



# G.I.T



Lecture: Small Intestine (2)

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

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Both - Black

Male Notes - BLUE

Female Notes - GREEN

Explanation and additional notes - ORANGE

Very Important note - Red



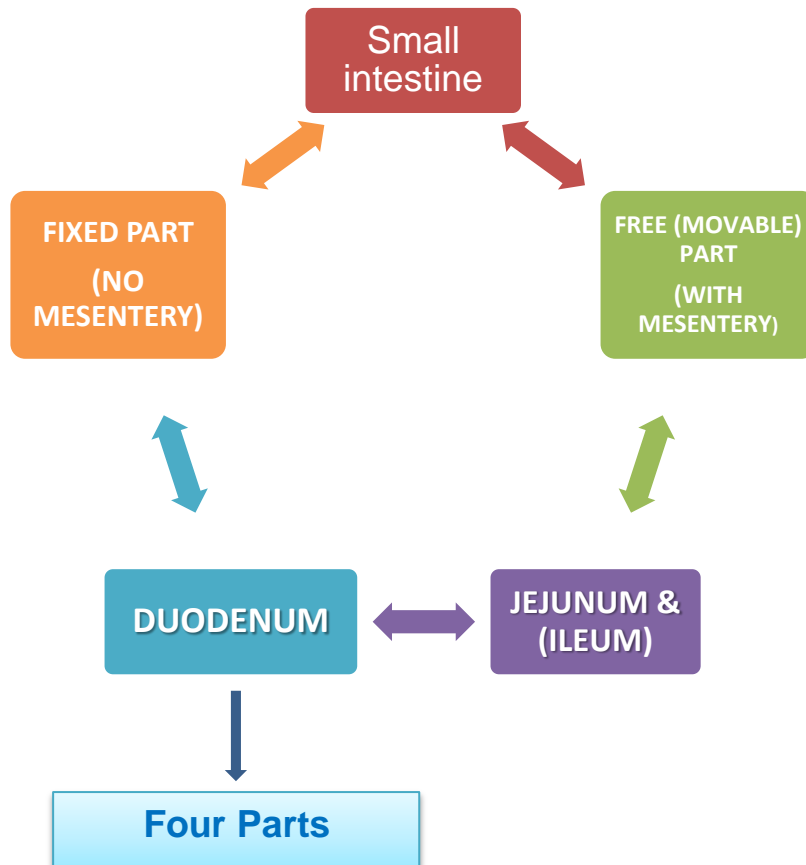
# Objectives:

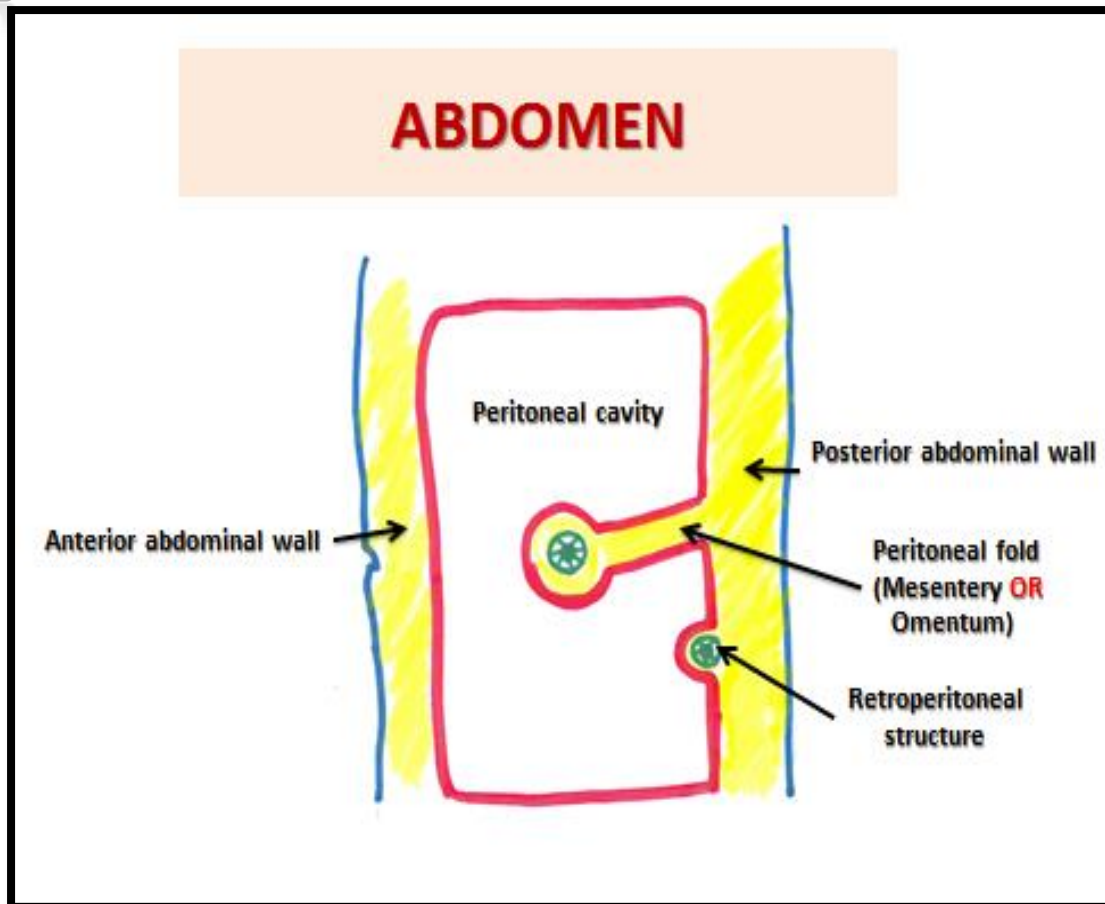
At the end of the lecture, students should:

- List the different parts of 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.



# Mind Map





**We can divide the abdomen contents to three levels:**

- 1- Anterior “ **Free moveable** “ : **Surrounding completely by peritoneal** such as : Stomach, jejunum, Ileum, Transverse colon
- 2- Fixed part “ **No peritoneal**” such as duodenum
- 3- Posterior : Kidney, suprarenal glands, Vessels and nerves



## RELATION BETWEEN EMBRYOLOGICAL ORIGIN & ARTERIAL SUPPLY

### **DUODENUM:**

Origin: Foregut & Midgut

Arterial supply:

1. Coeliac trunk (**artery of foregut**)
2. Superior mesenteric: (**artery of midgut**)

### **JEJUNUM & ILEUM:**

Origin: Midgut

Arterial supply: Superior mesenteric: (**artery of midgut**)

## 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

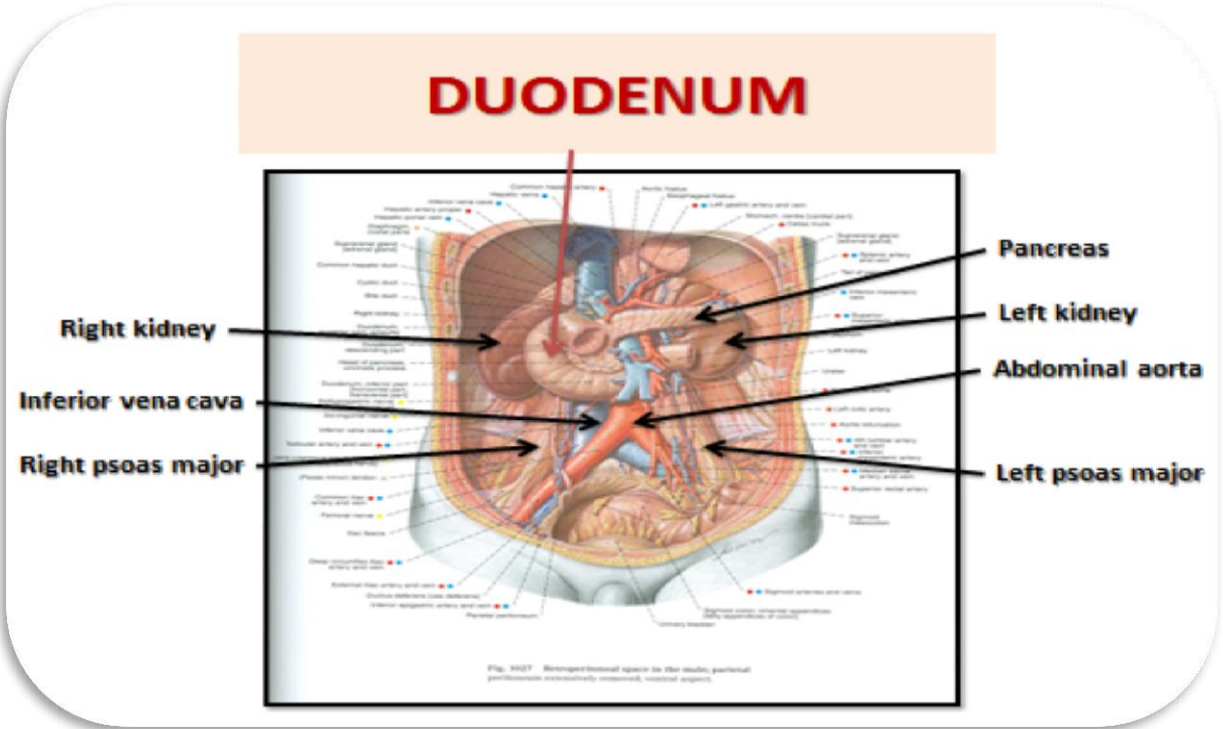
**ARTERIAL SUPPLY:** coeliac & superior mesenteric

**LYMPHATIC DRAINAGE:** coeliac & superior mesenteric



## DUODENUM LENGTH – SURFACE ANATOMY

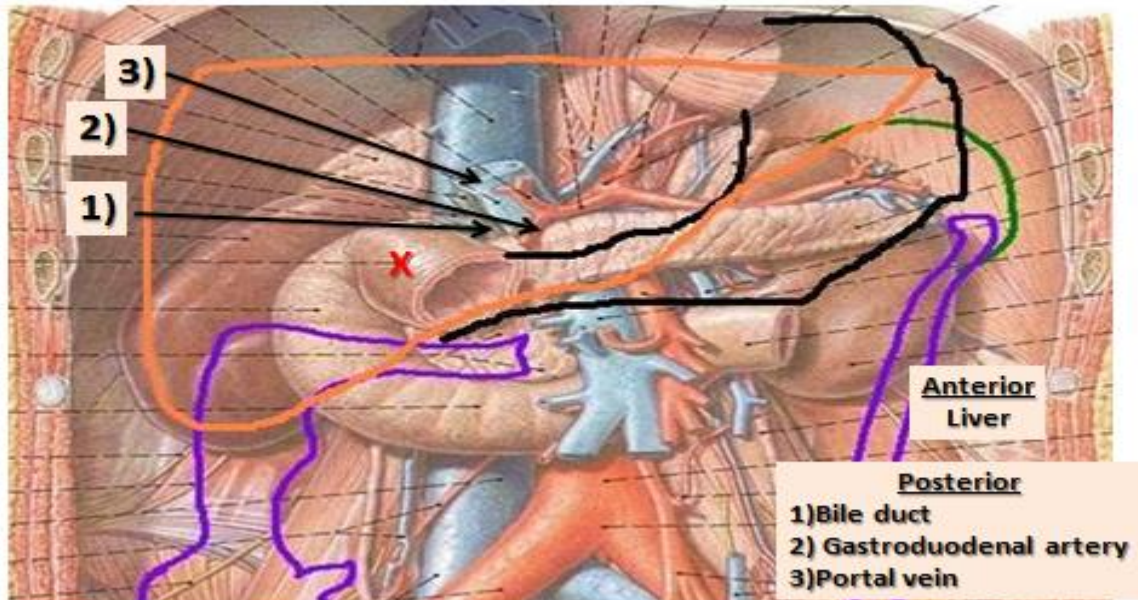
PART	LENGTH	LEVEL
FIRST PART (HORIZONTAL)	2 INCHES	L1 (TRANSPYLORIC PLANE)
SECOND PART (DESCENDING)	3 INCHES	DESCENDS FROM L1 TO L3
THIRD PART (HORIZONTAL)	4 INCHES	L3 (SUBCOTAL PLANE)
FOURTH PART (ASCENDING)	1 INCHES	ASCENDS FROM L3 TO L2



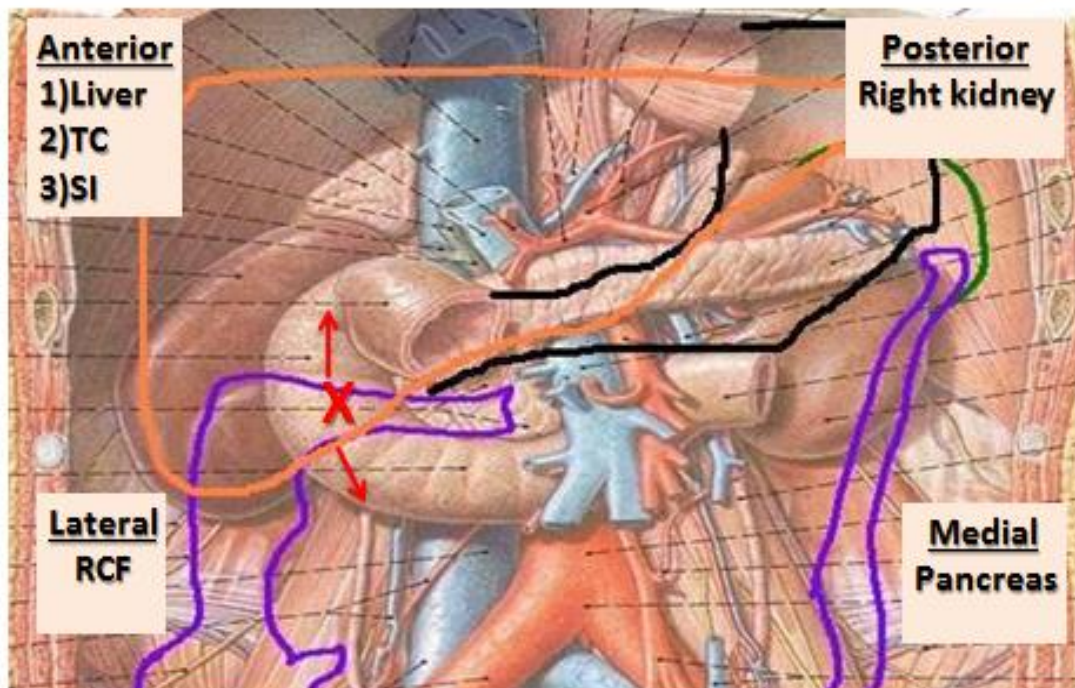


## Relations of Duodenum:

### RELATIONS OF FIRST PART



### RELATIONS OF SECOND PART





DUODENUM	Anterior	Posterior	Medial	Lateral
<b>First part</b>	Liver	- Bile duct. -Gastroduodenal artery. -Portal vein.	-----	-----
<b>Second Part</b>	- Liver -Transverse Colone. -Small intestine	Right kidney	Pancreas	Right colic flexure
<b>Third Part</b>	- Small intestine -Superior mesenteric vessels	- Right psoas major - Inferior vena cava - Abdominal aorta - Inferior mesenteric vessels	-----	-----
<b>Fourth Part</b>	Small intestine	Left psoas major	-----	-----

• **Helpful website:**

- 1) <http://www.cram.com/flashcards/gross-anatomy-small-intestines-889853>
- 2) <http://quizlet.com/18679927/small-intestine-anatomy-test-3-flash-cards/>



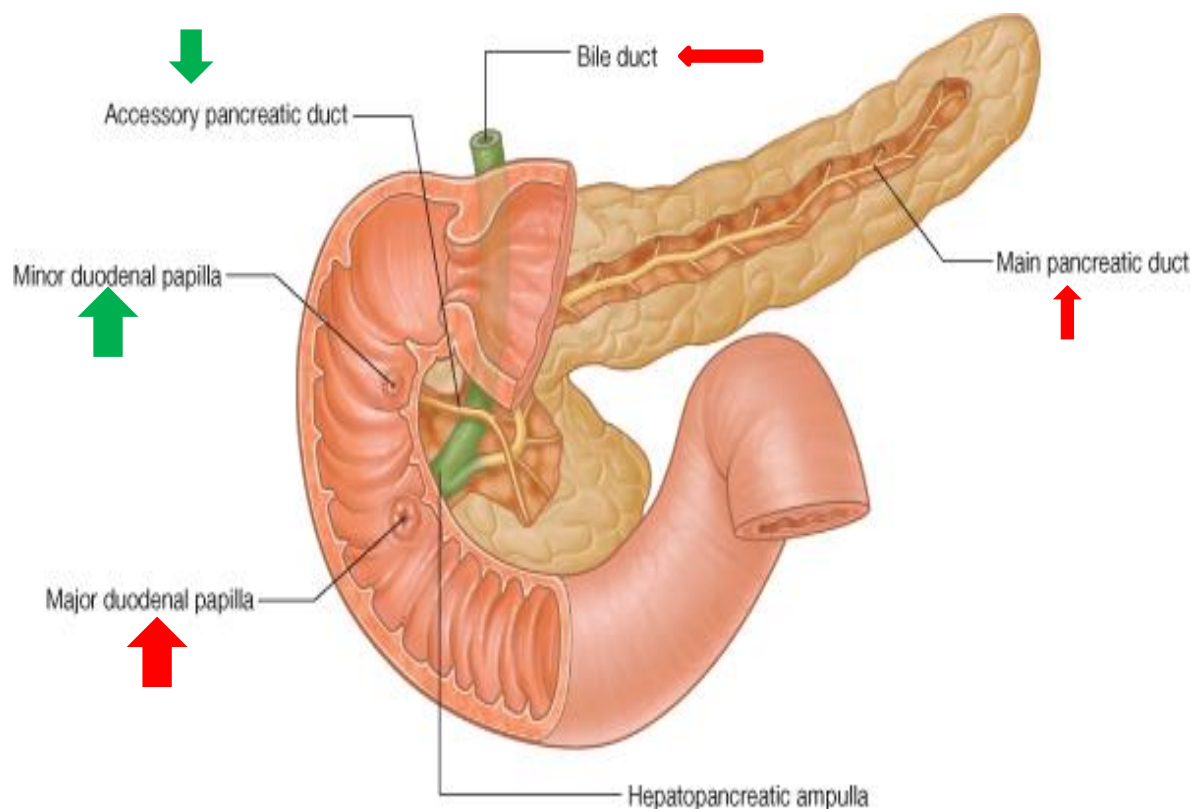


## OPENINGS IN SECOND PART OF DUODENUM

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

Common bile duct: junction between cystic ducts and common hepatic duct

**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 flexur)

**TERMINATION:** at ileo-caecal junction

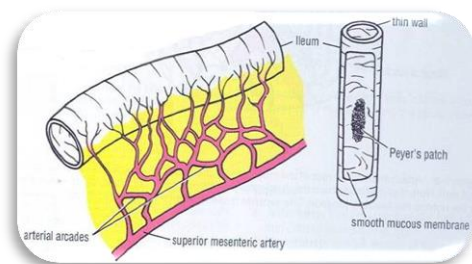
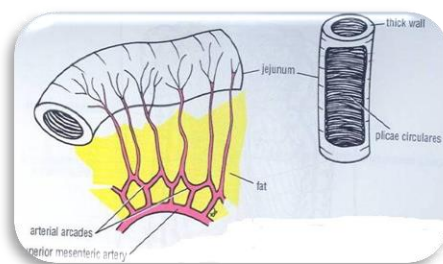
**PERITONEAL FOLD:** mesentery of small intestine

**EMBRYOLOGICAL ORIGIN:** midgut

**ARTERIAL SUPPLY:** superior mesenteric

**LYMPHATIC DRAINAGE:** superior mesenteric

**Jejunum absorb better than ileum**



	<b>JEJUNUM</b>	<b>ILEUM</b>
<b>LENGTH</b>	Shorter (proximal 2/5) of SI	Longer (distal 3/5) of SI
<b>DIAMETER</b>	Wider	Narrower
<b>WALL</b>	Thicker (more plicae circulares)	Thinner (less plicae circulares)
<b>APPEARANCE</b>	Dark red (more vascular)	Light red (less vascular)
<b>VESSELS</b>	High & Less arcades (long terminal branches)	Low & More arcades (short terminal branches)
<b>MESENTERIC FAT</b>	Small amount & away from intestinal border	Large amount & close to intestinal border
<b>LYMPHOID TISSUE</b>	Few aggregations	Numerous aggregations (Peyer's patches)



## Questions:

1) What is the length and shape of duodenum:

- A. 12 inches, U- shaped loop
- B. 10 inches, C-shaped loop
- C. 10 inches, U-shaped loop
- D. 12 inches, C-shaped loop

2) The duodenum is divided into ..... Parts , and the longer part is .....

- A. 5 parts, 5 inches
- B. 4parts , 4 inches
- C. 2 parts, 3inches
- D. 3parts, 2inches

3) The second part of duodenum descends from .... To .....

- A. L2 to L3
- B. L1 to L3
- C. L2 to L4
- D. L1 to L2

4) Which one of the following is the termination of duodenum:

- A. Pyloro-doudenal junction
- B. Ilieo-caecal junction
- C. duodeno-jejunal flexure
- D. None

5) Which one of the following is the level of Third part of duodenum :

- A. L4
- B. L1 to L3
- C. L3 (subcostal plane)
- D. L1 (trans pyloric plane)

6) Superior mesenteric artery supplied the ..... embryonically:

- A. Foregut
- B. Midgut
- C. Hingut and midgut
- D. Hindgut



- 7) Which one of the following is the anterior relation of first part of duodenum:
- A. Bile duct
  - B. Portal vein
  - C. Right kidney
  - D. Liver
- 8) Which one of the following is the posterior relation of second part of duodenum :
- A. Right kidney
  - B. Pancreas
  - C. Liver
  - D. Right colic flexure
- 9) Which one of the following are the origin of jejunum and ileum:
- A. Midgut
  - B. Foregut and midgut
  - C. Midgut and hindgut
  - D. Hindgut
- 10) Which one of the following is the artery supply of duodenum:
- A. Superior mesenteric artery
  - B. Superior mesenteric artery and coeliac trunk
  - C. Splenic artery
  - D. Right gastric artery
- 11) The medial relation of third part is :
- A. Liver
  - B. Small intestine
  - C. Pancreas
  - D. None
- 12) Abdominal aorta and inferior vena cava are the ..... relation of .....
- Part :
- A. Medial, second
  - B. Posterior, third
  - C. Lateral, fourth
  - D. Anterior, first
- 13) Which one of the following is the length of jejunum:
- A. Longer (distal 4/5) of SI
  - B. Longer (distal 3/5) of SI
  - C. Shorter (proximal 2/5)
  - D. None



14) The wall of jejunum comparing with the wall of ileum :

- A. Thinner than ileum
- B. Thicker than ileum
- C. Same as ileum

15) The diameter and the appearance of ileum:

- A. Narrower, dark red
- B. Narrower, light red
- C. Wider, light red
- D. Wider, dark red



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

**GOOD LUCK**

**Anatomy Team Leaders:**

**Fahad AlShayhan & Eman AL-Bedica**