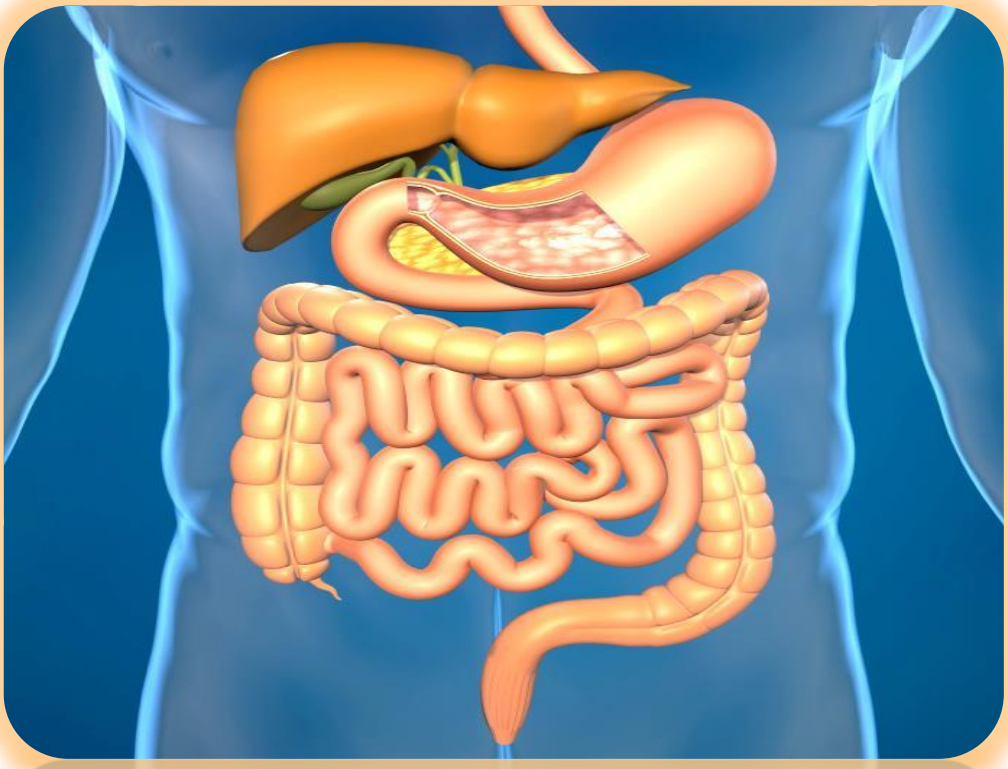
G.I.T



Lecture: ANATOMY OF LARGE INTESTINE (3)

Done by: Shaha Alqreen & Deema Alturki

Reviewed by: Wael H. Al Saleh

If there is any mistake or suggestions please feel free to contact us:

Anatomyteam32@gmail.com

Both - Black
Male Notes - BLUE
Female Notes - GREEN
Explanation and additional notes - ORANGE
Very Important note - Red

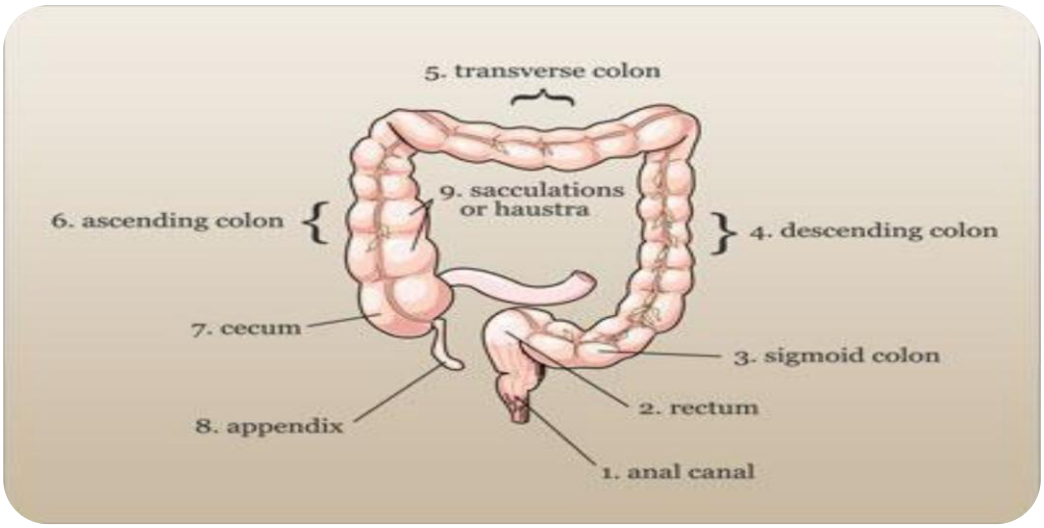
Objectives:

At the end of the lecture, students should:

- **List the different parts of large intestine.**
- **List the characteristic features of colon.**
- **Describe the anatomy of different parts of large intestine regarding: the surface anatomy, peritoneal covering, relations, arterial & nerve supply.**

mind map

- **Parts of Large Intestine**
  - Cecum
  - Ascending Colon
  - Transverse Colon
  - Descending Colon
  - Sigmoid Colon
  - Rectum
  - Anal Canal
- ***Arterial Supply***
- ***VENOUS DRAINAGE***
- ***Lymph drainage***
- ***NERVE SUPPLY***



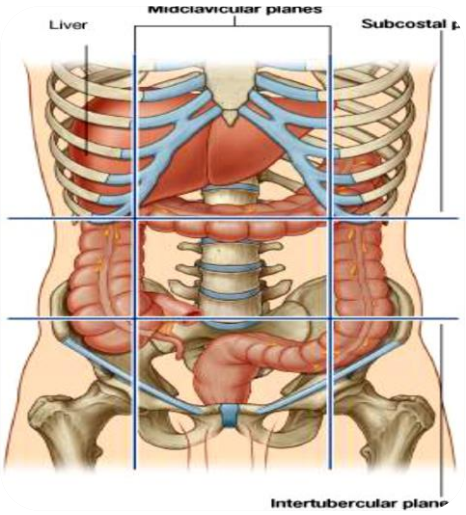
Parts of Large Intestine

Abdomen
- Cecum
- Appendix
- Ascending Colon
- Transverse Colon
- Descending Colon

Pelvis
- Sigmoid Colon
- Rectum

Perineum → Anal Canal

The perineum separated from the pelvis by pelvic floor muscle.



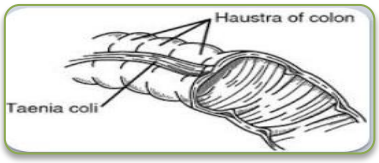
Characteristics of COLON

(NOT FOUND IN RECTUM & ANAL CANAL)

1.Taeniae coli:

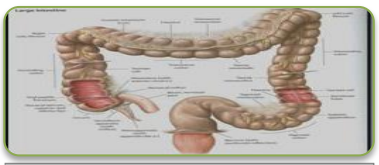
(3) longitudinal muscle bands

along the whole length of large intestine



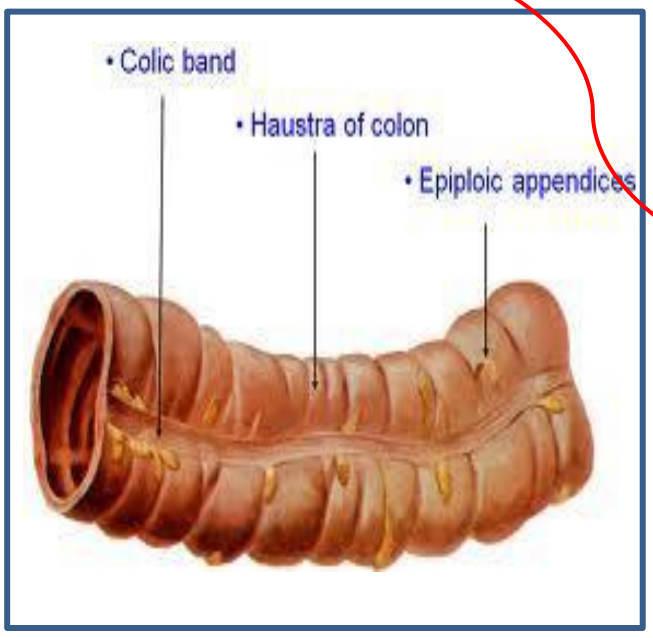
2. Epiploic Appendices :

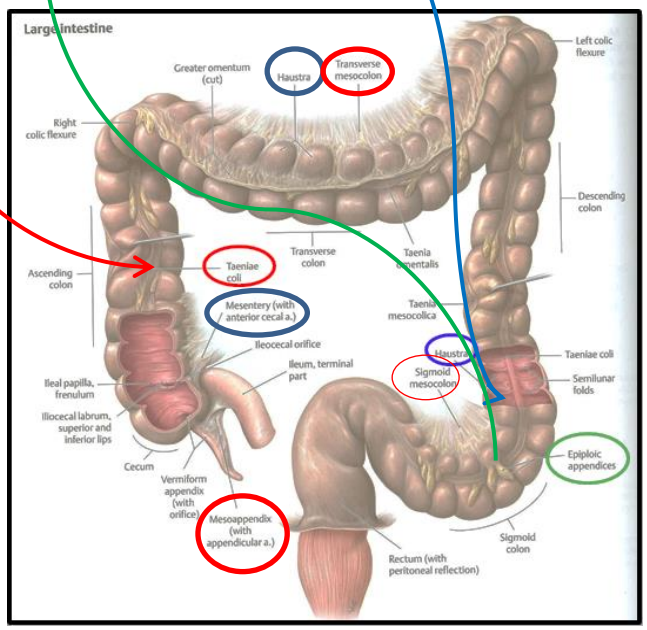
Short peritoneal folds filled with fat



3. **Sacculations (Haustra):**

Because the Taeniae coli are shorter than large intestine. the colon becomes saccula ted between the taenia, forming the haustra

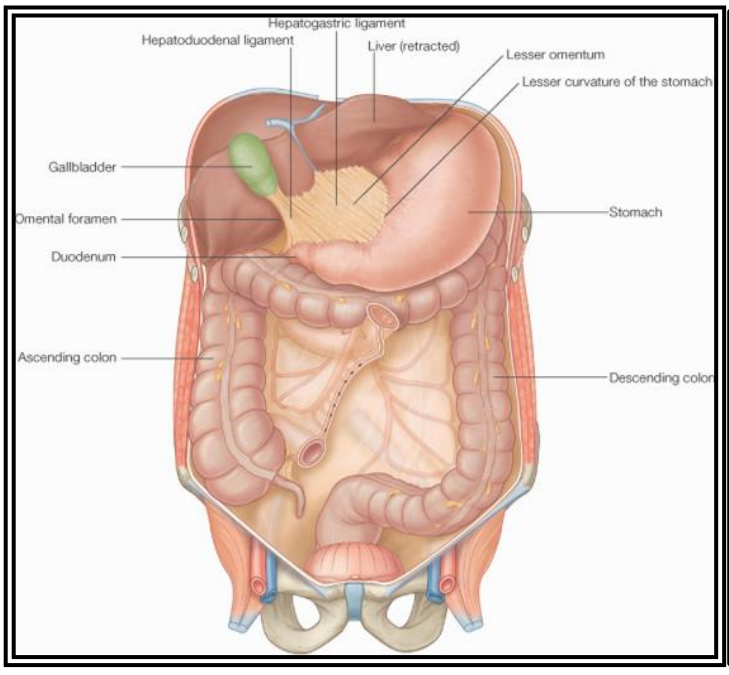




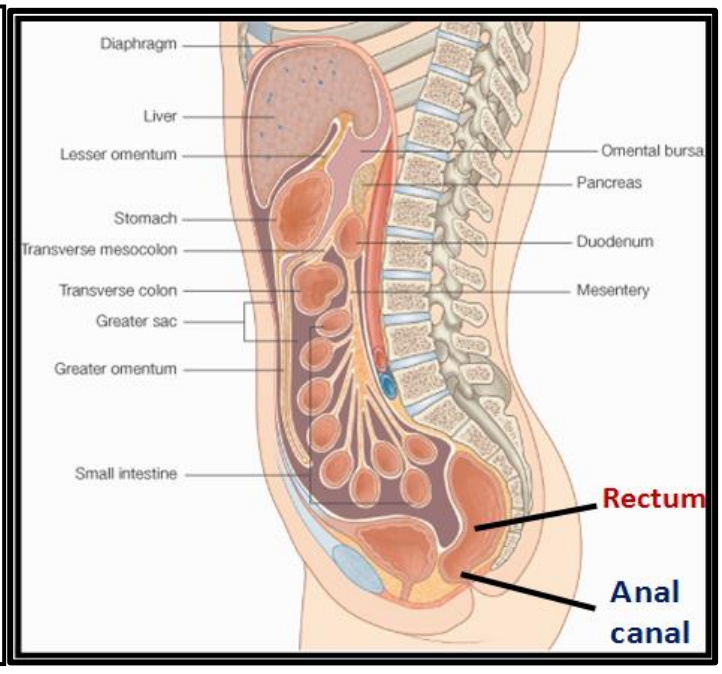
Peritoneal Covering

PARTS WITH MESENTERY:	• Transverse colon (by transverse mesocolon) • Sigmoid colon • Appendix • Cecum (Not always)
RETROPERITONEAL PARTS:	• Ascending colon • Descending colon • Upper 2/3 of rectum
PARTS DEVOID OF PERITONEAL COVERING:	• Lower 1/3 of rectum • Anal canal

N.B: The ascending colon shorter and thicker than descending colon because it's against gravity.



Peritoneal Covering

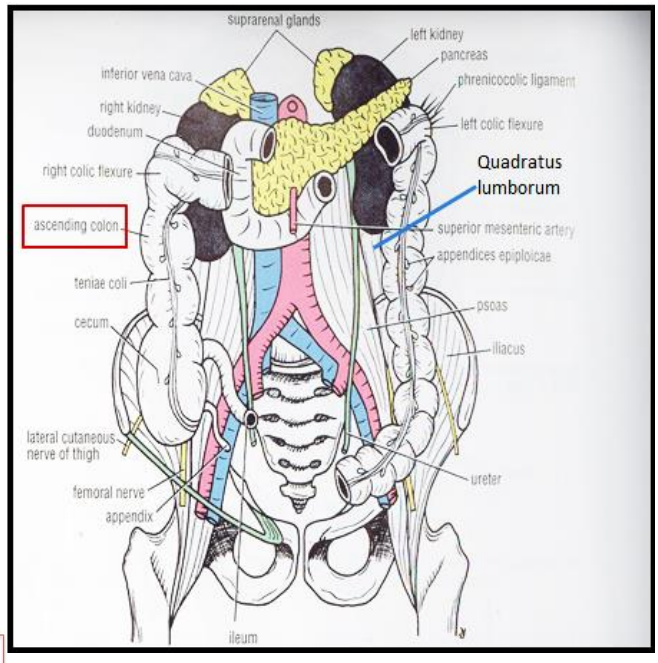


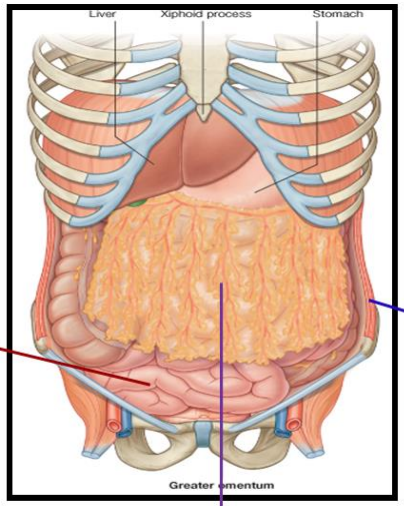
Lower 1/3 of rectum - Anal canal

Relations of LARGE INTESTINE

Relations of	CECUM	ASCENDING COLONS	DESCENDIG COLONS	Transverse Colon
Anterior	Greater omentum Coils of small intestine Anterior abdominal wall			greater omentum, anterior abdominal wall
Posterior	Psoas major Iliacus	Iliacus - Quadratus lumborum - Right kidney.	Left kidney - Quadratus lumborum - Iliacus - Psoas major	2nd part of duodenum , pancreas & superior mesenteric vessels.
Superior:	-			liver, gall bladder, stomach
Inferior				coils of small intestine

Posterior Relations
(CECUM – ASCENDING & DESCENDING COLONS)





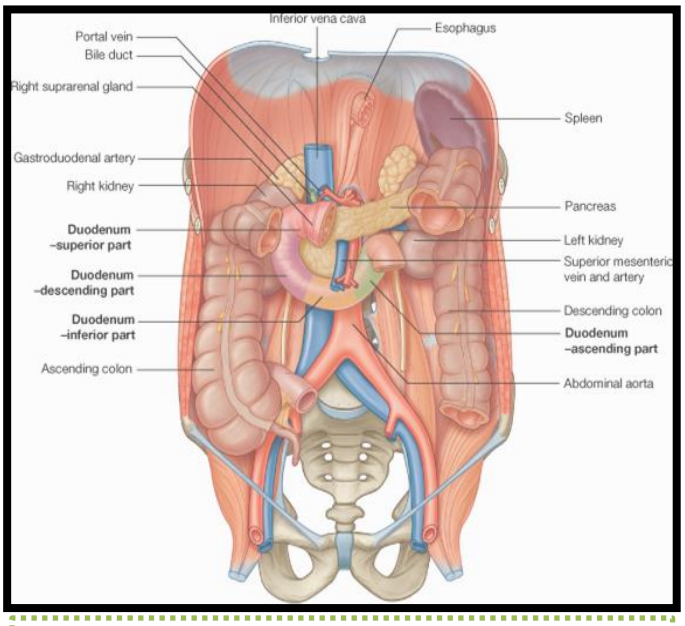
Coils of small intestine

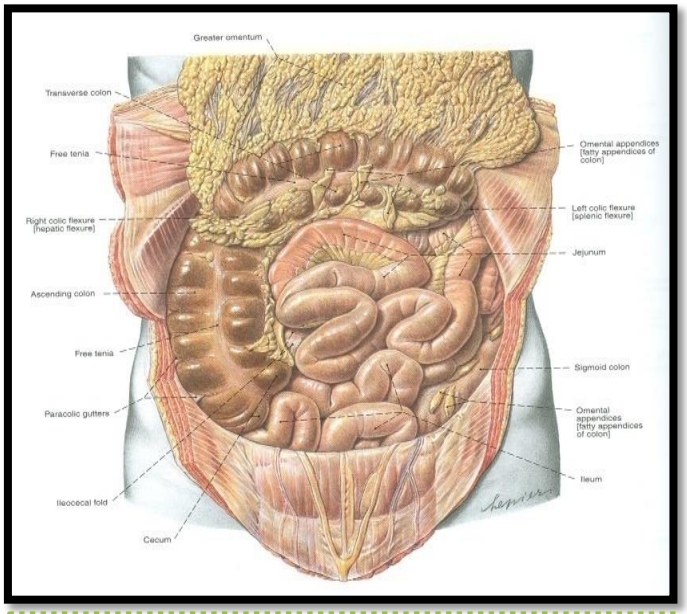
Anterior abdominal wall

Greater omentum

Anterior Relations of
(CECUM – ASCENDING & DESCENDING COLONS)

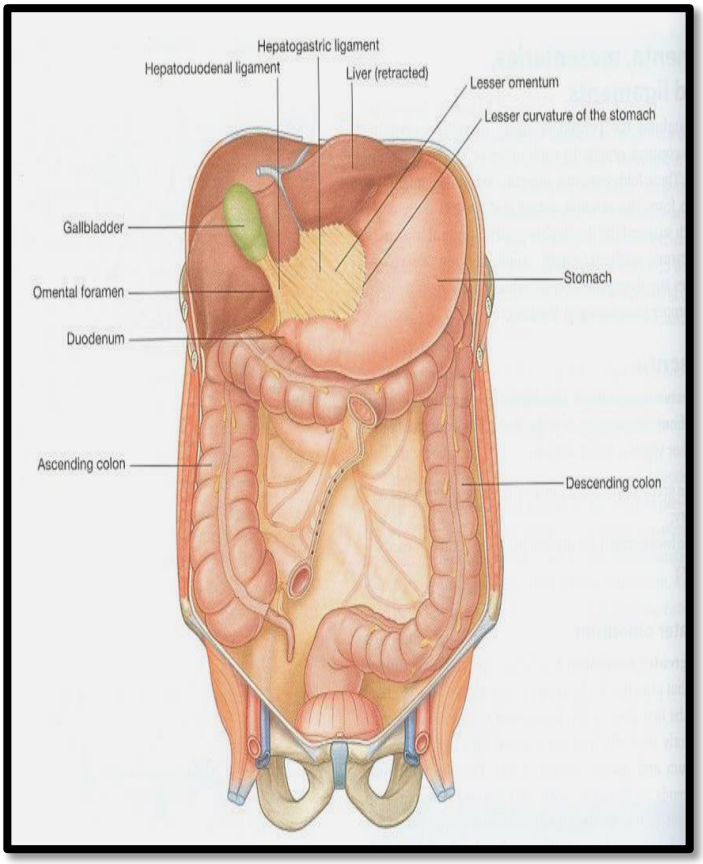
Relations of Transverse Colon

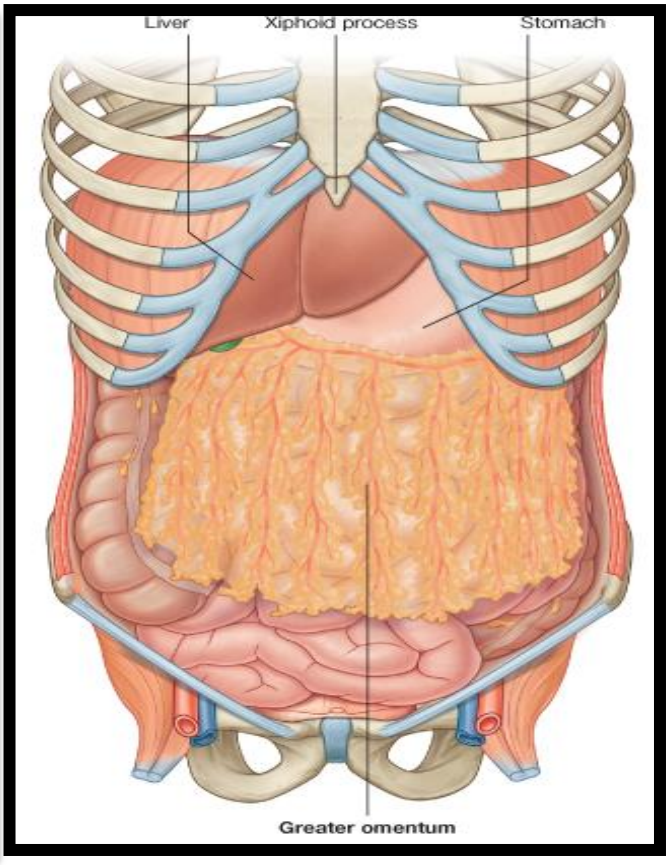




Posterior: 2nd part of duodenum , pancreas & superior mesenteric vessels.

Inferior: coils of small intestine

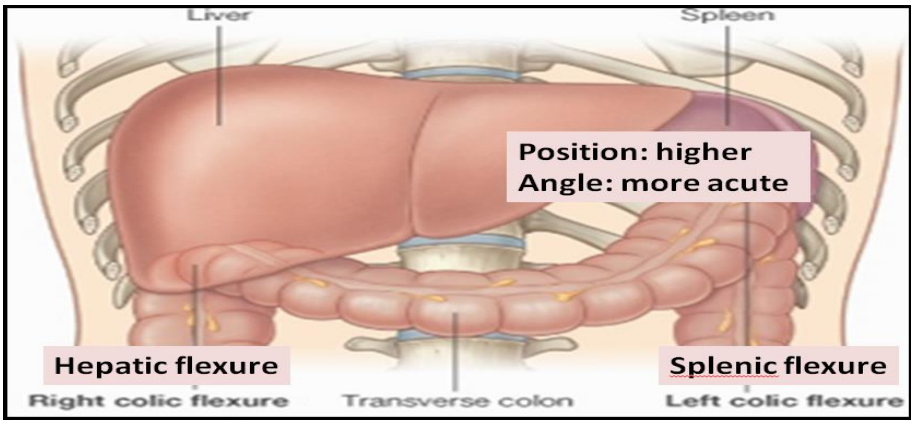




Superior: liver, gall bladder, stomach

Anterior: greater omentum, anterior abdominal wall

COLIC FLEXURES



Colic Flexures

Consist of:

1. Right colic (Hepatic) flexure

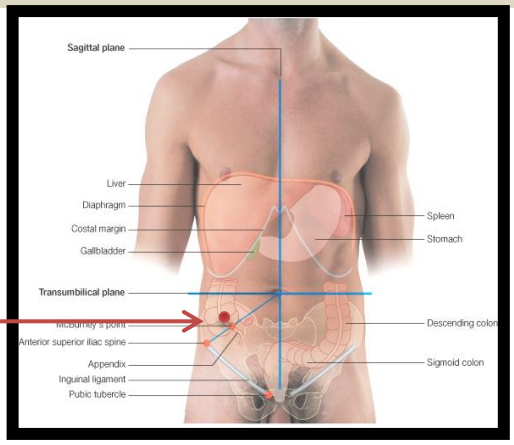
2. Left colic (Splenic) flexure

Splenic flexure higher than hepatic and has more angel.

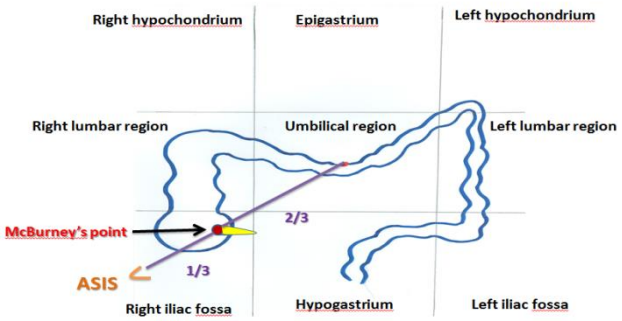
APPENDIX

- Surface anatomy:
  the base of appendix is marked by Mc'Burney's point:
  A point at the junction of lateral 1/3 & medial 2/3 of a line traced from right anterior superior iliac spine to umbilicus

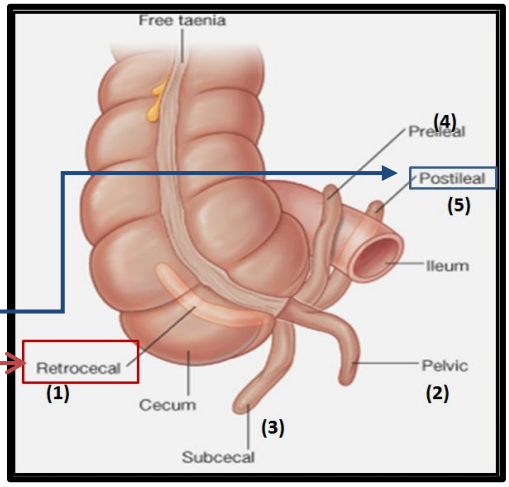
Mc'Burney's point located in right iliac fossa and used in the diagnosis of appendicitis



- Opening:
  At posteromedial aspect of cecum, 1 inch below ileo-cecal junction

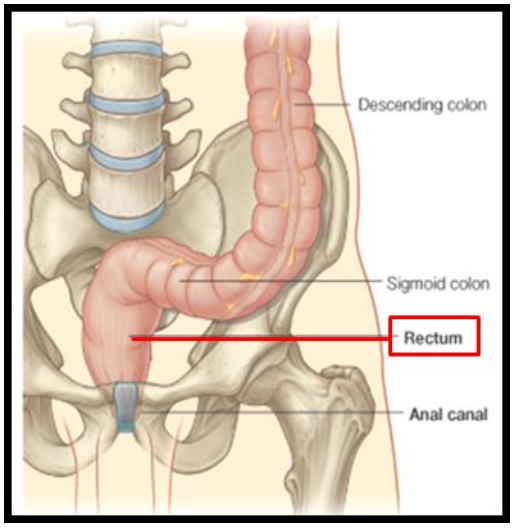


- Positions:
  1. Retrocecal :(most common)
  2. Pelvic
  3. Subcecal
  4. Preilieal
  5. Postileal: least common



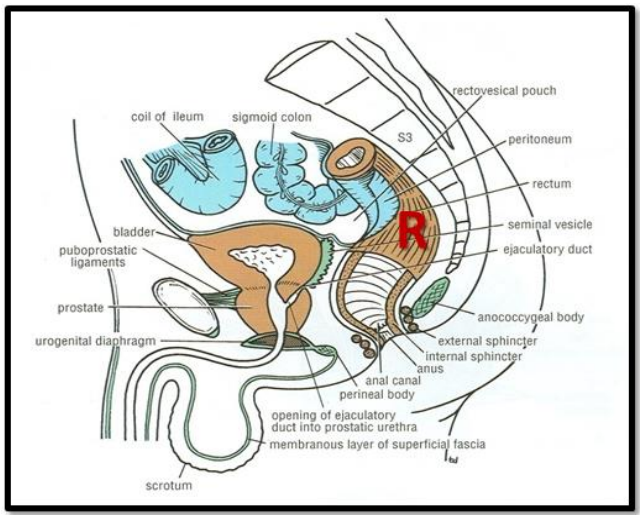
RECTUM

- Beginning: as a continuation of sigmoid colon at level of S3.
- Termination: continues as anal canal, one inch below & in front of tip of coccyx. Its end is dilated to form the rectal ampulla.
- Length: 13 cm(5 inches)



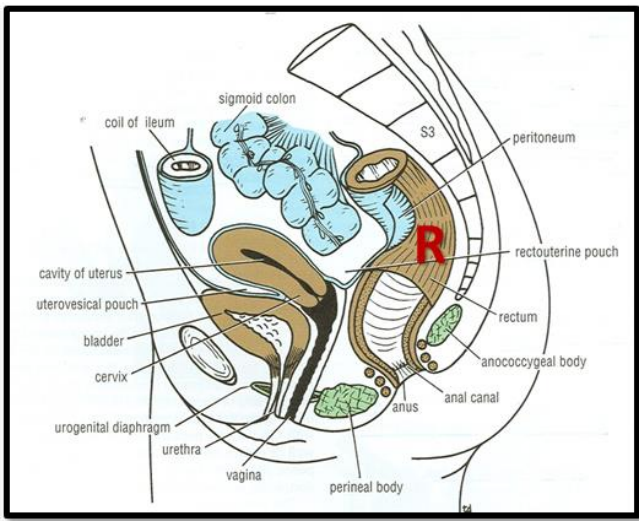
MALE PELVIS

- Anterior: seminal vesicles, Posterior surfaces of urinary bladder & prostate gland
- Posterior: sacrum, sacral plexus & coccyx



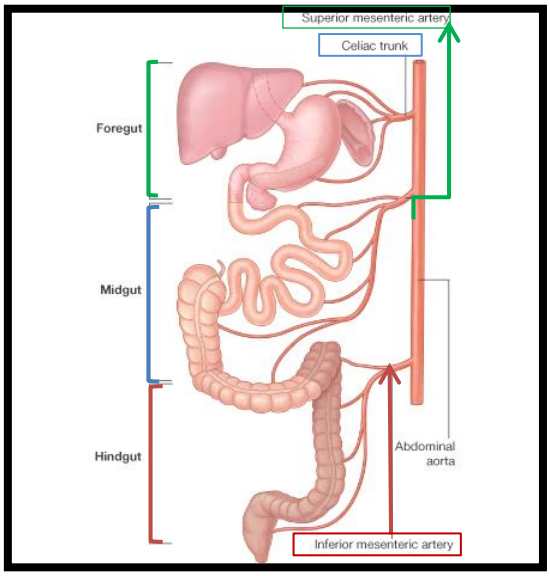
FEMALE PELVIS

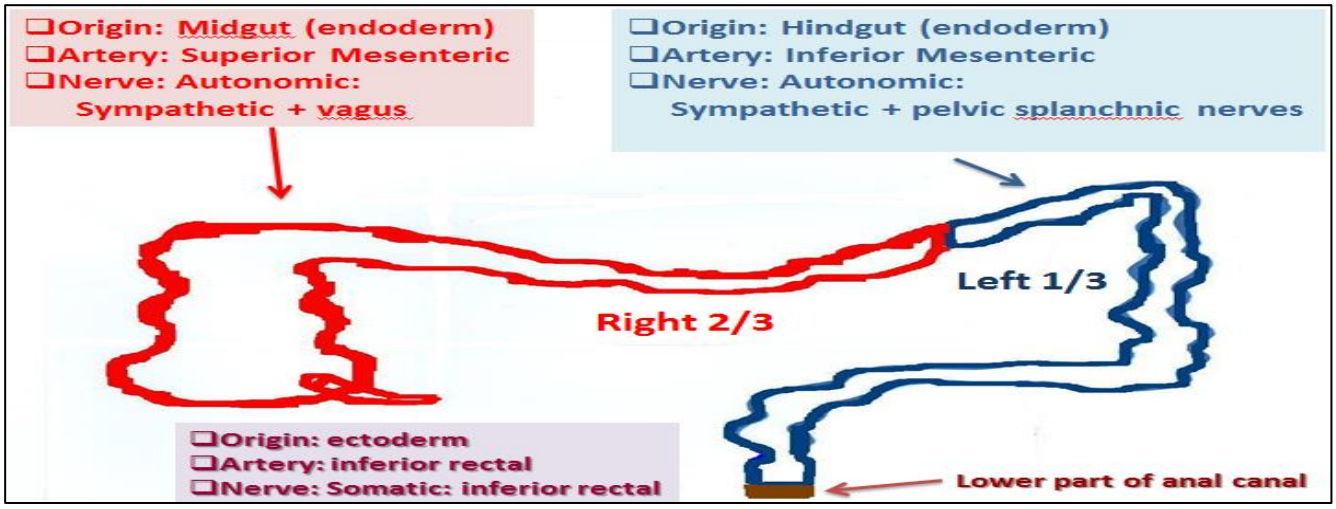
- Anterior: posterior wall of vagina
- Posterior: sacrum , sacral plexus & coccyx



Relation Between Embryological Origin of GUT& its Arterial Supply

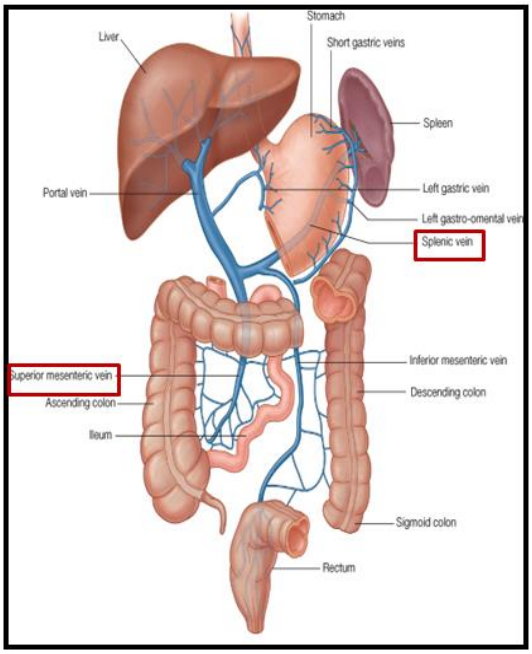
- Forgut → celiac trunk
- Midgut → superior mesenteric artery
- Hindgut → inferior mesenteric artery





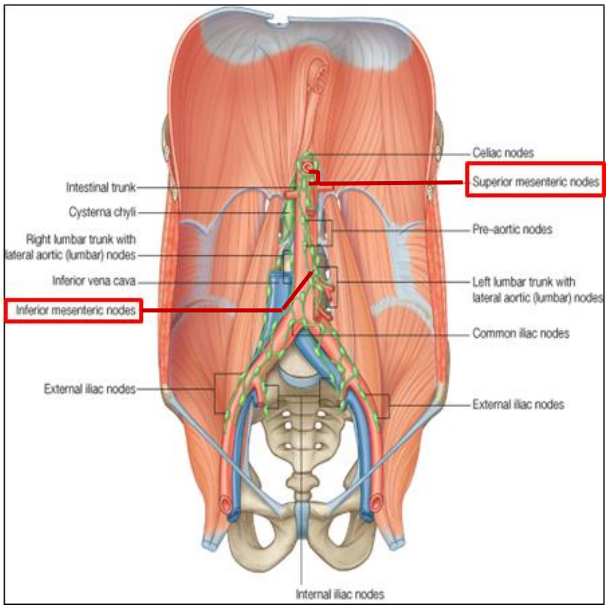
VENOUS DRAINAGE OF GUT

The veins of the gut form the tributaries of the portal vein which enters the liver and drains into the **portal circulation.**



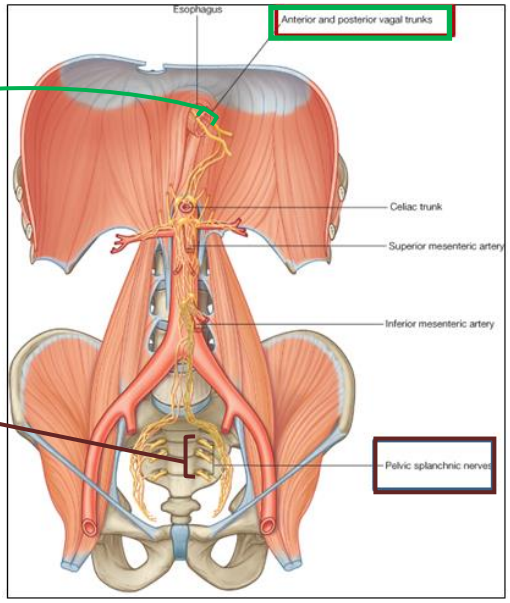
Lymph drainage of Gut

The lymph vessels follow the arteries. Ultimately, all the lymph is collected at the Preaortic lymph nodes (Superior & Inferior mesenteric).



RELATION BETWEEN EMBRYOLOGICAL ORIGIN & NERVE SUPPLY

Origin	Nerve supply
Midgut (endoderm)	(Autonomic): Sympathetic + Vagus
Hindgut (endoderm)	(Autonomic): Sympathetic + pelvic splanchnic nerves
ectoderm (lower 1/3 of anal canal)	Somatic (inferior rectal)



Relation Between Embryological Origin of GUT& its Arterial Supply	○ Forgut → celiac trunk ○ Midgut → superior mesenteric artery ○ Hindgut → inferior mesenteric artery	
VENOUS DRAINAGE OF GUT	The veins of the gut form the tributaries of the **portal vein** which enters the liver and drains into the **portal circulation.**	
Lymph drainage of Gut	The lymph vessels follow the arteries.Ultimately, all the lymph is collected at the Preaortic lymph nodes (Superior & Inferior mesenteric).	
RELATION BETWEEN EMBRYOLOGICAL ORIGIN & NERVE SUPPLY	**Origin**	**Nerve supply**
	Midgut (endoderm)	(Autonomic): Sympathetic + Vagus
	Hindgut (endoderm)	(Autonomic): Sympathetic + pelvic splanchnic nerves
	ectoderm (lower 1/3 ofanal canal)	Somatic (inferior rectal)

Questions:

Q1) Which one of the following is NOT anterior to the rectum in the pelvis:

A) Urinary bladder
B) Sacrum
C) Vagina
D) Prostate gland

Q2) In which one of the following regions lies McBurney's point:

A) Right iliac fossa
B) Hypogastrium
C) Right lumbar region
D) Umbilical region

Q3)The Appendix found in which one of the following regions:

A) Pelvis
B) Perineum
C) Thoracic
D) Abdomen

Q4) Which one of the following is posterior to the transverse colon:

A) 2nd part of duodenum
B) Left kidney
C) Psoas major
D) Gall bladder

Q5)Which one of the following is a retroperitoneal part of large intestine:

A) Cecum
B) Upper 2/3 of rectum
C) Transverse colon
D) Sigmoid colon

Q6) Which one of the following is the most common position of the appendix:

A) Subcecal
B) Pelvic
C) Postileal
D) Retrocecal

Q7) Which one of the following is NOT a special characteristic of colon:

A) Epiploic Appendices
B) Haustra
C) Mesentery
D) Teniae coli

Q8) Which one of the following parts of large intestine is found in the pelvis:

A) Transverse colon
B) Anal canal
C) Rectum
D) Cecum

Q9) Which one of the following is the left colic flexure:

A) Pontine flexure
B) Hepatic flexure
C) Lumbar flexure
D) Splenic flexure

Q10) Which one of the following is the level of the beginning of the rectum:

A) S3
B) L3
C) S2
D) T10

Q11) Which one of the following is the nerve supply of ectodermal origin of the large intestine:

A) Vagus nerve
B) Somatic inferior rectal nerve
C) Sympathetic
D) Pelvic splanchnic nerves

Q12) Which one of the following is the venous drainage of the gut:

A) Common iliac vein
B) Splenic vein
C) Inferior vena cava vein
D) Portal Vein

Q13) Which one of the following is the arterial supply of the left 1/3 of the large intestine:

A) Superior Mesenteric
B) inferior rectal
C) Inferior Mesenteric
D) Gastric arteries

Q14) Which one of the following is where all the lymph from large intestine collected at:

A) Cervical lymph nodes
B) Inguinal lymph nodes
C) Axillary lymph nodes
D) Preaortic lymph nodes

Q15) Which one of the following is inferior to transverse colon:

A) Pancreas
B) Small intestine
C) Liver
D) Stomach

Q	Answers
1	B
2	A
3	D
4	A
5	B
6	D
7	C
8	C
9	D
10	A
11	B
12	D
13	C
14	D
15	B

GOOD LUCK

Anatomy Team Leaders:

Fahad AlShayhan & Eman AL-Bedica