

Mucosal Healing As a Target of Therapy for Colonic Inflammatory Bowel Disease and Methods to Score Disease Activity



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KEYWORDS

• Mucosal healing • Ulcerative colitis • Crohn's disease • Inflammatory bowel disease

KEY POINTS

- Mucosal healing is an important end point in clinical trials.
- Mucosal healing predicts the following:
 - Less corticosteroid use
 - Lower hospitalization rates
 - Increased sustained clinical remission
 - Lower colectomy and bowel resection rates
- Mucosal healing decreases the risk of colorectal cancer in ulcerative colitis (UC).
- Mucosal healing should be recognized by clinicians and health care providers as a goal for inflammatory bowel disease (IBD) therapy.

INTRODUCTION

UC and Crohn's disease are characterized by the presence of gut inflammation accompanied by areas of ulceration (**Fig. 1**). Mucosal healing is becoming increasingly important in the clinical management of UC and Crohn's disease, as well as being used as an end point in clinical trials. Achieving mucosal healing has unequivocally been associated with better outcomes, and for these reasons, it has become an important treatment goal. There are, however, multiple methods to score endoscopic disease activity in both UC and Crohn's disease. This article therefore focuses on

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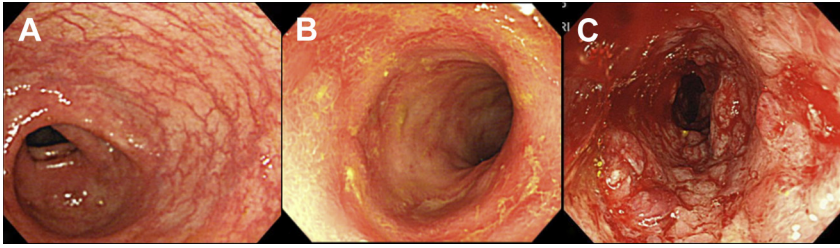


Fig. 1. Assessment of mucosal healing using the Ulcerative Colitis Endoscopic Index of Severity (UCEIS) with descriptors of vascular pattern (V), bleeding (B), and erosions/ulcers (E). (A) UCEIS 0 (V0 B0 E0), (B) UCEIS 5 (V2 B1 E0), and (C) UCEIS 8 (V2 B3 E3).

those used most frequently or that have been validated: the Mayo endoscopic score and the Ulcerative Colitis Endoscopic Index of Severity (UCEIS) for UC and the Crohn's Disease Endoscopic Index of Severity (CDEIS), the Simple Endoscopic Score for Crohn's Disease (SES-CD), and the Rutgeerts Postoperative Endoscopic Index for Crohn's disease. Because indices are complex and potentially confusing, the article follows a standard approach describing the indices in this order.

DEFINITION OF MUCOSAL HEALING

Mucosal healing in the context of IBD refers to the endoscopic assessment of disease activity. Simply stated, mucosal healing should imply the absence of ulceration and erosions. Nevertheless, there is currently no validated definition of mucosal healing in IBD.¹⁻³

Ulcerative Colitis

In patients with UC, mucosal healing may represent the ultimate therapeutic goal, because the disease is limited to the mucosa. The pattern of inflammation in UC is associated with several mucosal changes, initially vascular congestion, erythema, and granularity. As inflammation becomes more severe, friability (bleeding to light touch), spontaneous bleeding, and erosions and ulcers develop. An International Organization of Inflammatory Bowel Disease (IOIBD) task force defined mucosal healing in UC as the absence of friability, blood, erosions, and ulcers in all visualized segments of the colonic mucosa.² However, some studies allow erythema and friability in the definition of mucosal healing.⁴ Many different endoscopic indices for UC have been used in clinical trials, although none have been fully validated in prospective studies; this creates problems when comparing trials.⁵

Crohn's Disease

In contrast to UC, mucosal healing in Crohn's disease might reasonably be considered a minimum (rather than the ultimate) therapeutic goal, because the disease is transmural. Even this therapeutic goal, however, is not routine clinical practice in most centers. The pattern of inflammation in Crohn's disease is characterized by several mucosal features that include patchy erythema, nodularity, aphthoid, and then deeper, serpiginous ulceration, strictures, and, in severe cases, penetrating ulcers. The complete resolution of all visible ulcers is a simple definition of mucosal healing for clinical practice, and this is what has been suggested by IOIBD task force.⁶ Nevertheless, this binomial definition (presence or absence of ulcers) is currently unvalidated, is difficult to achieve, and is rather crude for use in therapeutic trials because it does not allow quantification of improvement of mucosal inflammation.⁷ The largest trials that have

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