

Stent for Crohn's disease strictures: Which one and when?

Author

Alain Attar

Institution

Department of Gastroenterology - IBD - Nutritional support, Beaujon Hospital, Clichy, France

submitted:

6. February 2016

accepted after revision:

12. February 2016

Bibliography

DOI <http://dx.doi.org/10.1055/s-0042-103417>
Endoscopy International Open
2016; 04: E309–E310
© Georg Thieme Verlag KG
Stuttgart · New York
E-ISSN 2196-9736

Corresponding author

Alain Attar, MD, PhD
Hopital Beaujon
Gastroenterology and Nutrition
Support Unit
100 avenue du General Leclerc
Clichy 92110
France
Phone: +0675553297
Fax: +0959980856
alain.attar@bjn.aphp.fr

The Crohn's disease (CD) perforating phenotype (fistula–abscess) is almost always associated with strictures and is one of the main complications of the disease, present in nearly 60% of patients who have the strictures [1,2]. These perforating forms are the first indication for surgical treatment, which in most cases is ileocolonic resection [3,4]. The stricture phenotype alone, without associated fistula, is observed in approximately 30% of patients after 10 years of evolution [5].

After resection, postoperative recurrence of CD is the rule, with endoscopic evidence in 80% of cases at 1 year and formation of postoperative stricture in about 40% of cases at 5 years [6]. These strictures are usually of mixed composition with inflammation and fibrosis. Their clinical impact is variable, ranging from asymptomatic (revealed by radiologic or endoscopic examination) to incomplete obstructive syndrome that gradually increases and rarely leads to full clinical obstruction. Specific treatment is required only symptomatic strictures, whether or not they are accompanied by dilation on upstream imaging. Native strictures have the same clinical picture, but the fibrotic ring usually exceeds 4cm, in contrast to postoperative strictures in which the ring is short. The average incidence of native strictures is 20% in cohort studies and in only one study were they seen in 70% of the total patients [7]. Native strictures of the colon that are in an area of inflammation or scarring are associated with a higher risk of dysplasia and cancer, a complication that must be ruled out before considering endoscopic treatment [8].

Endoscopic hydrostatic dilation with a balloon was developed nearly 20 years ago as an alternative to iterative surgical resections and for strictures that are solitary, short (less than 4 to 5cm), and located in an area accessible to endoscopy. The procedure is simple, with technical success rates of between 90% and 100%, an approximate-

ly 2% incidence of severe complications such as perforation, and success rates demonstrated in meta-analysis of nearly 60% at 33 months [9,10]. The problem is the high risk of clinical recurrence, which ranges from 30% to 60% at average follow-up of 15 to 45 months [11,12]. Because of that, Japanese authors first proposed the use of an "endoscopic stricturoplasty" with covered or uncovered self-expandable metallic stents (SEMS) for a few days to achieve longer and more sustained expansion than with balloon dilation. The first tests have been mixed; the main problem was the rapid migration of stents [13,14]. Indeed, to be extractable, these stents must be fully or partially covered with a plastic film, because in its absence, a mesh stent is rapidly colonized by mucosa, preventing its extraction.

In this issue of *Endoscopy International Open*, two articles dealing with SEMS use in Crohn's disease strictures. Loras et al. undertook a large review of the literature and describe 16 studies published to date on this indication [15]. Most of them are small series of fewer than 10 patients. One of the studies is Loras's own cohort, which is the largest published to date (n=17) using partially or totally covered SEMS and demonstrated a good rate of clinical success: 67.4% at mean 60 weeks, which is no better than with hydrostatic dilation, and was associated with a high rate of migration (52%) and four cases of impaction, possibly due to the long period of time (4 weeks) the stent were left in place before extraction [16]. The meta-analysis also included our prospective study of 11 patients, 10 of which were technical successes with uncovered SEMS. However, in seven those 10 cases, the patients experienced stent migration at a median of 3 days (range 1–10 days). We agree with Loras et al. that there was a clinical effect with a decrease or disappearance of obstructive symptoms in six out of 10 patients, which was associated with dilation for at least 1 day after stent placement. We

License terms



do not agree, however, with their conclusion that migration is not an adverse event. It may lead to impaction, perforation, and a need for additional surgery, which suggests that control stent movement is necessary to lower those risks. As shown in other reports that do not involve Crohn's disease, the migration rate for uncovered SEMS is approximately 30% or more [17]. Because of that, we designed a new partially covered SEMS manufactured by MITech and built with an anti-migration shape. In a pilot study of seven patients in which the device was used for a short period of time, we observed no migration [18].

The second study, by Karstensen et al., included six patients with Crohn's disease in whom the well-known SX-ELLA biodegradable stent (6 cm x 18 mm) was implanted after a mean of 5.5 sessions (range 4–7) of hydrostatic dilation [19]. The authors' patient selection criteria were not typical: three of the patients had native strictures, only one had an ileocolonic postoperative stricture, and the others had duodenal or post-colectomy strictures. In the five of six patients in whom the procedure was a technical success, there were no clinical successes. One patient experienced stent migration; in another, stent extraction was necessary, which should not have been the case with a biodegradable stent; and one patient required surgery for sigmoid resection. The trial clearly was a failure mainly because the clinical scenarios in which the stents were used were atypical and involved patients in whom other endoscopic techniques had already failed or would have failed.

Given these data, we need more studies to evaluate the use of anti-migration-shaped SEMS in only patients with symptoms who have a short (<5 cm) ileocolonic anastomotic or native stricture, with minimum clinical or endoscopic inflammation and with stent retrieval in less than 7 days. It seems that undertaking a first session of hydrostatic dilation before stenting is not a requirements [18]. However, no biodegradable stent is currently available which is suitable for this indication. In our field, we need a biodegradable anti-migration-shaped stent that is strong enough not to collapse, thin enough to be used within the endoscope operating channel, and ideally has a degradation time of 1 to 2 weeks.

Competing interests: None.

References

- 1 Oberhuber G, Stangl PC, Vogelsang H et al. Significant association of strictures and internal fistula formation in Crohn's disease. *Virchows Arch* 2000; 437: 293–297
- 2 Cosnes J, Cattan S, Blain A et al. Long-Term Evolution of Disease Behavior of Crohn's Disease. *Inflamm Bowel Dis* 2002; 8: 244–250
- 3 Hanauer SB. Inflammatory bowel disease. *N Engl J Med* 1996; 334: 841–848
- 4 Loftus EVJ, Schoenfeld P, Sandborn WJ. The epidemiology and natural history of Crohn's disease in population-based patient cohorts from North America: a systematic review. *Aliment Pharmacol Ther* 2002; 16: 51–60
- 5 Peyrin-Biroulet L, Loftus EV, Colombel J-F et al. The natural history of adult Crohn's disease in population-based cohorts. *Am J Gastroenterol* 2010; 105: 289–297
- 6 Rutgeerts P, Geboes K, Vantrappen G et al. Natural history of recurrent Crohn's disease at the ileocolonic anastomosis after curative surgery. *Gut* 1984; 25: 665–672
- 7 Singh V, Draganov P, Valentine J. Efficacy and Safety of Endoscopic Balloon Dilation of Symptomatic Upper and Lower Gastrointestinal Crohn's Disease Strictures. *J Clin Gastroenterol* 2005; 39: 284–290
- 8 Dignass A, Van Assche G, Lindsay JO et al. The second European evidence-based Consensus on the diagnosis and management of Crohn's disease: Current management. *J Crohns Colitis* 2010; 4: 28–62
- 9 Thienpont C, D'Hoore A, Vermeire S et al. Long-term outcome of endoscopic dilatation in patients with Crohn's disease is not affected by disease activity or medical therapy. *Gut* 2010; 59: 320–324
- 10 Hassan C, Zullo A, De Francesco V et al. Systematic review: Endoscopic dilatation in Crohn's disease. *Aliment Pharmacol Ther* 2007; 26: 1457–1464
- 11 Thomas-Gibson S, Brooker JC, Hayward CMM et al. Colonoscopic balloon dilation of Crohn's strictures: a review of long-term outcomes. *Eur J Gastroenterol Hepatol* 2003; 15: 485–488
- 12 Sabaté J-M, Villarejo J, Bouhnik Y et al. Hydrostatic balloon dilatation of Crohn's strictures. *Aliment Pharmacol Ther* 2003; 18: 409–413
- 13 Matsushashi N, Nakajima A, Suzuki A et al. Long-term outcome of non-surgical strictureplasty using metallic stents for intestinal strictures in Crohn's disease. *Gastrointest Endosc* 2000; 51: 343–345
- 14 Matsushashi N, Nakajima A, Suzuki A et al. Nonsurgical strictureplasty for intestinal strictures in Crohn's disease: preliminary report of two cases. *Gastrointest Endosc* 1997; 45: 176–178
- 15 Loras C. No Title. *Endosc Int Open* 2016
- 16 Loras C, Pérez-Roldán F, Gornals JB et al. Endoscopic treatment with self-expanding metal stents for Crohn's disease strictures. *Aliment Pharmacol Ther* 2012; 36: 833–839
- 17 Bakken JC, Wong Kee Song LM, de Groen PC et al. Use of a fully covered self-expandable metal stent for the treatment of benign esophageal diseases. *Gastrointest Endosc* 2010; 72: 712–720
- 18 Branche J, Attar A, Vernier-Massouille G et al. Extractible self-expandable metal stent in the treatment of Crohn's disease anastomotic strictures. *Endoscopy* 2012; 44: E325–E326
- 19 Karstensen JG. Biodegradable stents for the treatment of bowel strictures in Crohn's disease: technical results and challenges. *Endosc Int Open* 2016; E296–E300