LETTER TO THE EDITOR

Unusual perforation after balloon dilation in a Crohn’s disease patient: Report of a case

Dear Sir,

Crohn’s disease (CD) can be complicated by development of intestinal strictures with or without manifest obstructive symptoms. Often intestinal resection is the operation of choice for CD limited to the ileocecal region but a significant percentage of patients develop disease recurrence in the anastomotic site, resulting in strictures which can be symptomatic (40% at 4 years)1 and have a reoperation rate of 50% at 20 years.1 In recent years, endoscopic through-the-scope (TTS) balloon dilation has offered a valid and safe therapeutic alternative in patients with symptomatic intestinal strictures, particularly in postoperative patients. The review by Hassan et al. reported a rate of major complications between 0 and 18%. In our experience, after 72 balloon dilations there were no mild or severe complications related to the procedure.2

A 29-year-old woman with a long history of ileocolonic CD was admitted to undergo endoscopic balloon dilation for a symptomatic postoperative stricture (end-to-side anastomosis with residual lumen of 10 mm). She had been successfully treated with 3 balloon dilations in the previous two years. After obtaining a written informed consent, colonoscopy with balloon dilation was performed under conscious sedation. Dilation, up to 18 mm in 3 attempts of 60 seconds each (step-wise fashion), was performed with a guide wire, using a Microvasive Rigiflex TTS balloon system (Microvasive Endoscopy, Boston Scientific Corporation ®, Natick, Massachusetts, USA), which was gradually filled with water, at the pressure recommended by the manufacturer. At the end of the procedure, the endoscopist was not able to overcome the dilated stricture with the colonoscope because of severe angulations of the anastomosis. After two hours, the patient complained of severe abdominal pain. At CT scan, signs of intestinal perforation were observed so, in agreement with the surgeon, we had the patient undergo emergency laparotomy with resection of the anastomotic tract (total length 5 cm).

On surgical inspection there was no sepsis, though mild peritonitis was observed, while examination of the resected specimen showed a perforation 1 cm upstream of the anastomosis (Fig. 1C), in the context of the hyperaemic mucosa. The anastomosis appeared unharmed. At histology of samples, taken near the perforation, mild signs of inflammation were reported by the pathologist. On the basis of this evidence, and with a re-examination of the shape of the balloon, the surgeon and the endoscopist ascribed the perforation to the rigid tip of the device and the concomitant air inflow (Fig. 1D). The patient was discharged home 10 days later in good clinical condition.

Allowing for the direct visualization of the stenosis and the correct placement of the balloon, TTS balloon dilation of CD strictures offers the potential advantage of minimal invasiveness, thus avoiding surgery.2 This procedure is safe and has a relatively low complication rate when it is performed by an expert endoscopist and patients are selected appropriately.3,4 Strictures over 5 cm in length, larger balloon diameters (up to 25 mm), and up to six dilations per session, are the principle factors contributing to higher complication rates.3,5 To our knowledge, this is the first report showing as intestinal perforations can be correlated not only with excessive expansion of the balloon itself, but also with careless use of the device, the tip of which can damage the intestinal wall.

In conclusion, a careful approach based on “gradual-progressive dilation”, and a cautious insertion of the balloon through the stricture, with or without guide wire control, are suggested for reducing the risk of perforation. It is also important to understand that more than one attempt may be necessary to achieve a satisfactory luminal diameter, and that angulated strictures should be dilated under fluoroscopic view.

References


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Figure 1  Surgical specimen formalin-fixed. A and B) Bowel perforation with specillum inside (yellow arrow) visible in the surgical specimen still intact; C and D) surgical specimen open with perforation (yellow arrow) visible upstream the thickened wall of the stricture (blue arrows); The cartoon shows the mechanism of the perforation.