# Endoscopic Evaluation and Management of the Postoperative Crohn's Disease Patient



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### **KEYWORDS**

- Crohn's disease Side-to-side anastomosis End-to-end anastomosis
- End-to-side anastomosis Rutgeerts endoscopic score Anastomotic stricture
- Balloon dilatation

### **KEY POINTS**

- A majority of Crohn's disease (CD) patients require surgery with ileocecal resection being the most common procedure.
- CD anastomotic recurrence can be quantified using Rutgeerts endoscopic score within 1 year of surgery, which carries prognostic significance and can guide therapy.
- The 4 most common anastomotic configurations include end-to-end, end-to-side, antiperistaltic side-to-side, and isoperistaltic side-to-side reconstructions.
- Anastomotic reconstruction after ileocecal resection varies with antiperistaltic, side-toside anastomosis surpassing end-to-end anastomosis at the present time.
- CD anastomotic recurrence in the antiperistaltic side-to-side anastomosis occurs at the inlet, which is typically seen on retroflex view.

## INTRODUCTION

Approximately 70% of patients with CD undergo surgical resection for the treatment of medically refractory disease or its complications during their lifetime. The sickest cohort of CD patients experiences rapid postoperative relapse at the anastomotic

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site, which can lead to repeated surgeries. A majority of CD patients have a reconstruction of the intestine after surgery, where a surgical anastomosis connects the upstream and downstream segments of bowel, whereas other patients require an ostomy. Over the past 2 decades, the types of surgical anastomoses used in CD reconstruction have changed, where end-to-side and end-to-end anastomoses have been surpassed by the more rapidly created side-to-side anastomoses (antiperistaltic orientation and isoperistaltic orientation). Although high-definition white light endoscopes have allowed for enhanced assessment of the postoperative mucosal surface, there is limited information at this time that helps inform and guide gastroenterologists regarding endoscopic assessment of surgically altered anatomy, particularly in regard to the different types of anastomoses. This article provides a comprehensive review of the timing and purpose of endoscopic evaluation in postoperative CD patients and provides pragmatic information regarding interpretation of endoscopic findings at the different types of surgical anastomoses after ileocecal resection.

# SURGERY AND CROHN'S DISEASE: ASSESSING POSTOPERATIVE CROHN'S DISEASE RECURRENCE

lleocecal resection is the hallmark operation for CD, dating back to the original description of the disease in 1932, where 14 patients with terminal ileal strictures underwent resection after radiographic characterization. This historical perspective is relevant today, because a majority of CD patients require surgery, but radiographic studies have now been complemented with colonoscopy and direct mucosal assessment of the preoperative and postoperative mucosa. The importance of endoscopic assessment of postoperative CD patients stems directly from the fact that there are different patterns of CD recurrence and this heterogeneous natural history may be linked to personalized approaches tailored to maintain the surgically induced clinical remission. Endoscopy offers an opportunity to not only visualize the site of surgery but also allow for characterization of the early return of mucosal ulceration, not yet radiographically apparent, which carries important prognostic significance. Furthermore, mucosal pinch biopsies at the level of the anastomosis give additional information that can help personalize therapeutic intervention. Lastly, in certain situations, an anastomotic stricture may form and endoscopically guided pneumatic balloon dilatation with or without intralesional steroid injection can be attempted to re-establish luminal patency. The ability to endoscopically assess the surgical anastomosis and the neoterminal ileum in the postoperative time period for diagnostic, prognostic, and therapeutic purposes is essential for improving CD clinical outcomes.

# ENDOSCOPIC ASSESSMENT OF THE CROHN'S DISEASE ANASTOMOSIS: GAUGING POSTOPERATIVE RECURRENCE AND TAILORING THERAPY

The ability to effectively gauge CD activity at the postoperative neoterminal ileum is dependent on a structured assessment where objective endoscopic features are linked to a predictable natural history over the ensuing years. The postoperative CD patient provides the best opportunity to standardize an endoscopic assessment score, because the neoterminal ileum is essentially free of disease after surgical reconstruction, and the return of CD lesions over a known time (eg, the date of surgery) offers an opportunity to characterize disease trajectories. The development of a postoperative neoterminal ileal score, which was associated with clinical CD recurrence, was achieved by Rutgeerts and colleagues<sup>2</sup> in Leuven, Belgium, in the early 1990s. Using a cohort of 89 postoperative CD patients, these investigators developed an

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