3rd Edition

Gross Anatomy Workbook

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JAYPEE

CONTENTS

CHAPTER 6

Abdomen and Pelvis

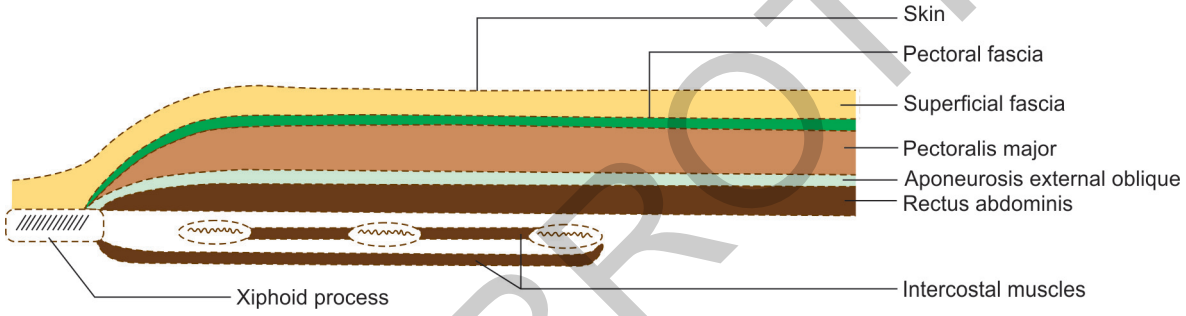

Figure 6.1: Rectus sheath transverse section—above costal margin

KEY FEATURES

- Anterior wall—external oblique aponeurosis
- Posterior wall—formed by 5–7th costal cartilages.

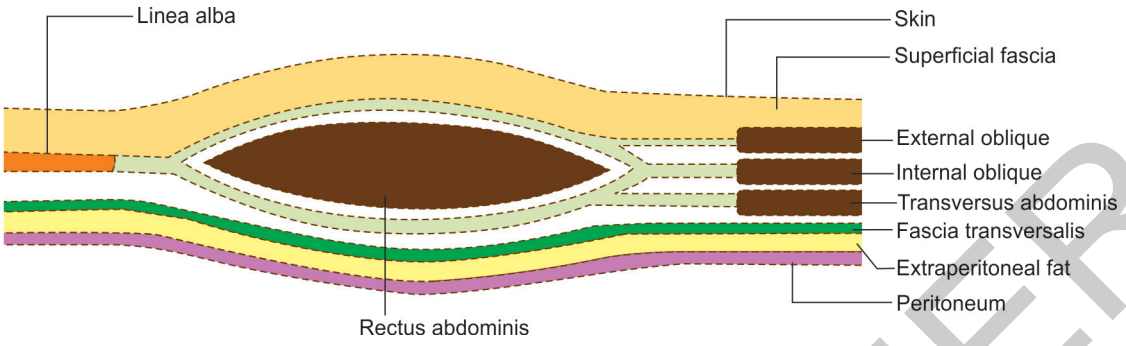

Figure 6.2: Rectus sheath transverse section—between costal margin and anterior superior iliac spine

KEY FEATURES

- Anterior wall—formed by the fusion of external oblique aponeurosis and anterior lamina of internal oblique aponeurosis
- Posterior wall—formed by the fusion of posterior lamina of internal oblique aponeurosis and transversus abdominis muscle.

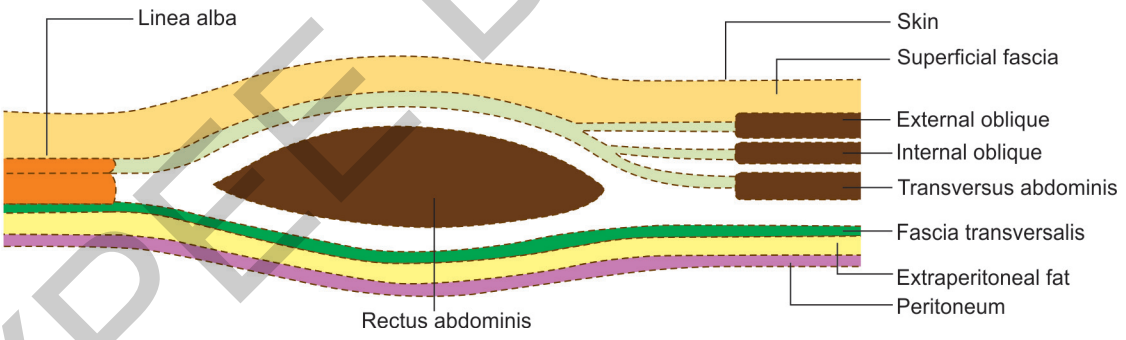

Figure 6.3: Rectus sheath transverse section—between anterior superior iliac spine and pubic symphysis

KEY FEATURES

- Anterior wall—formed by the fusion of external oblique, internal oblique aponeurosis and transversus abdominis muscle
- Posterior wall—it is deficient and presents a free margin of all the three muscles called arcuate line.

There are three intertendinous junctions which fuse with rectus sheath thereby increasing the efficiency of the muscle.

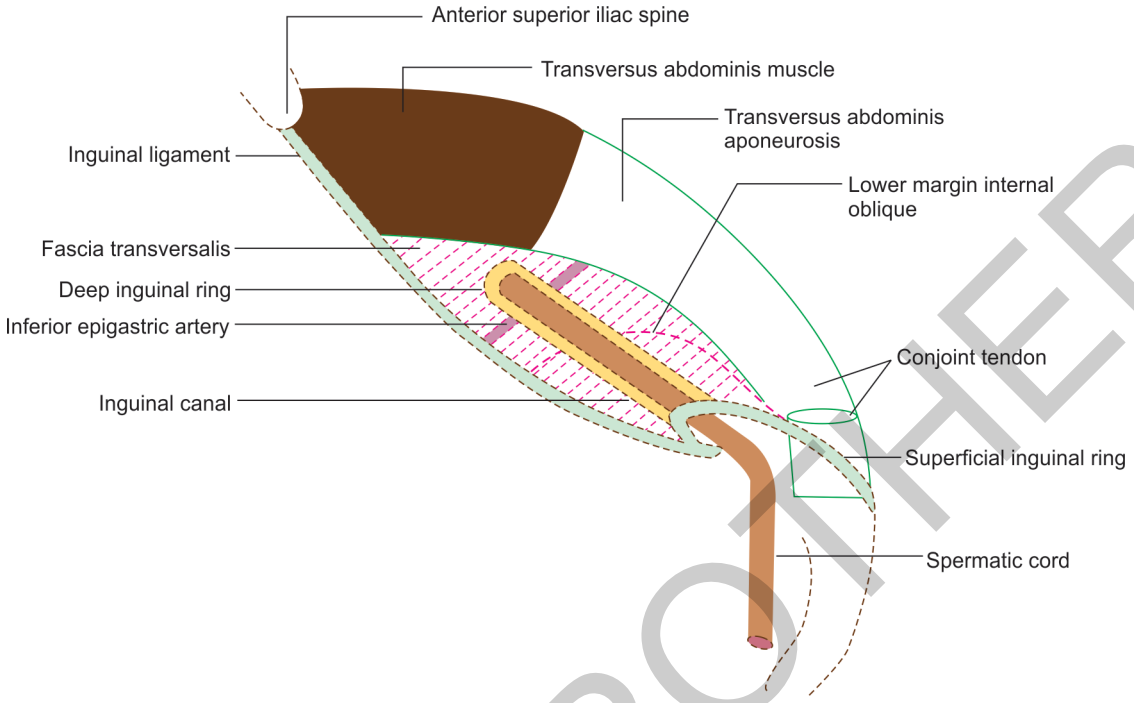

Figure 6.4: Inguinal canal

KEY FEATURES

- Oblique intramuscular passage, lies over medial half inguinal ligament, it is 4 cm long, running between deep and superficial inguinal rings
- Anterior wall—skin, superficial fascia, external oblique muscle. It is reinforced by internal oblique muscle in lateral 1/3rd
- Posterior wall—fascia transversalis. Conjoint tendon in medial 1/3rd. Reflected part inguinal ligament in medial most part
- Floor—inguinal ligament and abdominal part lacunar ligament
- Roof—lower arched fibers of internal oblique and transversus abdominis muscle.
  It contains ilioinguinal nerve and spermatic cord in males/round ligament in females.

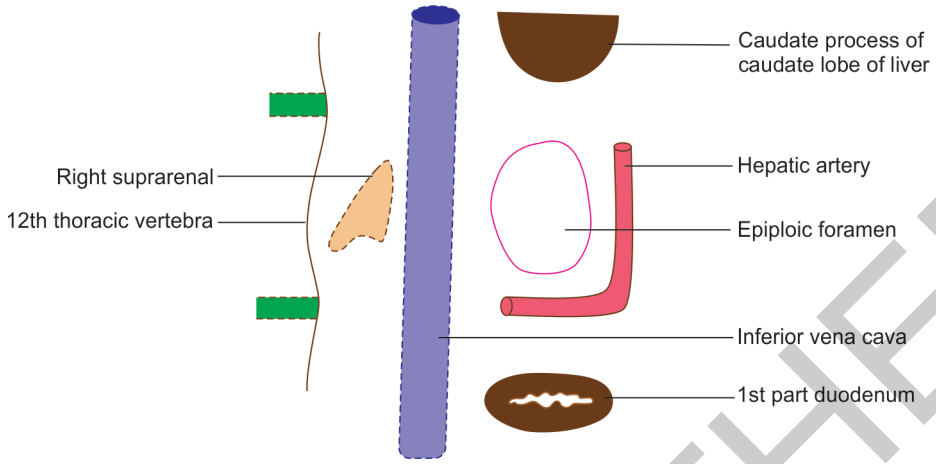

Figure 6.5: Epiploic foramen

KEY FEATURES

- A vertical slit through which lesser sac continues with greater sac
- Location—behind right free margin of lesser omentum
- Boundaries:
  - Anterior—right free margin of lesser omentum and vertical part hepatic artery
  - Posterior—inferior vena cava and right suprarenal gland
  - Superior—caudate process of caudate lobe of liver
  - Inferior—first part of duodenum and transverse part of hepatic artery.

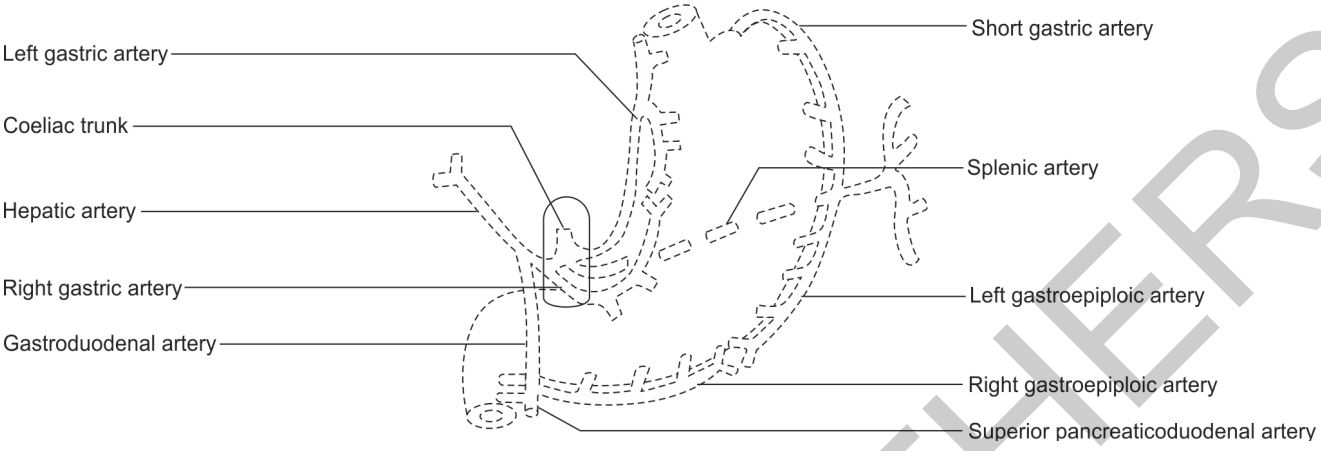

Figure 6.6: Blood supply—stomach

KEY FEATURES

- It is supplied by branches of coeliac trunk (foregut)
- Vessels along lesser curvature:
  - Left gastric—direct branch of coeliac trunk
  - Right gastric—branch of common hepatic artery.
- Vessels along greater curvature:
  - Short gastric—branch of splenic artery
  - Left gastroepiploic—branch of splenic artery
  - Right gastroepiploic—branch of gastroduodenal artery.

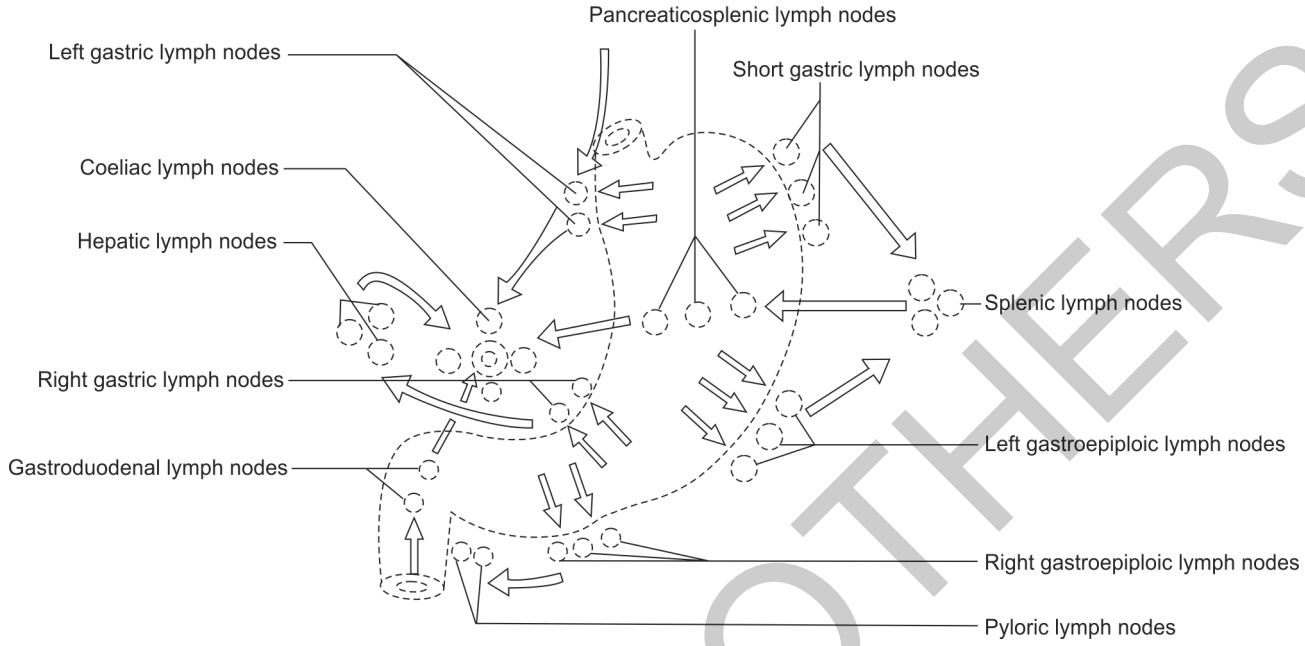

Figure 6.7: Lymphatic drainage—stomach

KEY FEATURES

- The lymph nodes are arranged along the arteries which supply stomach
- They drain approximately the same areas as supplied by the arteries
- The lymph nodes can be arranged in following groups:
  - Along lesser curvature: Left gastric lymph node
  - Pyloric antrum and canal along lesser curvature: Right gastric lymph node
  - Along fundus: Short gastric lymph node
  - Along greater curvature: Left gastroepiploic lymph node
  - Pyloric antrum and canal along greater curvature: Right gastroepiploic lymph node
  - Along splenic artery: Pancreaticosplenic lymph node.

All the lymph nodes drain directly into coeliac lymph node or indirectly via splenic and hepatic lymph node.

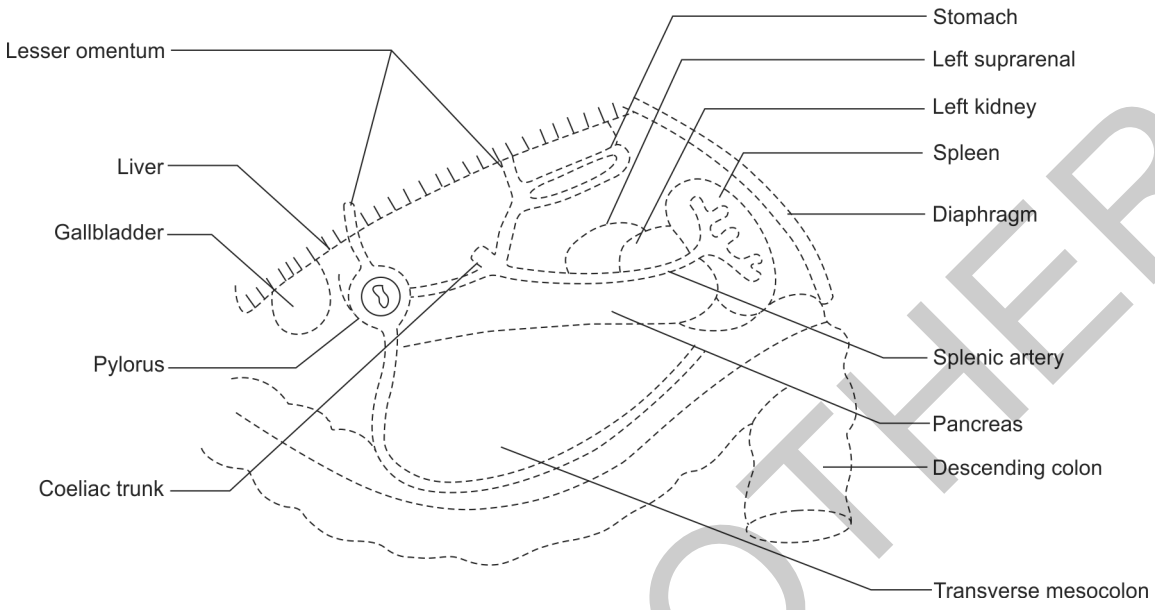

Figure 6.8: Structures in stomach bed

KEY FEATURES

- The structures along posterior abdominal wall which are related to stomach constitute stomach bed. Lesser sac (omental bursa) intervenes between stomach and posterior abdominal wall
- These structures are:
  - Transverse mesocolon
  - Pancreas
  - Splenic artery
  - Diaphragm
  - Left suprarenal
  - Left kidney
  - Spleen
  - Left colic flexure.

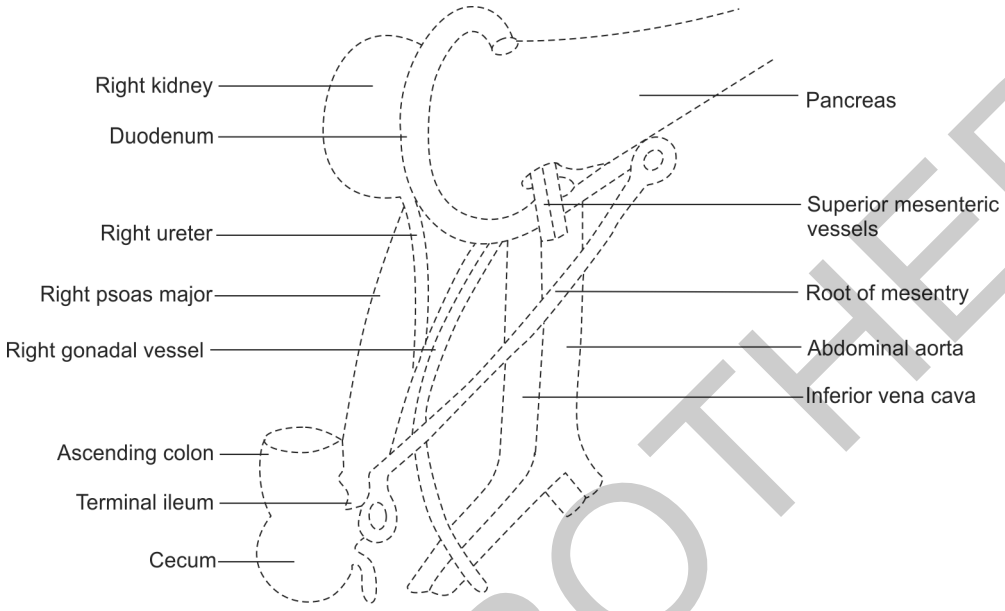

Figure 6.9: Root of mesentery

KEY FEATURES

The attached margin of the peritoneal fold which encloses small intestine is called root of mesentery. It is six inches long.

- Extent: From duodenojejunal flexure (left side L2) to ileocecal junction (upper part right sacroiliac joint)
- It crosses following structures from left to right:
  - 3rd part duodenum
  - Abdominal aorta
  - Inferior vena cava
  - Right gonadal vessels
  - Right ureter
  - Right psoas major.
- Contents:
  - Superior mesenteric arteries and branches
  - Lymphatics
  - Lymph nodes
  - Nerve plexus.

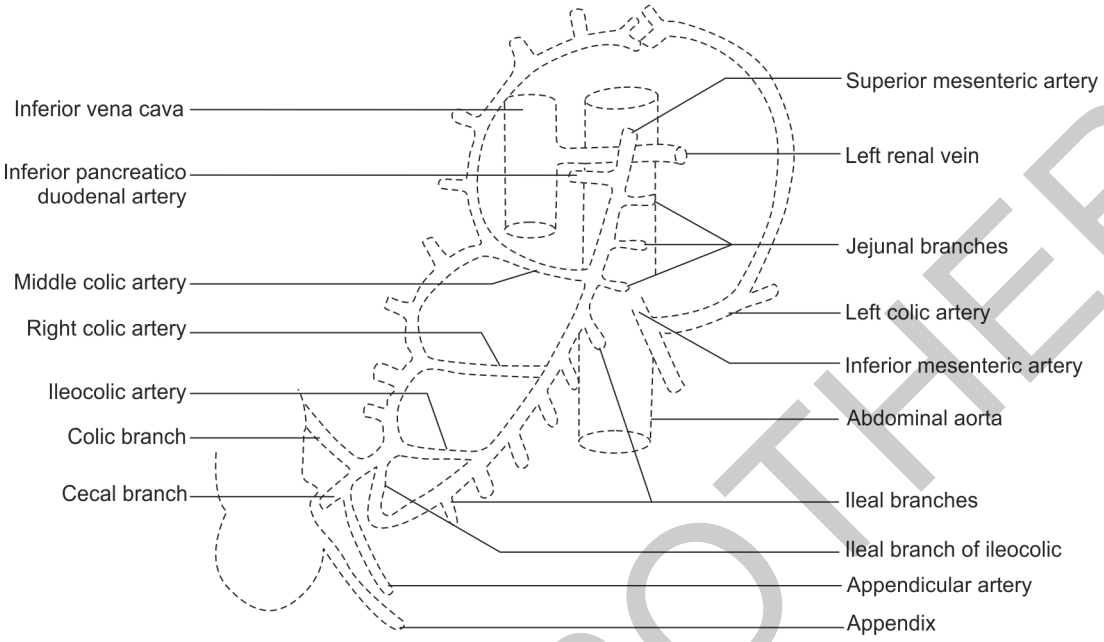

Figure 6.10: Superior mesenteric artery

KEY FEATURES

- Artery of mid gut, arises 1.25 cm below coeliac trunk at the level of L1
- It runs down and towards right, crosses uncinate process and 3rd part of duodenum to enter mesentery
- Branches:
  - From left side—jejunal and ileal branches
  - From right side—
    - Inferior pancreaticoduodenal
    - Middle colic which anastomosis with left colic (branch of inferior mesenteric) at the junction of right 2/3rd and left 1/3rd of transverse colon
    - Right colic
    - Ileocolic. The ileocolic artery gives rise to ileal, colic and cecal branches. Appendicular artery arises from cecal branch.

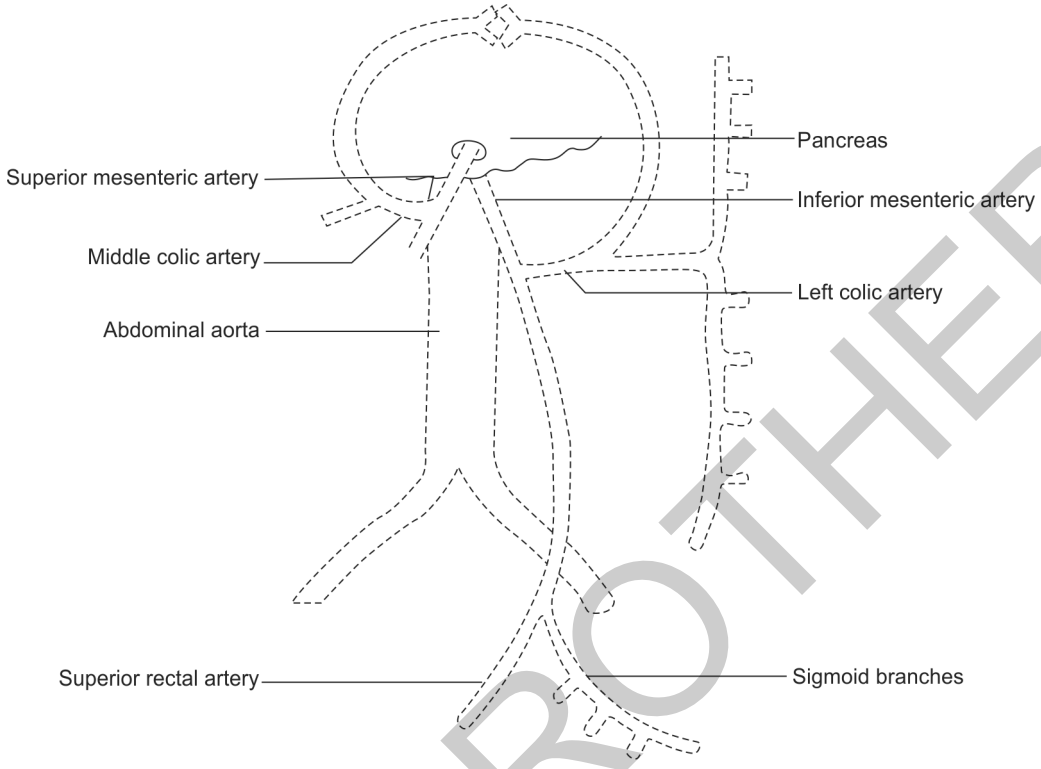

Figure 6.11: Inferior mesenteric artery

KEY FEATURES

- Artery of hind gut, arises 3–4 cm above the bifurcation of aorta, behind 3rd part of duodenum
- It runs downwards and to the left. Crosses the termination of left common iliac artery and continues as superior rectal artery
- Branches:
  - Left colic which anastomosis with middle colic (branch of superior mesenteric) at the junction of right 2/3rd and left 1/3rd of transverse colon
  - Sigmoidal artery.

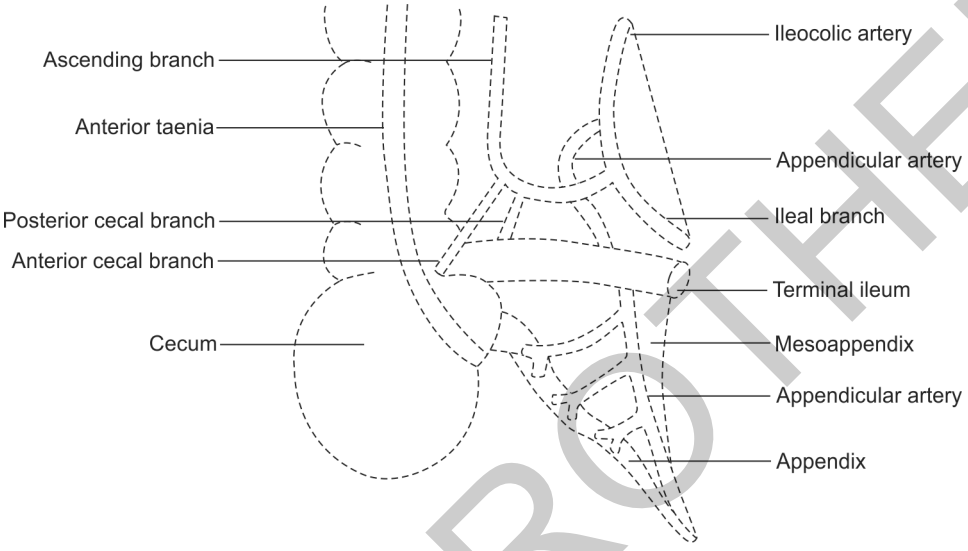

Figure 6.12: Appendix—blood supply

KEY FEATURES

- Appendix arises from posteromedial wall of cecum, 2 cm below ileocecal junction, average size 9 cm
- It has a mesentery called mesoappendix
- It is supplied by appendicular artery which is a branch of ileocolic artery
- The artery enters the mesoappendix to supply the appendix
- Inflammation of appendix causes appendicitis and its pain is referred to umbilicus (T10 dermatome).

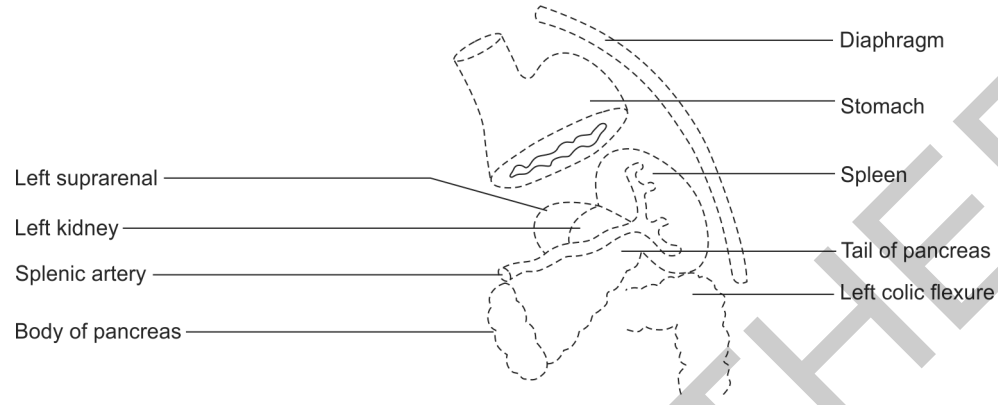

Figure 6.13: Spleen

KEY FEATURES

- Located in left hypochondrium between fundus of stomach and diaphragm, behind midaxillary line, directed downwards, forwards and laterally aligned along 9th–11th ribs
- Exhibits two ends—anterior and posterior, two borders—superior with 2–3 notches and inferior border, two surfaces—diaphragmatic and visceral related to stomach, left kidney, colon and tail of pancreas, two ligaments—gastrosplenic and lienorenal containing tail of pancreas, splenic artery
- Spleen is supported by phrenicocolic ligament.

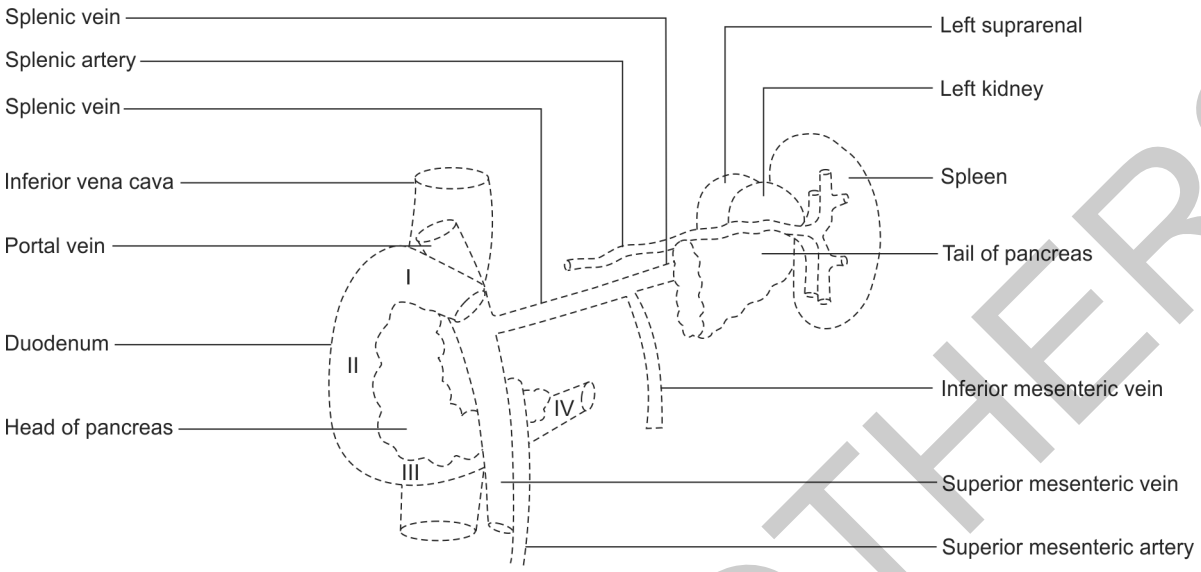

Figure 6.14: Pancreas

KEY FEATURES

- It is a mixed type of gland having exocrine component associated with gut and an endocrine component which is maximum in tail.
- It is divided into:
  - Head which lies in the concavity of duodenum and is flat anteroposteriorly
  - Neck which is narrow one inch long
  - Long body directed upwards and to the left and is triangular in shape
  - A tail which lies in lienorenal ligament with splenic vessels.
- Posteriorly (from right to left) related to:
  - Inferior vena cava
  - Common bile duct
  - Aorta
  - Left renal vein
  - Beginning of portal vein
  - Superior mesenteric vessels
  - Left kidney
  - Left suprarenal
  - Splenic vessels.
- Anteriorly (from right to left) related to:
  - Transverse colon
  - Root of transverse mesocolon
  - Pylorus
  - Lesser sac
  - Stomach
  - Duodenojejunal flexure
  - Jejunum
  - Left colic flexure

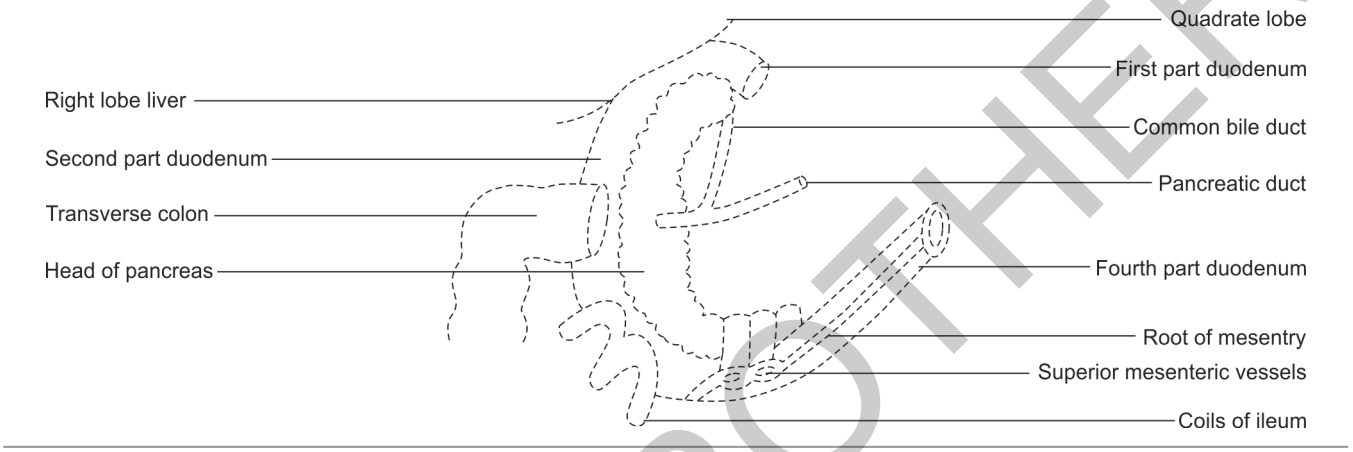

Figure 6.15: Duodenum—anterior relations

KEY FEATURES

- 1st part—quadrate lobe of liver
- 2nd part—right lobe of liver, transverse colon and jejunum
- 3rd part—superior mesenteric vessels, root of mesentery
- 4th part—transverse colon and its mesocolon.

Gross Anatomy Workbook

The *Gross Anatomy Workbook* was initially created to facilitate the learning of Anatomy. It has been 18 long years when the first edition of the book was published. Since then, medical education has undergone a sea change. The concept of teaching–learning process has also been revamped. Keeping these things in mind, it became necessary to upgrade the workbook and make it student savvy. Therefore, relevant text has been added to the illustrations so that the students can revise gross anatomy and prepare themselves for the viva voce. Moreover, many redundant diagrams have been deleted and no text has been provided with some illustrations as they are self-explanatory. Students will definitely be benefitted by this effort.

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