ABDOMINAL CAVITY

Peritoneal Cavity

Greater omentum

Extends from greater curvature of stomach to posterior abdominal wall.

Apron-like fold covering transverse colon and small intestine.

Peritoneal Cavity

Lesser omentum

Extends from lesser curvature of stomach to liver.

Includes:

Hepatogastric ligament.

Hepatoduodenal ligament.

Peritoneal Cavity

Mesenteries

Mesentery proper attaches to small intestine from duodenojejunal flexure to ileocecal junction.

Composed of two layers of peritoneum:

Enclose blood vessels and nerves to jejunum and ileum.

Peritoneal Cavity

Other mesenteries:

- Transverse mesocolon.
- Sigmoid mesocolon.

Liver

- Largest visceral organ in body.
- Lies mostly in upper right portion of abdominal cavity.
- Encased in fibrous capsule and covered by visceral peritoneum except:
  - Bare area:
    - In contact with underside of diaphragm.

Liver

Surfaces:

- Diaphragmatic.
- Visceral.
- Inferior.

Lobes:

- Right:
  - Largest.
- Left.
- Caudate.
- Quadrate.

Liver

Porta hepatis:

- Transverse fissure separating caudate and quadrate lobes.
- Transmits:
  - Right and left hepatic ducts.
  - Right and left hepatic arteries.
  - Right and left branches of portal vein.
  - Autonomic plexus and lymphatics.

Gallbladder

Relationship to liver:

- Lies between quadrate and right lobe.
- Pear-shaped organ.
- Function:
  - Store and concentrate bile.

Gallbladder

Duct system:

- Common hepatic duct:
  - From union of right and left hepatic ducts of liver.
  - Accompanied by portal vein and proper hepatic artery.

Gallbladder

Duct system:

- Cystic duct:
  - Connects common hepatic duct to gall bladder.
- Common bile duct:
  - Formed by union of common hepatic duct and cystic duct.
  - Opens into duodenum with main pancreatic duct.

Stomach

Located in epigastric and left hypochondriac regions.

Regions:

- Lesser curvature.
  - Short concave right border.
  - Attached to lesser omentum.
- Greater curvature:
  - Long convex left border.
  - Attached to greater omentum.

Stomach

Regions (cont.):

Cardiac:

Adjacent to junction with esophagus.

Fundus:

Dome-shaped portion above entry of esophagus.

Often filled with gas.

Stomach

Regions (cont.):

- Body:
- Pylorus:
  - With anatomical pyloric sphincter.

Stomach

Blood supply:

- Left and right gastric arteries.
- Left and right gastroepiploic arteries.
- Short gastric arteries.
- Accompanying vein to portal vein.

Spleen

Largest lymphatic organ:

Develops in dorsal mesentery of stomach:

- Not an embryological derivative of gut tube.

Location:

- Lies against diaphragm in left hypochondriac region.
- Along the long axis of ribs 9-11.

Spleen

Attached to stomach by:

Gastrosplenic ligament:

Contains:

Left gastroepiploic artery and vein.

Short gastric arteries and veins.

Pancreas

Location:

In epigastric and left hypochondriac regions.

Blood supply:

Branches of splenic artery.

Superior and inferior pancreaticoduodenal arteries.

Pancreas

Four parts:

- Head.
- Neck.
- Body.
- Tail.

Pancreas

Head:

- Lies in curvature of duodenum.
- Lies anterior to inferior vena cava.
- Traversed by common bile duct.

Neck:

- Constricted where crossed posteriorly by:
  - Superior mesenteric artery.

Pancreas

Body:

Triangular in cross-section.

Extends across midline across aorta and left renal vein.

Tail:

Ends at hilus of spleen.

Small Intestine

Duodenum:

- From pylorus to jejunum.
- Surrounds head of pancreas.
- Retroperitoneal.
- Begins to right of midline at level of lumbar vertebra 1.
- Ends left of midline at level of lumbar vertebra 2.

Small Intestine

Duodenum:

- Divided into 4 parts:
  - Not discussed here.
- Blood supply:
  - Gastroduodenal artery via smaller named arteries.
  - Superior mesenteric artery via smaller named arteries.

Small Intestine

Jejunum and Ileum:

- Begins at duodenojejunal flexure in upper left quadrant.
- Ends at ileocecal junction in lower right quadrant.
- Approximately 20 feet in length (8/12)
- Attached to posterior abdominal wall by:
  - Mesentery of small intestine.
    - 15 inches long.

Small Intestine

Jejunum and Ileum:

Arterial supply:

Superior mesenteric artery.

Venous drainage:

Superior mesenteric vein.

Large Intestine

Cecum and Appendix:

Ileocecal orifice with ileocecal valve.

McBurney's point:

2/3 distance from umbilicus to ASIS.

Large Intestine

Transverse Colon:

- From right colic flexure (hepatic) to left colic flexure (splenic).
- Suspended by transverse mesocolon.
- Arterial supply:
  - Middle colic artery from superior mesenteric artery.

Large Intestine

Descending Colon:

- From left colic flexure to pelvic brim (sigmoid colon).
- Mostly covered by peritoneum but posterior wall is fused to posterior abdominal wall.
- Arterial supply:
  - Branch from inferior mesenteric artery.

Large Intestine

Sigmoid Colon:

- Begins at pelvic brim.
- Becomes continuous with rectum at sacral vertebra 3.
- Suspended by sigmoid mesocolon.
- Arterial supply:
  - Inferior mesenteric artery.

Large Intestine

Rectum:

- Begins at level of sacral vertebra 3.
- Follows curvature of sacrum and coccyx.

Large Intestine

- Anal Canal:
  - Internal anal sphincter:
    - Thick ring of circular smooth muscle.
    - Surrounds upper part of anal canal.
    - Controlled reflexively and involuntarily by ANS:
      - Parasympathetic system promotes relaxation.
      - Sympathetic system promotes contraction.

Large Intestine

Anal Canal:

- External anal sphincter:
  - Three rings of skeletal muscle.
  - Extends entire length of anal canal.
  - Controlled voluntarily via branches of pudendal nerve.

Large Intestine

Anal Canal:

- Anal columns:
  - 5-10 longitudinal folds of mucosa in upper half of canal.
- Pectinate line:
  - Marks junction between endoderm portion of anal canal and ectoderm portion of anal canal (proctodeum).
  - Marks division between visceral and somatic arterial, venous, lymphatic, and nerve supply.

Urinary System

Kidneys and ureters:

- Kidneys are retroperitoneal.
- Lie against posterior abdominal wall on either side of vertebral column.
- Generally lie adjacent to upper three lumbar vertebrae.
- Move with movements of the diaphragm.

Urinary System

Kidneys and ureters:

Subdivisions:

Cortex.

Medulla

with renal pyramids

Pelvis

major and minor calyces (sing. calyx)

Urinary System

- Kidneys and ureters:
  - Ureter is a continuation of the pelvis.
    - Descends retroperitoneally on the anterior surface of the psoas major.
    - Passes anterior to bifurcation of common iliac.
  - Renal fat.

Urinary System

Suprarenal (adrenal) glands:

Blood supply:

- Right and left renal arteries:
  - Right is longer than the left.
- Right and left renal veins:
  - Left is longer than the right.

Urinary System

Urinary bladder:

- Apex
  - points anteriorly.
  - attached to umbilicus via median umbilical ligament.
- Base:
  - faces posteriorly.
  - receives ureters.
  - opens into urethra.

Urinary System

Urinary bladder:

- Superior surface:
  - Completely covered by peritoneum.
- Muscle:
  - = detrusor muscle.

Urinary System

Urinary bladder:

Arterial supply:

Superior and inferior vesical arteries from internal iliac arteries.

Urinary System

Urinary bladder:

Trigone:

Smooth internal surface of triangular base:

Does not contract or stretch when bladder empties and fills.

Urinary System

Urinary bladder:

- Trigone:
  - Three openings:
    - Paired ureteric orifices.
    - Internal urethral orifice.

Urinary System

Suprarenal glands:

Lie against posterior abdominal wall on superior poles of kidneys.

Arterial supply:

Superior suprarenal arteries:

From inferior phrenic artery.

Middle suprarenal artery:

From abdominal aorta.

Inferior suprarenal arteries:

From renal artery

Urinary System

Suprarenal glands:

- Venous drainage:
  - Right suprarenal vein to inferior vena cava.
  - Left suprarenal vein to renal vein.