

# **•ANATOMY OF THE SMALL INTESTINE**

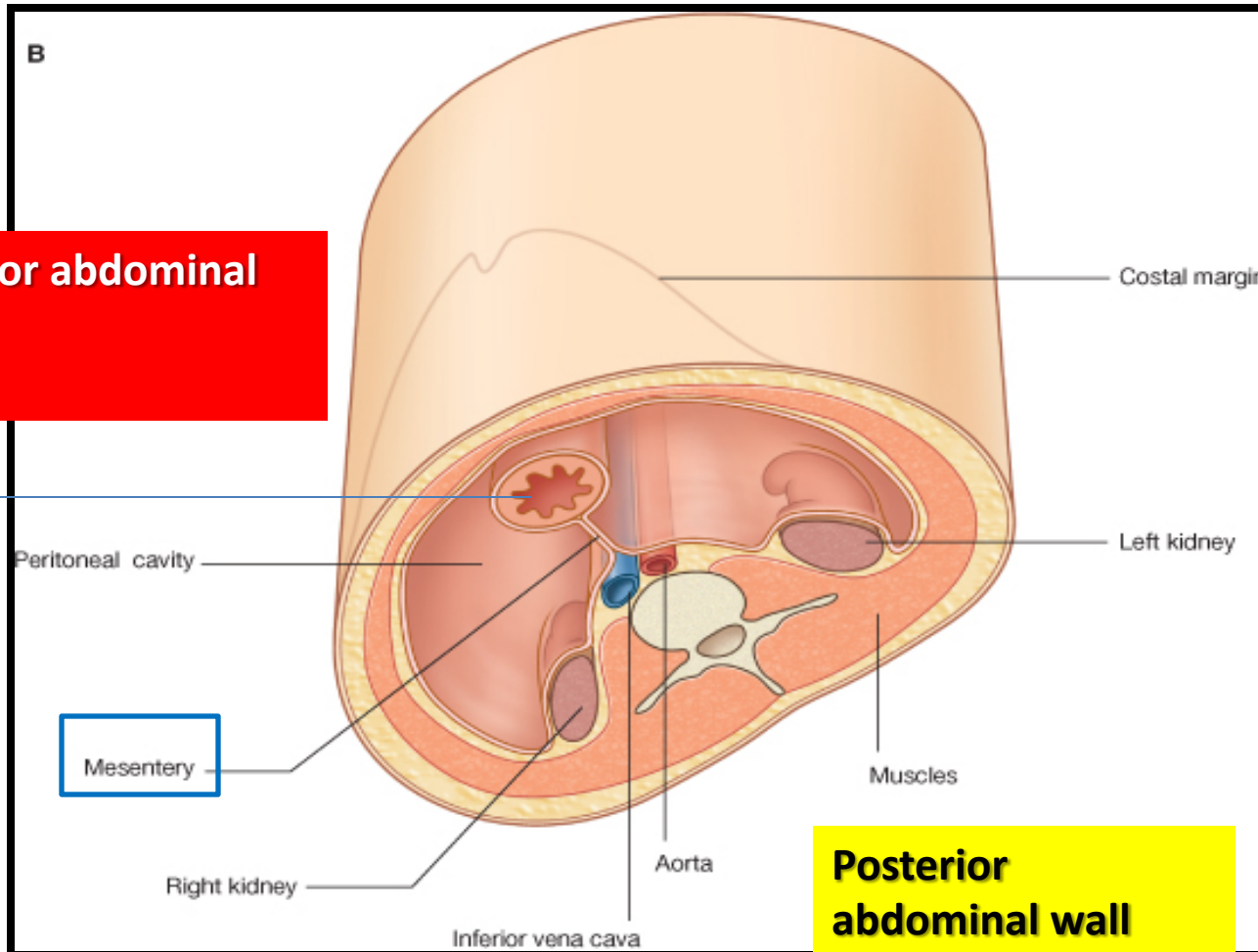
***Dr. Jamila El-Medany***

# OBJECTIVES

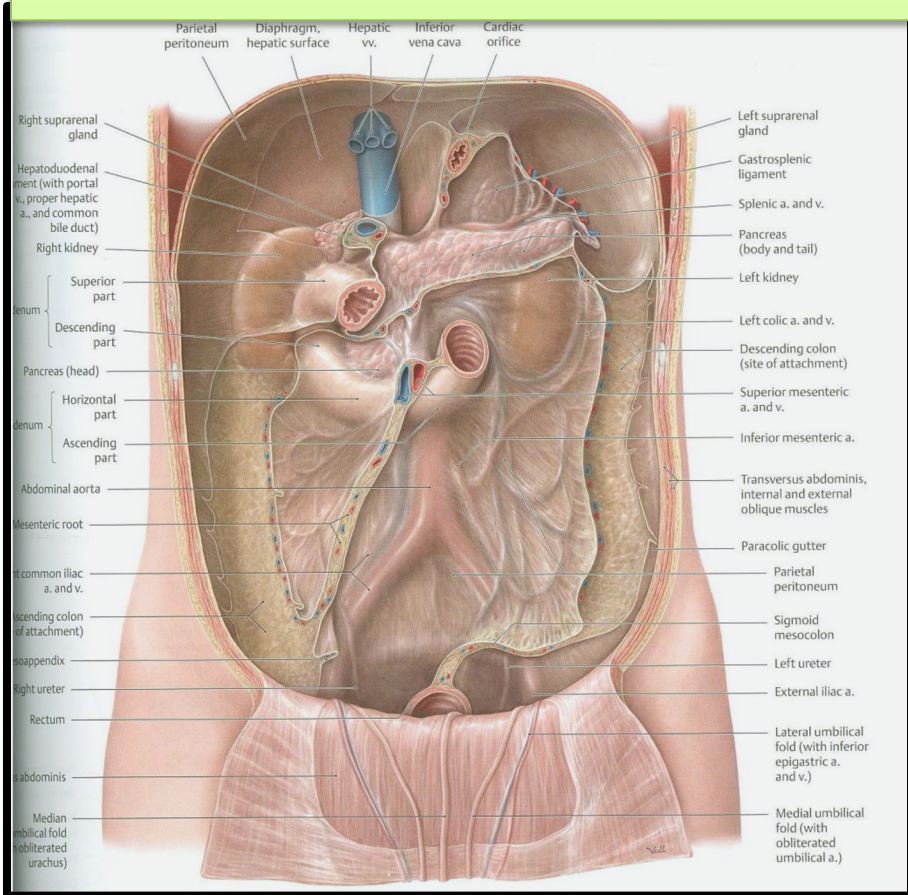
**At the end of the lecture, students should:**

- 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.*

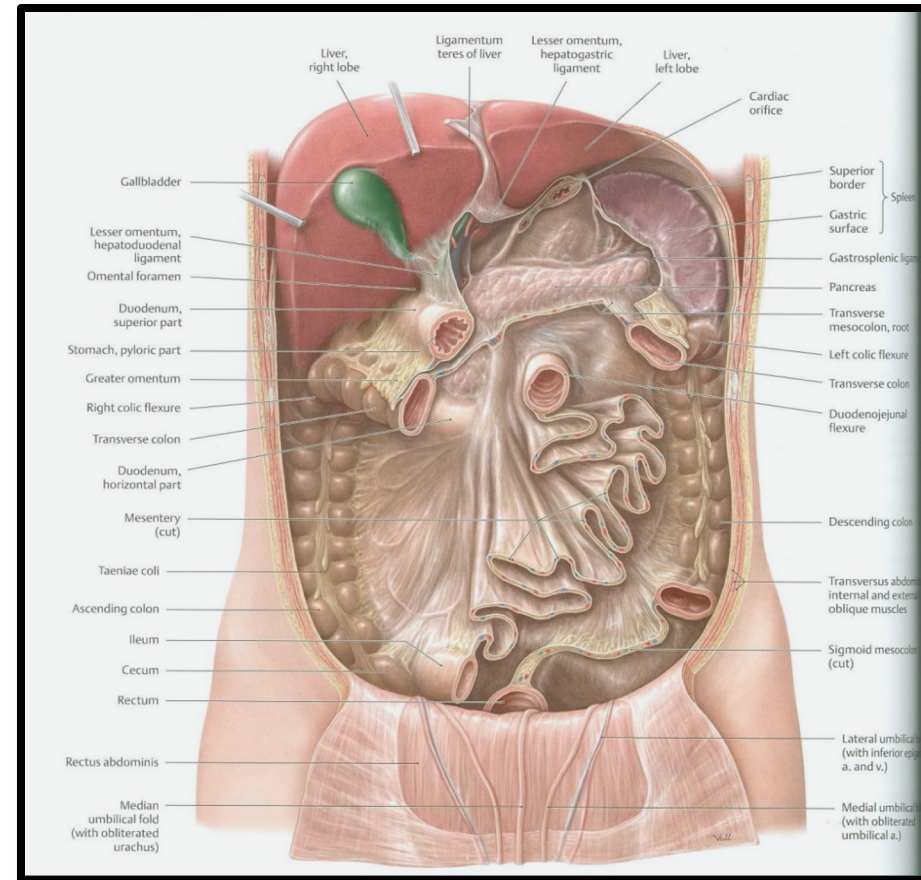
# What is MESENTERY?



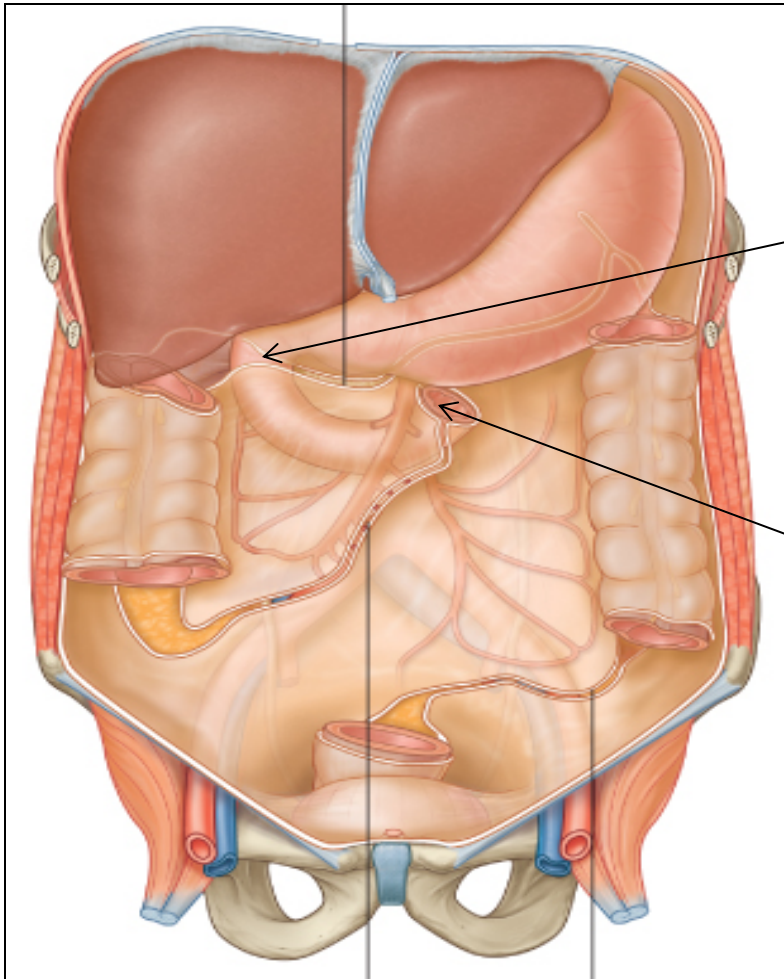
# FIXED (Retro peritoneal) PART (NO MESENTERY) DUODENUM



# FREE (MOVABLE) PART (WITH MESENTERY) JEJUNUM & ILEUM

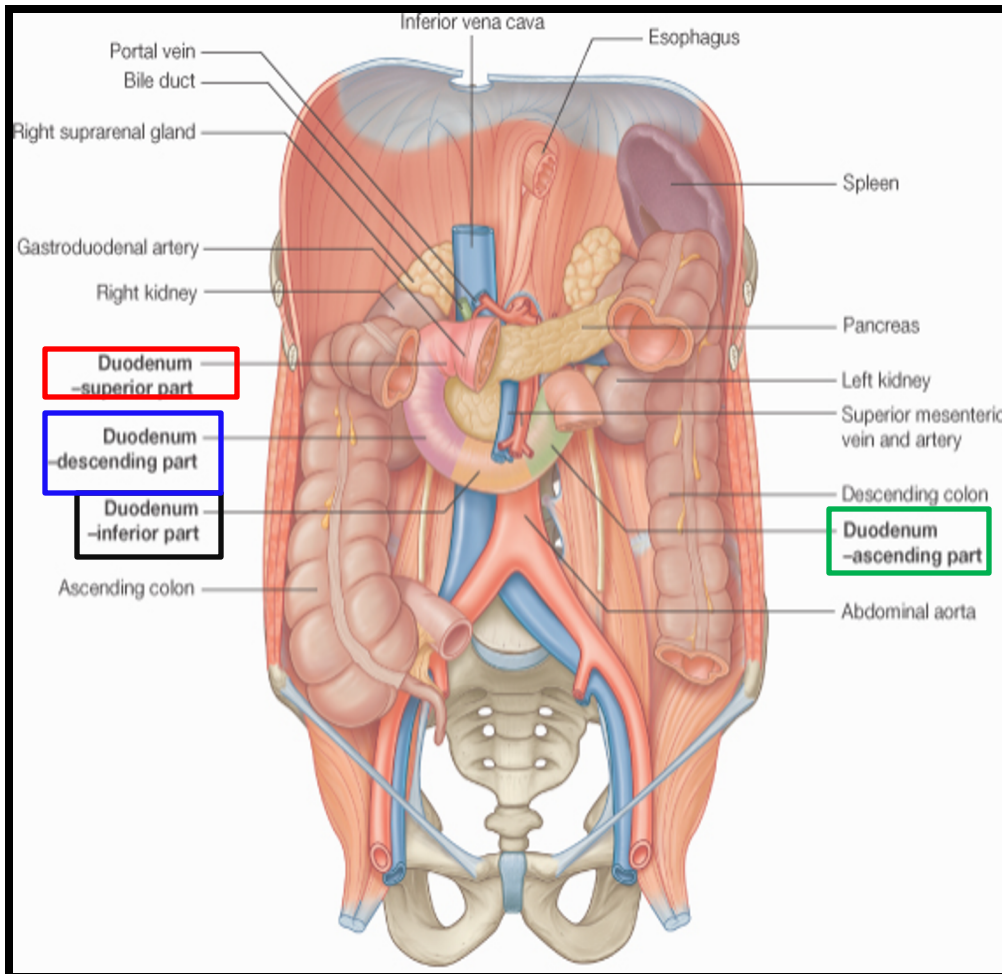


# DUODENUM



- ❑ **SHAPE:** C-shaped loop
- ❑ **LENGTH:** 10 inches
- ❑ **BEGINNING:** at pyloro-duodenal junction
- ❑ **TERMINATION:** at duodeno-jejunal flexure
- ❑ **PERITONEAL COVERING:** retroperitoneal

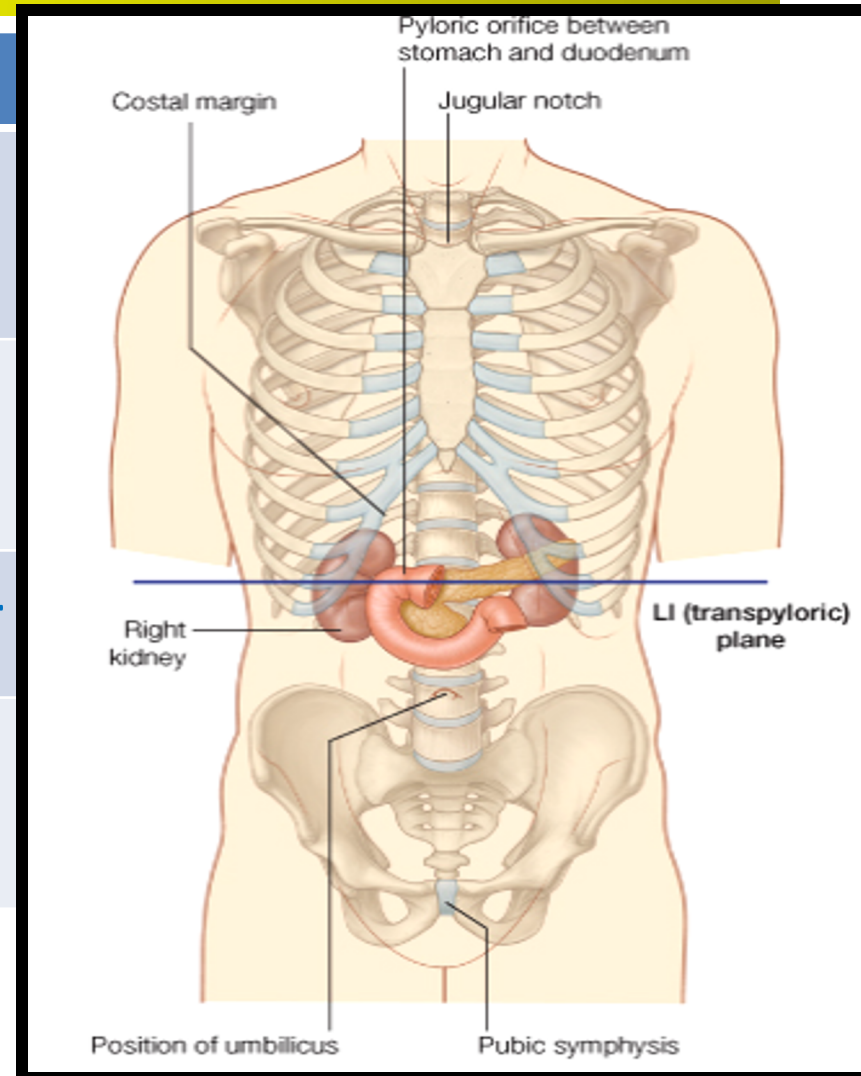
# PARTS



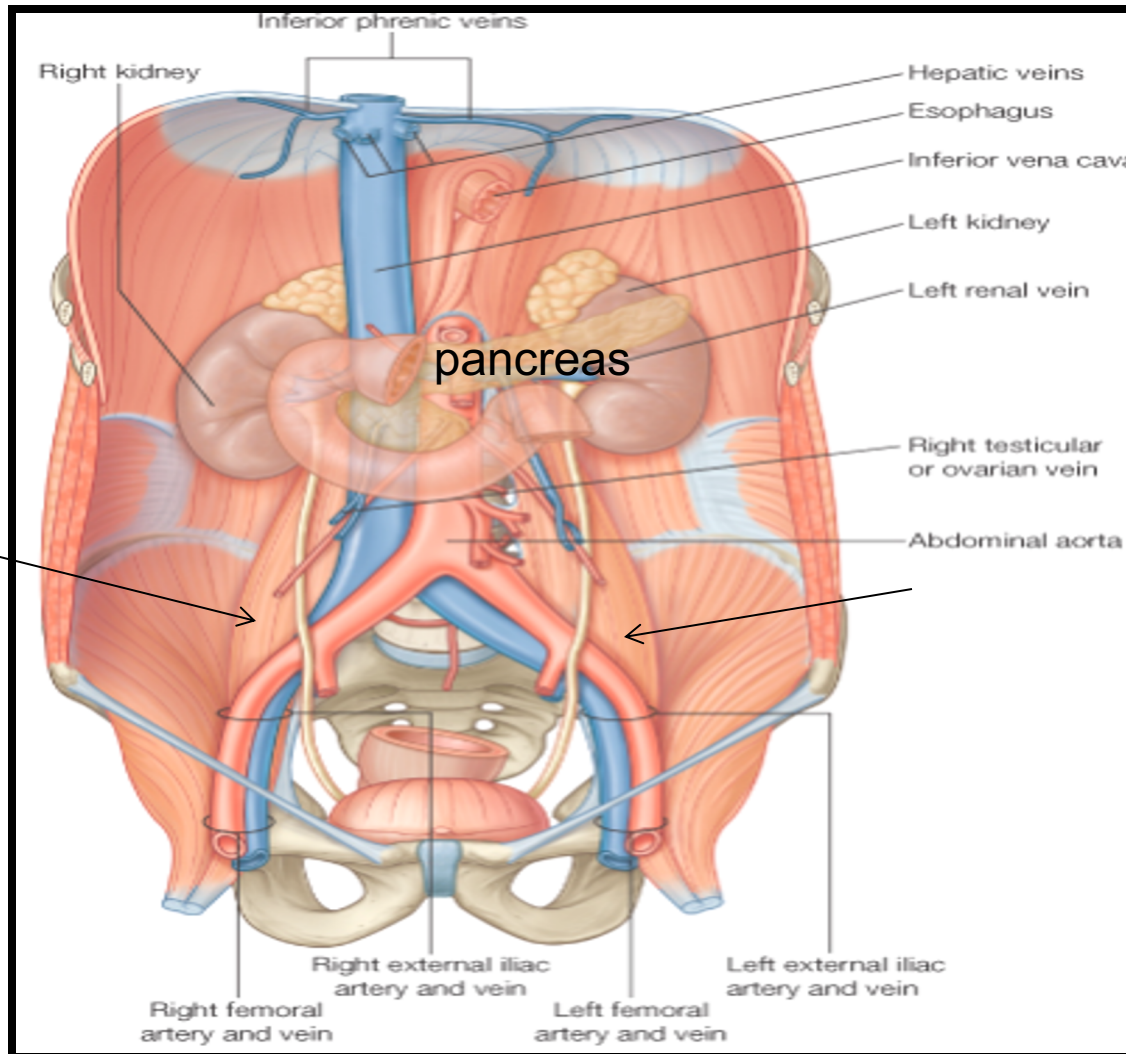
- The duodenum is divided into (4) parts:
- 1<sup>st</sup> : **Superior.**
- 2<sup>nd</sup> : **Descending (vertical).**
- 3<sup>rd</sup> : **Inferior (Horizontal)**
- 4<sup>th</sup> : **Ascending**

# LENGTH – SURFACE ANATOMY

PART	LENGTH	LEVEL
FIRST PART (Superior)	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

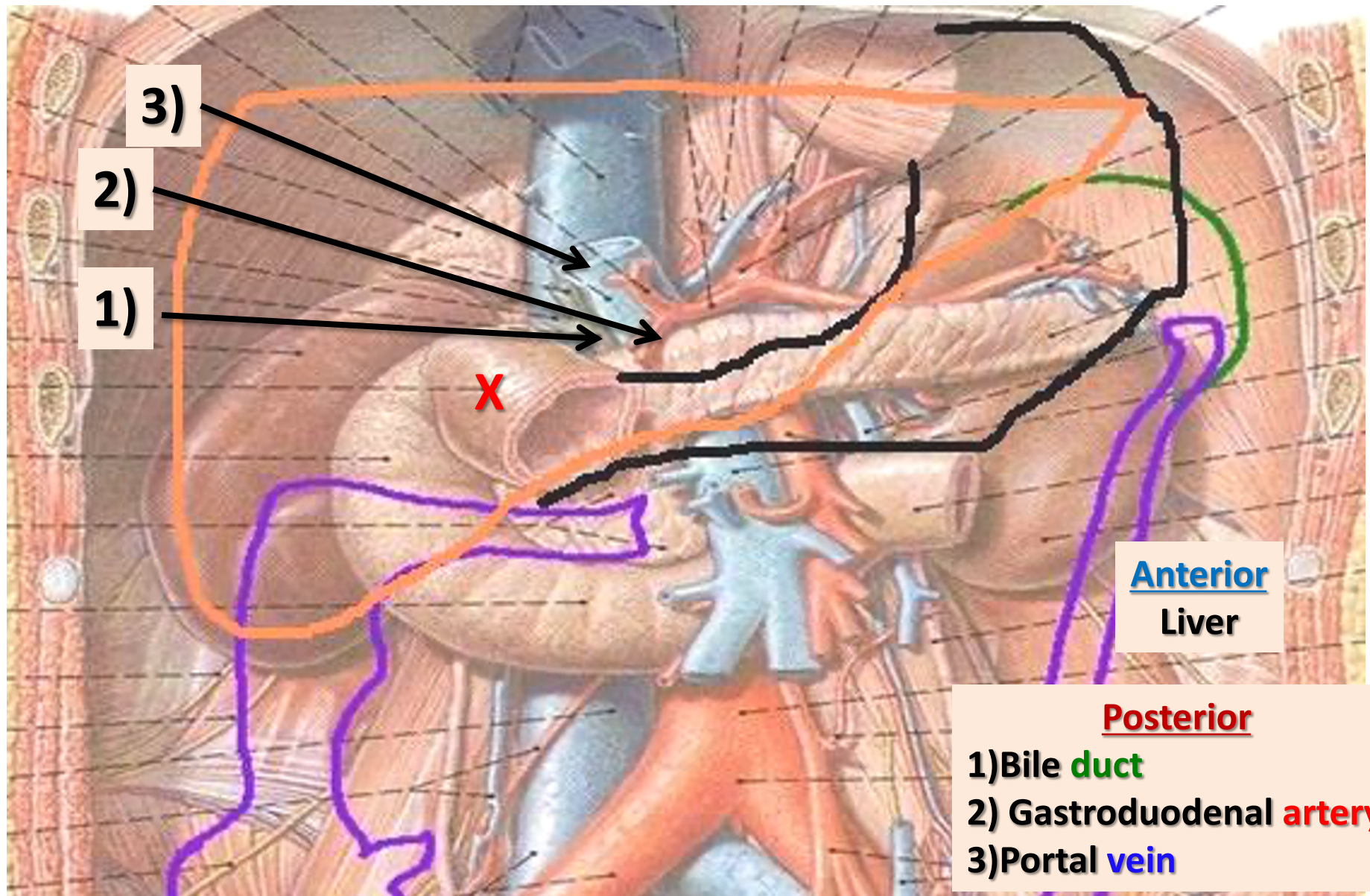


# Structures Related





# RELATIONS OF FIRST PART



# RELATIONS OF SECOND PART

## Anterior

- ) Liver
- ) Transverse Colon
- ) Small intestine

## Posterior

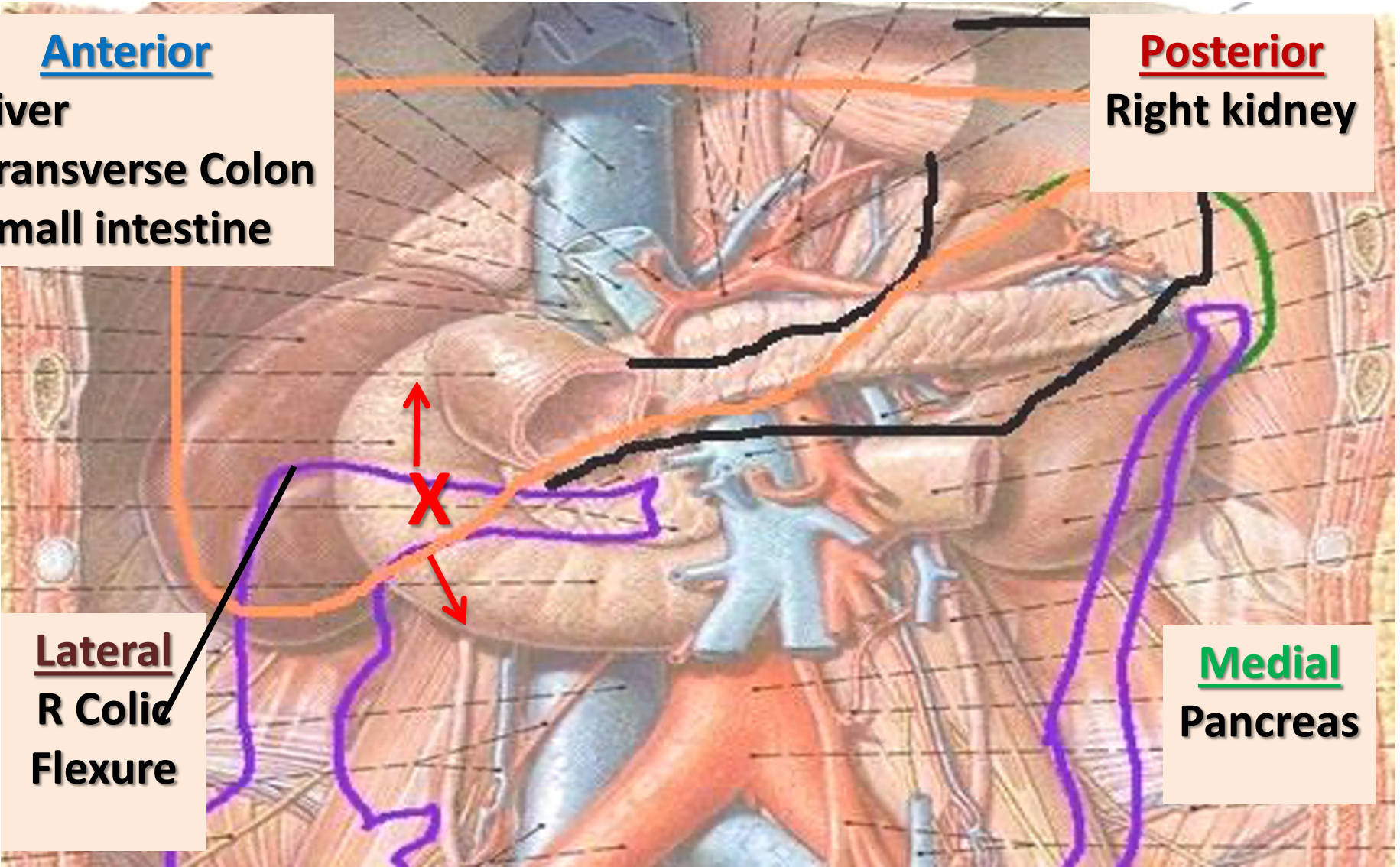
Right kidney

## Lateral

R Colic Flexure

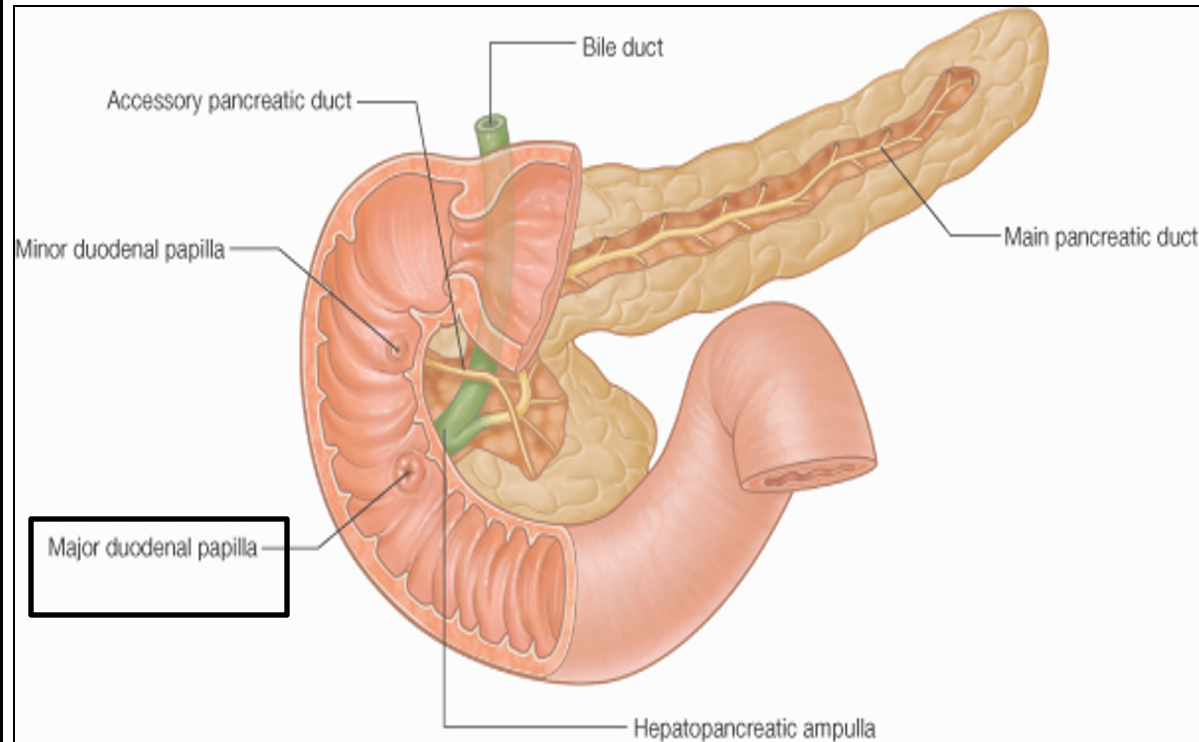
## Medial

Pancreas

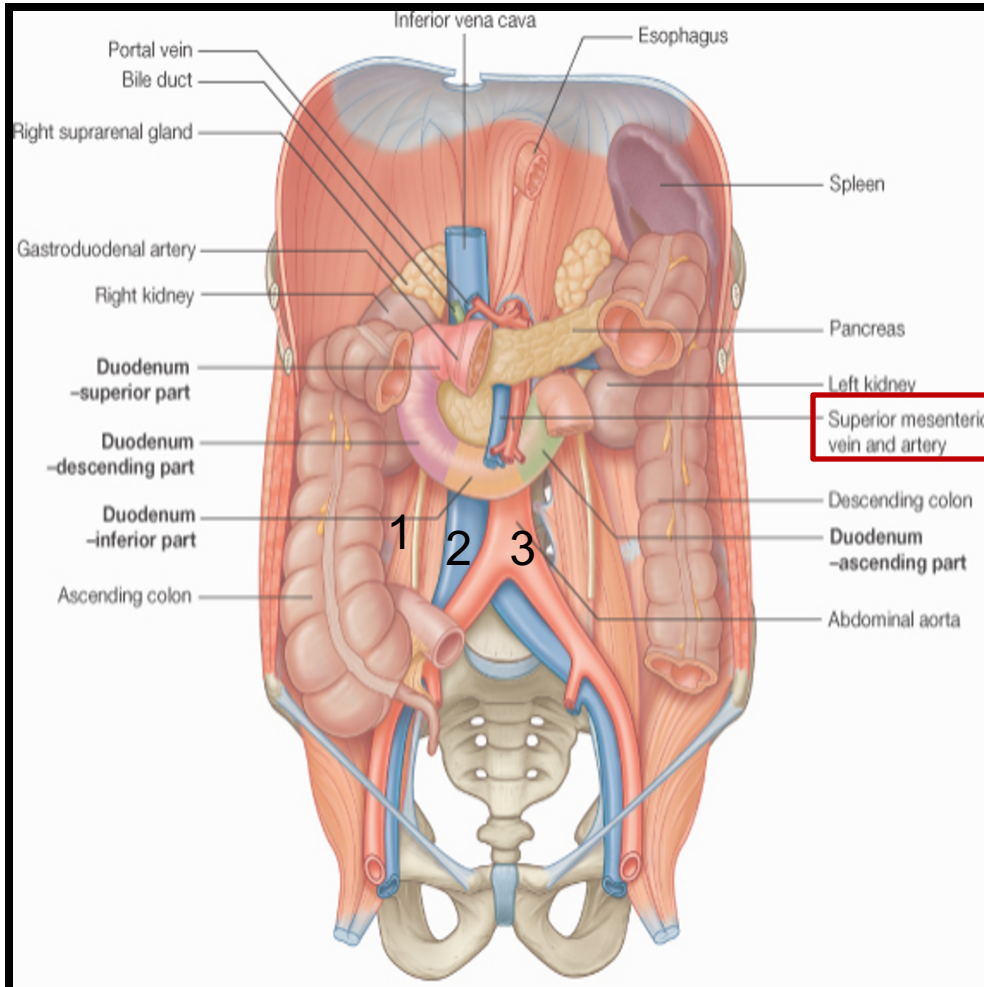


# OPENINGS IN SECOND PART OF DUODENUM

- 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.**



# RELATIONS OF THIRD PART



## □ Anterior:

a) Small intestine

b) Superior mesenteric vessels

## □ Posterior:

1) Right psoas major

2) Inferior vena cava

3) Abdominal aorta

4) Inferior mesenteric vessels.

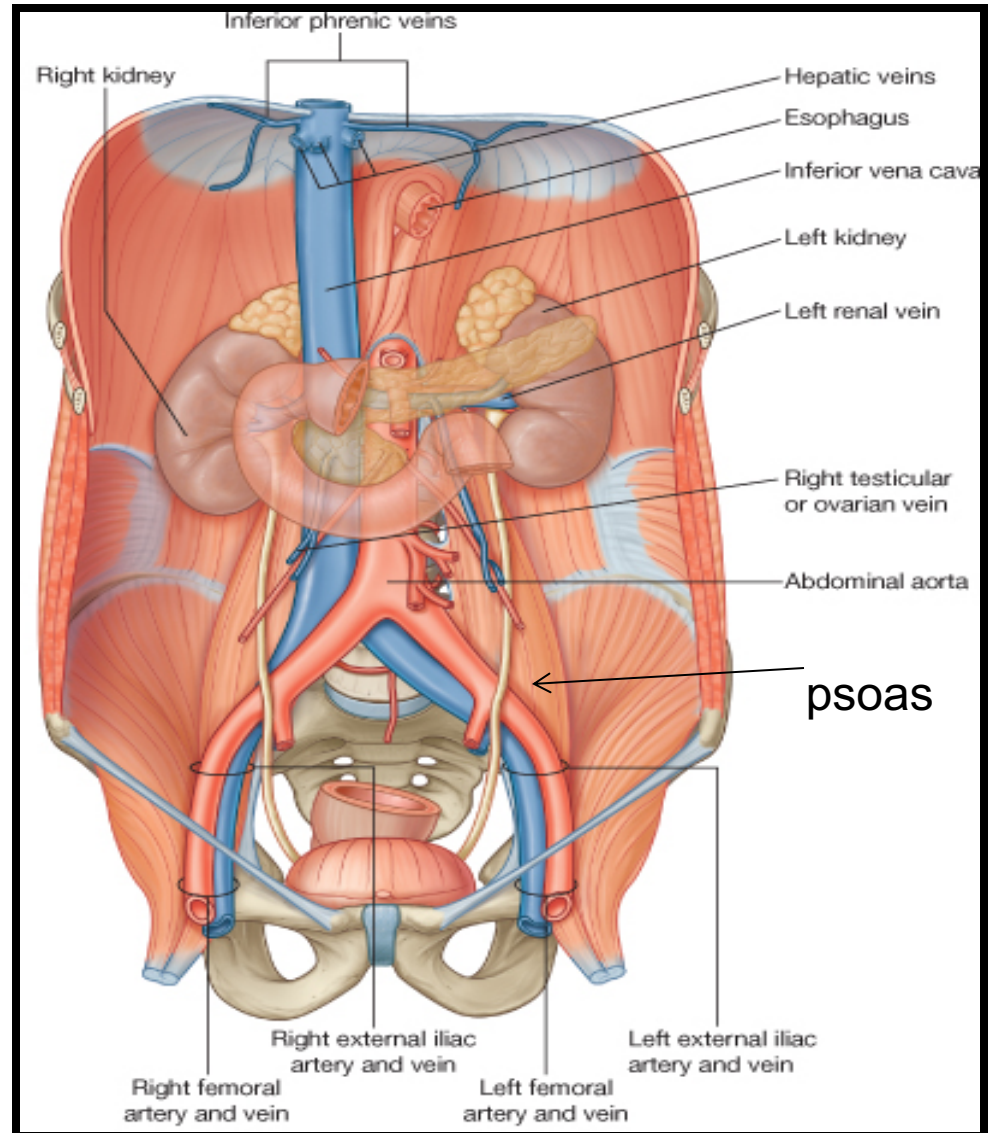
# RELATIONS OF FOURTH PART

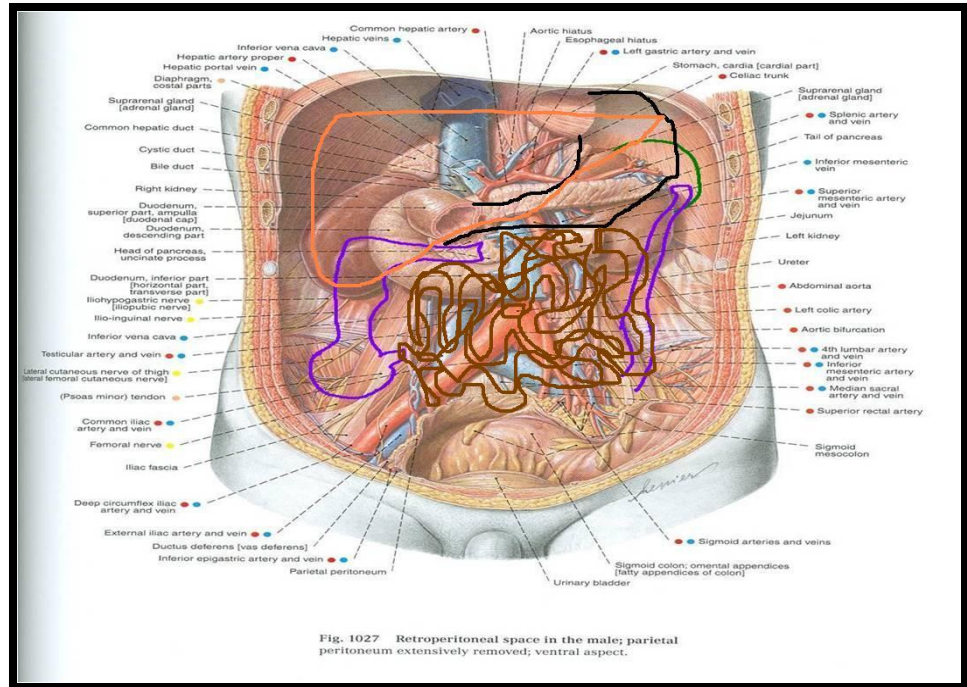
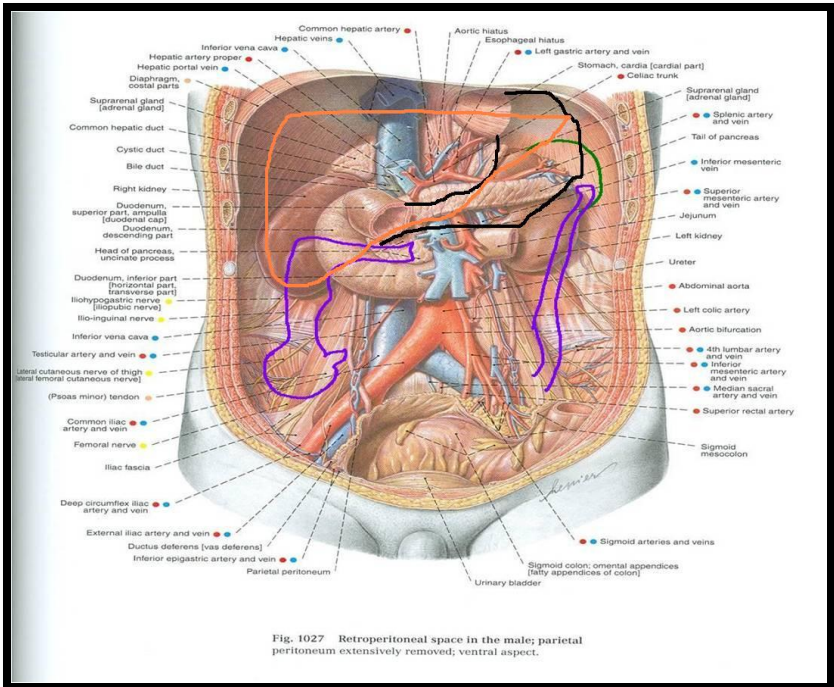
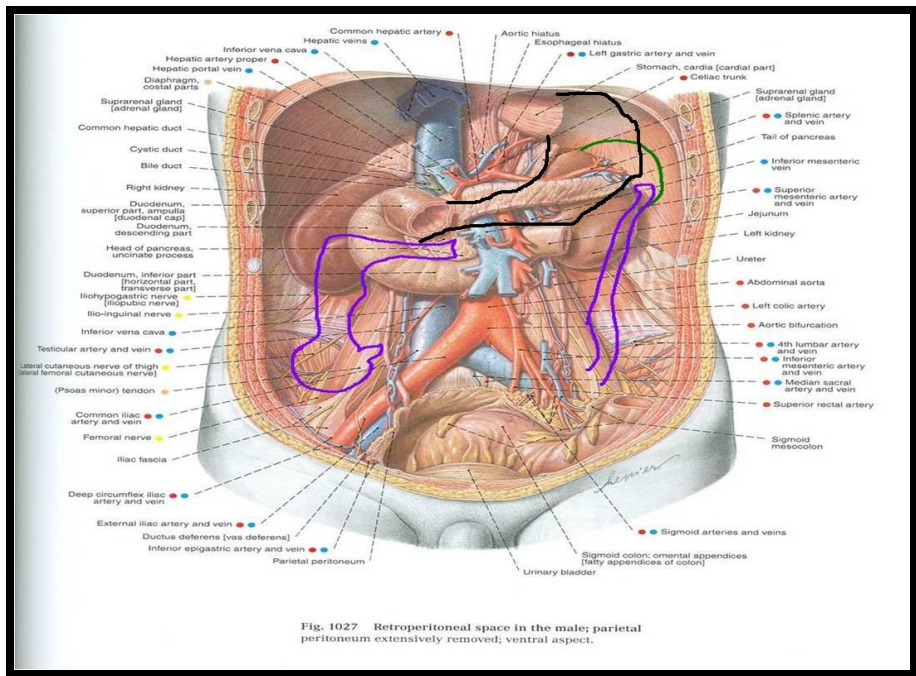
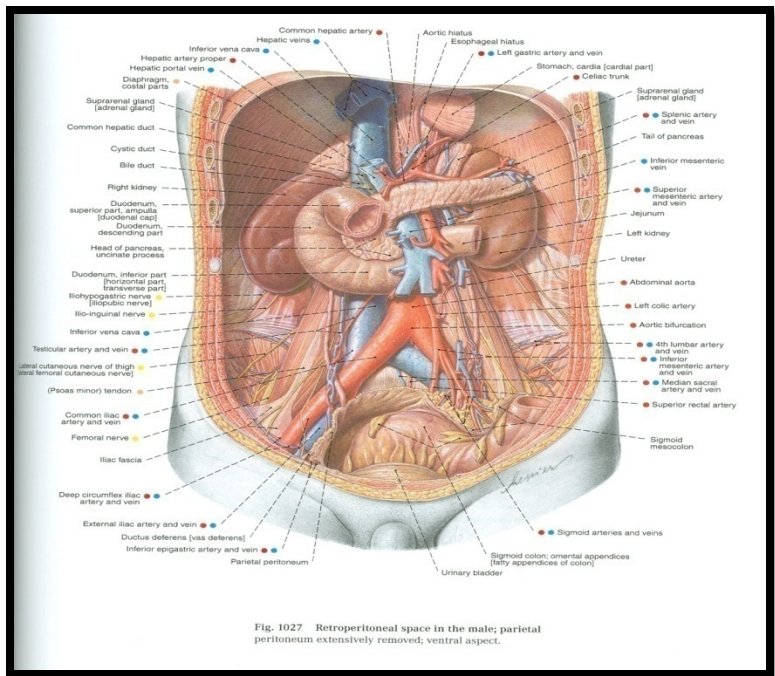
□ **Anterior:**

**Small intestine**

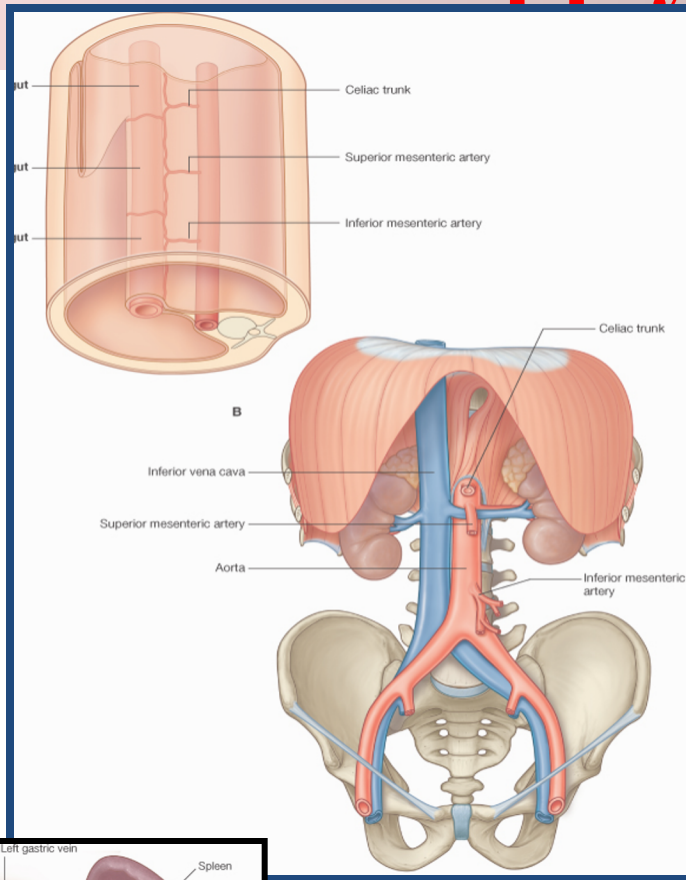
□ **Posterior:**

**Left psoas major**



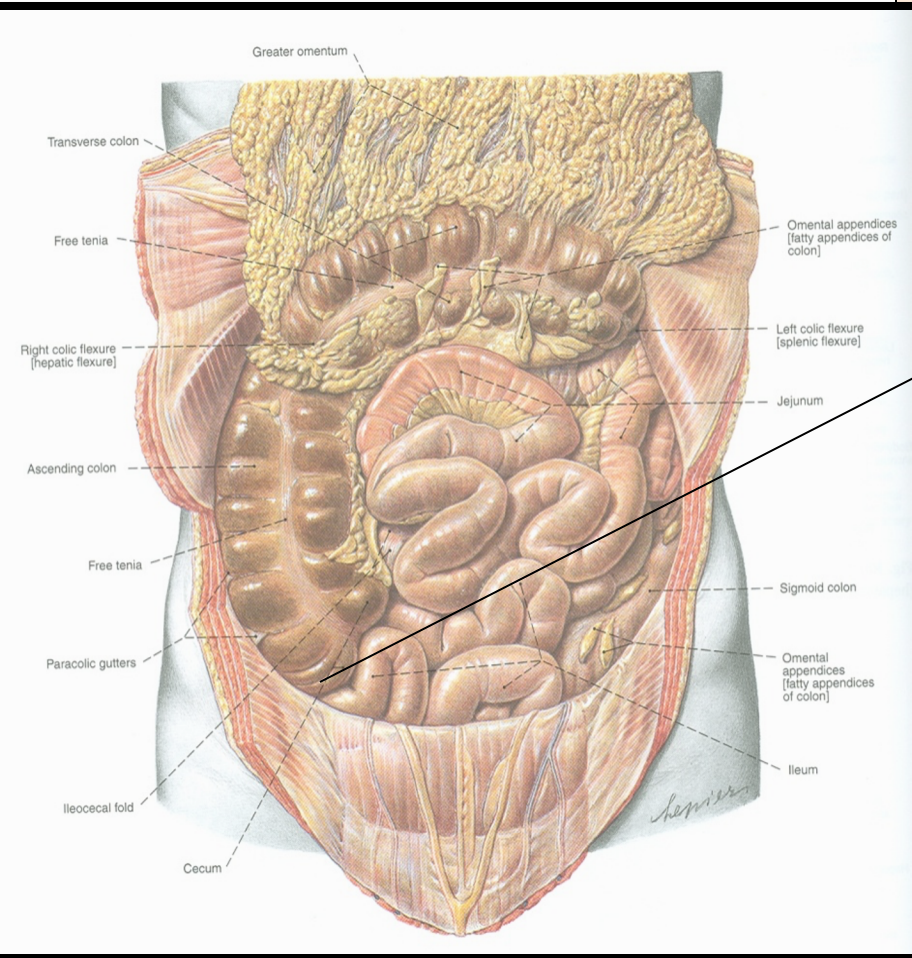


# Blood Supply & Lymph drainage



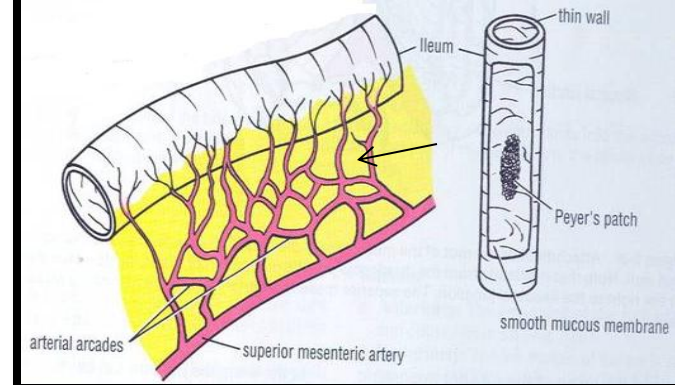
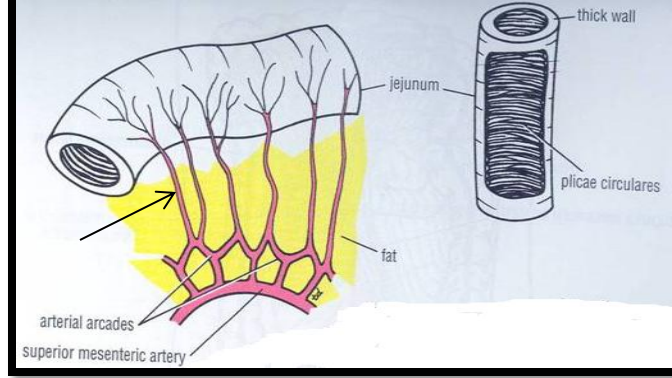
- ❑ Because the duodenum is derived from both: Foregut & Midgut,
- ❑ It has its Arterial Supply from :
  - ❑ Celiac & Superior mesenteric arteries.
  - ❑ Venous Drainage to :
    - ❑ Superior mesenteric & Portal veins.
  - ❑ **LYMPHATIC DRAINAGE:**
    - ❑ Celiac & Superior mesenteric lymph nodes.

# JEJUNUM & ILEUM



- ❑ **SHAPE:** Coiled tube
- ❑ **LENGTH:** 6 meters (20 feet)
- ❑ **BEGINNING:** at Duodeno-jejunal flexure
- ❑ **TERMINATION:** at Ileocaecal junction
- ❑ **EMBRYOLOGICAL ORIGIN:** Midgut
- ❑ **Blood SUPPLY:** Superior mesenteric A & V
- ❑ **LYMPHATIC DRAINAGE:** Superior mesenteric lymph nodes





	<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)

*THANK YOU*