

# Compartmental Anatomy of the Abdomen

MSCT implementation of  
“Dynamic Radiology of the Abdomen” by Morton Meyers

Maarten van Leeuwen,  
UMCU Utrecht, Netherlands

# Compartmental MSCT Anatomy

1. Abdominal embryology and anatomy
2. CT anatomy and pathology
3. Quiz Cases
4. Take home points

# Fusional fasciae, Fascie d'accollement

1. Desc Mesocolon
2. Panc-duod Right
3. Panc-duod Left
4. Asc Mesocolon

# Abdominal Compartments

- **Extraperitoneal compartment**
  - Outside peritoneum, within transverse fascia
- **Peritoneal space**
  - Space bounded by parietal peritoneum
- **Subperitoneal space**
  - Space between visceral peritoneal covering of ligaments and organs containing:
    - Blood vessels
    - Lymph vessels and nodes
    - Extrahepatic biliary tract
    - Part of alimentary tract and pancreas, liver, spleen

# Extraperitoneal space

- **Retroperitoneal space**
  - Perirenaal (L, R)
  - Anterior pararenal (L, R)
    - colonic and pancreatico–duodenal spaces
  - Posterior pararenal (L, R)
    - in continuum with*
  - Flank fat (L, R)
  - Preperitoneal fat

# Anterior pararenal spaces

- **Colon compartments**
  - Right
    - Fused meso colon asc. (sma/v; right colic & iliocolic)
  - Left
    - Fused meso colon desc. (ima/v; left colic )
- **Pancreatico–duodenal compartments**
  - Right
    - Head of pancreas, duodenum (coel tr and sma/v)
  - Left
    - Body of pancreas and tail (coel tr and spl v)

# Peritoneal space

- **Supra mesocolic**
  - Subphrenic right/left
  - Subhepatic right/left
- **Infra mesocolic**
  - Right and left of small bowel mesentery
  - Paracolic gutter; right and left
  - Rectovesical recess
  - (Uterovesical recess)

# Peritoneal space; Supramesocolic

- **Subphrenic right of lig. falcif, triang. and bare area**
  - Ant and post
- **Subphrenic left**
  - Ant and post
- **Subhepatic right**
  - Ant
  - Post: Hepatorenal recess = Morrison's pouch
- **Subhepatic left**
  - Ant to lesser omentum and stomach
  - Post to lesser omentum and stomach: Bursa omentalis or lesser sac
    - foramen of Winslow gateway to right subhepatic space

# Subperitoneal space

- **Supra mesocolic**
  - Foregut/midgut (coel tr, sma)
- **Transverse mesocolon**
  - Midgut (middle colic artery from sma)
- **Infra mesocolic**
  - Midgut/hindgut (sma, ima)

# Subperitoneal space; Supramesocolic

- **Ventral meso foregut**

- Lig falciforme/teres and lig triangulare R and L
  - Ant abdominal wall and diaphragm ~ liver
- Liver
- Lig venosum/gastrohepatic/hepatoduodenal
  - Liverhilum ~ oes/stomach/1<sup>th</sup> part duodenum

- **Dorsal meso foregut**

- Gastrosplenic lig
- Spleen
- Splenorenal lig
- Pancreastail; non-fused part.
- Greater omentum;  
fused dorsal mesogastrium

# Subperitoneal space; Inframesocolic

- Dorsal meso midgut  
(small bowel, asc and trs colon)
  - Meso small bowel and iliocecal area (variable fusion cecum)
  - Meso appendix
  - Transverse mesocolon
- Dorsal meso hindgut  
(desc colon, sigmoid, rectum)
  - Meso sigmoid

# Take home points

- Transverse mesocolon
  - “The great divide”
  - Covering pancreas and duodenum
  - Continuous with colonic compartments R and L
- Compartments
  - Peritoneal spaces
    - Supra mesocolic
    - Infra mesocolic
  - Retro- and extraperitoneal compartments
    - Layered structure of anterior pararenal space
      - » Pancreaticoduodenal R and L
      - » Colonic R and L
  - Subperitoneal compartments
    - Follow the vessels
- Fusial fasciae (fascie d'accollement)
  - Potential spaces

Review, search, and “read the case” to fully understand.

Have Fun !