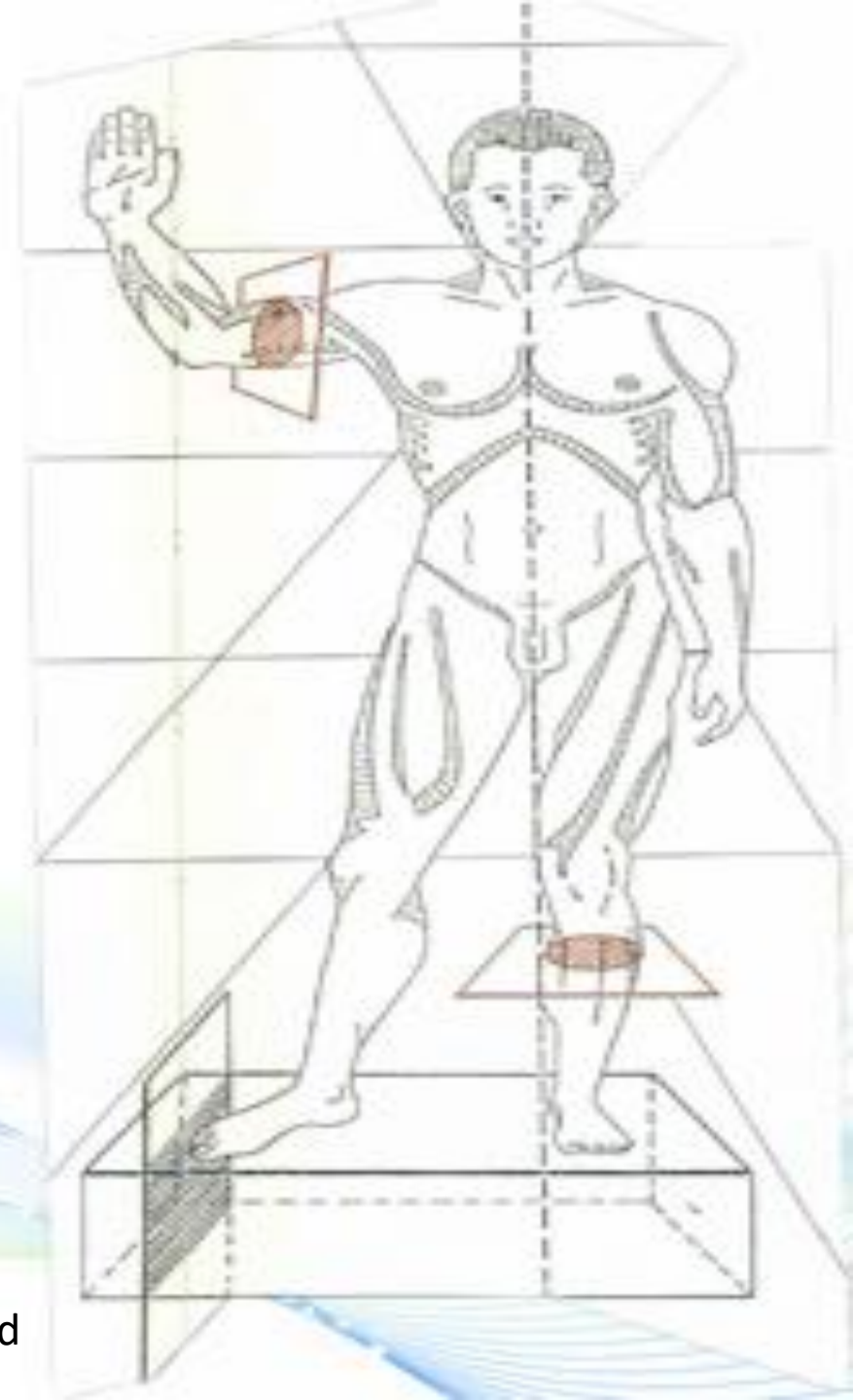


JEJUNUM AND ILEUM



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CONTENTS

I. INTRODUCTION

II. DESCRIPTIVE ANATOMY

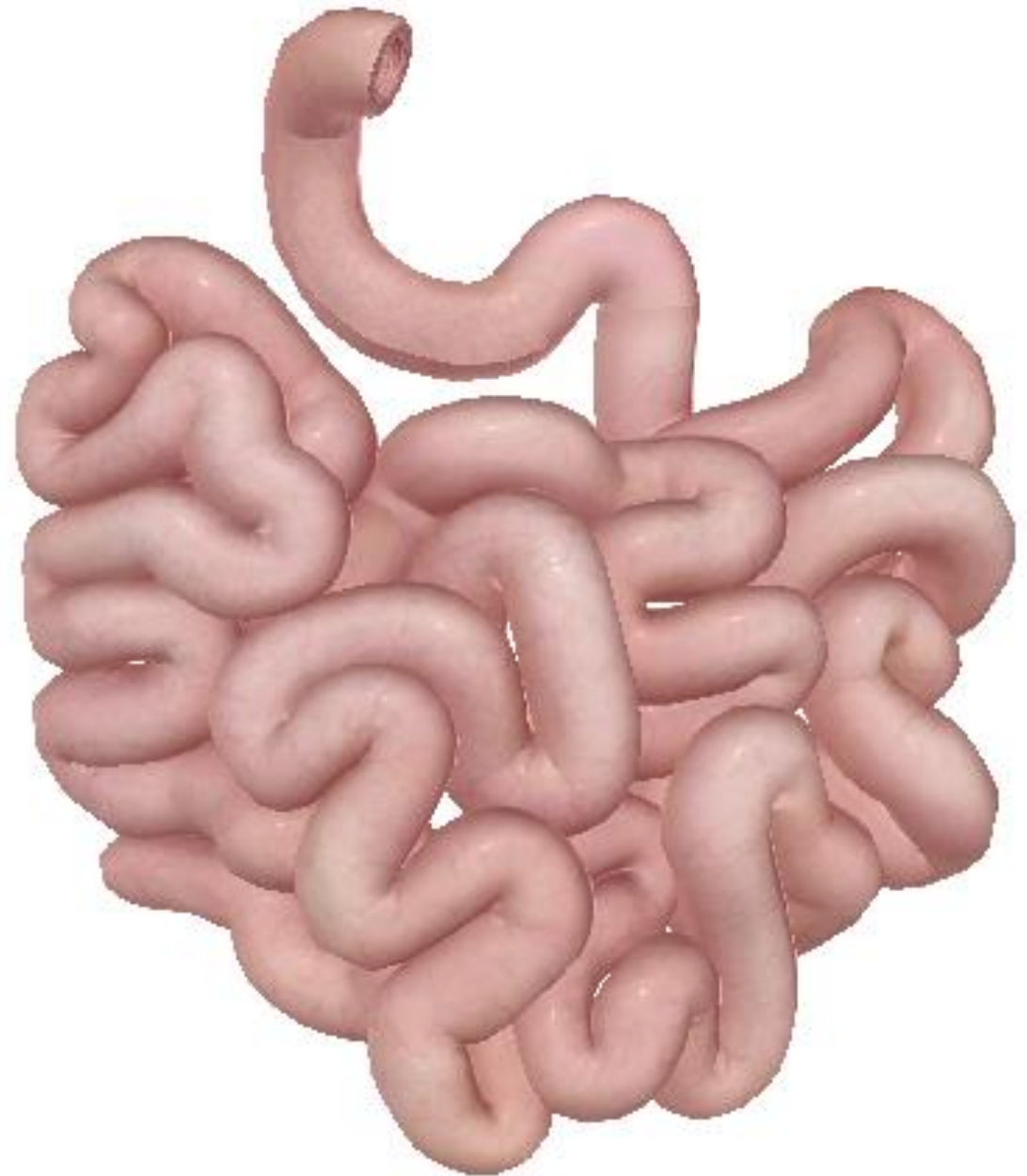
III. STRUCTURE

IV. MESENTERY

V. ANATOMICAL RELATIONS

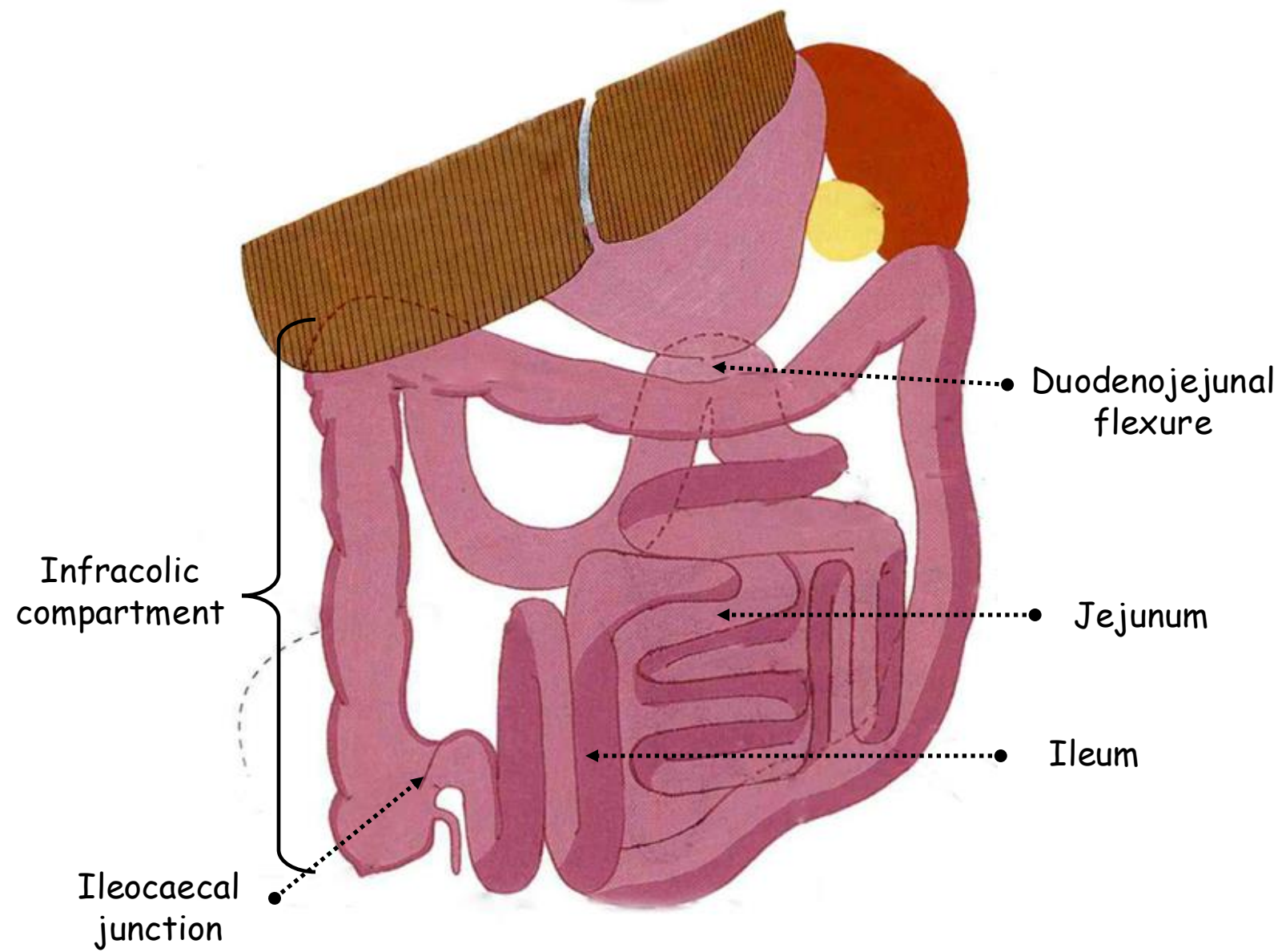
VI. BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY

VII. CONCLUSION



I. INTRODUCTION

- Extend from the duodenojejunal flexure to the ileocaecal junction
- **Jejunum**: upper two fifths of small intestine
- **Ileum**: lower three fifths of small intestine
- Situated in the **infracolic compartment** of the peritoneal cavity
- Major role in **digestion** of aliments and **absorption** of nutriments
- Belong to the midgut

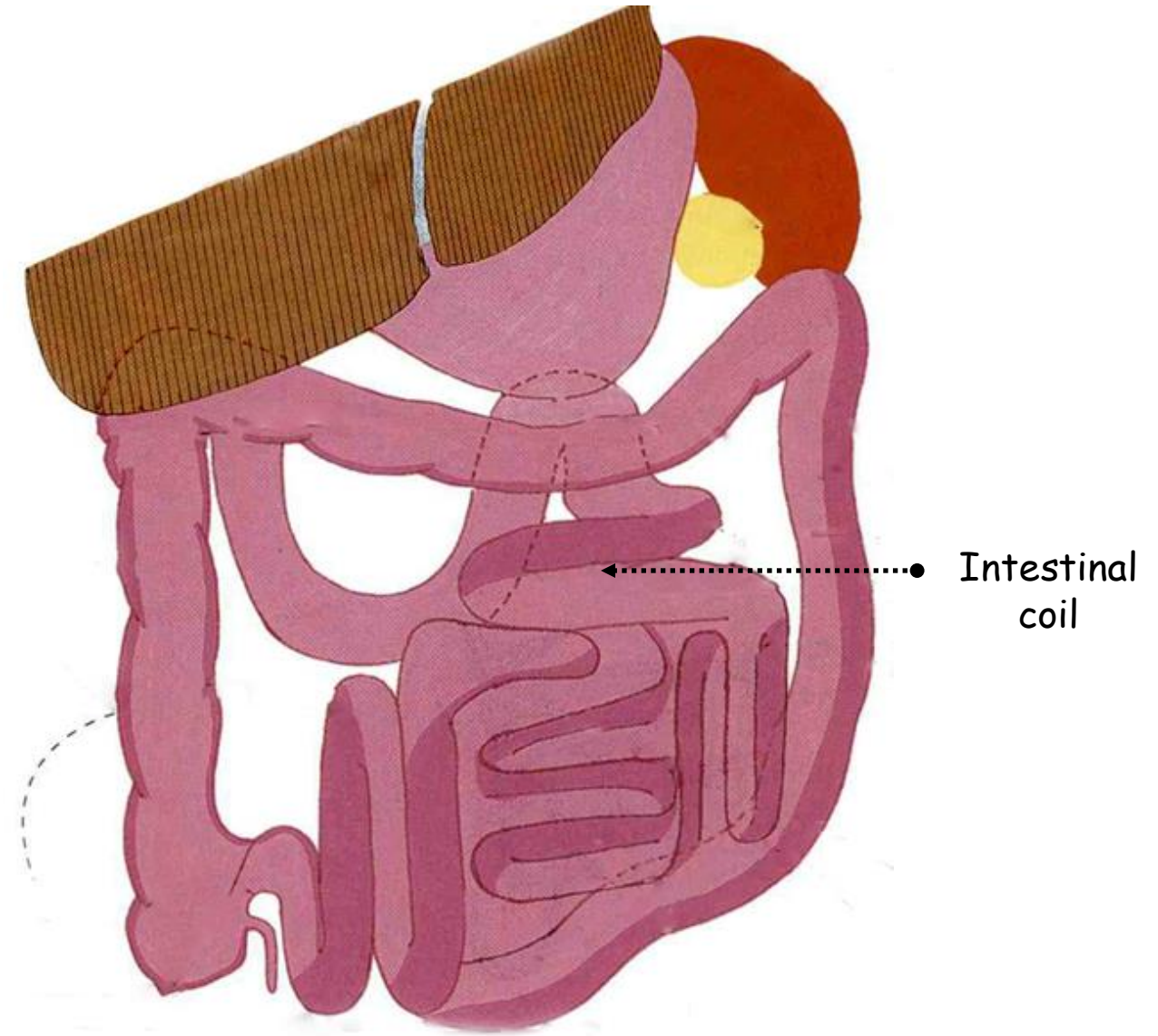


ANTERIOR VIEW OF SMALL INTESTINE

II. DESCRIPTIVE ANATOMY

A. GENERAL ASPECT

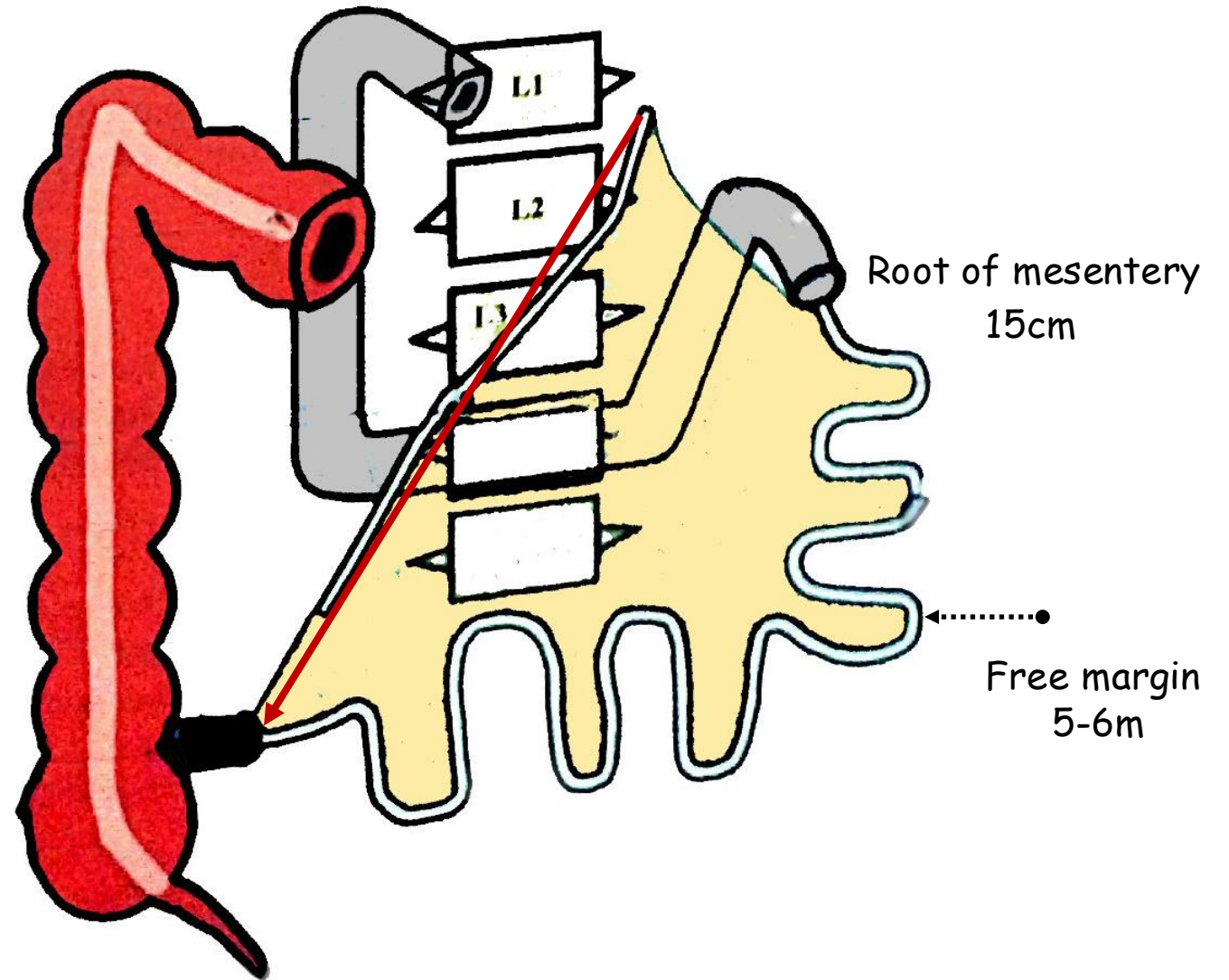
- Very mobile 15 to 16 coils hanging free on the mesentery
- The jejunum is wider-bored and thicker-walled than the ileum
- The wall of the jejunum is thick and double while the wall of the ileum is thin and single
- The lower reaches of the ileum are distinguished by the presence on the antimesenteric border of elongated whitish plaques in the mucous membrane, usually but not always visible through the muscle wall
- Each coil is U-shaped:
 - Concave towards mid-line
 - Branches are in contact with each other



ANTERIOR VIEW OF SMALL INTESTINE

B. DIMENSIONS

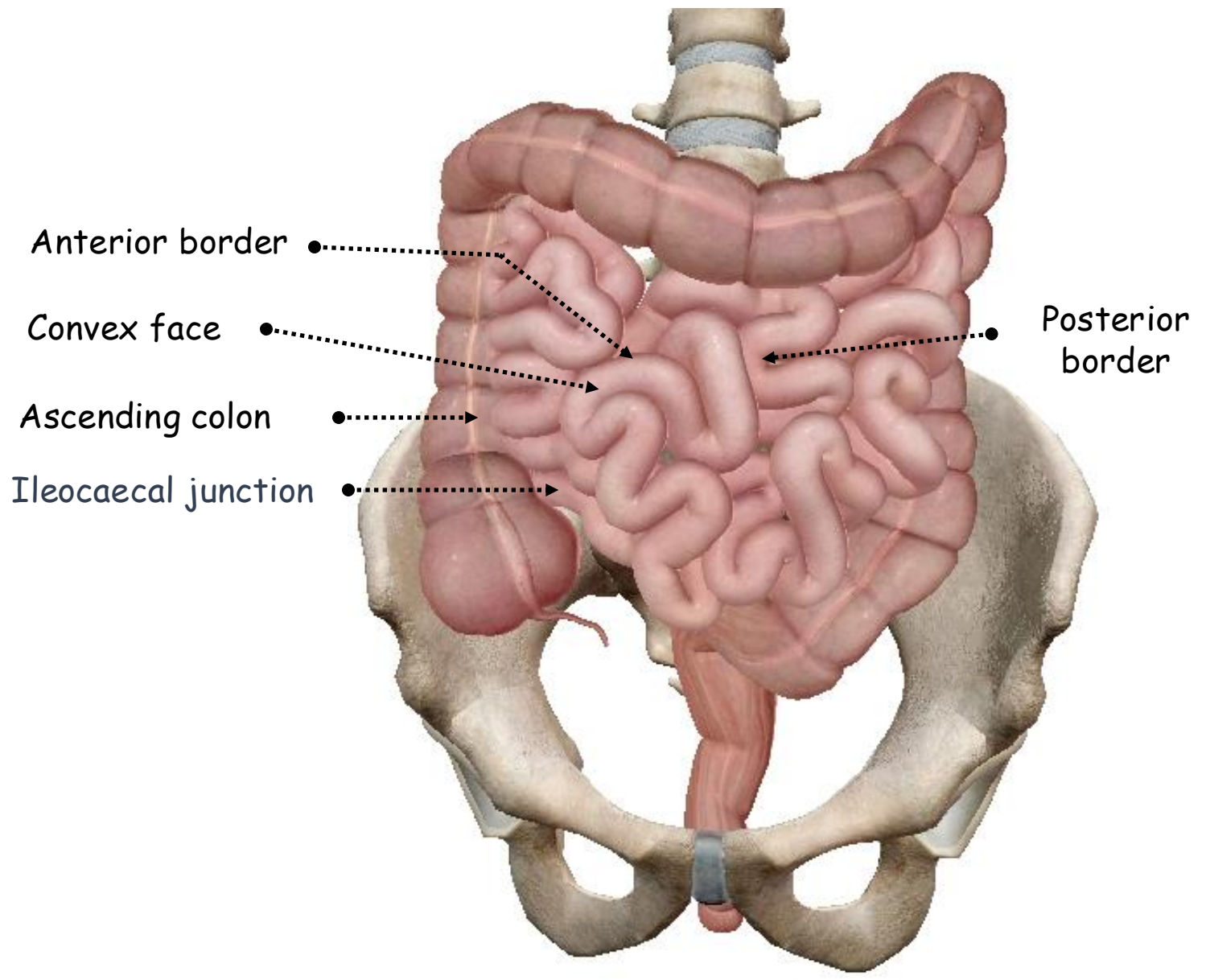
- Length: 5-6m
- Correspond to the length of the free margin of mesentery
- Root of mesentery: 15cm
- **Internal diameter:**
 - Jejunum: 4cm
 - Ileum: 2.5cm



ANTERIOR VIEW SHOWING THE MESENTERY

C. SHAPE

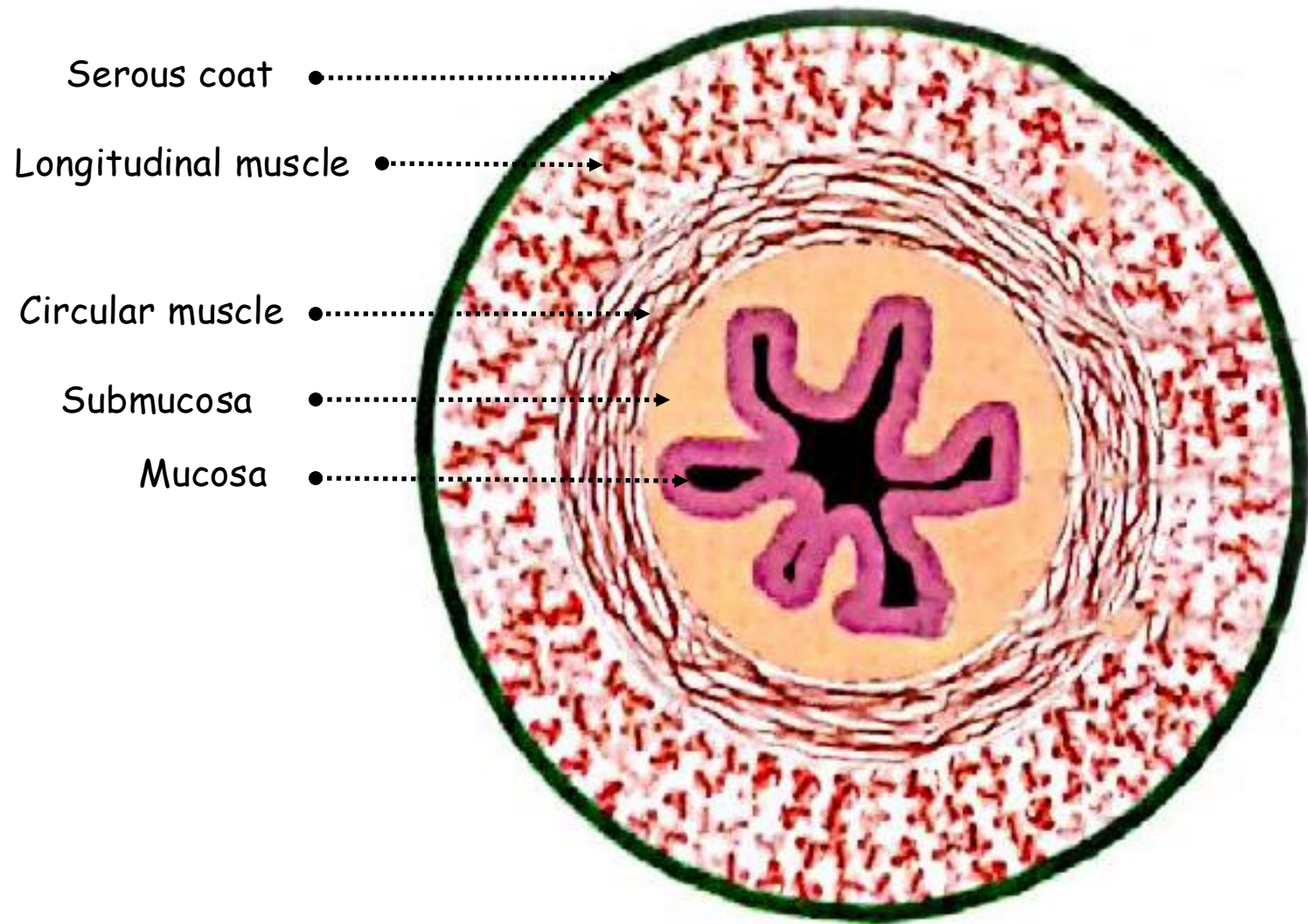
- Hollow columnar tube
- Each coil :
 - 2 faces : convex
 - 2 borders: anterior and convex and posterior and concave



ANTERIOR VIEW OF SMALL INTESTINE

III. STRUCTURE

- **Serous coat:** covers the anterior board and convex faces, continues up behind and is reflected downwards to the floor of posterior abdominal wall
- **Two layers of muscle:**
 - Outer: longitudinal
 - Inner: circular
- **Submucosa:** Loose areolar connective tissue
- **Mucosa:**
 - Epithelium : simple columnar
 - Contains crypts of Lieberkuhn
 - In the terminal ileum there are groups of lymphoid follicles in the mucosa forming Peyer's patches
 - Macroscopic aspect : semilunar folds
 - Microscopic aspect: villi (finger-like or leaf-like connective tissue cores covered by epithelium)



HORIZONTAL SECTION OF SMALL INTESTINE

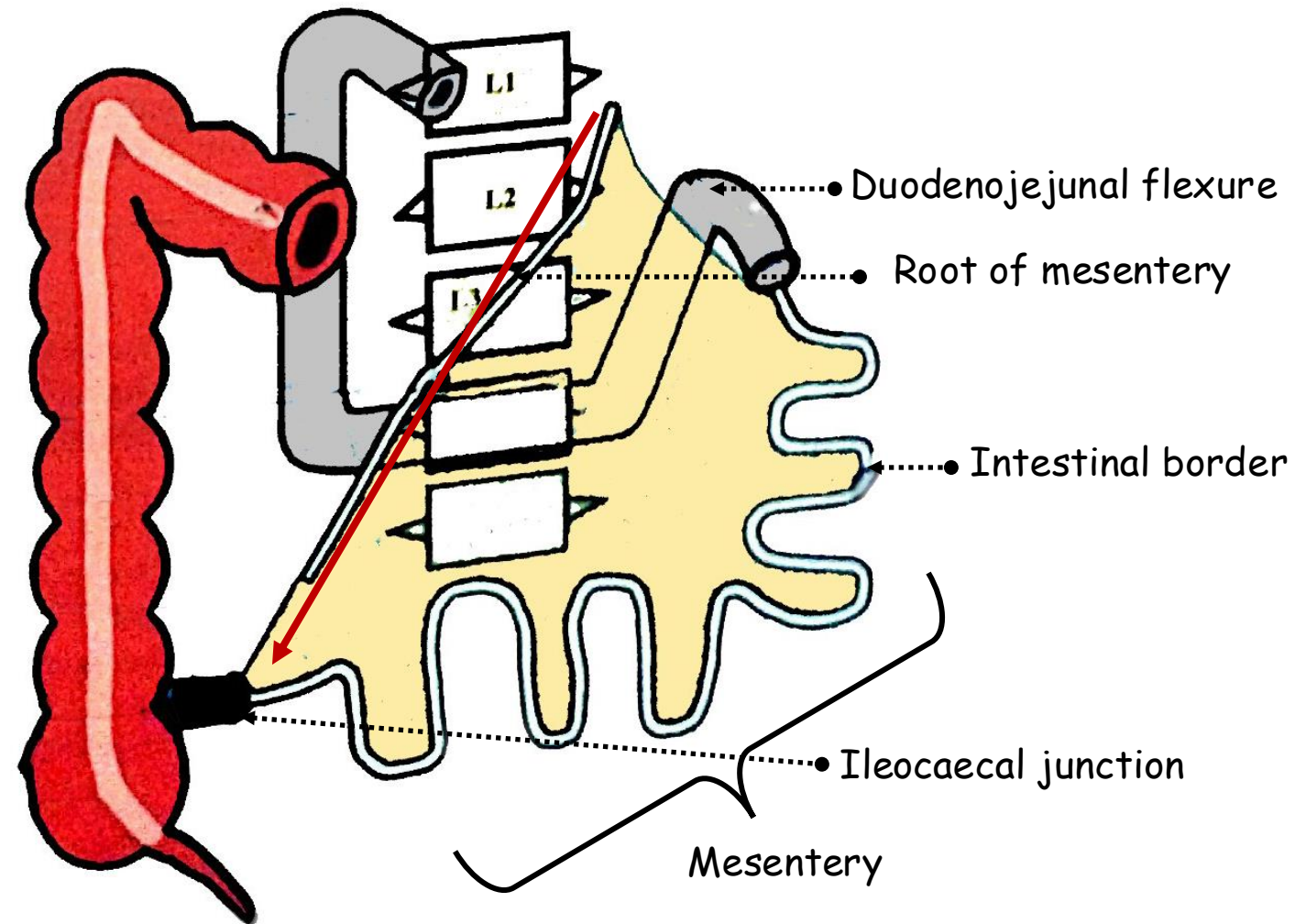
IV. MESENTERY

• Root:

- Passes down from left to right at an angle of about 45°
- Adheres to posterior parietal peritoneum
- Begins on the left at the duodenojejunal junction, crosses the third part of the duodenum where the superior mesenteric vessels enter between its two layers, and then continues downwards across the aorta, inferior vena cava, right psoas muscle and ureter to the right iliac fossa

• Intestinal border:

- Greatly folded
- Length: 5m
- The depth of the mesentery (from root to gut) is about 15 cm



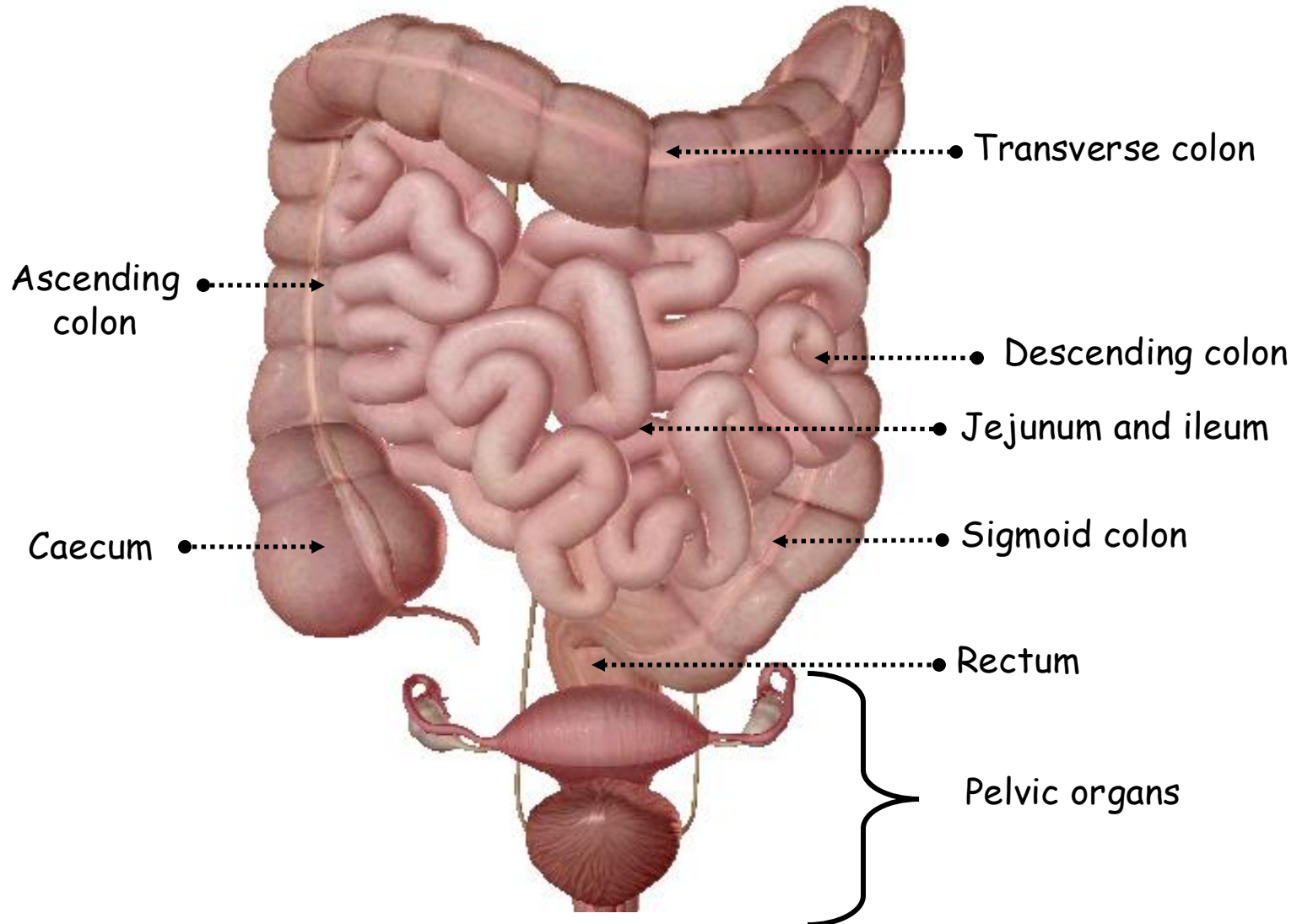
ANTERIOR VIEW SHOWING THE MESENTERY

V. ANATOMICAL RELATIONS

- The **infracolic compartment** is divided into two by the attachment of the root of the mesentery:
 - **Upper:** right
 - **Lower:** left, contains the major part of the small intestine
- **Front:**
 - Anterior abdominal wall
 - Greater omentum
- **Back:**
 - Retroperitoneal organs
 - Posterior abdominal wall



- **Top:**
 - Transverse colon and transverse mesocolon
- **Bottom:**
 - Sigmoid colon
 - Rectum
 - Pelvic organs
- **Right:**
 - Caecum
 - Ascending colon
 - Lateral abdominal wall
- **Left:**
 - Descending colon
 - Lateral abdominal wall

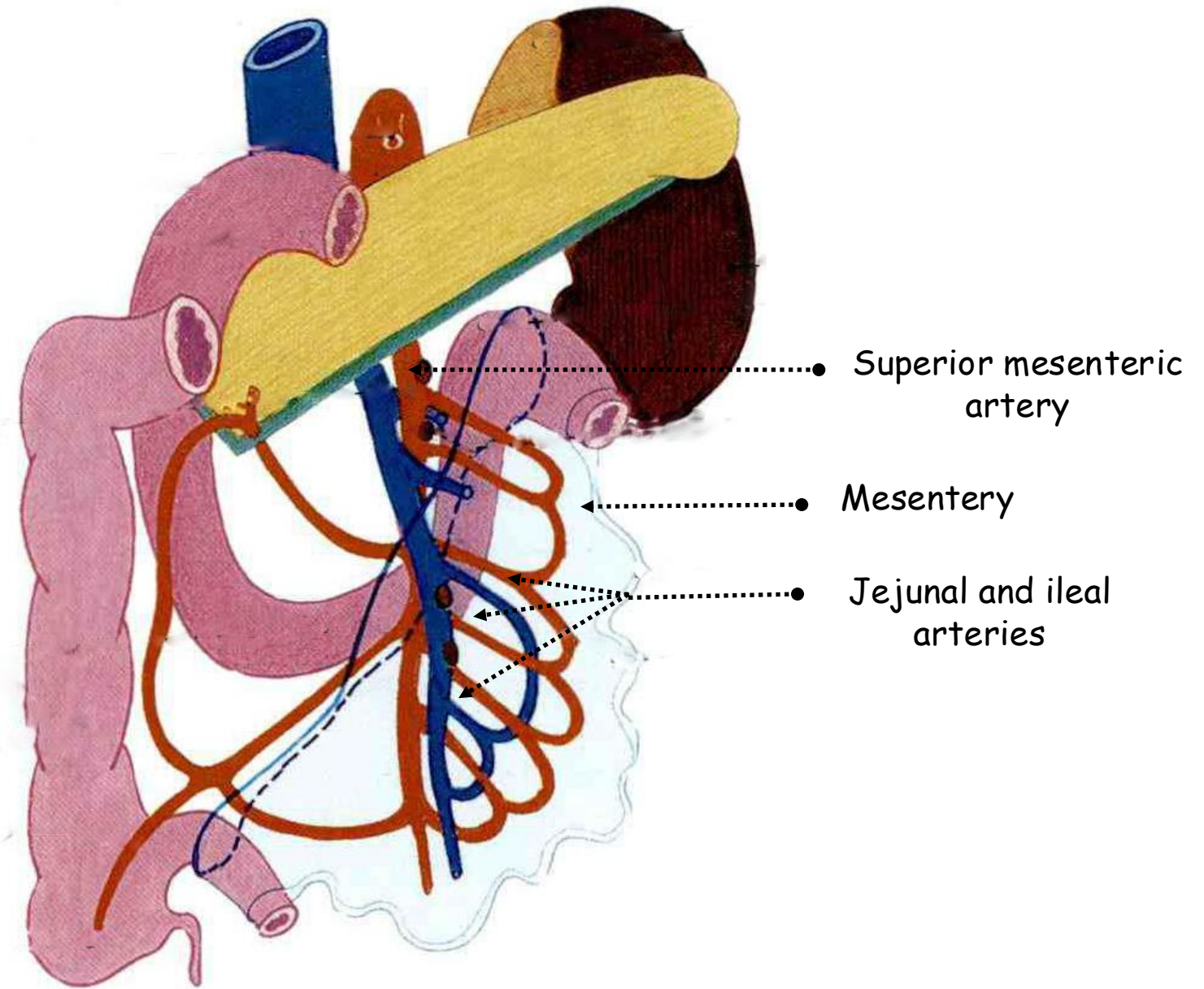


ANTERIOR VIEW OF INFRACOLIC COMPARTMENT

VI. BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY

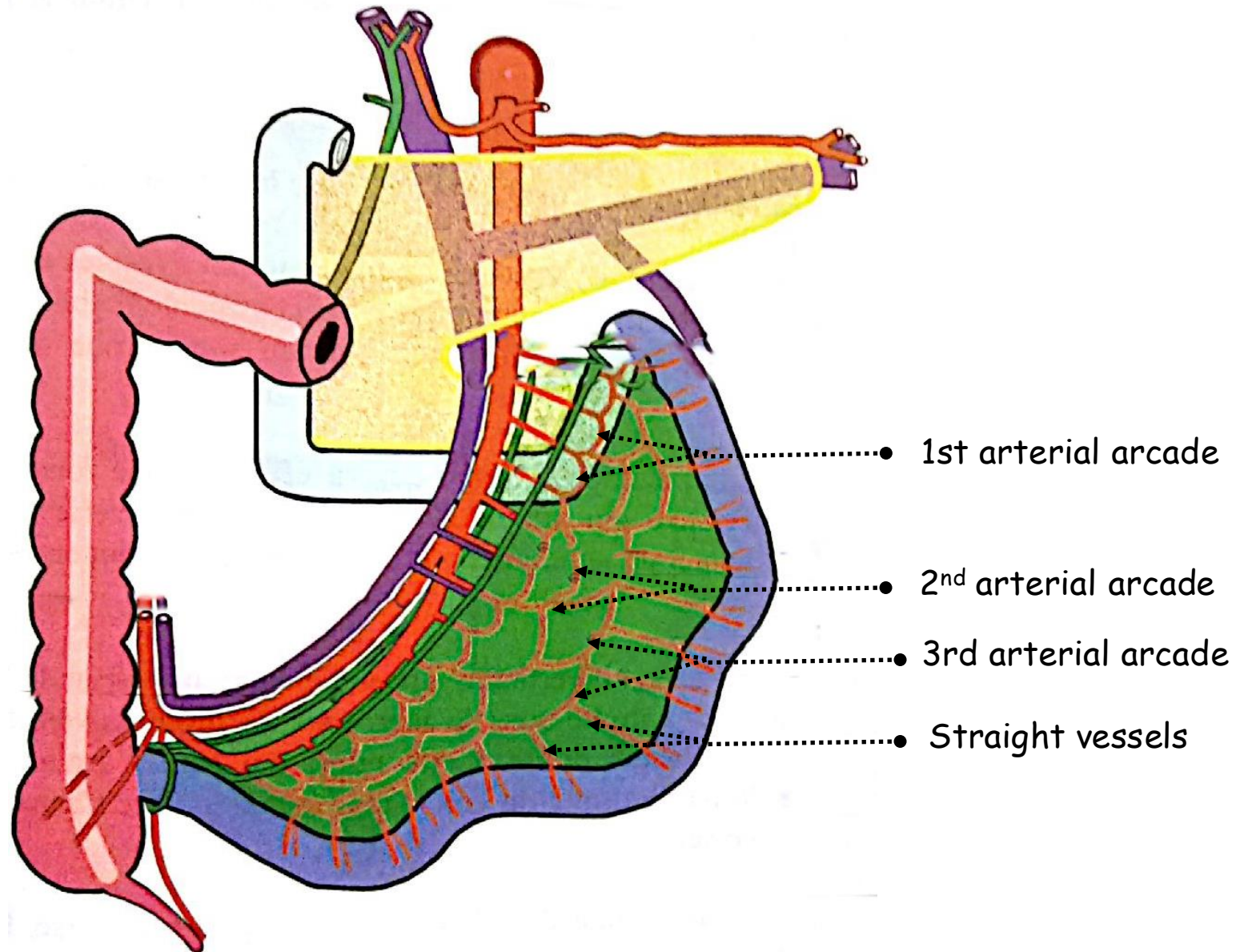
A. ARTERIES

- 12 to 15 jejunal and ileal branches arise from the left side of the superior mesenteric artery
- Pass down *between the two layers* of the mesentery



ANTERIOR VIEW SHOWING JEJUNAL AND ILEAL ARTERIES

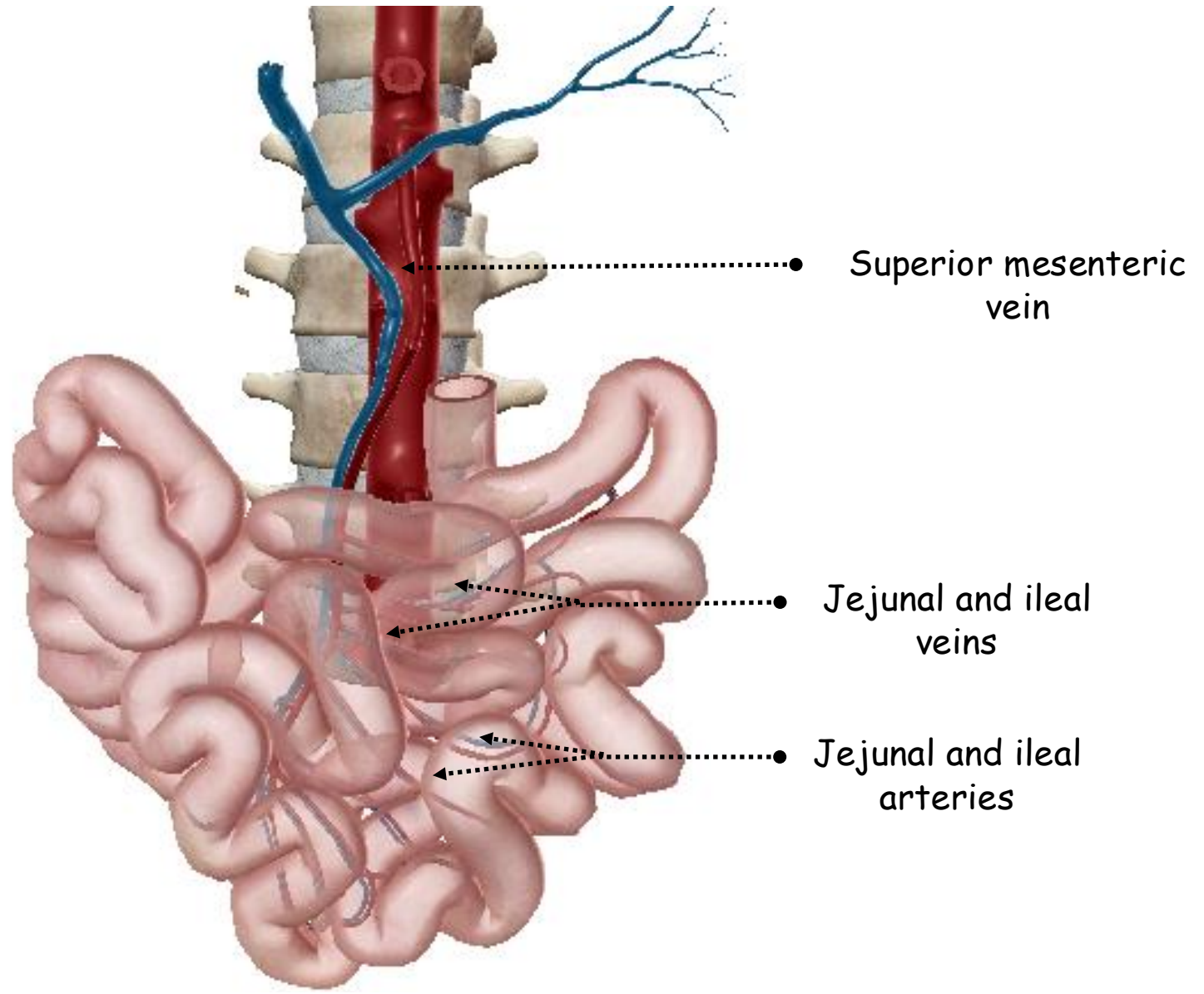
- The jejunal branches join each other in a series of anastomosing loops to form **arterial arcades** — single for the upper jejunum and double lower down
- The ileal arteries are similar but form a larger series of arcades — three to five
- From the arcades, straight arteries pass to the mesenteric border of the gut
- The straight vessels branching off the ileal arcades are shorter and thus low broad windows are formed between them
- There is more fat in the jejunal part of the mesentery, so the windows characteristic of the jejunal part are not seen
- The end of the superior mesenteric artery anastomoses with the ileocolic branch to supply the terminal ileum



ANTERIOR VIEW SHOWING THE ARTERIAL ARCADES OF JEJUNAL AND ILEAL ARTERIES

B. VEINS

- The veins all correspond to the arteries and thus drain to the superior mesenteric vein



ANTERIOR VIEW SHOWING ARTERIES AND VEINS OF JEJUNUM AND ILEUM

C. LYMPH DRAINAGE

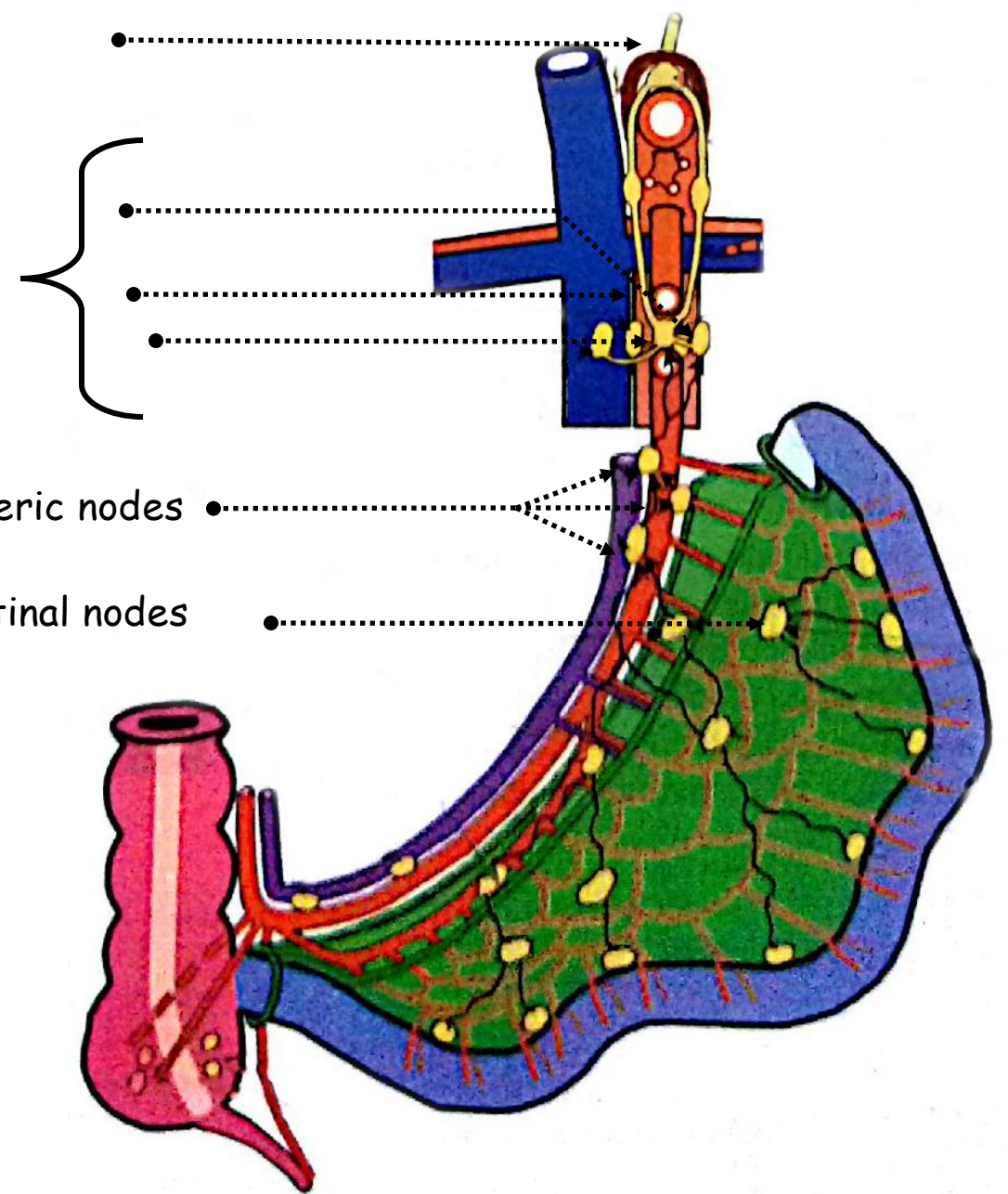
- Pass back along the arteries to lymph nodes that lie in front of the aorta at the origins of the arteries
- Series of lymph node filters that lie between the mucous membrane of the gut and the cisterna chyli:
 - Juxtaintestinal nodes
 - Superior mesenteric nodes
 - Other preaortic nodes
- Draining into the cisterna chyli

Cisterna chyli

Preaortic nodes

Superior mesenteric nodes

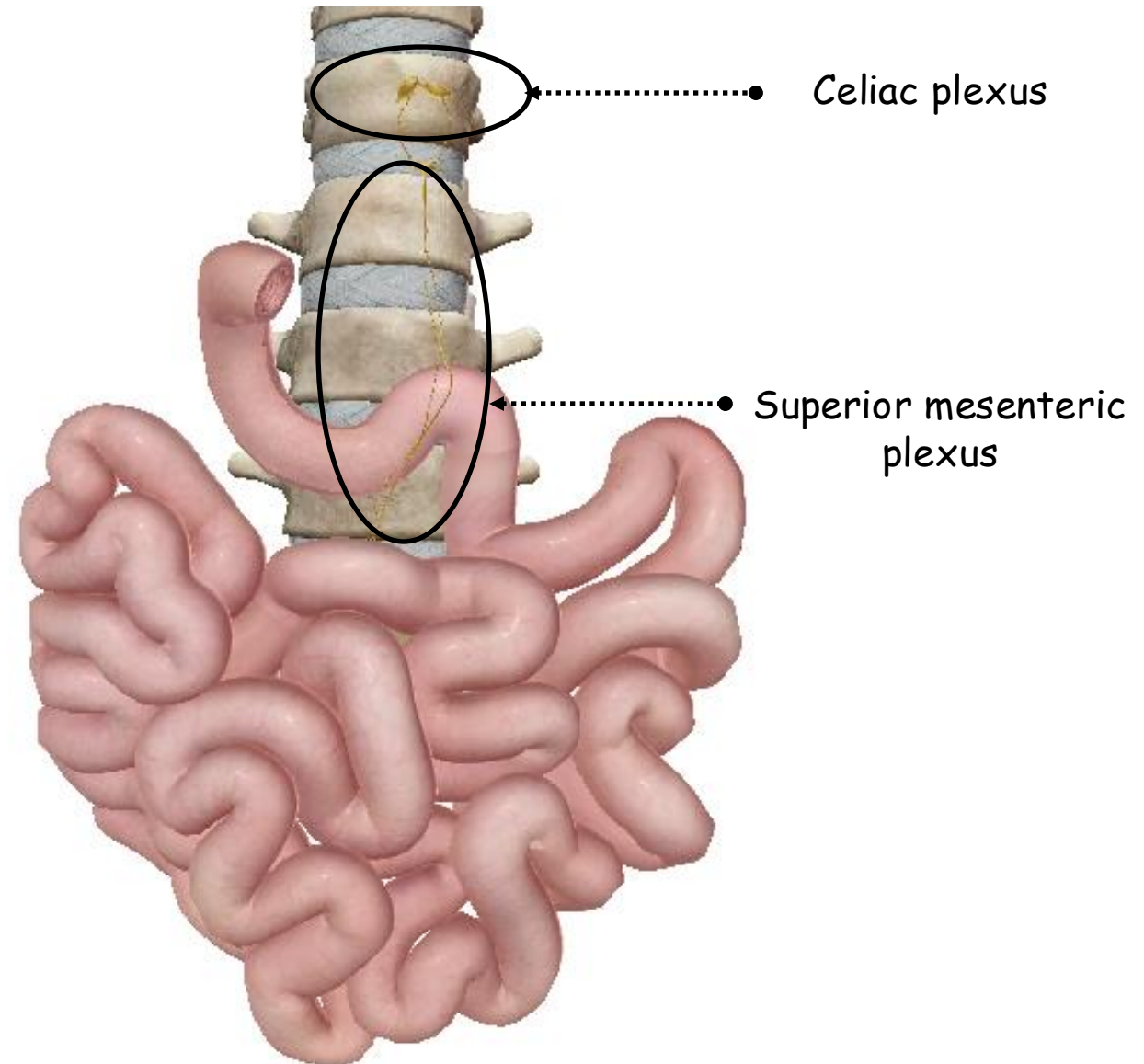
Juxtaintestinal nodes



ANTERIOR VIEW SHOWING LYMPH DRAINAGE OF JEJUNUM AND ILEUM

D. NERVES

- The parasympathetic vagal supply augments peristaltic activity
- The sympathetic supply inhibits peristalsis, is from the lateral horn cells of spinal segments T9 and 10
- Superior mesenteric and celiac plexi



ANTERIOR VIEW OF INFRACOLIC COMPARTMENT

VII. CONCLUSION

- Longest part of the gastrointestinal tract
- Occupies the infracolic compartment
- Two parts with similarities and particularities
- Very mobile
- Rich anastomotic blood supply
- Lymph drainage is ensured mainly by the preaortic nodes





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