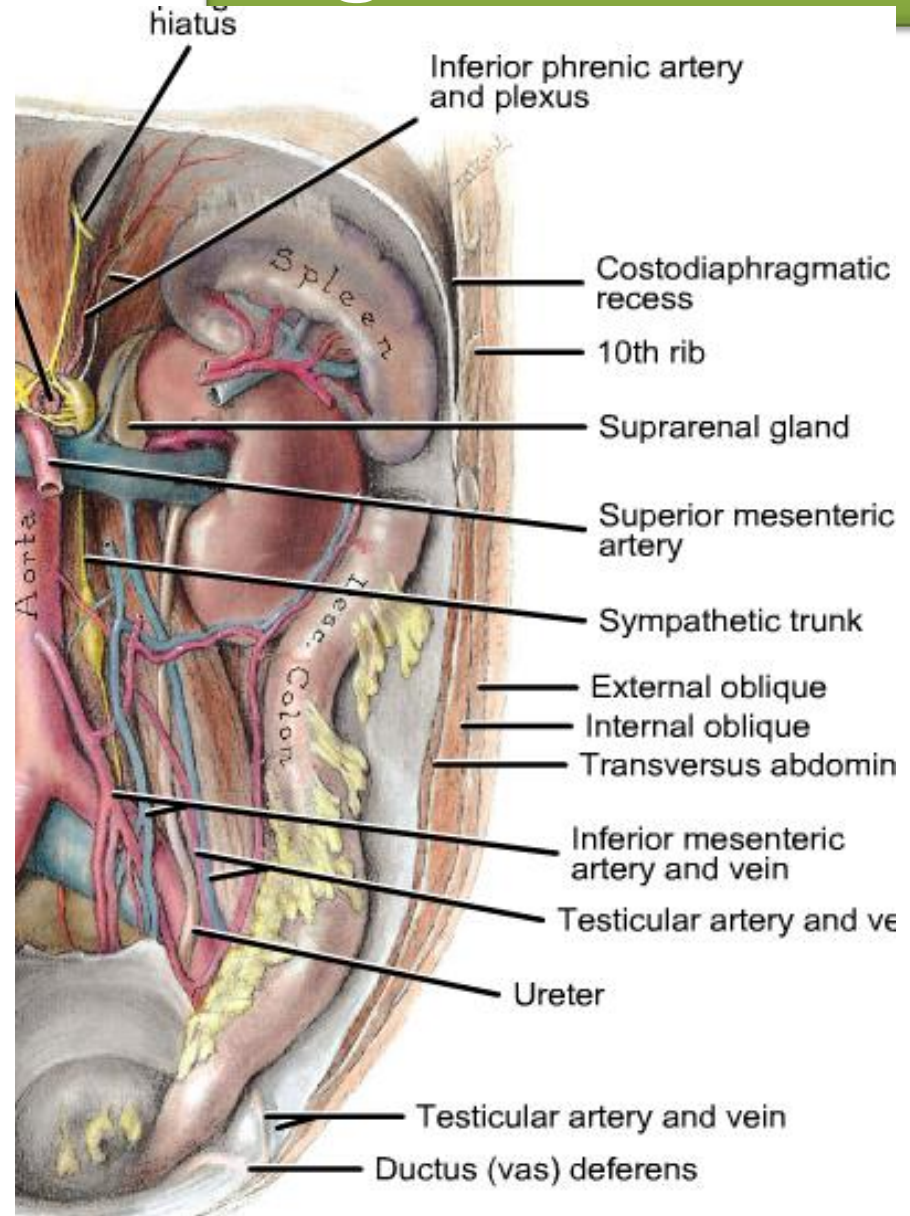
# Descending Colon

- 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.



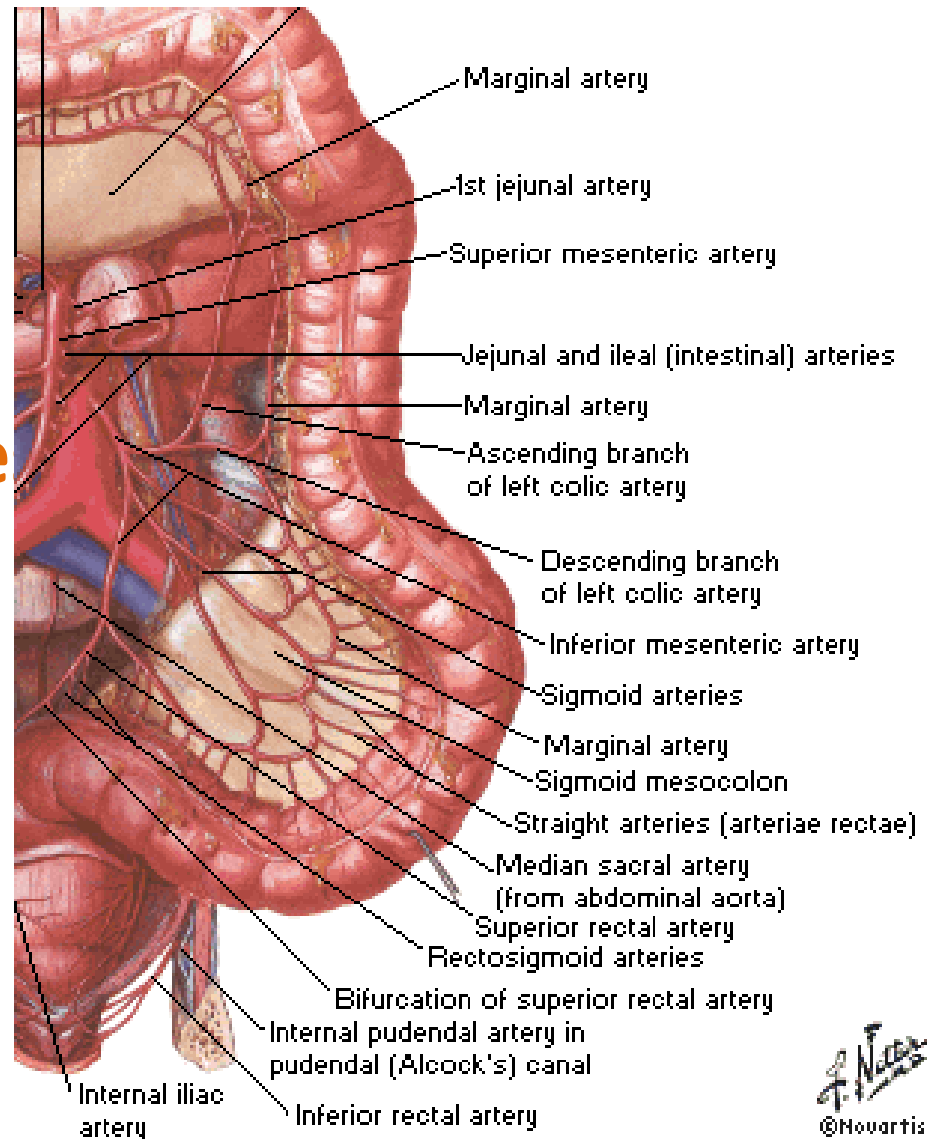
# Sigmoid Colon

- 25 to 38cm in length
- It begins as continuation of the D.C in front 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 sympathetic and para sympathetic nerves through the inferior hypogastric plexuses supply the area.**

# Sigmoid Colon

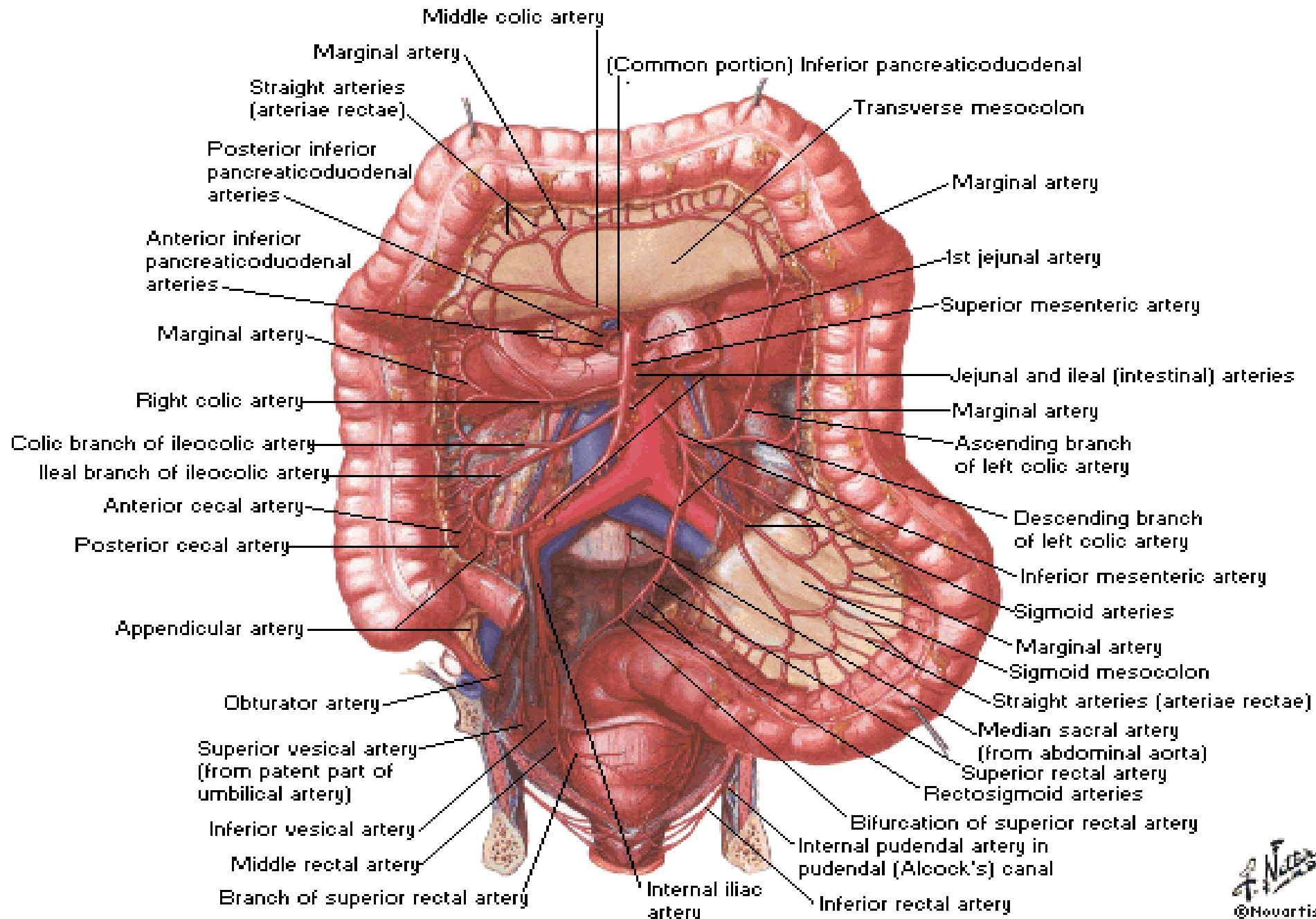


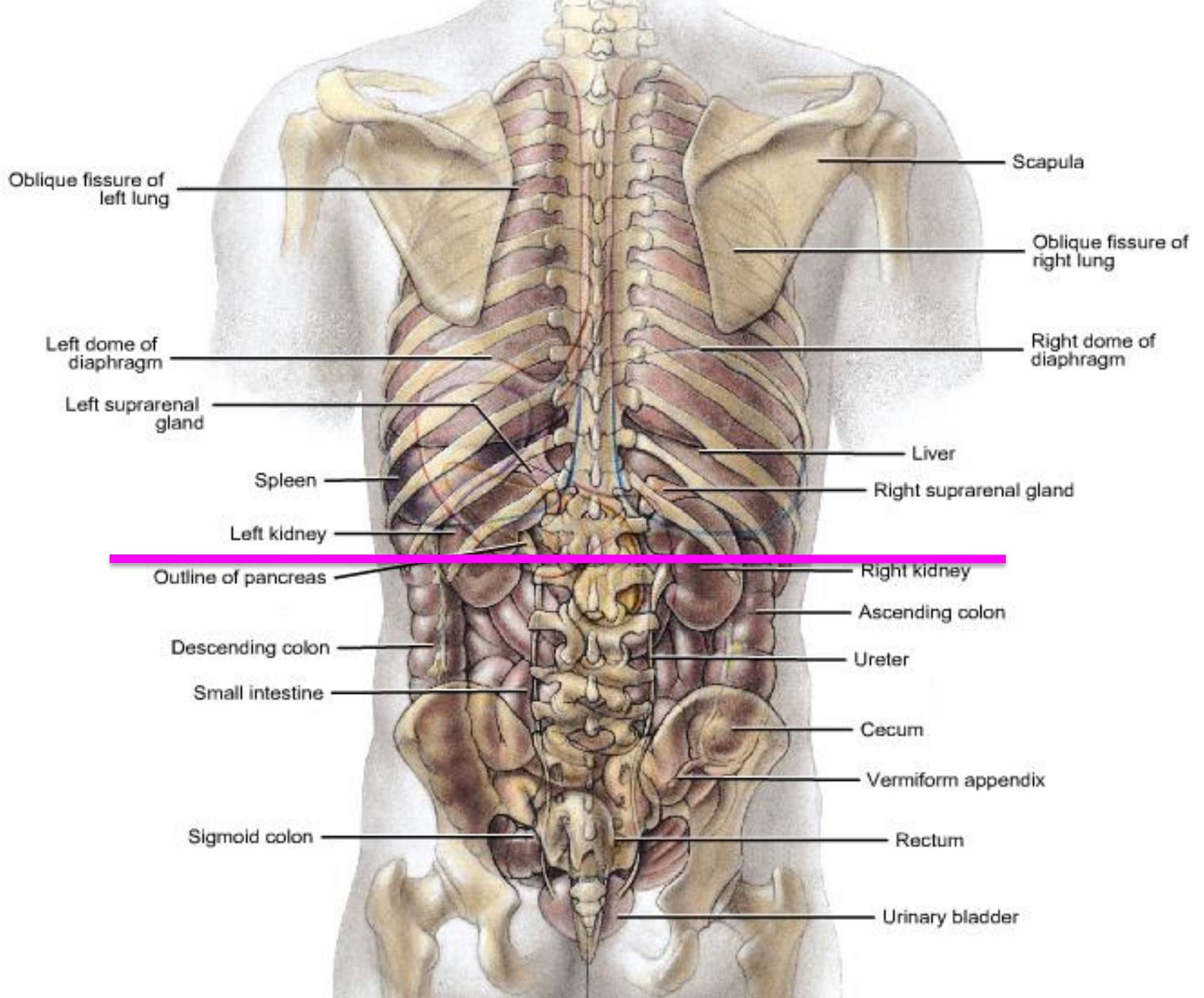


*Parasympathetic rami from the pelvic splanchnic nerves (S2, 3, 4) pass forwards as long strands (about 3 cm long) from the sacral nerves to join the inferior hypogastric plexuses on the sides of the rectum, being motor to the rectal musculature and inhibitory to the internal anal sphincter.*

*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.*

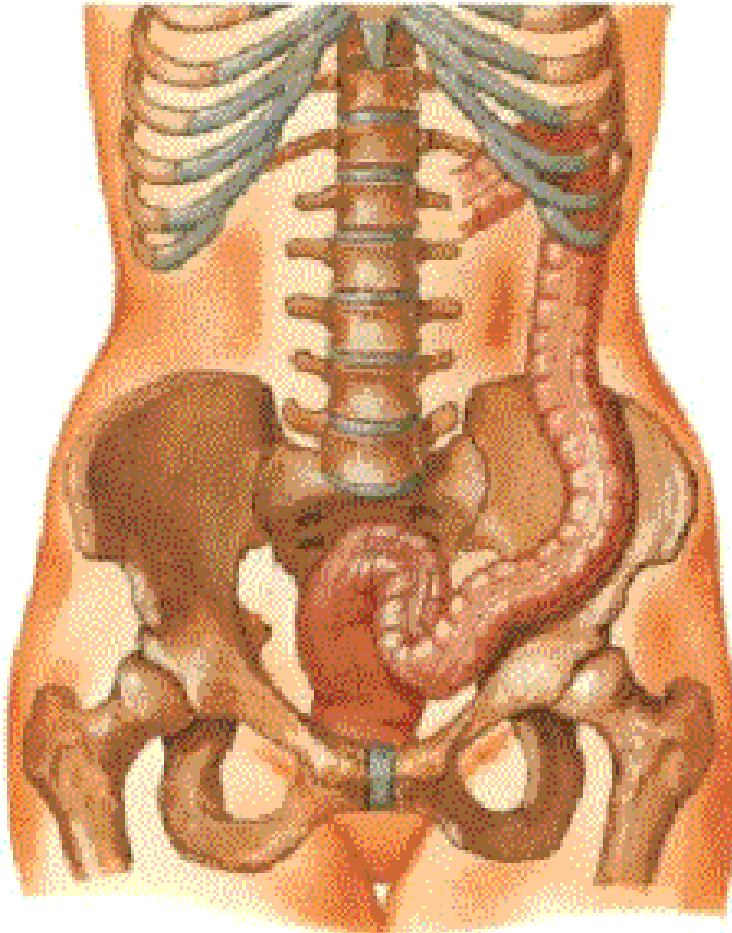
# Arteries of Large Intestine



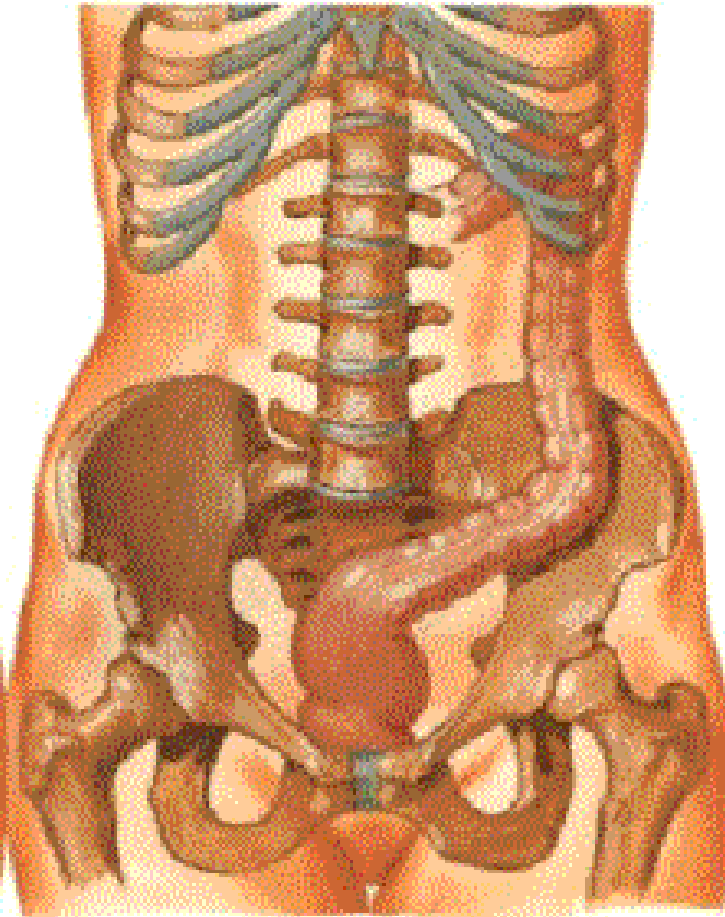


# Sigmoid Colon

## Variations in Position



Typical



Short, straight, obliquely into pelvis

**THANK**

**YOU**

