# SESSION 3
# ULTRASOUND AS A VALUABLE TOOL IN IBD

## PRE-CASE SURVEY

Intestinal ultrasound (IUS) is an assessment tool used to assess transmural healing in patients with inflammatory bowel disease (IBD). Bedside/point-of care-ultrasound has enabled real-time assessment for active disease/healing for in-person clinic patients by gastroenterologists (GIs).

**Question 1. Current State**

Describe your current use of bedside IUS in your IBD clinical practice

a. You perform IUS on ALL patients seen in clinic.

b. You perform IUS on select IBD patients seen in clinic.

c. You have access to IUS in your clinic (performed by a GI colleague).

d. You have no access to bedside IUS in your clinic at this time.

## INTERACTIVE CASE PRESENTATION

Emily is a 25-year-old patient with a new diagnosis of Crohn's disease. She has a known family history of IBD (ulcerative colitis in her father) and presented with abdominal pain, diarrhea (4 non-bloody loose stools per day) and a 5 kg weight loss. She previously had intermittent abdominal pain for several years, which she attributed to stress. She is mildly anemic (Hemoglobin [Hb]=107 g/L and mean corpuscular volume [MCV]=72 fL), with an elevated C-reactive protein (CRP) of 22.1 mg/L and a fecal calprotectin (FCP) of 823 µg/g. Stools were negative for infection (Clostridioides difficile, and Culture and Sensitivity). While waiting to be seen by GI, the family doctor prescribed a short course of prednisone (50 mg x 7 days), which helped improve her symptoms as they were convinced this was IBD. Given the high suspicion for IBD, you performed an urgent colonoscopy (C-scope).

C-scope showed ileocolonic disease with deep ulcers extending 5 cm into the ileum and a non-passable stricture located proximally. Aphthous ulcers were also found in the cecum. Remainder of colon was unremarkable. Simple Endoscopic Score for Crohn's Disease (SES-CD)=14.

After her endoscopy, you book an appointment to review results and discuss the diagnosis and treatment plan.

## Decision Node 1

**In addition to starting medical therapy for Crohn's disease, what assessments would you recommend at this point to further evaluate her new diagnosis?**

a. Bedside IUS
b. Computed Tomography Enterography (CTE) or Magnetic Resonance Enterography (MRE)
c. Video capsule endoscopy
d. No need for further small bowel assessment, as you have established the diagnosis
e. A and/or B

You decide to ask your colleague trained in IUS to do an IUS to get a baseline assessment.

You receive an IUS report that states: Good quality scan.

| | Asc colon | TI | Prox SB |
|---|---|---|---|
| BWT (mm) | 2.2 | 9.5 | 1.5 |
| Modified Limberg Score (hyperemia) | 0 | 2 (moderate) | 0 |
| Echostratification | Normal | Loss | Normal |
| Inflammatory Fat | No | Present | No |
| LN (>10 mm in short axis) | No | Yes – 2 lymph nodes | No |
| Complications | No | No | No |
| Comments: | | No prox dilation, length 5 cm | |

NOTE: Rectum, Sigmoid, Descending, Transverse colon – all normal or not applicable

*Asc, ascending colon; BWT, bowel wall thickness; prox, proximal; SB, small bowel; TI, terminal ileum*

Emily starts on an advanced therapy and is booked for an outpatient follow-up with IUS in 14 weeks. At this time, she requests steroids to help manage her symptoms as the 7-day course did help her. You provide a prescription for a short taper of prednisone (with calcium and vitamin D supplementation).

At the follow-up, she has completed the steroid taper and is starting to have recurrent symptoms of abdominal pain despite the advanced therapy. Her FCP is now 452 µg/g.

Repeat IUS: Good quality scan.

| | Asc colon | TI | Prox SB |
|---|---|---|---|
| BWT (mm) | 2.2 | 8.0 | 1.5 |
| Modified Limberg Score (hyperemia) | 0 | 1 (mild) | 0 |
| Echostratification | Normal | Loss | No |
| Inflammatory Fat | No | Present | No |
| LN (>10mm in short axis) | No | No | No |
| Complications | No | No | No |
| Comments: | | Prox SB dilation 2 cm, length 6 cm | |

NOTE: Rectum, Sigmoid, Descending, Transverse colon – all normal or not applicable

### Decision Node 2

**What would you do now?**

a. Dose optimize (increase dose or add immunomodulator)
b. Switch to a different advanced therapy
c. Cross-sectional imaging (CTE/MRE)
d. Refer for surgery (ileocolic resection)
e. A and C
f. B and C

You dose optimize and request a MRE. There is a several-month wait for MRE for outpatients.

Three months later, the MRE shows a normal colon, but a 6.2 cm long stricture with mild proximal dilation. There is mild mucosal inflammation but there also appears to be fibrosis. She has grumbling symptoms with intermittent abdominal pain (worsened by eating certain foods) and fatigue despite adherence to therapy and a low-fibre diet. She reports some nausea but denies vomiting. Her FCP is now 246 µg/g.

### Decision Node 3

**What would you do next?**

a. Refer for surgery (ileocecal resection [ICR])
b. Switch advanced therapy
c. Repeat IUS
d. No change, FCP is improving

You see her with your colorectal surgeon in the IBD Medical Surgical clinic. She admits that she is intermittently smoking cigarettes (<1/2 pack per day). She consents to a minimally invasive ICR. You continue her current therapy as she waits for surgery. She is advised to call if her symptoms worsen. She is counselled on smoking cessation.

She undergoes a laparoscopic ICR. They remove her cecum and 12 cm of ileum. Resection margins are negative for inflammation. Fortunately, she has been able to quit smoking.

### Decision Node 4

**What is your post-operative management plan?**

a. Continue current therapy
b. Switch to a different advanced therapy
c. No medications
d. FCP, IUS in ~6 months
e. A and D
f. B and D
g. C and D

Based upon the Crohn's and Colitis Canada Clinical Care Pathways, you assess that she has a moderate risk of recurrence and decide to continue her current therapy. At her 6-month follow-up, her FCP is 32 µg/g. She is clinically well, denies abdominal pain and can eat a normal diet. She has not resumed smoking.

Post-operative IUS. Good quality scan.

| | Asc colon | Neo-TI | Prox SB |
|---|---|---|---|
| BWT (mm) | 1.8 | 2.5 | 1.2 |
| Modified Limberg Score | 0 | 0 | 0 |
| Echostratification | N | N | N |
| Inflammatory Fat | N | N | N |
| LN (>10mm in short axis) | N | N | N |
| Complications | N | N | N |
| Comments: | | Normal anastomosis | |

NOTE: Rectum, Sigmoid, Descending, Transverse colon – all normal or not applicable

### Decision Node 5

**What are your next steps?**

a. Discontinue advanced therapy
b. Continue advanced therapy.
c. Arrange an ileocolonoscopy in the next 6 months to assess the Rutgeerts score.
d. A and C
e. B and C

Ileoolonoscopy showed Rutgeerts i2a; anastomosis is patent. You continue with her advanced therapy. She continues to feel well. She asks about discontinuing her medications...