

•ANATOMY OF THE SMALL INTESTINE

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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.*

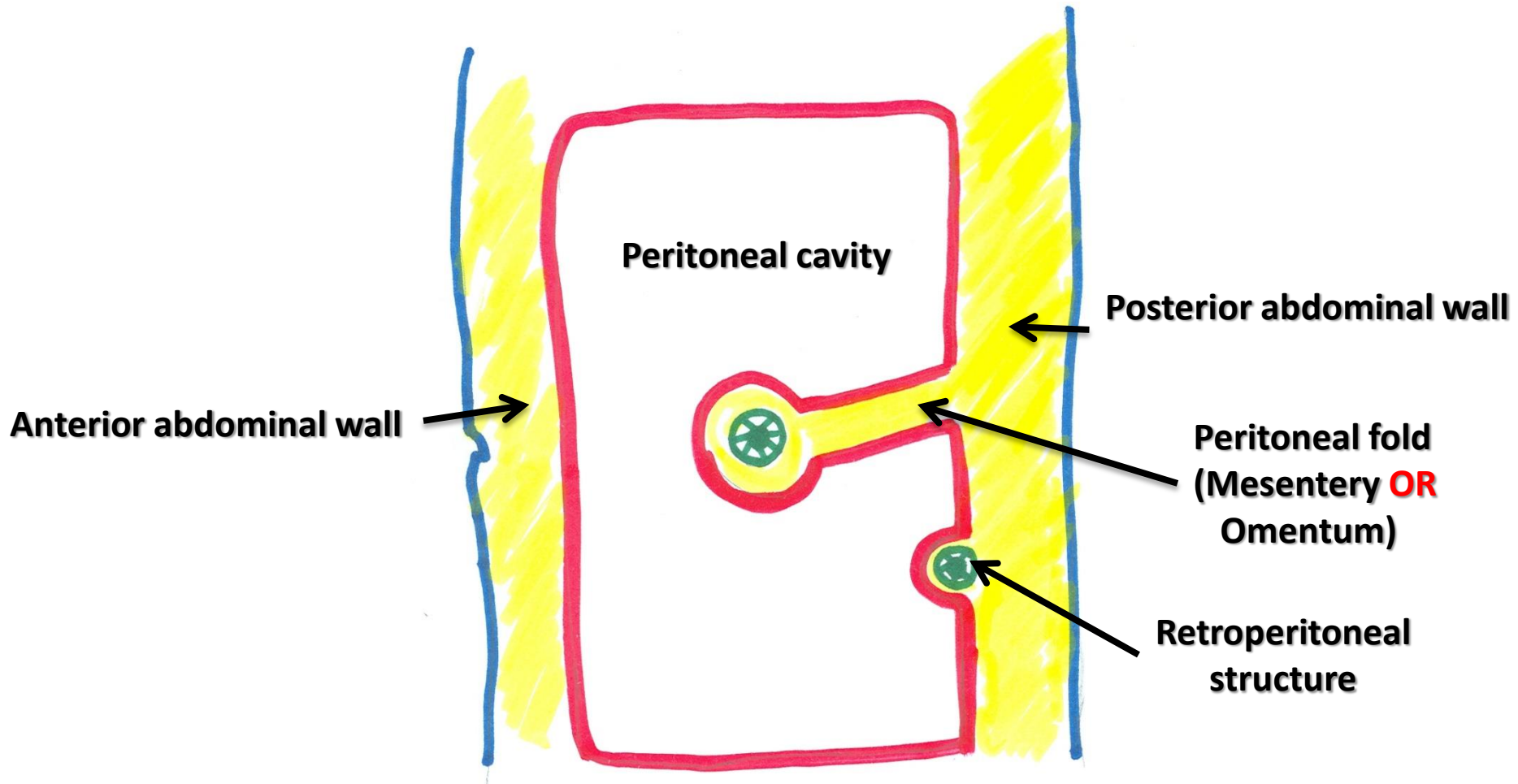
SMALL INTESTINE

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graph TD; A[SMALL INTESTINE] --> B["FIXED PART  
(NO MESENTERY)  
DUODENUM"]; A --> C["FREE (MOVABLE) PART  
(WITH MESENTERY)  
JEJUNUM & ILEUM"]
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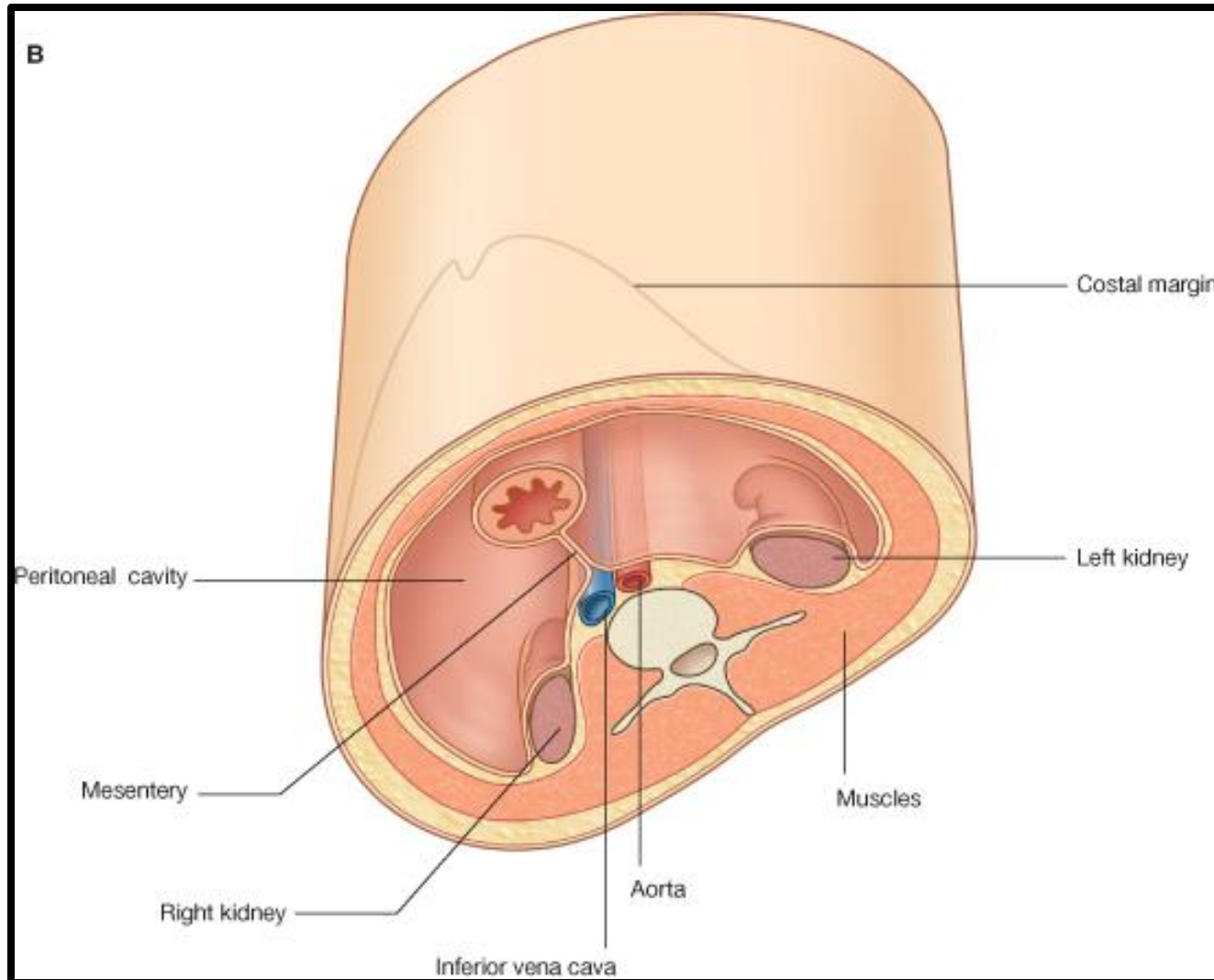
**FIXED PART
(NO MESENTERY)
DUODENUM**

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

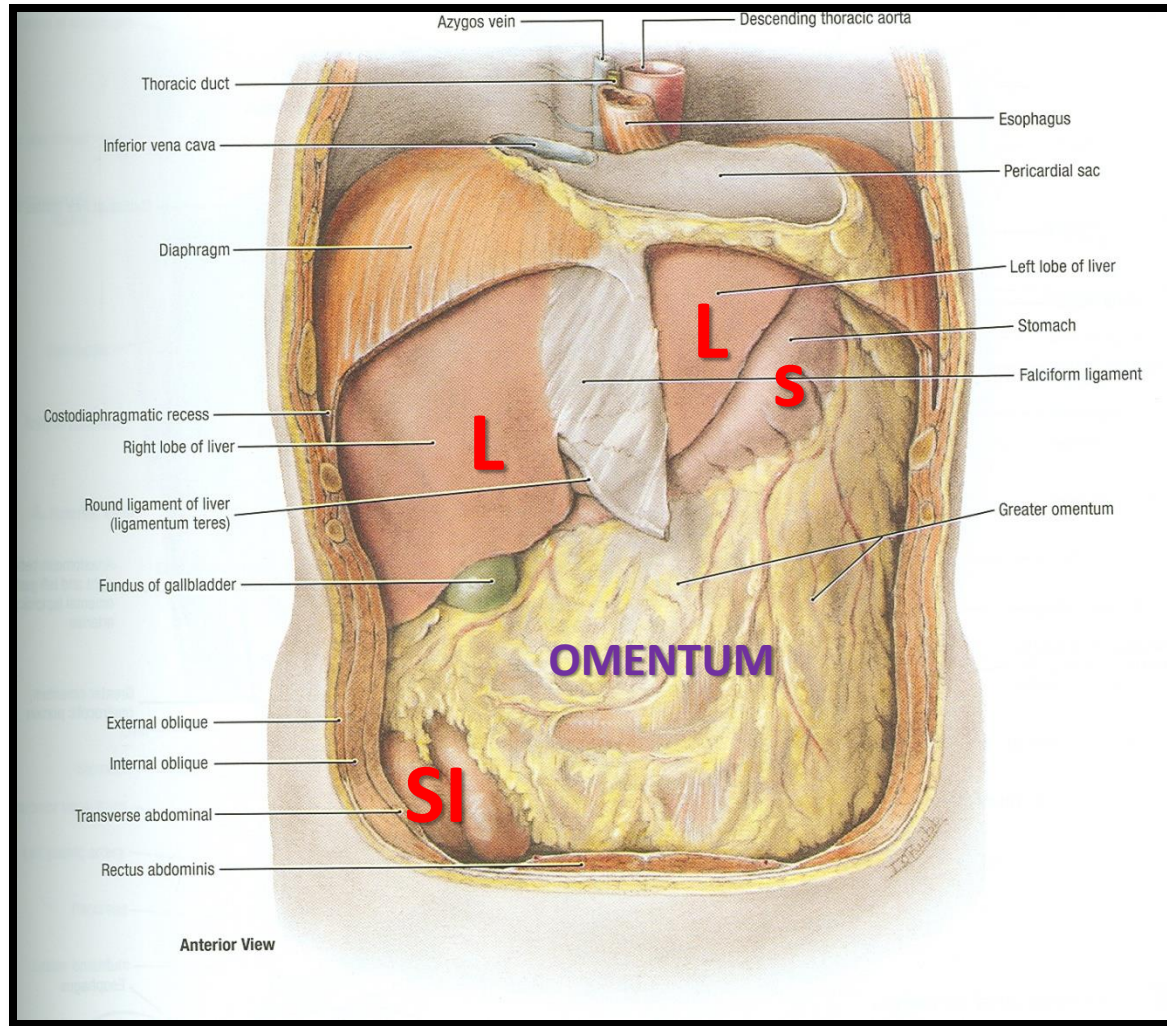
ABDOMEN



ABDOMEN



ABDOMEN



JEJUNUM & ILEUM

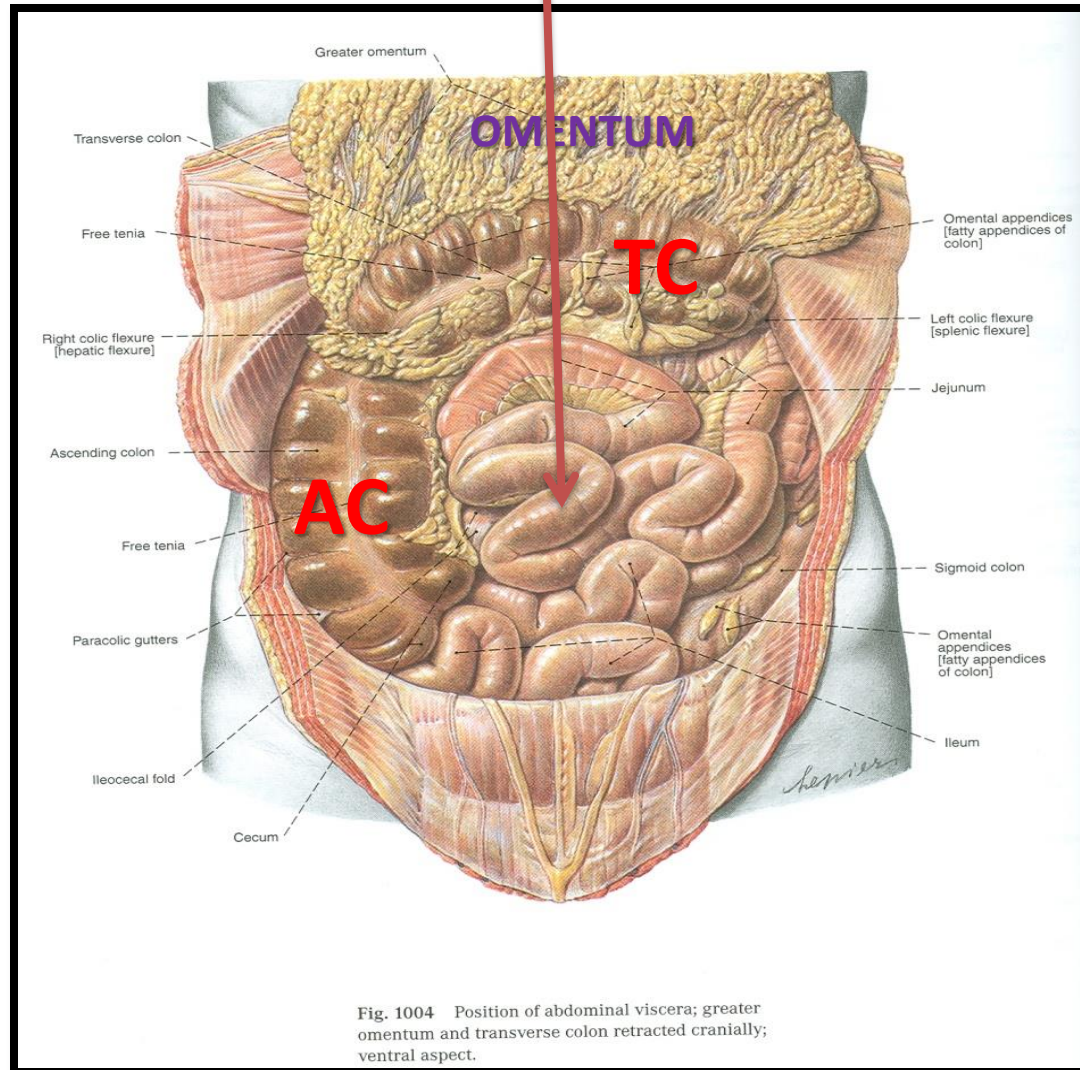
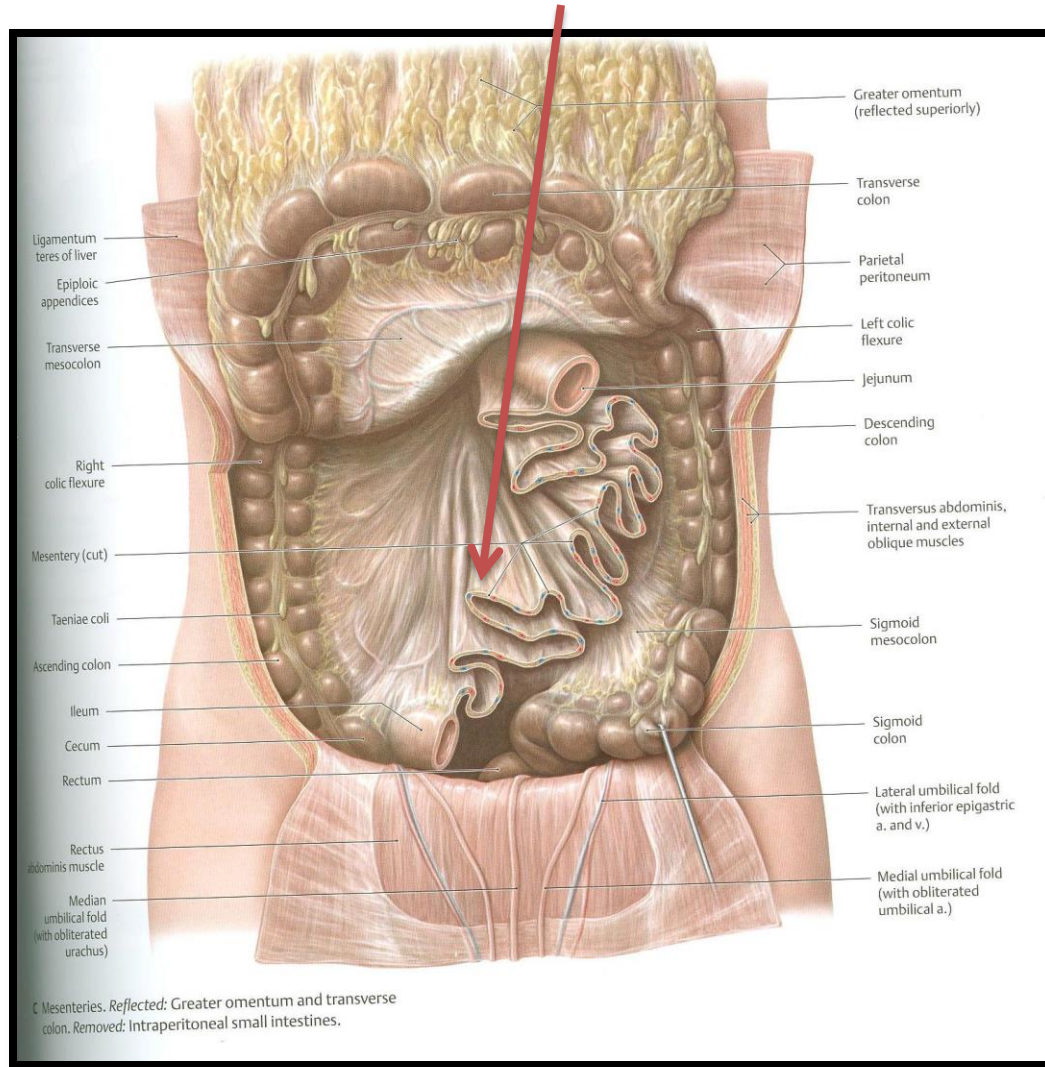
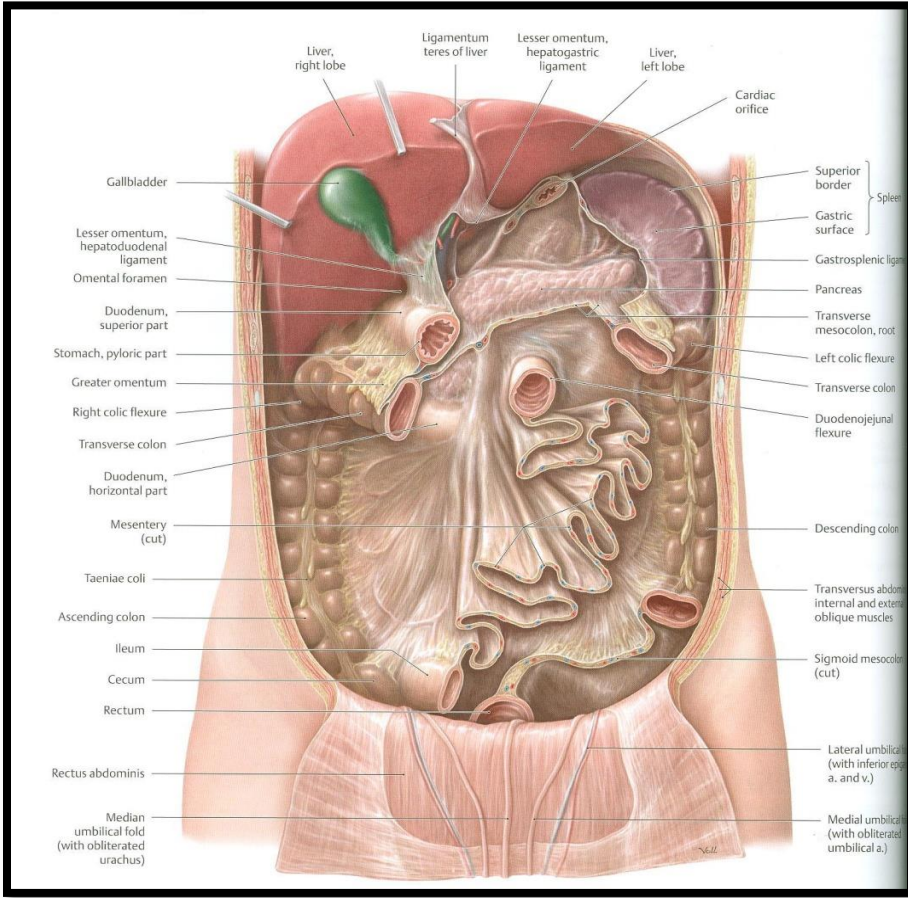


Fig. 1004 Position of abdominal viscera; greater omentum and transverse colon retracted cranially; ventral aspect.

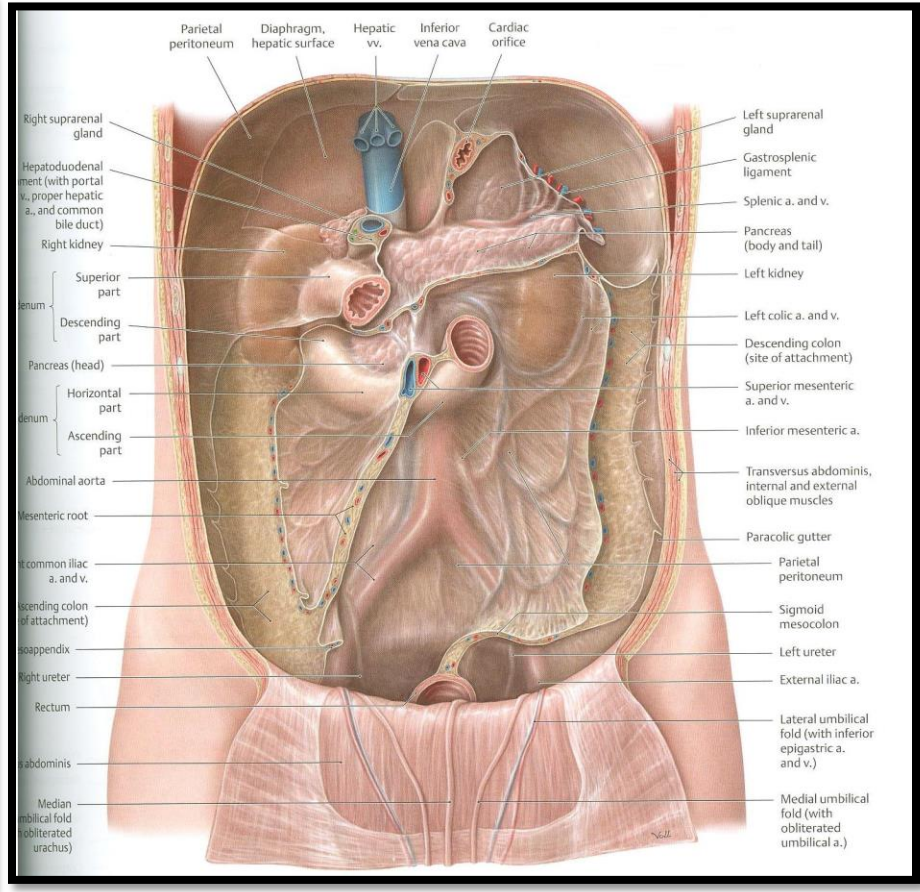
MESENTERY OF SMALL INTESTINE



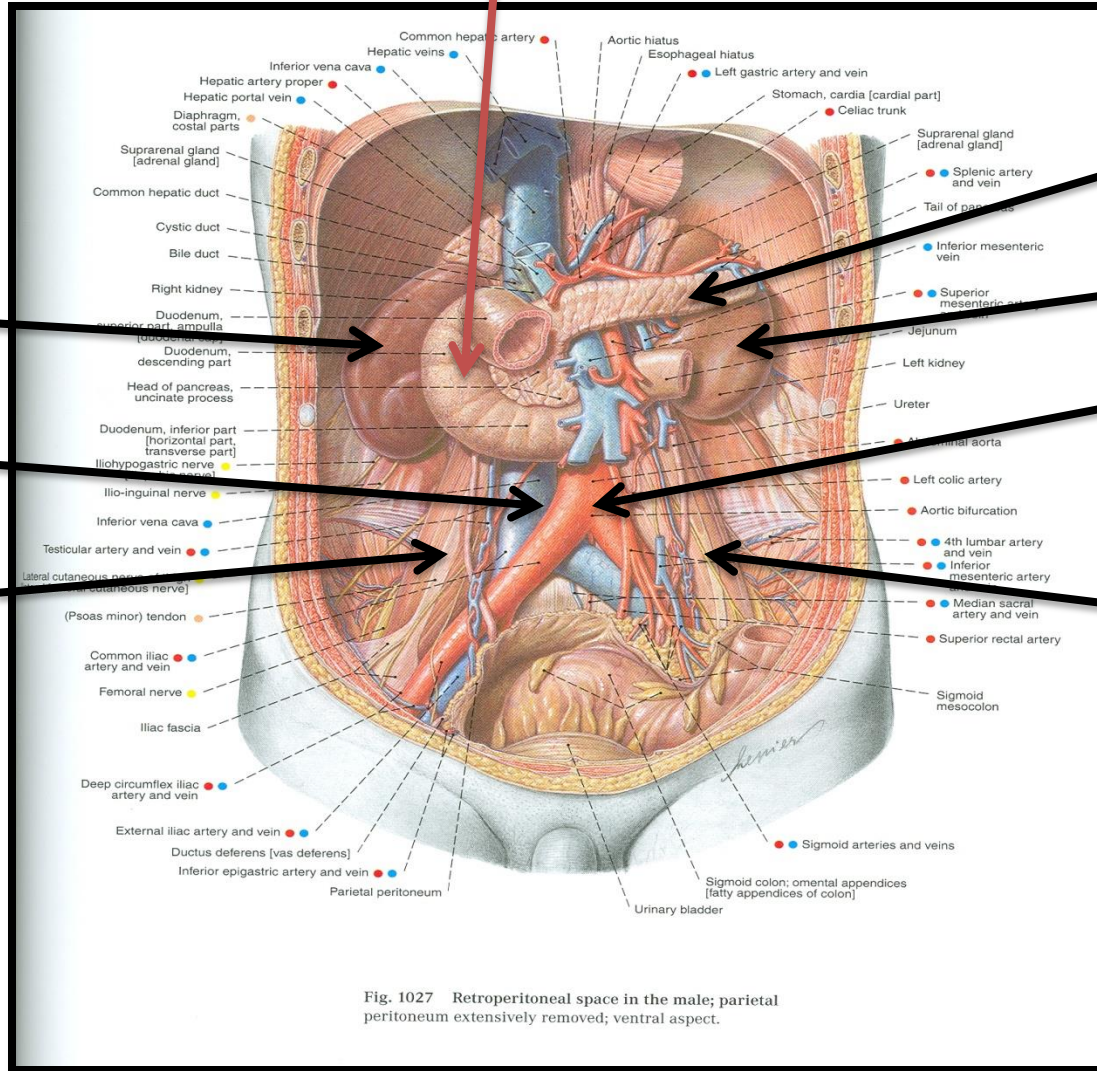
1



2



DUODENUM



Right kidney

Pancreas

Left kidney

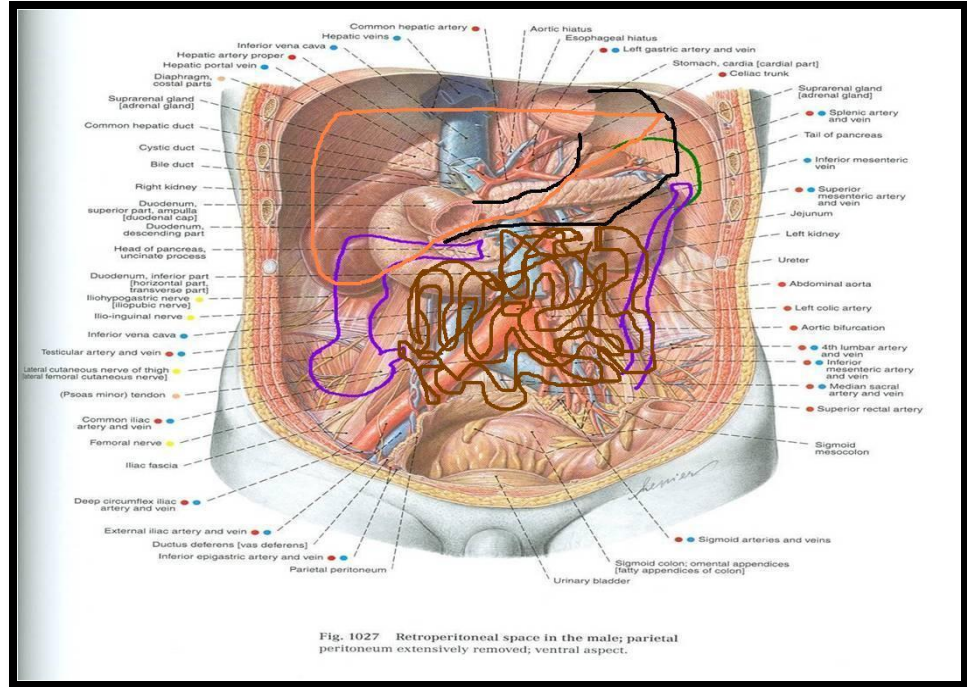
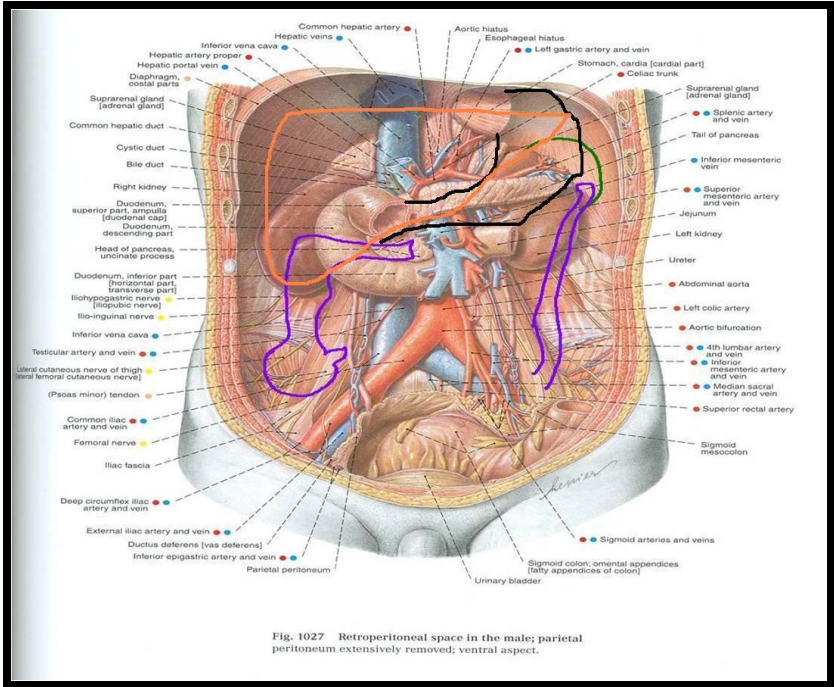
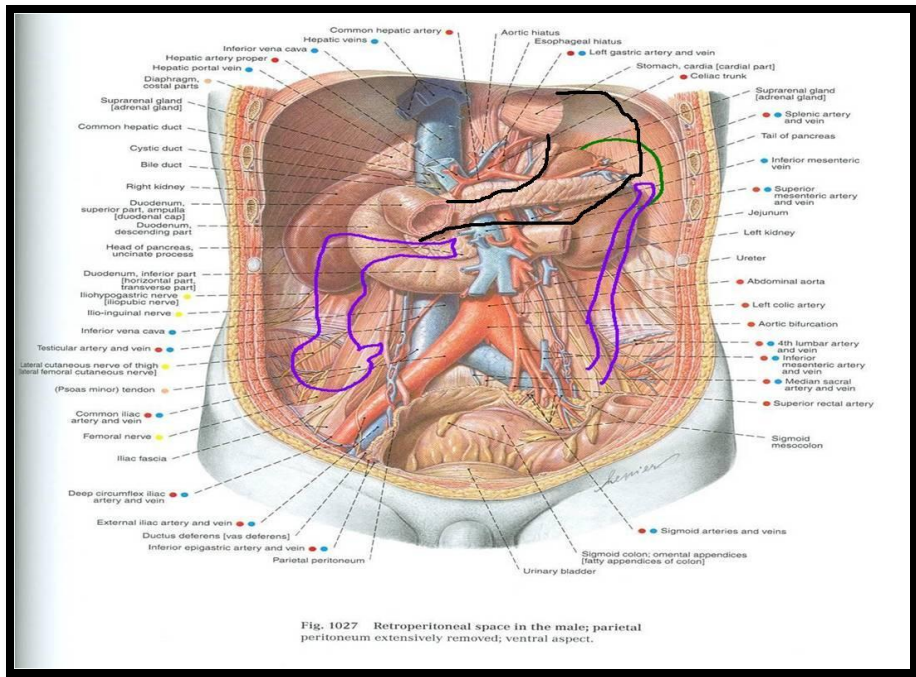
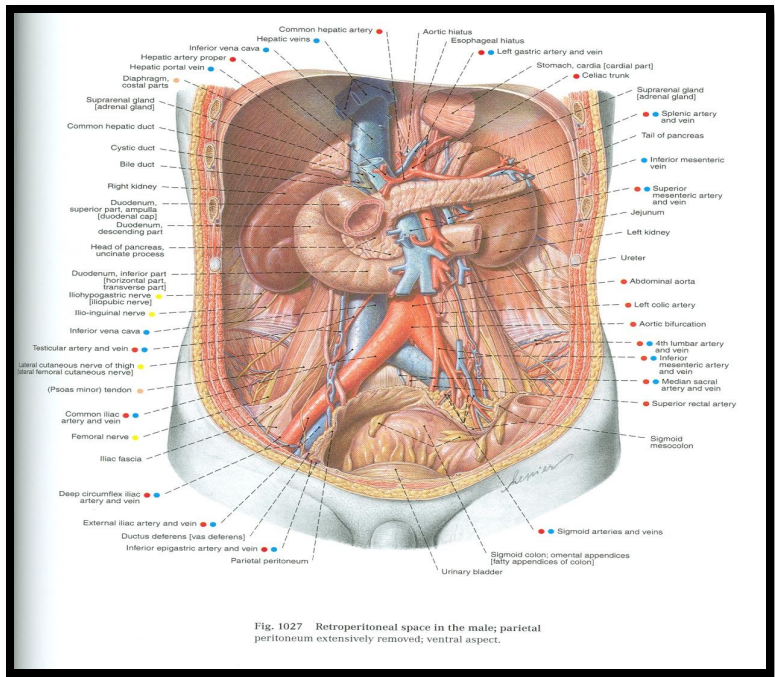
Abdominal aorta

Inferior vena cava

Left psoas major

Right psoas major

Fig. 1027 Retroperitoneal space in the male; parietal peritoneum extensively removed; ventral aspect.



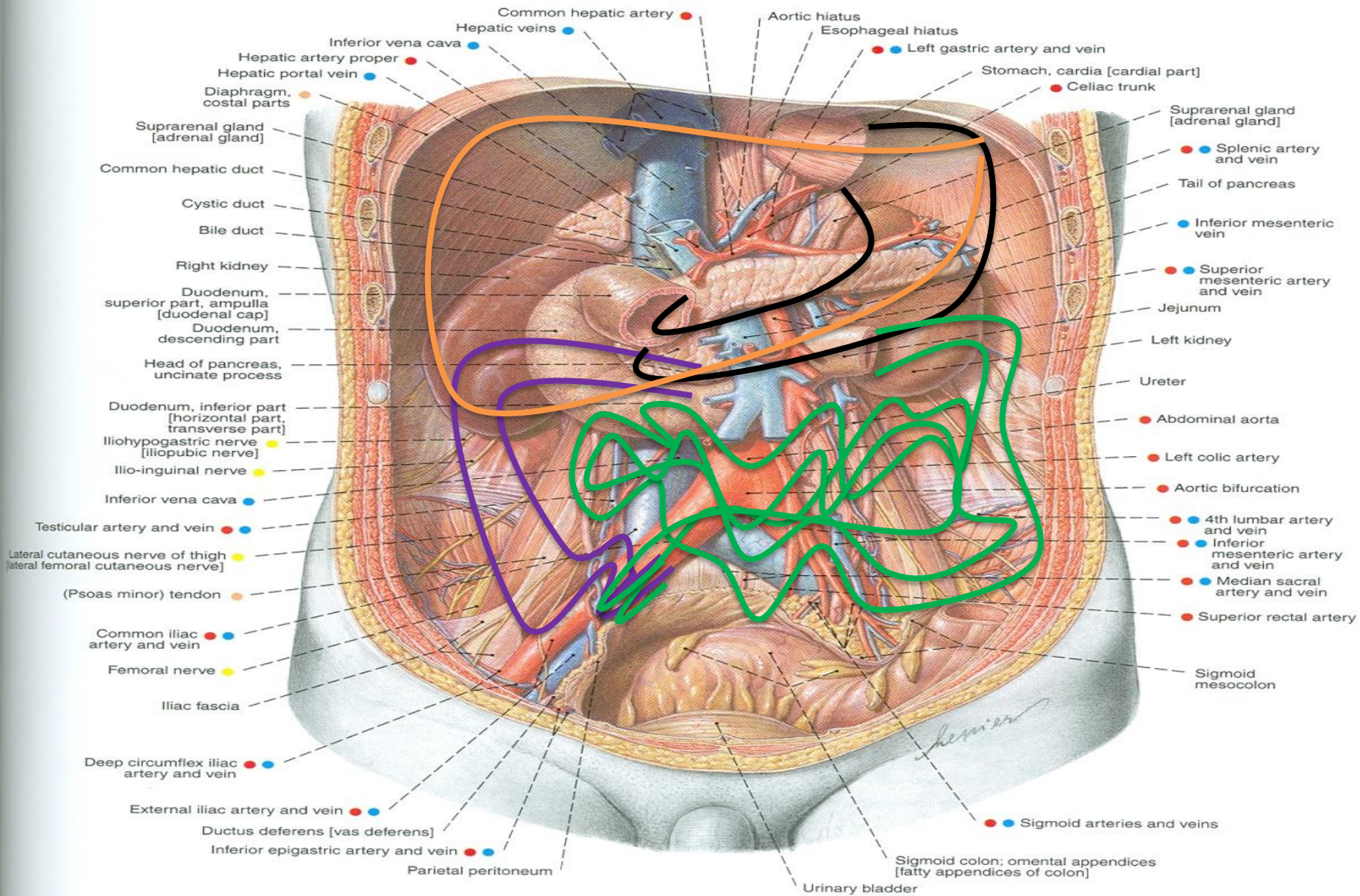


Fig. 1027 Retroperitoneal space in the male; parietal peritoneum extensively removed; ventral aspect.

RELATION BETWEEN EMBRYOLOGICAL ORIGIN & ARTERIAL SUPPLY

DUODENUM:

☐ Origin: Foregut & Midgut

☐ Arterial supply:

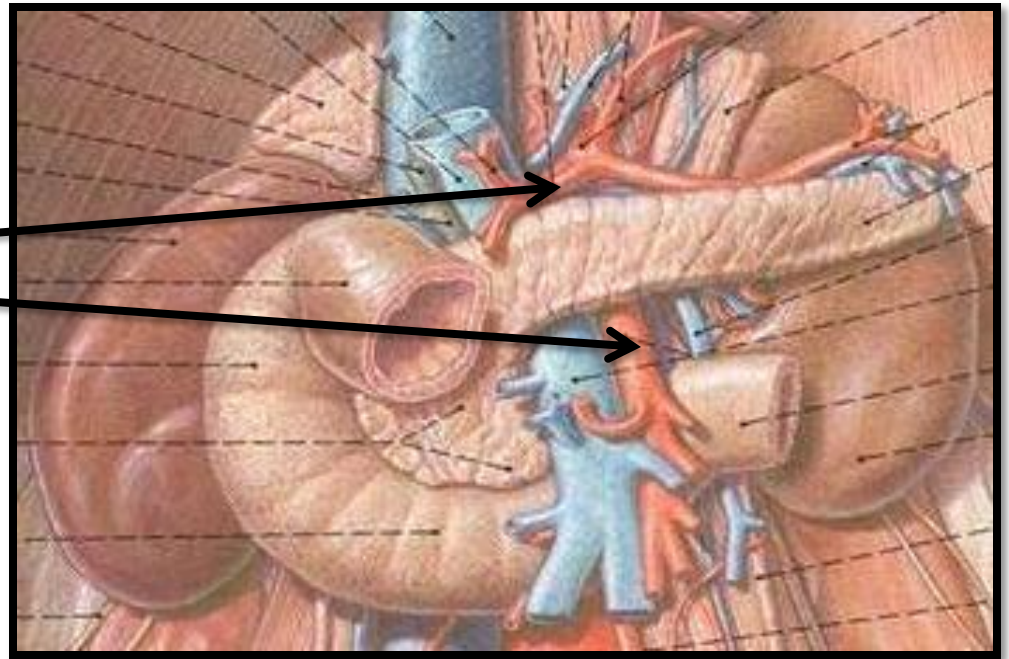
1. Coeliac trunk (artery of foregut)
2. Superior mesenteric: (artery of midgut)

JEJUNUM & ILEUM:


☐ Origin: Midgut

☐ Arterial supply:

Superior mesenteric: (artery of midgut)



DUODENUM

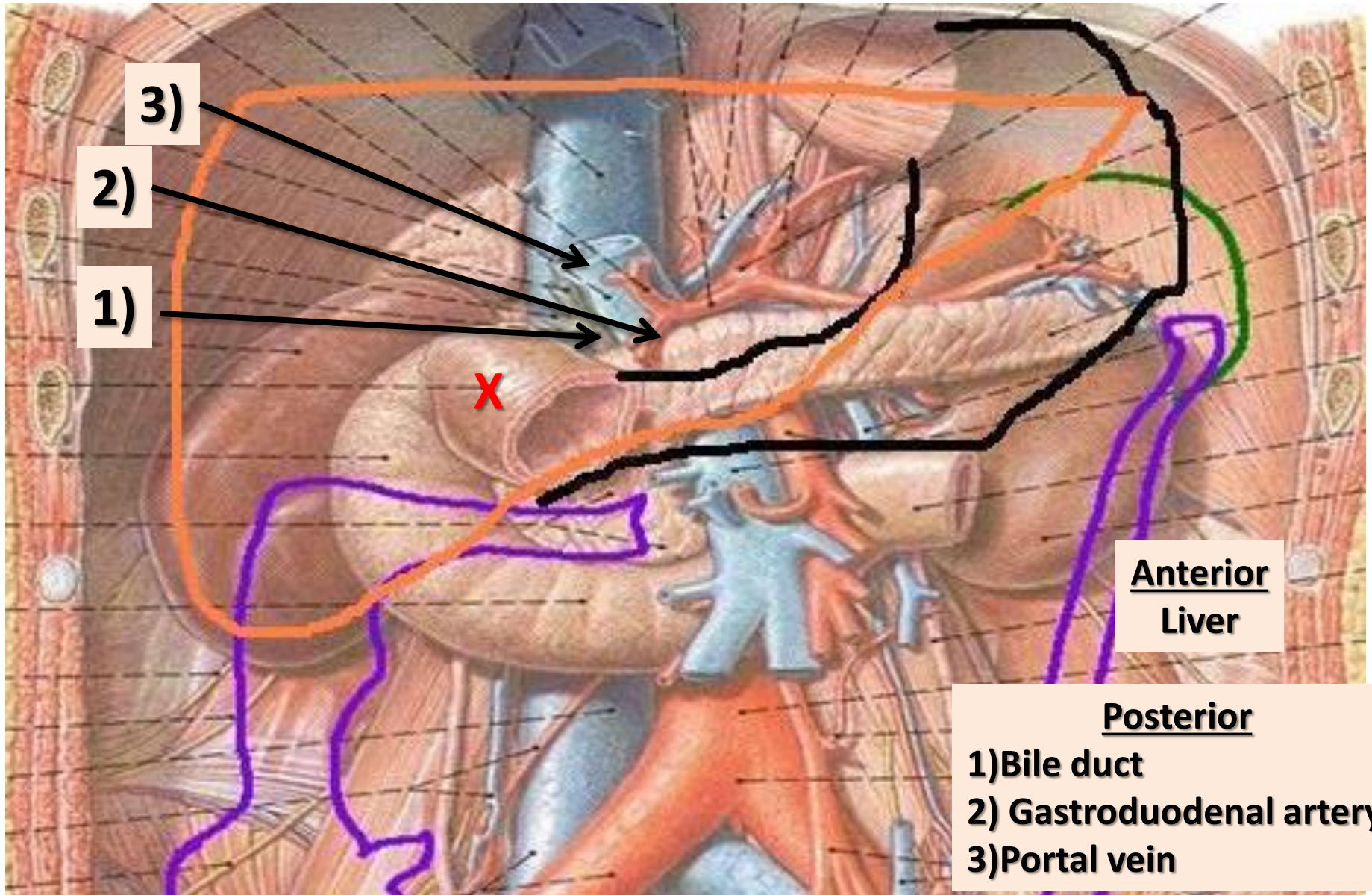
- ❑ **SHAPE:** C-shaped loop
 - ❑ **LENGTH:** 10 inches
 - ❑ **BEGINNING:** at pyloro-duodenal junction
 - ❑ **TERMINATION:** at duodeno-jejunal flexure
 - ❑ **PERITONEAL COVERING:** retroperitoneal
 - ❑ **DIVISIONS:** 4 parts
 - ❑ **EMBRYOLOGICAL ORIGIN:** foregut & midgut
 - ❑ **ARTERIAL SUPPLY:** 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 FIRST PART



RELATIONS OF SECOND PART

Anterior

- 1) Liver
- 2) TC
- 3) SI

Posterior
Right kidney

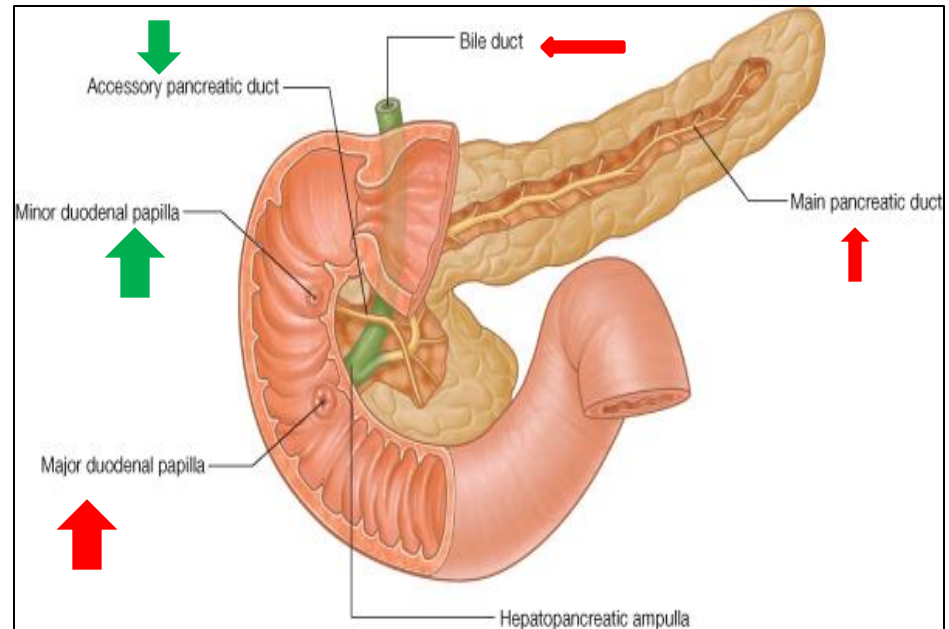
Lateral
RCF

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

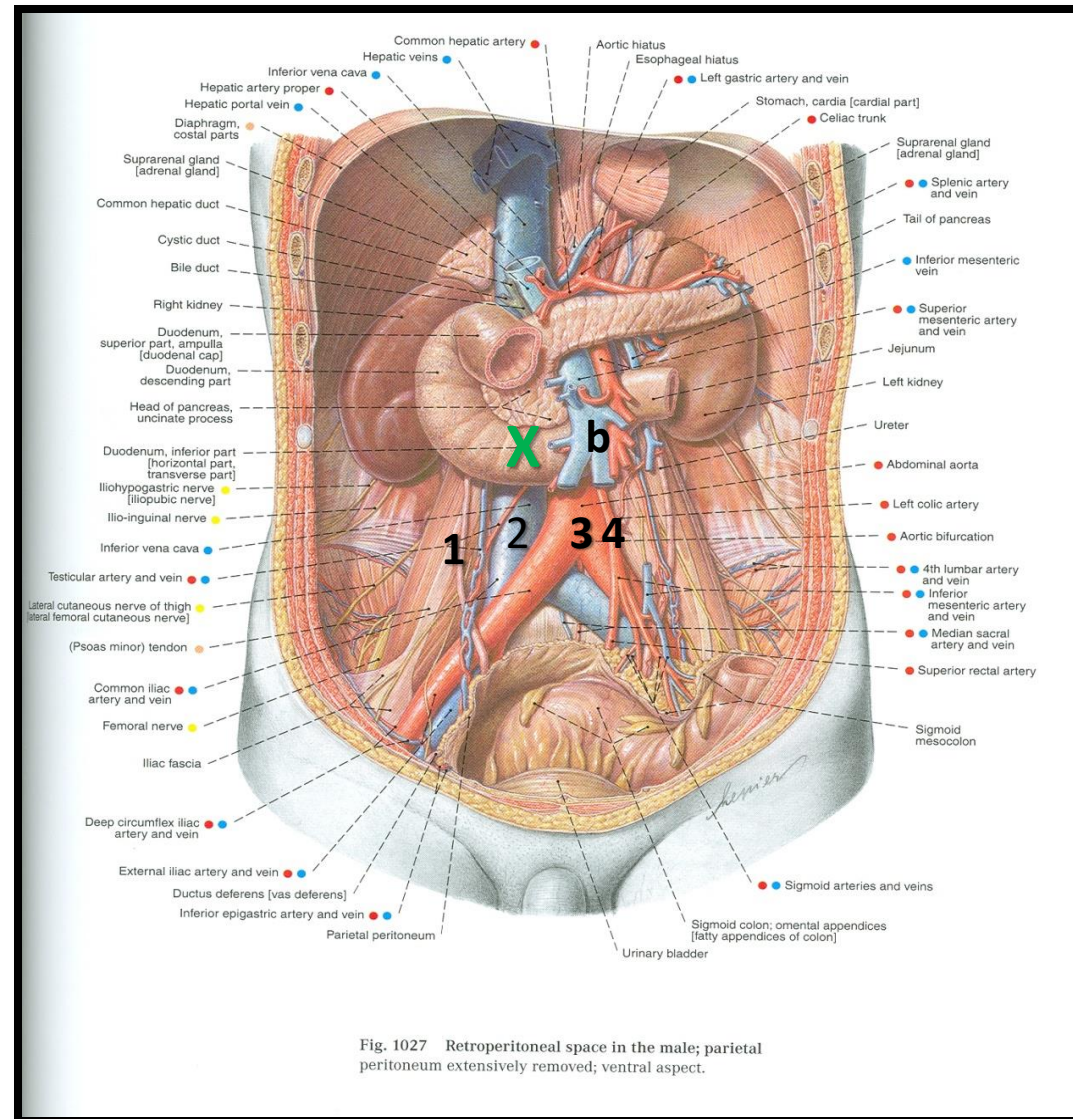


Fig. 1027 Retroperitoneal space in the male; parietal peritoneum extensively removed; ventral aspect.

RELATIONS OF FOURTH PART

Anterior:
Small intestine

Posterior:
Left psoas major

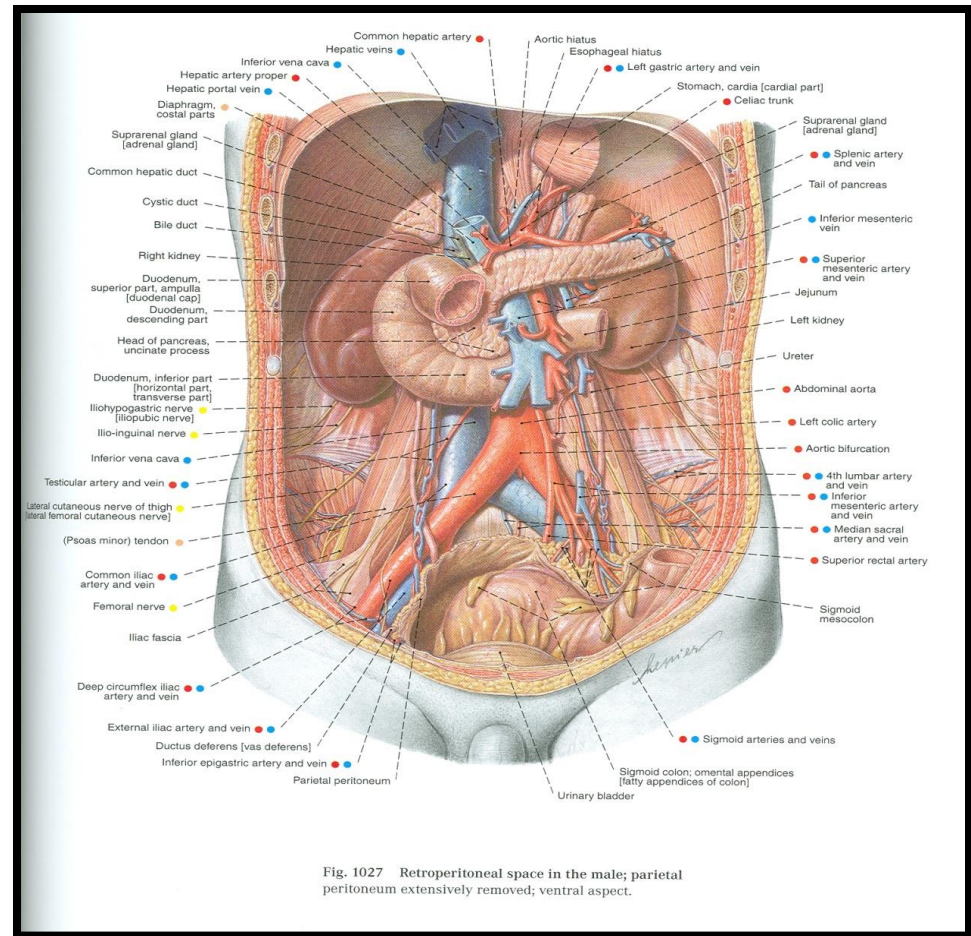
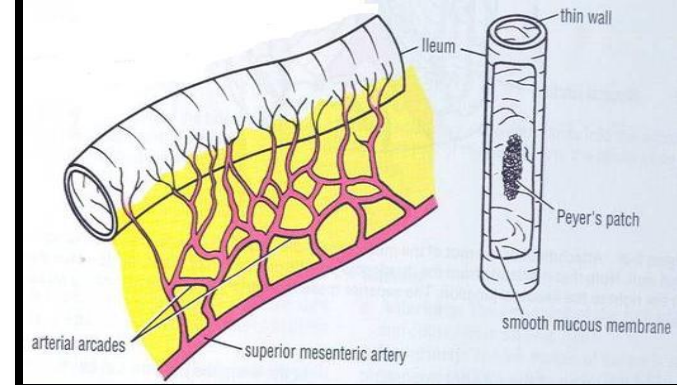
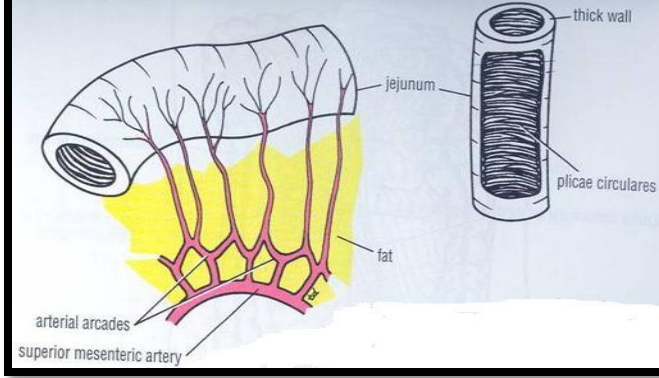


Fig. 1027 Retroperitoneal space in the male; parietal peritoneum extensively removed; ventral aspect.

JEJUNUM & ILEUM


- ❑ **SHAPE:** coiled tube
- ❑ **LENGTH:** 6 meters (20 feet)
- ❑ **BEGINNING:** at duodeno-jejunal flexure
- ❑ **TERMINATION:** at ileo-caecal junction
- ❑ **PERITONEAL FOLD:** mesentery of small intestine
- ❑ **EMBRYOLOGICAL ORIGIN:** midgut
- ❑ **ARTERIAL SUPPLY:** superior mesenteric
- ❑ **LYMPHATIC DRAINAGE:** superior mesenteric



| | JEJUNUM | ILEUM |
|------------------------|---------------------------------------|---|
| LENGTH | Shorter (proximal 2/5) | Longer (distal 3/5) |
| DIAMETER | Wider | Narrower |
| WALL | Thicker (more plicae circulares) | Thinner (less plica circulares) |
| APPEARANCE | Dark red (more vascular) | Light red (less vascular) |
| VESSELS | Less arcades (long terminal branches) | More arcades (short terminal branches) |
| MESENTERIC FAT | Small amount near intestinal border | Large amount near intestinal border |
| LYMPHOID TISSUE | Few aggregations | Numerous aggregations (Peyer's patches) |


QUESTION 1

Which one of the following is anterior to the third part of duodenum?

1. Superior mesenteric vessels 
2. Right kidney
3. Right posas major muscle
4. Abdominal aorta

QUESTION 2

Which one of the following structures could be injured in case of perforated duodenal ulcer?

1. Right kidney
2. Right colic flexure
3. Gastroduodenal artery 
4. Inferior mesenteric vessels

The image features two large, stylized yellow roses with white and light yellow petals, set against a teal background. The roses are positioned on the left and right sides of the frame. The text "THANK YOU" is written in a bold, blue, sans-serif font across the center of the image, overlapping the petals of both roses. The entire scene is enclosed within a thin orange border.

THANK YOU