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## Balloon-Assisted Endoscopy: A Powerful Tool for Complete Colonoscopy

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See “Double-Balloon Endoscopy after Incomplete Colonoscopy and Its Comparison with Computed Tomography Colonography” by Carlijn Hermans, Dennis van der Zee, Lennard Gilissen, on page. 66-71.

Colonoscopy is an essential diagnostic and therapeutic tool for colonic diseases, including adenoma and cancer.<sup>1</sup> Needless to say, cecal intubation rate is the most important quality indicator of colonoscopy examination, and failure of cecum reach is closely related to post colonoscopy colorectal cancer (CRC). The American Society for Gastrointestinal Endoscopy guideline recommends that the target cecal intubation rate in screening colonoscopy is >95%.<sup>2</sup> Various factors have been suggested as affecting the cecal intubation rate. These factors include female sex, old age, obesity, poor bowel preparation, and prior abdominal surgery and diverticular disease.<sup>3-5</sup> How can we overcome colonoscopic failure? Balloon-assisted colonoscopy can be a candidate solution for this problem. The advent of balloon-assisted enteroscopies has led to visualize the deep portion of the small bowel, and various small bowel diseases have been diagnosed and investigated using this technique.<sup>6</sup> Owing to their ability of bowel fixation and shortening of bowel loops with additional balloon and overtube, indications of these techniques were extended to colonoscopy in patients with complicated bowel loops, endoscopic retrograde

cholangiopancreatography in patients with altered anatomy, and endoscopic submucosal dissection (ESD) for colorectal lesions that are difficult to be resected *en bloc*.<sup>7,8</sup> Ohya et al. reported the clinical result of ESD using a balloon-assisted technique for 15 cases of difficult lesions. *En bloc* resection was successfully performed in 13 cases (86.7%).<sup>9</sup>

In this issue of *Clinical Endoscopy*, Hermans et al.<sup>10</sup> performed a retrospective evaluation of clinical results of 63 double-balloon colonoscopies (DBCs) after incomplete colonoscopy, based on comparison with the results of computed tomography colonography. The main reasons of colonoscopic failure include dolichocolon (65%) and following looping (21%), combined dolichocolon and looping (8%), and bowel adhesions (6%). They reported a 95% cecal intubation rate, and both diagnostic and therapeutic interventions were performed in 58% of the cases, including 3 cases of carcinoma. These results suggest that DBC is an effective tool for completion of colon inspection in incomplete colonoscopy, including therapeutic interventions. These results are in line with the previous reports that demonstrated the clinical efficacy and usefulness of DBC in incomplete colonoscopy. Becx et al.<sup>11</sup> reported an 88.6% cecal intubation rate in 104 of 114 patients, and endoscopic polypectomy was performed in 51 patients (44.7%). Several studies with a relatively small number of patients reported that cecal intubation rates without serious complications ranged from 90% to 100% and additional therapeutic interventions were performed in 62% of the cases.<sup>12,13</sup>

Although the clinical results of DBC in patients with previously failed colonoscopy seem promising, there are some lim-

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itations. First, balloon assisted enteroscopy is usually equipped in a tertiary referral hospital. Thus, its accessibility is very low, and its high cost is also problematic. Second, considering the diverse endoscopic skill or experience of the each colonoscopist, it is not clear as to which patients can benefit from or be indicated for DBc.

In summary, this study by Hermans et al. showed the effectiveness and safety of DBc for completion of colonic examination and polypectomy after incomplete colonoscopy.<sup>10</sup> To reduce the developing CRC, qualified colonoscopic examination is essential. Our approach and effort toward qualifying and completeness of colonoscopy should be in part responsible for the reduction of CRC risk. DBc can be a valuable tool to achieve this goal.

### Conflicts of Interest

The authors have no financial conflicts of interest.

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