Anatomy Team
MED 439

Revised & Approved

Bassam Alasmari
Rania Almutiri

MED439
KING SAUD UNIVERSITY

The Small Intestine

GNT Block

Don't forget to check the Editing File

Color index:

Content
Male slides
Female slides
Important
Doctors notes
Extra information, explanation

Contact us:
Anatomy439@gmail.com

Objectives

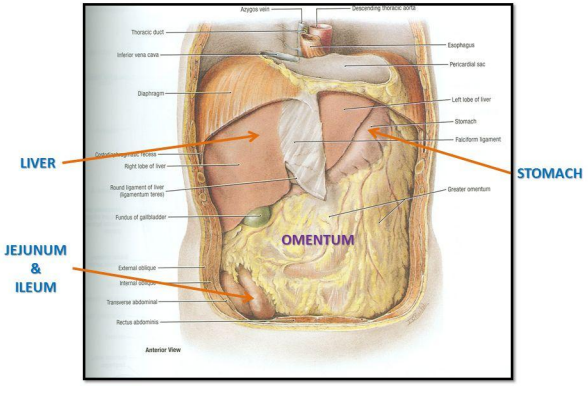
At the end of the lecture, students should:

- List the different parts of small intestine.
- Describe the anatomy of duodenum, jejunum & ileum regarding:
  - the shape
  - length
  - site of beginning & termination
  - peritoneal covering
  - arterial supply & lymphatic drainage.
- Differentiate between each part of duodenum regarding :
  - the length
  - level
  - relations.
- Differentiate between the jejunum & ileum regarding the characteristic anatomical features of each of them.

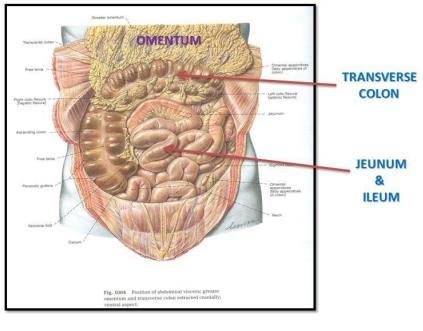
Layers of the abdomen

Important layers "in male's slides"

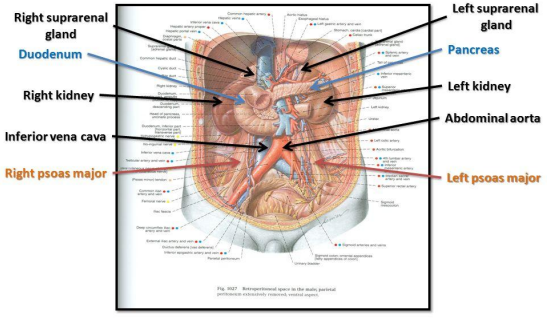
ABDOMEN - LAYER 1



ABDOMEN – LAYER 1



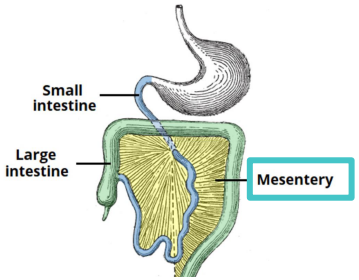
ABDOMEN – LAYER 3 (IN BLACK) + PART OF LAYER 2 (IN BLUE)

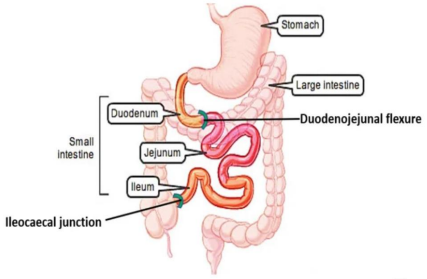


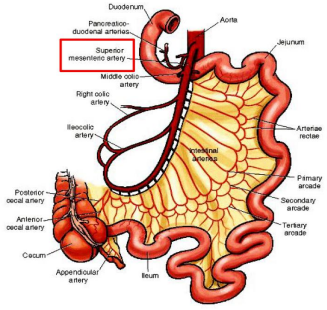
Small intestine

The small intestine divided into :

Parts	Fixed part (No mesentery): Duodenum	Free (Movable) part (With mesentery): Jejunum & ileum
Shape	C-shaped loop	Coiled tube
Length	10 inches	6 meters (20 feet)
Beginning	at pyloro-duodenal junction	at Duodeno-jejunal flexure
Termination	at duodeno-jejunal flexure	at Ilieo-caecal junction
Peritoneal covering	retroperitoneal	mesentery of small intestine
Division	4 parts	-
Embryological origin	Foregut(gives rise to the 1st part) & Midgut(gives rise to the 2nd,3rd and 4th parts)	Midgut
Arterial supply	Celiac (artery of foregut) & Superior mesenteric (artery of midgut)	Superior mesenteric (artery of midgut)
Venous Drainage	Superior mesenteric & Portal veins	Superior mesenteric
Lymphatic drainage	Celiac & Superior mesenteric	Superior mesenteric



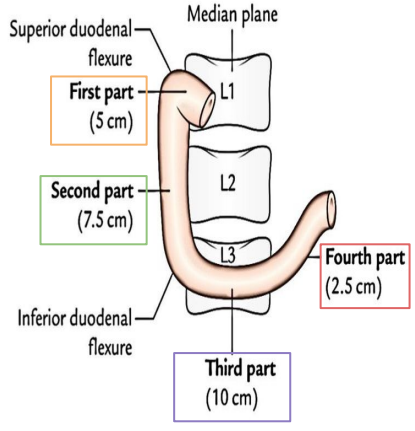




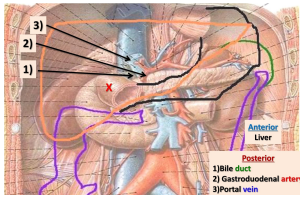
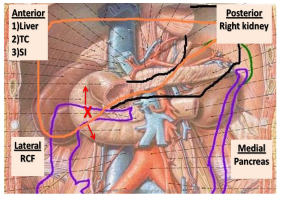
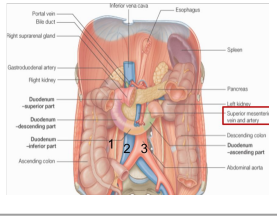
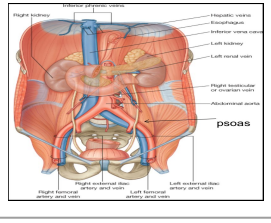
DUODENUM

SHAPE	C-shaped loop
LENGTH	10 inches
BEGINNING	at pyloro-duodenal junction
TERMINATION	at duodeno-jejunal flexure
PERITONEAL COVERING	retroperitoneal
DIVISIONS	4 parts
EMBRYOLOGICAL ORIGIN	foregut & midgut
ARTERIAL SUPPLY	coeliac & superior mesenteric
LYMPHATIC DRAINAGE	coeliac & superior mesenteric

Part	Length	Level
First part (Horizontal) (superior)	2 INCHES	L1 (TRANSPYLORIC PLANE)
Second part (Descending)	3 INCHES	L1 TO L3 DESCENDS FROM
Third part (Horizontal)	**4 INCHES**	L3 (subcotal plane)
Fourth part (Ascending)	**1 INCHES**	ASCENDS FROM L3 TO L2



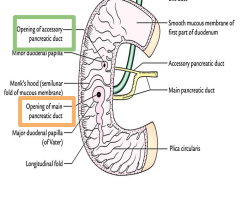
STRUCTURES RELATED TO DUODENUM

Part	First part (Horizontal) (superior)	Second part (Descending)	Third part (Horizontal)	Fourth part (Ascending)
Anterior Relations	Liver	1) Liver 2) Transverse Colon 3) Small Intestine	1) Small intestine 2) Superior mesenteric vessels	Small intestine
Posterior Relations	1) Bile duct 2) Gastroduodenal artery 3) Portal Vein	Right Kidney	1) Right psoas major 2) Inferior vena cava 3) Abdominal aorta 4) Inferior mesenteric vessels	Left psoas major
Medial Relations	-	Pancreas	-	-
Lateral Relations	-	Right Colic Flexure	-	-
				

Opening In Second Part Of Duodenum:

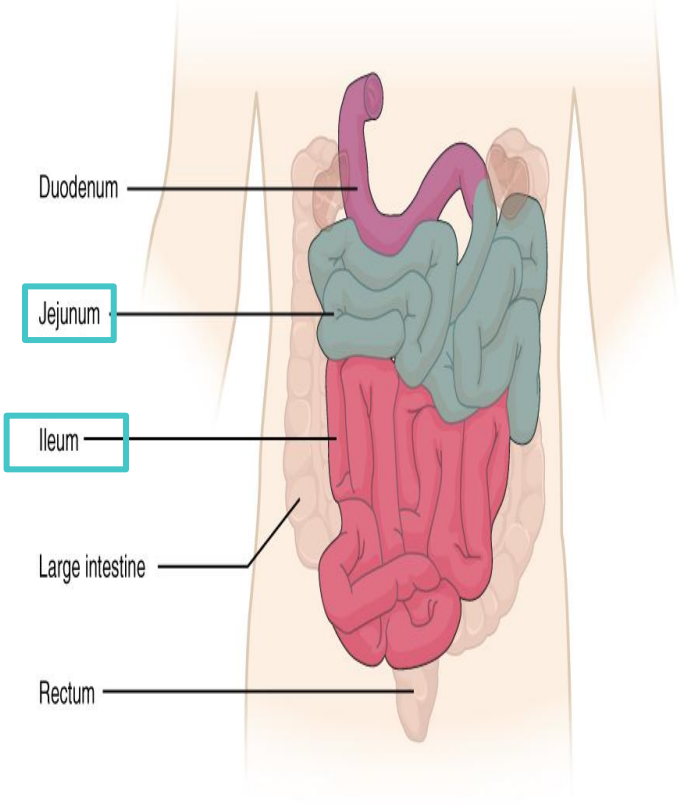
1. **Common opening of bile duct & main pancreatic duct**: on summit of major duodenal papilla.

2. **Opening of accessory pancreatic duct (one inch higher)**: on summit of minor duodenal papilla.

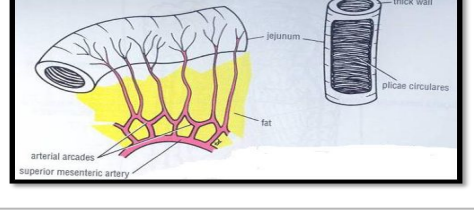
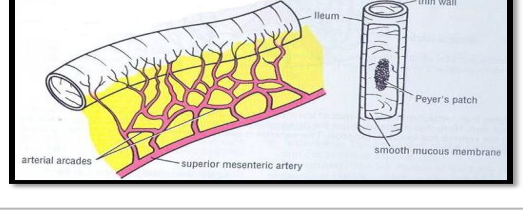


JEJUNUM & ILEUM

Shape	coiled tube
Length	6 meters (20 feet)
Beginning	at Duodeno-jejunal flexure
Termination	at Ilieo-caecal junction
Embryological origin	mid gut
Blood supply	superior mesenteric Artery and Vein
Lymphatic drainage	superior mesenteric lymph nodes



Differences between jejunum and ileum

	Jejunum	Ileum
Length	Shorter(proximal 2/5) of SI	Longer (distal ⅗) of SI
Diameter	Wider	Narrower
Wall	Thicker (more plicae circulares)(their function is to increase the surface area thus increases the absorption rate and enhances the motility of the chyme as well.)	Thinner (less plicae circulares)
Appearance	Dark red (more vascular)	Light red (less vascular)
Vessels	High&less arcades (long terminal branches)	Low& more arcades (short terminal branch)
Mesenteric fat	Small amount & away from intestinal border	Large amount & close to intestinal border
Lymphoid tissue	Few aggregation	Numerous aggregation (peyer's patches)
		

MCQ

Q1:The arterial supply of duodenum:			
A:celiac artery	B:superior mesenteric	C:abdominal aorta	D:A&B

Q2:The termination of jejunum & ileum:			
A:Ilieo-caecal junction	B:pyloro-duodenal junction	C:duodeno-jejunal flexure	D:Duodeno-jejunal flexure

Q3:The beginning of duodenum:			
A:Ilieo-caecal junction	B:pyloro-duodenal junction	C:duodeno-jejunal flexure	D:Duodeno-jejunal flexure

Q4:There is _____ divisions of duodenum			
A:4	B:3	C:2	D:6

Q5: one of the posterior relations of the first part of duodenum?			
A:liver	B:left psoas major	C:abdominal aorta	D:Gastroduodenal artery

Q6: Embryological origin of duodenum?			
A:hindg	B:midgut	C:midgut and foregut	D:foregut

Answer key:
1 (D) , 2 (A) , 3 (B) , 4 (A), 5 (D) , 6 (C)

MCQ

Q7: level of third part of duodenum?			
A: L3 (transpyloric plane)	B:L3 to L2	C:L2 (subcotal plane)	D:L3 (subcotal plane)

Q8:which part of duodenum opens into bile duct?			
A:1st	B:2nd	C:3rd	D:4th

Q9:what is the shape of jejunum?			
A:straight tubule	B:coiled tubule	C:vertical tubule	D:ascinding tubule

Q10:jejunum and ileum embryological origin is?			
A:hind gut	B:foregut	C:midgut	D: none :)

Q11:which of these structures is proximal ⅔ of the small intestine?			
A:jejunum	B:ileum	C:duodenum	D:colon

Q12:ileum is specialized by one of the following?			
A:long terminal branches	B:more arcades with long terminal branches	C:less arcades	D:short terminal branches

Answer key:
7(D) , 8(B) , 9(B) , 10(C), 11(A) , 12(D)

SAQ

Q1: List the parts of small intestine:

Q2: Levels of the duodenum?

Q3: Mention the ducts that open into summit of minor and major duodenal papilla?

Q4: Enumerate the differences between jejunum and ileum?

Answers

1 : Duodenum, jejunum and ileum.

2 :

1. L1 (transpyloric plane)
2. L1 to L3 (descends form)
3. L3 (subcotal plane)
4. L3 to L2 (ascends form)

3 : major duodenal papilla : common opening of bile duct and main pancreatic duct.
minor duodenal papilla: opening of accessory pancreatic duct.

4: slide (8)

Team leaders
Rayan Jabaan
Abeer Awwad

Reviser
Abdulaziz Alghuligah

Organizer
Shaden Alsaiedan

Note taker
Mohammed Aldehaim

Team Members

- Aljoud Algazlan
- Arwa Alqahtani
- Asma Alamri
- **Bodoor Almubarak**
- Deemah Alotaibi
- Fatimah Saad
- Ghada Aljedaie
- Ghaida Alassiry
- **Joud Alnujaidi**
- May Barakah
- Norah Alasheikh
- Nouf Alsubaie
- Raghad Alasiri
- Raghad Soaeed
- Sarah Almuqati
- Sarah Alqahtani
- Shaden Alsaiedan
- Shahad Almezel
- Shayma Alghanoum
- **Sumo Alzeer**

- Abdulaziz Alghuligah
- Abdulaziz Alkraida
- Abdulaziz Alrabiah
- Abdulaziz Alsuhaim
- Ahmed Alkhayatt
- Bader Alrayes
- Basel Fakeeha
- Faisal Alotaibi
- Hadi Alhemsi
- Hesham Alsqabi
- Mohammed Aldehaim
- Mohamed Alquhidan
- Mubarak Alanazi
- Osama Alharbi
- Saad Aldohaim
- Saleh Algarni