Imaging the Small Bowel

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**Aims**

- Different techniques for imaging the small bowel: which, why and when
- Help the Radiologist help you: important information the radiologist needs to know
- How to interpret the images and the report (MR)
- Re-imaging the IBD patient
- Imaging the complications of IBD

**Techniques for imaging SB**

- **Plain Film**
  - Not particularly useful
  - Obstructive symptoms
  - Megacolon in acute flare ups

- **Barium Studies**
  - Widely available and well tolerated
  - Assessment of Crohn’s disease
  - Excellent mucosal detail (subtle disease)
  - Shows strictures well
  - Not good at extramural disease

- **Contrast studies of the small bowel**
  - Barium small bowel studies
  - MR small bowel studies
  - CT Studies

Wide variation in availability and indications
Techniques for imaging SB

- Occasionally...
  - MR Small Bowel
    - Limited availability and tolerance
    - With or without NJ tube
    - Younger patients with known Crohn’s who will have repeated scans
    - Inflammatory or Fibrotic stricture
    - Extramural disease for when considering infliximab

Techniques for imaging SB

- CT Studies
  - Not used as routine due to radiation exposure
  - Acutely unwell with abscess/perforation
    - Unable to tolerate MR (in an acute scenario)
  - Excellent resolution but mucosal detail not as good as barium

Techniques for imaging SB

- Capsule Enteroscopy
  - Obscure GI bleeding with negative scope
  - High suspicion of Crohn’s disease undetected by conventional means
  - Refractory coeliac disease

Techniques for imaging SB

- Barium Studies
  - Easy, Quick, Cheap, Available
  - Good Mucosal Detail, Functional Imaging

- MRI Small Bowel - Oral
  - Easy, Multplanar images
  - Extraluminal disease
  - Fibrotic vs inflammatory strictures

- CT Abdomen
  - Easy, Fast
  - Multplanar images
  - Extraluminal disease
  - Excellent resolution

- Radiation burden
  - Difficult in assessing extraluminal disease
  - Longer study
  - Expensive
  - Limited Availability

- Findings can be non disease specific

CT: first scan
SBM: 2 months later post treatment
MRI: 4 years later
Techniques for imaging SB

- My View
  - Barium for first diagnosis of Crohns (MRE if radiologists happy)
  - MRE for follow up (if burden on resources, use MRE for "younger" patients)
  - CT for acutely sick patients or MRE contraindicated and looking for abscesses

Help the Radiologist help You

- What we need to know:
  - Presumed or known diagnosis of Crohns?
  - Surgeries eg: stricturoplasty
  - Previous fistulae

  - Are you considering immunosuppressant treatment?

  - Let the radiologist know in your request what you need to know from the investigation

Interpreting the Images (MR)

- Multiple sequences in MR
- Initial sequences: bowel and mesentery
- T2 scans – fluid is white
- Contrast scans: enhancement of inflammatory strictures and abscesses
- T1 scan – fluid is dark, enhancement is bright

Interpreting the Images (MR)

- Aphthous Ulceration
- Cobblestone Appearance (ulcers with interval oedema)
- Thickened and blunted small bowel folds
- Straightening and rigidity of loops
- Fatty proliferation
- Pseudopolyps and pseudosacculations
- Strictures with proximal bowel dilatation
Interpreting the Images (MR)

Active Disease

Fibrotic Disease
Stricturing Disease

Abscesses

Fistulae

Pseudopolyps

Re-Imaging the IBD patients

- Age of patient
  - Younger patients: MR
  - Older patients: variable

- Frequency of investigations
  - If multiple previous radiation examinations, consider MR

- Presenting complaint
  - Imaging would depend on potential diagnosis
  - Correct examination for potential pathology

Complications of IBD

- Perianal abscess
  - High resolution MRI of the perineum

- Enterocutaneous fistula
  - CT Sinogram

- Abscess formation
  - Follow up with MRI or ultrasound instead of multiple CT