Peritoneal Membrane
- Features -

- Reflections
  - Omentum (apron or drape)
  - Mesentery
  - “Ligaments”

- Extent of organ covering
  - Intraperitoneal
  - Retroperitoneal
Mesenteries - sagittal section

- Liver
- Lesser omentum
- Parietal peritoneum
- Stomach
- Transverse mesocolon
- Transverse colon
- Greater omentum
- Small intestines
- Visceral peritoneum

Intraperitoneal

Retroperitoneal
Greater and Lesser Sacs

- Lesser omentum (sac)
- AKA “Omental bursa”
Rotation of the Gut
- Axis for rotation -

![Diagram of the human gut showing the rotation of the gut and key anatomical structures such as the liver, stomach, duodenum, cecal diverticulum, small intestine, and hindgut. The diagram indicates a rotation of 180° at 70 days.]
Laterality

• Normal (situs solitus)
• Alteration (situs inversus totalis)
• Abnormal (heterotaxy, situs ambiguus; or mirror-image, isometry)
• Dysregulation of the embryonic organizer ("node")
• Genes: nodal, lefty, ptx2
Initiation of left-right molecular asymmetry

Transfer of asymmetric signals from the node

Asymmetric gene expression in the lateral plate mesoderm

Midline regulates asymmetric gene expression

Left-right morphogenesis of organ primordia

H+/K+ ATPase
VG1

SYNDECAN2, INV

BMP2/4

SHH FGF8

CARONTE

NO TAIL
EGF-CFC
NODAL
LEFTY1
PITX2
ZIC3

Lateral plate

Midline

Lateral plate

Organ primordia

PITX2
BMP4
HLAMP1

SNAIL
FIBRILLIN

Foregut, Midgut, Hindgut

Distinction is based on embryologic arterial supply
Foregut, Midgut, Hindgut
Unique venous drainage
Foregut - Overview

- **Parts:** Stomach, duodenum (half), liver, gall bladder, pancreas, spleen
- **Arterial supply:** celiac artery (trunk)
  - 3 branches: splenic, left gastric, common hepatic
- **Venous drainage:** gastric and splenic veins to portal vein
- **Innervation:** autonomic
- **Lymphatic drainage:** organ nodes
Stomach

Stomach - anatomy and relationships

Stomach - coronal section

Unit II, p 13
Stomach

- Exophagus
- Cardiac part
- Fundus
- Body
- Lesser curvature
- Greater curvature
- Duodenum
- Pylorus
- Pyloric antrum
- Gastric folds
Upper GI Barium Studies
Duodenum

- Pyloric sphincter
- Superior (1st) part
- Descending (2nd) part
- Ascending (4th) part
- Horizontal (3rd) part
- Duodenojejunal junction

Duodenum - 4 parts

Stomach

Jejunum

Unit II, p 13
Anterior View of the Liver

- Coronary ligaments
- Left triangular ligament
- Right triangular ligament
- Left lobe of liver
- Falciform ligament
- Right lobe of liver
- Round ligament
- Gallbladder

Liver - anterior view
Superior View of the Liver
Duodenum
- Internal Anatomy -

Longitudinal fold

Hood

Major duodenal papilla

Minor duodenal papilla
Review of the Foregut

Liver
Gall bladder
Lesser omentum (cut)
Spleen
Pancreas
Stomach
Greater omentum

Foregut - overview (lesser omentum cut and open)
Stones in the Gall Bladder
Case

- Consent is obtained to perform an upper GI barium study to rule in or out gallbladder disease (do you recall why?)

- Symptoms
  - Dull pain in the upper right quadrant of the abdomen
  - Vomiting and diarrhea for 3-4 hours
  - What consent means is the patient will drink 1.5 liters of barium!
Case

- Spiral CT, with contrast
- High-resolution (512 x 512 pixels), serial thin-section (0.5 cm slice thickness) imaging
Case

- CT (barium and iodine) revealed normal biliary and vascular anatomy, respectively
- Differential diagnosis?