The Misty Mesentery Dilemna

Kristin Greenlaw
PGY4 Dalhousie University
Objectives

- Review the differential diagnosis of misty mesentery finding on CT
- Discuss Sclerosing Mesenteritis (SM): Etiology, Findings, Differential
- Follow up recommendations
Incidental finding, what to do...
Follow up or let it go?
Misty Mesentery

- A regional increase in mesenteric fat density
- May be caused by mesenteric infiltration of:
  - Inflammation
  - Neoplastic cells
  - Fluid (edema, blood, lymph)
  - Fibrous tissue/Idiopathic

Mindelzun et al., 1996
Fluid

- Mesenteric edema
  - Heart failure
  - Portal hypertension
  - Cirrhosis

- Lymphatic obstruction
  - Neoplasm
  - Trauma/Surgery
  - Radiation
  - Lymphatic malformation

- Hemorrhage
  - Trauma
  - Anticoagulation
  - Ischemic enteritis

**Imaging features**
- Often associated with generalized edema or ascites
- Additional retroperitoneal and omental fluid
Inflammation

- Underlying pancreatitis, appendicitis, diverticulitis, and other “itis”
- TB
  - enlarged lymph nodes with central hypodensity
  - nodular mesentery
  - enhancing smooth peritoneal thickening
  - high density ascites
Case

- Subtle mesenteric stranding, plus stranding around the gallbladder fossa

- US findings consistent with cholecystitis
Neoplasm

Non Hodgkin Lymphoma
Carcinoid
Metastasis

Misty mesentery appearance may be caused by tumour cell infiltration, or obstruction of lymphatics
Idiopathic – Sclerosing Mesenteritis

- 92% is incidental, 0.6% of all studies
- Can be symptomatic – pain, nausea, fever, mass, obstruction
- Reported association with future malignancy, up to 30%, but is this a true association?
- Possible causes
  - Post surgery/trauma
  - Vasculitis
  - Infection
  - Autoimmune (IgG4 related condition)
Sclerosing mesenteritis (SM) is an overarching term, including several other pathologic diagnoses depending on the appearance and stage of disease.
Sclerosing Mesenteritis

Imaging Findings

- Most often involves the jejunal mesentery
- Oriented to the left
- Fat ring sign – sparing of fat around vessels
- Tumoral pseudocapsule - <3 mm thickness, surrounding stranding
- Mesenteric root mass – can calcify, cause mass effect
- However, all features are non-specific and can rarely be seen with neoplasm
Mesenteric lipodystrophy and mesenteric panniculitis can have a similar appearance on CT.

Example of:
- Pseudocapsule
- Fat ring sign

Taffel et al., 2014
Retractile mesenteritis

An example of:
- Spiculated mesenteric root mass
- Compression of adjacent vessels
- Calcification

Taffel et al., 2014
Differentiating Sclerosing Mesenteritis and Malignancy

**Sclerosing mesenteritis**
- Compression/obstruction of structures
- Pseudocapsule
- Mildly enlarged lymph nodes
- +/- Calcification

**Carcinoid**
- Spiculated mass with mesenteric spread
- Primary hyperenhancing small bowel mass
- Hepatic metastasis
- 70% calcified

**Lymphoma**
- Encasement of structures
- Other lymph node groups enlarged
- Nodular
- If treated: infiltrative stranding, and calcification
Multiple imaging features of SM

However, lymph nodes >1 cm, and multiple mildly enlarged lymph nodes in other areas (mediastinal, retroperitoneal)

6 Follow up CT suggested
Follow up CT did not occur until 1 year later

Case 1
February 2015

- Large retroperitoneal mass of conglomerate lymph nodes, and further enlargement of other nodes
- Pathology proven Diffuse Large B Cell Lymphoma
Case 2  Incidental mesenteric stranding and soft tissue nodules, measuring > 1 cm. Multiple imaging features of SM.
Case 2  The mesenteric findings were similar on a follow up CT, however, a single enlarged retrocrural node is increased >1 cm. Suspicious for lymphoma!
Follow up

- Tallef et al., 2014 suggests:
  - Soft tissue nodule >10 mm, consider biopsy, or close CT follow up
  - If no history of malignancy and lymph nodes smaller than 5 mm - no follow up

- Corwin et al., 2012 found:
  - Followed patients with imaging diagnosis of sclerosing mesenteritis for 2 years
    - 0/30 developed lymphoma if lymph nodes <1 cm
    - 3/7 developed lymphoma if lymph nodes >1 cm
Conclusions

- Misty mesentery finding has a wide differential

- Consider an inflammatory, traumatic or neoplastic etiology before labeling as sclerosing mesenteritis

- Suggested follow up
  - If isolated to mesentery and lymph nodes <5 mm, no follow up required
  - If nodes 5-10 mm consider follow up (~6 months)
  - If nodes >10 mm consider surgical referral, biopsy or close interval follow (3-6 months)
References