

Inflammatory Disease of the Small Bowel

The potential of the use of enteroscopy in inflammatory bowel disease is to diagnose celiac sprue, Crohn's disease, as well as other, more uncommon forms of inflammatory bowel disease, including systemic lupus erythematosus (SLE), radiation enteritis, eosinophilic gastroenteritis as well as infectious enteritis, including giardiasis, Whipple's disease, mycobacteria, and tropical sprue.

Crohn's Disease

Crohn's disease remains a clinical diagnosis based on a typical clinical history, physical examination, small bowel radiography, and ileocolonoscopy with biopsy.

Crohn's disease (CD) may be the initial "incidental" diagnosis in patients evaluated by capsule endoscopy for obscure GI bleeding (1).

Capsule endoscopy may also be useful in the following situations: a) when there is a clinical and radiological suspicion of CD; b) for evaluation of small bowel involvement in cases of known colorectal CD; c) for the differential diagnosis of indeterminate colitis; and, d) for evaluation of endoscopic activity of small bowel CD and response to therapy.

A number of recently published studies report 'diagnostic yields' for Crohn's disease from capsule endoscopy of over 70% in patients with negative, or inconclusive, findings on prior small bowel series and ileocolonoscopy (2-4).

Capsule endoscopy is a more sensitive examination than traditional radiography (5), but the specificity and positive predictive values remain to be established. Most series report a positive influence on patient outcome based on capsule findings, but the specific details of management changes and specific outcomes are often not adequately described.

Findings of Capsule enteroscopy in Crohn's Disease

Capsule enteroscopy may find the following alterations in patients with Crohn's disease:

1. Linear ulcers (*Figure 1*)
2. Round ulcers (*Figure 2*)
3. Irregular ulcers (*Figure 3*)

4. Cobblestoning - composed of multiple longitudinal ulcers running parallel, and hill-like elevations (due to submucosal swelling) (*Figure 4*)

5. Pseudopolyps (*Figure 5*)

6. Stricture, Stenosis - surrounded by atrophic (*Figure 6*), oedematous (*Figure 7*), pseudopolypoid (*Figure 8*) or cobblestoned mucosa (*Figure 9*).

7. Aphthous ulcers / erosions (*Figures 10 - 12*) - a small number of discrete aphthous ulcers/erosions, may be the earliest detectable abnormality. This tiny lesion usually occurs in otherwise normal mucosa. However, establishing the diagnosis based only in this finding is sometimes difficult, because erosions are commonplace, observed in various conditions, even in normal volunteers.

8. Villous denudation (*Figure 13*) - can be an early sign of the disease.

Aphthous ulcers are rather specific when they are multiple and surrounded by completely normal mucosa. They may be found at any stage of Crohn's Disease. They are observed independently (sole noticeable changes) in the early stage, as accessory findings near or apart from the main lesions. They can disappear and reappear repeatedly.

Cause of small bowel ulcerations are shown in (*Figure 14*).

However, they can also be non-specific. Such erosions and ulcers may in fact be the result of non-steroidal anti-inflammatory drug intake (*Figure 15*) and other pathological conditions such as lymphoid hyperplasia, lymphoma and radiation enteritis. Non-steroidal anti-inflammatory drug intake should, therefore, be excluded as a cause prior to relating the presence of lesions to CD. "Mucosal breaks" can be seen in 14% of normal volunteers, even in the absence of recent nonsteroidal antiinflammatory drugs (6). Thus, one should refrain from diagnosing CD based on the existence of a few erosions and ulcers of the small intestine. Misdiagnosis of CD may be harmful to the patient because if unresponsive, intensification of therapy may occur.

Complications of Capsule enteroscopy in patients with Crohn's disease

Capsule retention occurs in less than 1% of patients with suspected Crohn's, but retention rates of 4-6% are reported in patients with established Crohn's. When there is suspicion of stenosing Crohn's Disease, the previous use of patency capsule

► FIGURES

Figure 1: Linear ulcer (Crohn's Disease).



Figure 2: Round ulcer (Crohn's Disease).



Figure 3 : Irregular ulcer. Crohn's Disease.



Figure 4: Crohn's Disease. Typical cobblestoning with multiple longitudinal ulcers and intervening stone-like projections.



Figure 5: Crohn's Disease. Pseudopolyp surrounded by ulcers.



Figure 6: Crohn's Disease. Ileal stricture, surrounded by ulcerate, atrophic mucosa.

