

The jejunum and the Ileum

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Introduction



Introduction

- The small intestine (SI) comprises of the duodenum, jejunum and the ileum
- The jejunum is the second part of the small intestine and it begins at the duodenojejunal flexure
- It forms the proximal $2/5^{\text{th}}$ of the intraperitoneal part of the SI before becoming the ileum
- Both the jejunum and the ileum are entirely intraperitoneal
- Together, both measures between 3 and 7 metres (About 60% of the GI)

Mesentery

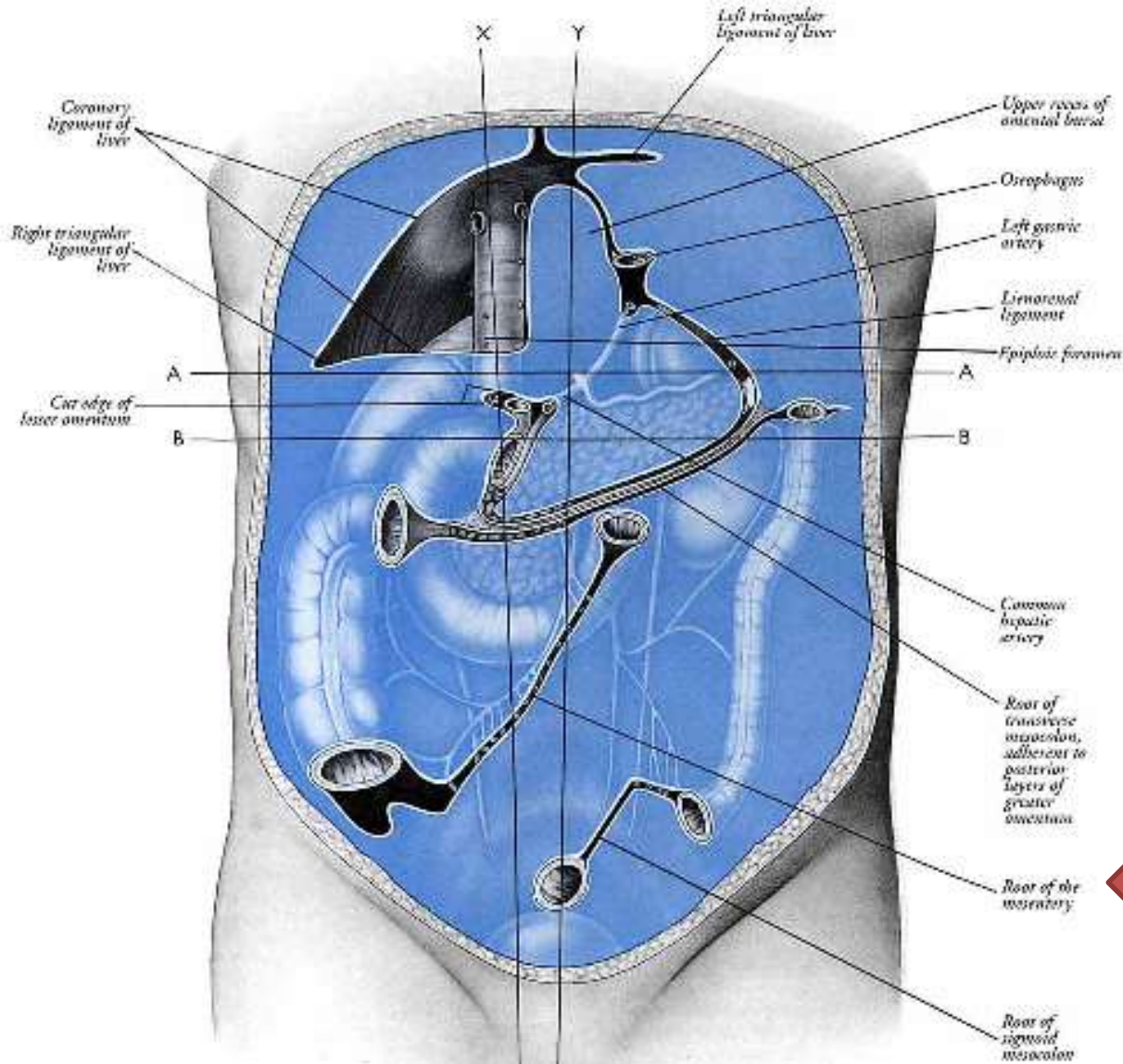
- Fan shaped peritoneal fold
- Attaches the jejunum & ileum to the posterior abdominal wall
- It has a root which is about 15cm
- The average breadth (from attachment to intestinal wall is about 20cm
- The root extends from the duodenojejunal junction on the left side of vertebra L2 to the ileocolic junction and the right sacroiliac joint directed to the right obliquely and inferiorly

Mesenteric root: Relations

The root of the mesentery crosses successively:

- The ascending and horizontal parts of the duodenum
- Abdominal aorta
- IVC
- Right ureter
- Right psoas major
- Right testicular or ovarian vessels.

Mesenteric root



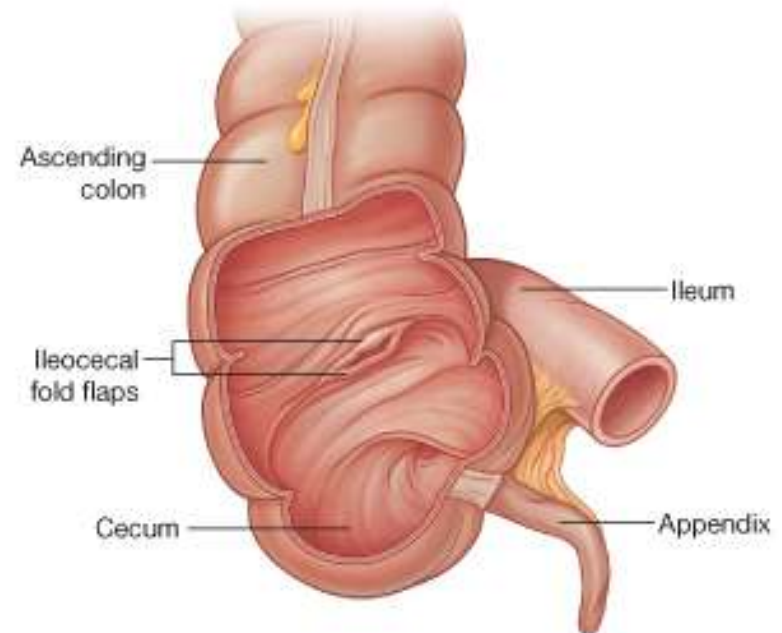
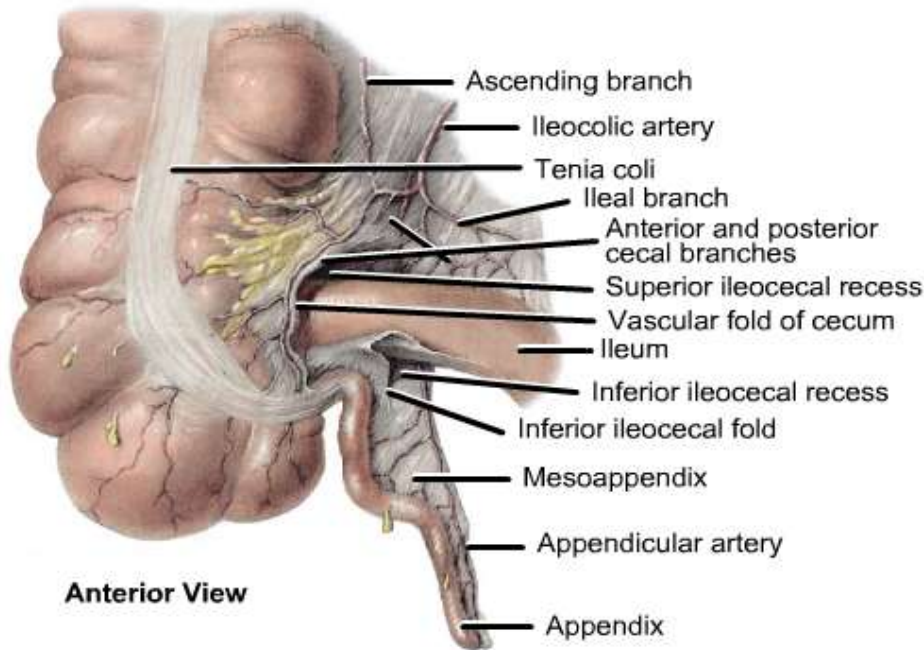
Mesentery: Contents

- Between the two layers of the mesentery are:
- The superior mesenteric vessels
- Lymph nodes
- A variable amount of fat
- Autonomic nerves to and from the small intestine.

Ileocaecal Junction

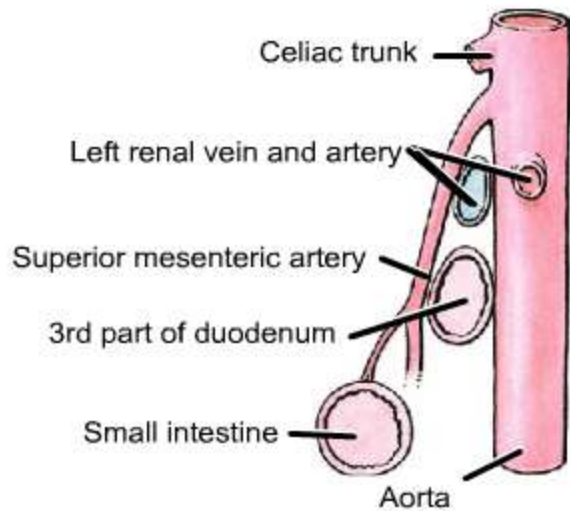
- This is the point where the ileum opens into the large intestine (Caecum)
- The **ileocecal fold** which are two flaps projecting into the lumen of the large intestine surround the opening
- Muscle fibres from the ileum continues into each flap, forming a sphincter.
- Possible functions of the ileocecal fold are:
 - a) The prevention of reflux from the cecum to the ileum
 - b) Theregulation of the passage of contents from the ileum to the cecum

Ileocaecal Junction



Jejunum and ileum: Arterial supply

- This is the **Superior Mesenteric Artery**.
- It arises from the abdominal aorta at the level of the L1 vertebra, about 1 cm inferior to the celiac trunk
- Second, unpaired branch of the abdominal aorta
- It is crossed anteriorly by the splenic vein and the body of the pancreas, separated from the aorta by the left renal vein.
- Courses parallel to aorta, then turns oblique toward right iliac fossa

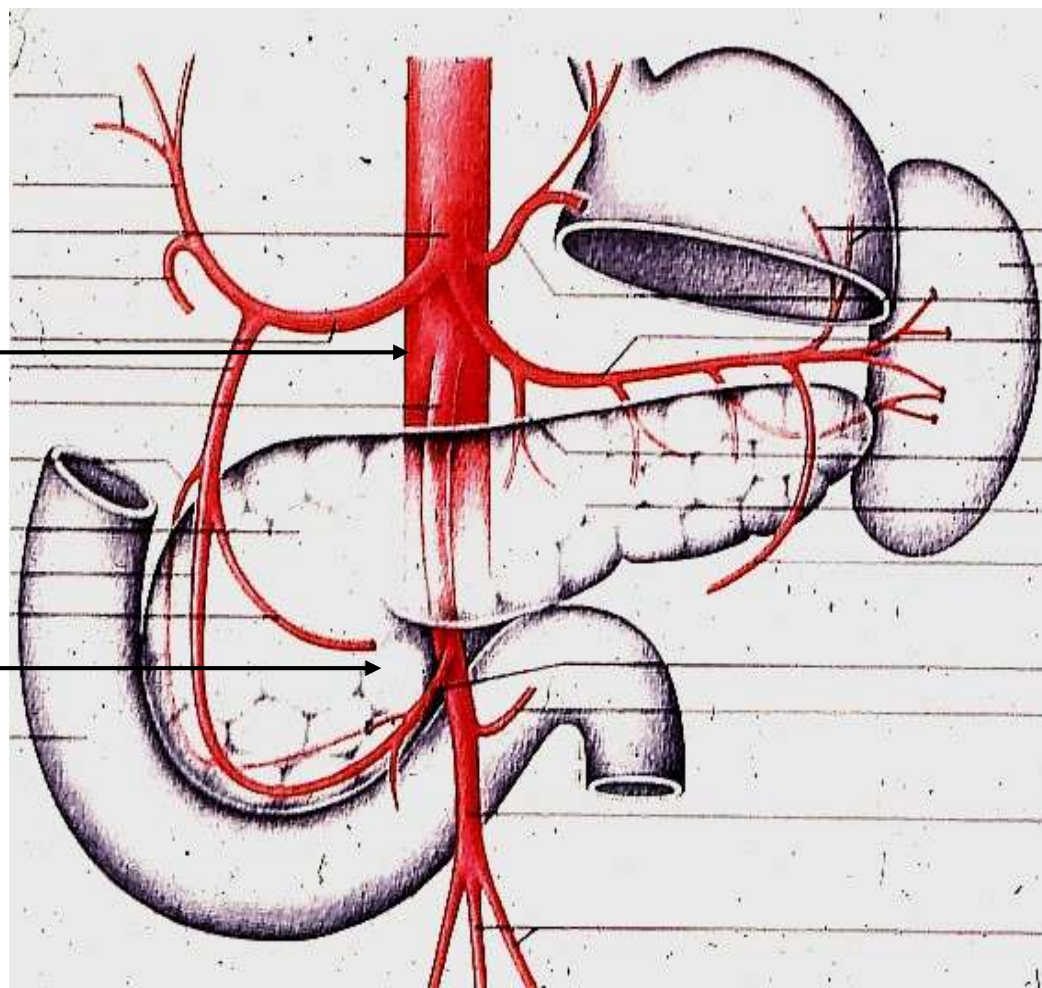


Lateral View (from left)

Superior Mesenteric Artery

Superior mesenteric artery

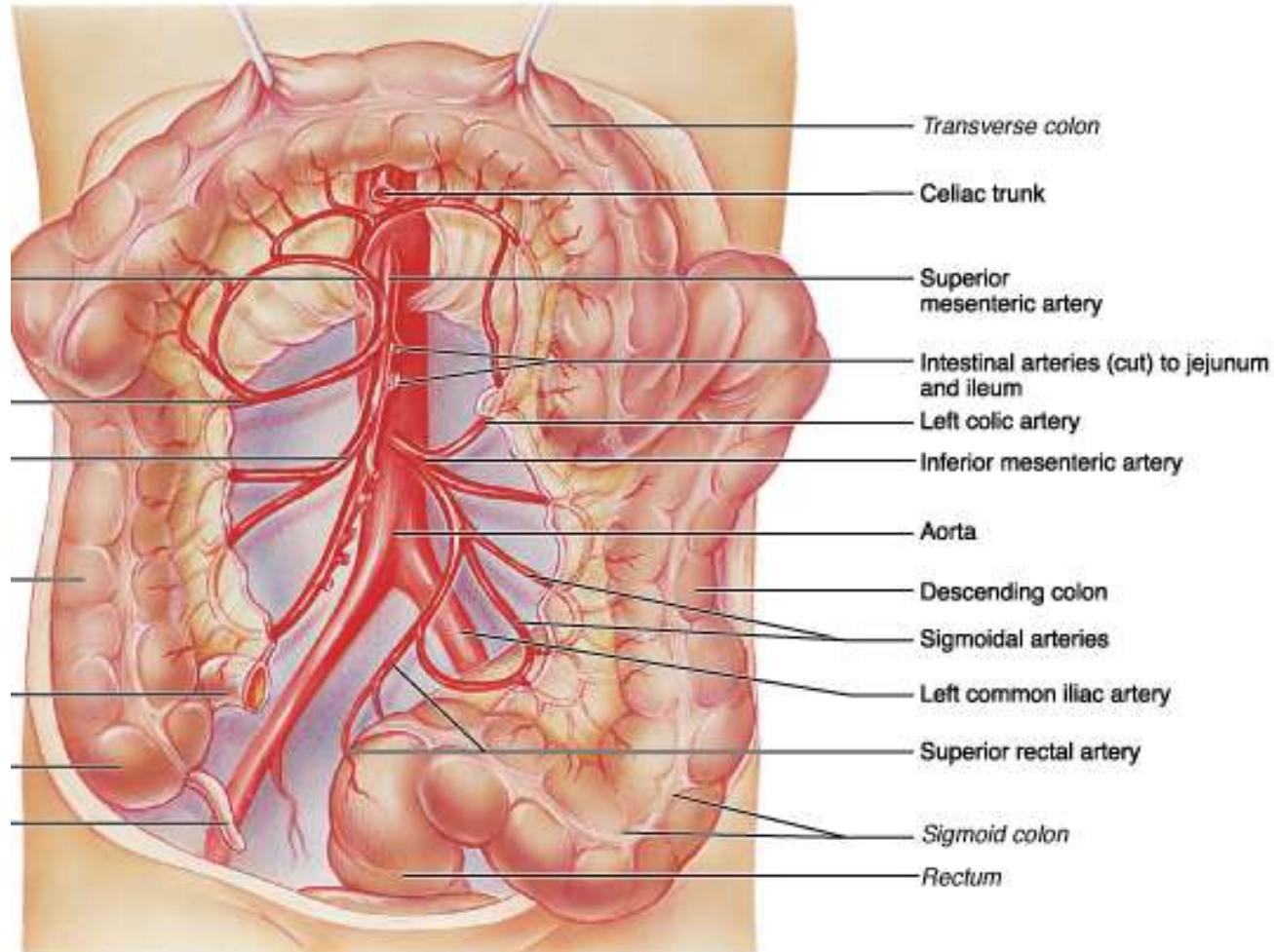
SMA gives rise to the inferior pancreaticoduodenal artery



Jejunum and ileum: Arterial supply

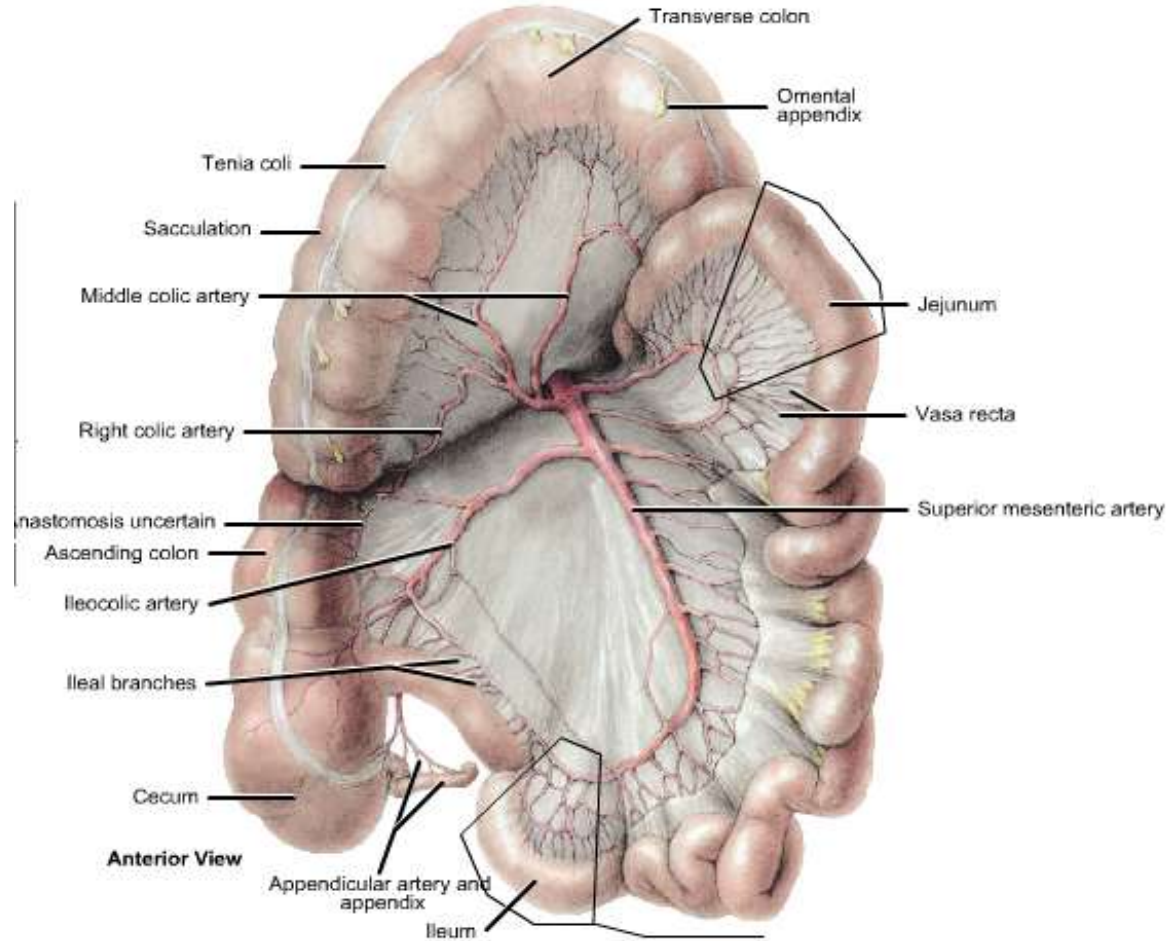
- The SMA runs between the layers of the mesentery, sending branches to the jejunum and ileum.
- The arteries unite to form loops or arches, called arterial arcades, which give rise to straight arteries, called vasa recta.
- The patterns of the arcades and vasa recta helps in differentiating between jejunum and ileum

Superior Mesenteric Artery



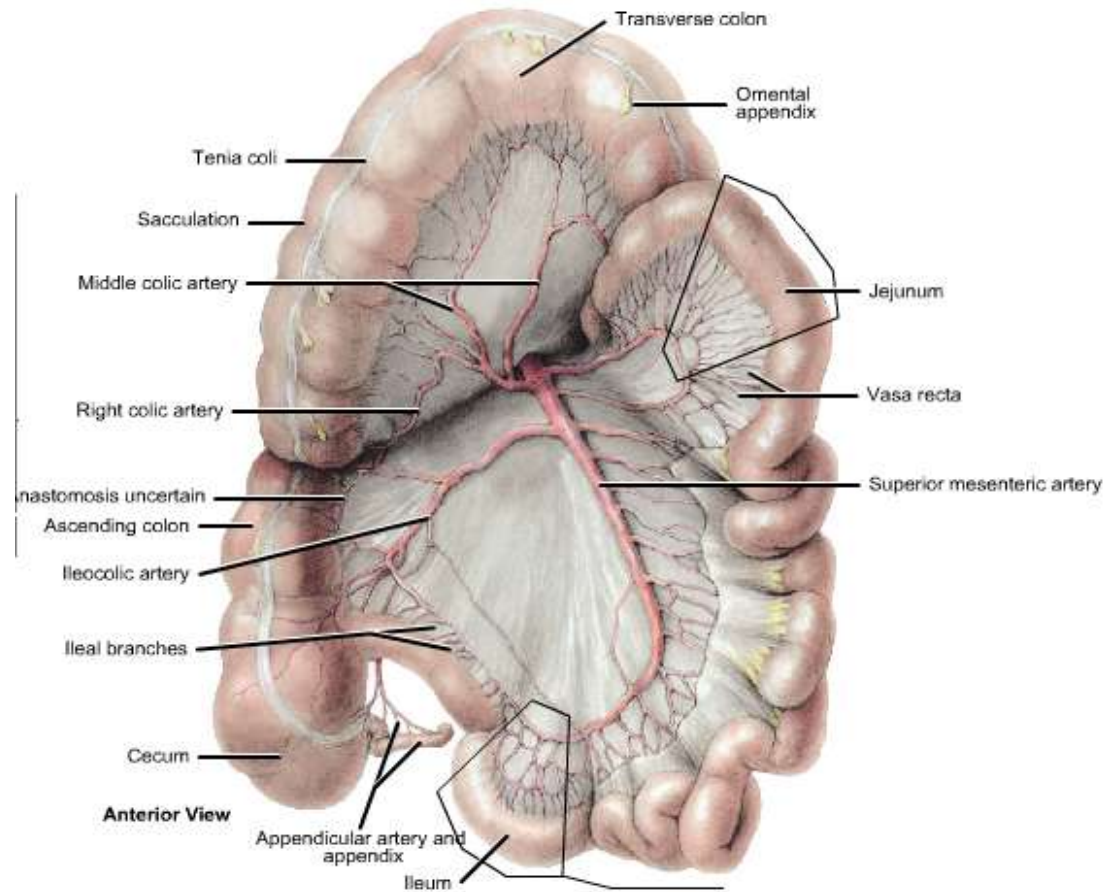
Distribution of the SMA

- i. Pancreas
- ii. Small intestines
- iii. Cecum
- iv. Appendix
- v. Ascending & transverse colon



Branches of the SMA

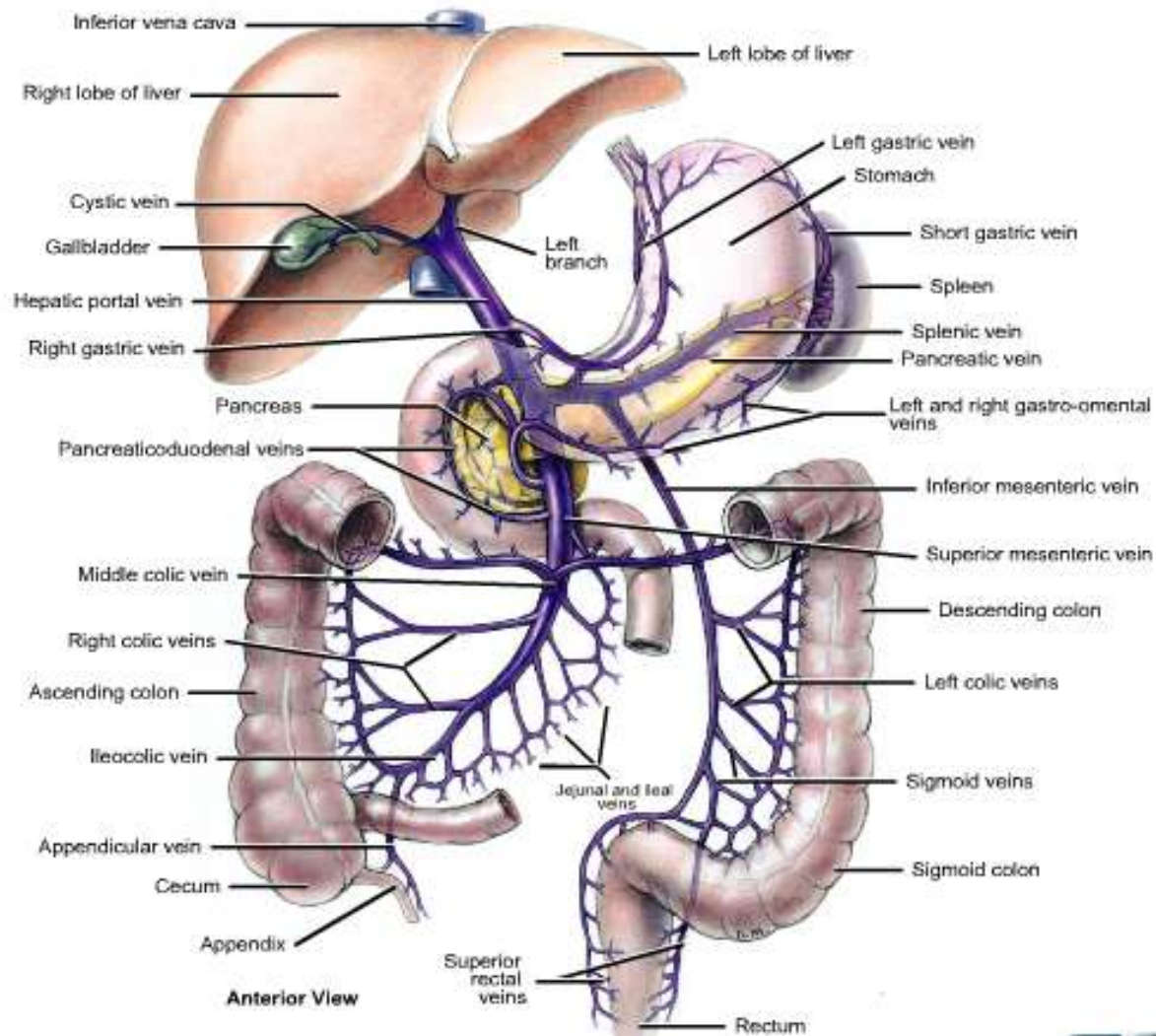
- i. Inferior Pancreaticoduodenal Artery
- ii. Jejunal and Ileal branches
- iii. Ileocolic Artery
- iv. Right Colic Artery
- v. Middle Colic Artery



Jejunum and ileum: Venous drainage

- This is the superior mesenteric vein.
- It drains the jejunum and ileum .
- It lies anterior and to the right of the SMA in the root of the mesentery.
- The SMV ends posterior to the neck of the pancreas, where it unites with the splenic vein to form the portal vein.

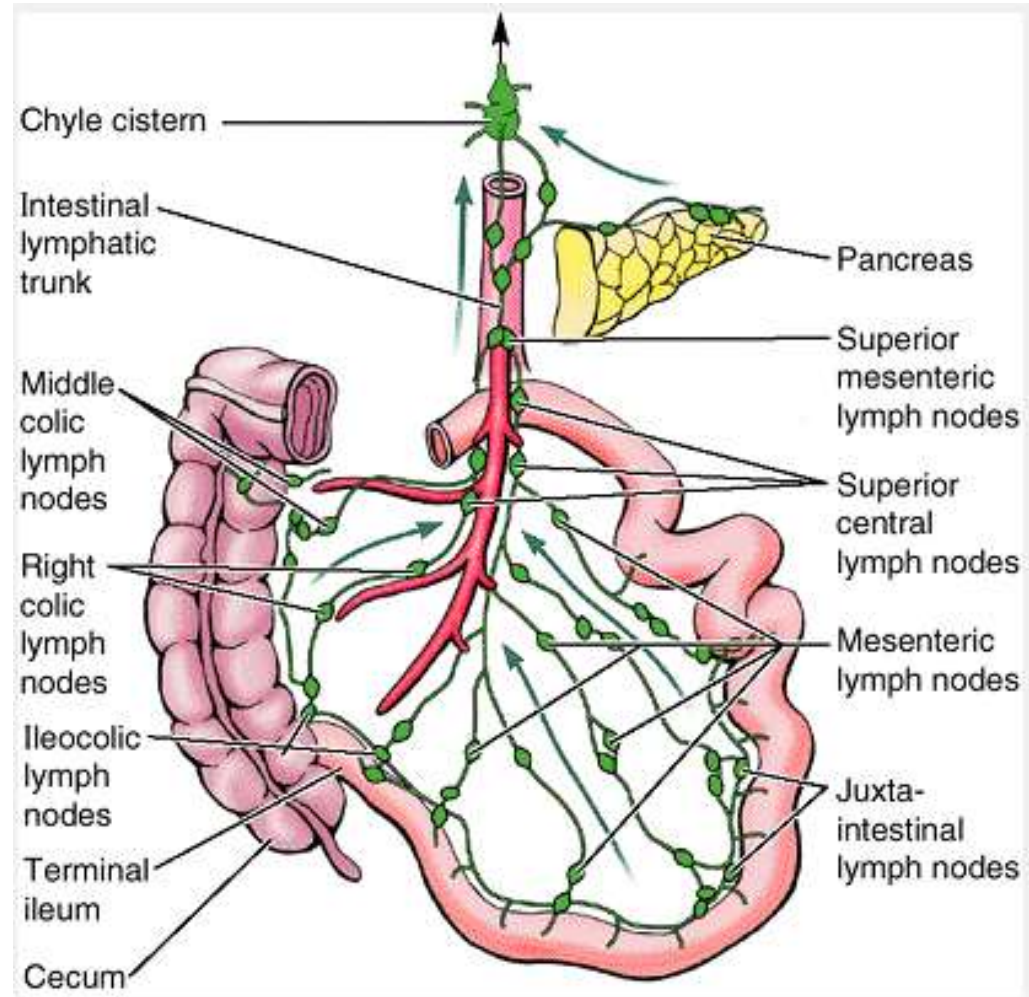
Jejunum and ileum: Venous drainage



Jejunum and ileum: Lymphatic drainage

Successively, the lymphatics of the SI drains into:

- Juxta-intestinal lymph nodes: located close to the intestinal wall.
- Mesenteric lymph nodes: scattered among the arterial arcades.
- Superior central nodes: located along the proximal part of the SMA.

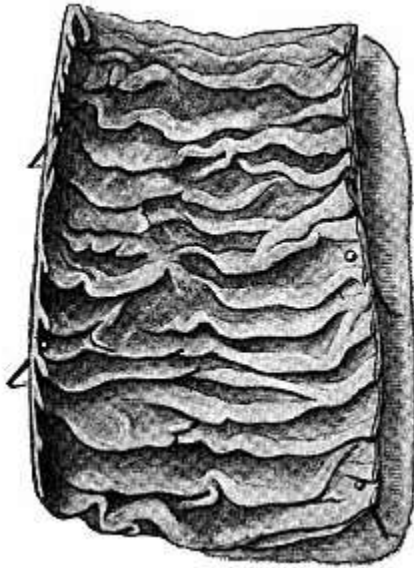


Jejunum and Ileum: Differences

Feature	Jejunum	Ileum
Wall	Thicker	Thinner
Lumen	Wider	Narrower
Fat	Present only on mesentery	Present on both mesentery and wall
Plicae Circularis	Prominent	Less prominent
Arterial arcades	Single layer	Several layers
Vasa rectae	Long (about 4vm)	Short(1-2cm)
Aggregate lymph nodes (Payer's patches)	Sparse	Frequent

Differentiating between Jejunum & Ileum: Plicae Circularis

Jejunum



Ileum



Distal Ileum

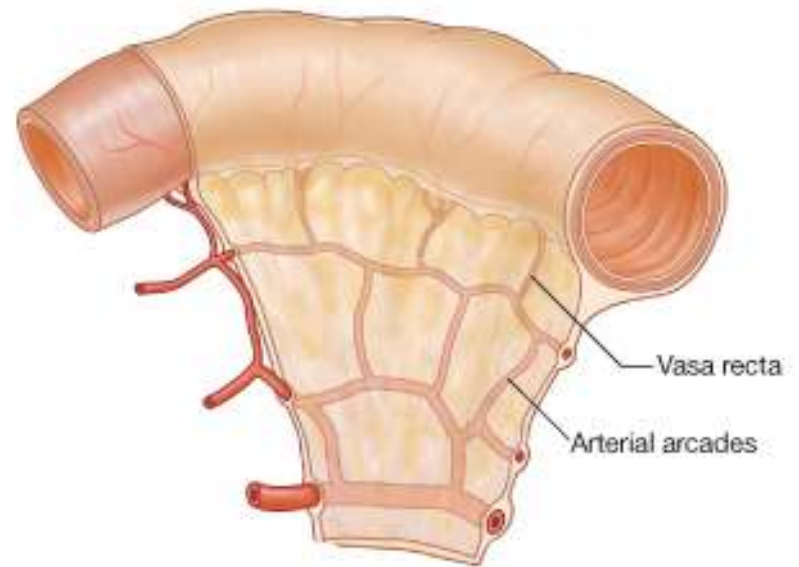
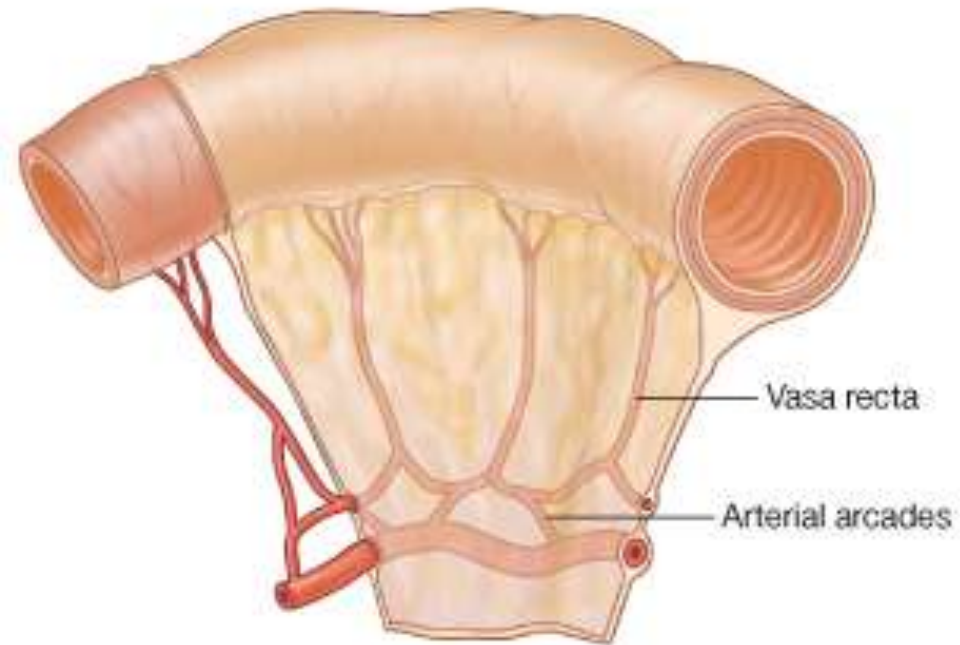


Proximal Jejunum

Differentiating between Jejunum & Ileum: Arterial arcades/Vasa recta

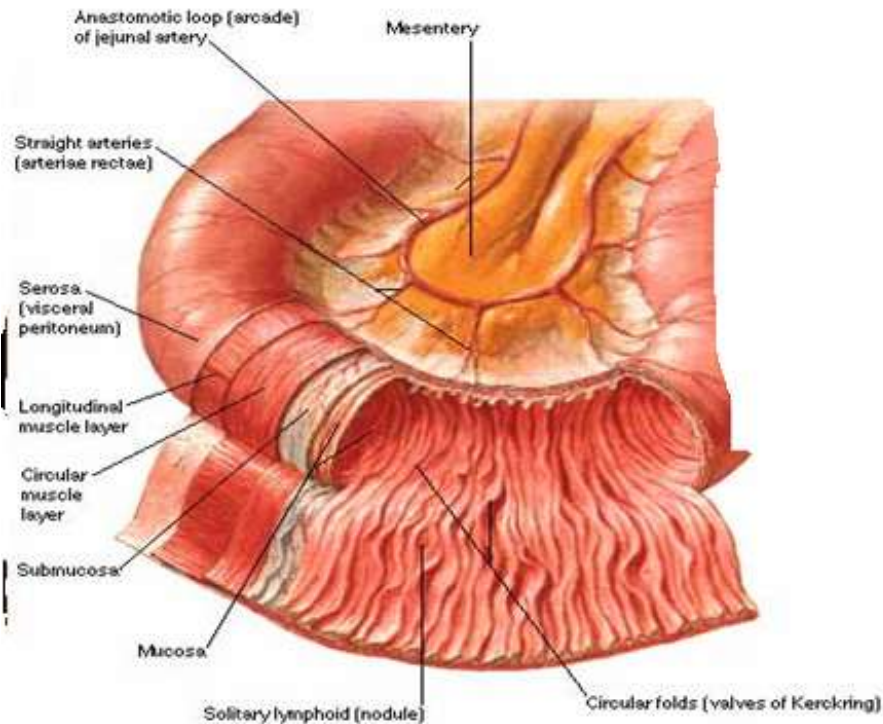
Jejunum

Ileum

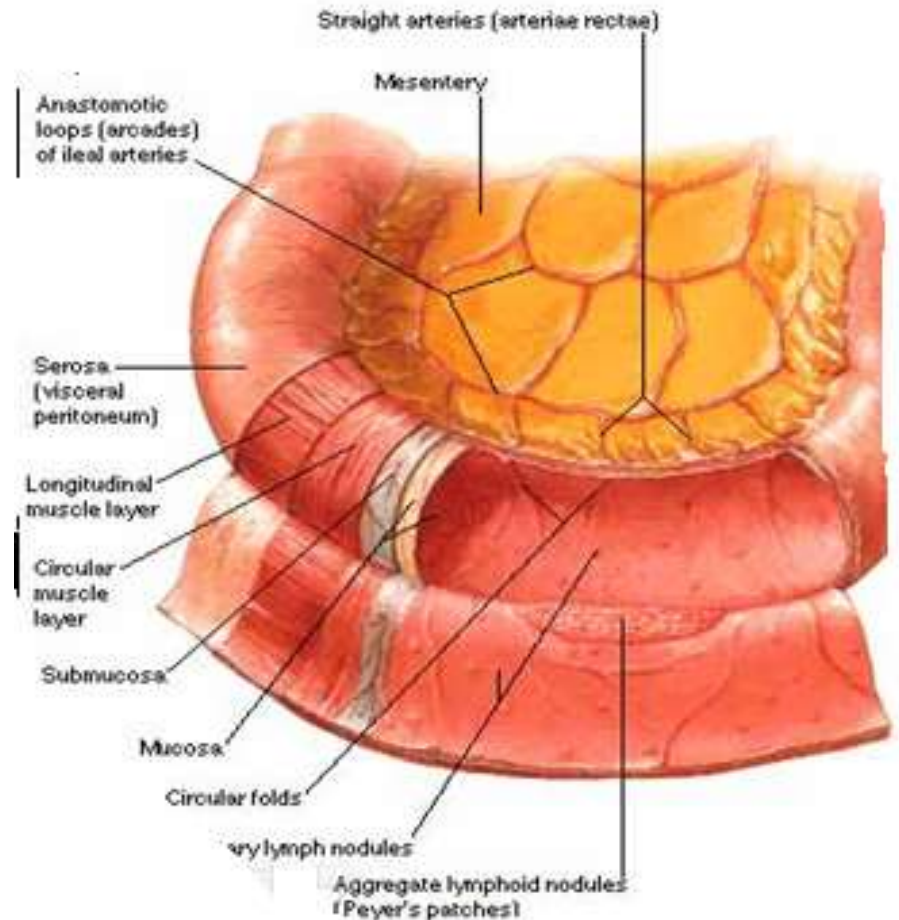


Differentiating between Jejunum & Ileum: Fats/peyer's patches/circular folds

Jejunum

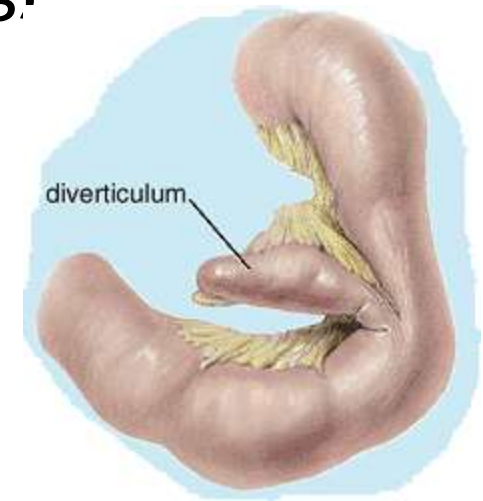


Ileum



Meckel's diverticulum

- Remnant of the proximal part of the yolk stalk (vitelline duct), which extends into the umbilical cord in the embryo and lies on the antimesenteric border of the ileum.
- occurs in approximately 2% of the population
- Can Cause diverticulitis which produces symptoms of abdominal pain, swelling, constipation etc in a small number of patients.



Any Question?

