

Does Single Balloon Enteroscopy Have Similar Efficacy and Endoscopic Performance Compared with Double Balloon Enteroscopy?

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See "Comparison of the Efficacy and Safety of Single- versus Double-Balloon Enteroscopy Performed by Endoscopist Experts in Single-Balloon Enteroscopy: A Single-Center Experience and Meta-Analysis" by Tae Jun Kim, et al. on page 520, Vol. 11, No. 4, 2017

The small bowel had been considered unobservable area for gastrointestinal endoscopy, as most of the small bowel was inaccessible with conventional endoscopy. The advent of capsule endoscopy and balloon-assisted enteroscopy during the last decade revolutionized the diagnosis and management of small bowel diseases. Capsule endoscopy, developed in 2001, has been evolved as the main technique for the endoscopic evaluation of small bowel disorders because it is a noninvasive and safe technique for complete small bowel visualization. However, it has several major limitations, lack of therapeutic capabilities and movement control.

Yamamoto *et al.*¹ described the double balloon enteroscopy (DBE) technique visualizing small intestine and capable of therapeutic procedures in 2001. DBE has one latex balloon to the tip of enteroscope and the other on the tip of overtube. The balloon of the tip of enteroscope and one of the overtube are alternatively inflated or deflated with air from a pressure-controlled pump unit of the DBE system. The mechanism of DBE was based on the concept that stretching of the small bowel during the insertion of endoscope prevents further endoscopic advancement, and that the usage of two balloons of enteroscope tip and overtube would hold the intestinal wall and prevent subsequent loop formation and make further advancement of enteroscopy.¹

In 2007, single balloon enteroscopy (SBE) technique was developed, in which a latex-free balloon is attached to the tip of the silicon overtube and is inflated or deflated with air controlled by a balloon control system.² Preparation and operation of DBE are more time-consuming and cumbersome, manually applying a latex balloon to enteroscope tip as well as inflation

and deflation of two balloons than one of SBE. SBE may provide a quicker procedure with shorter procedure time.³ However SBE may have some difficulties to perform deep insertion of enteroscopy due to the absence of a balloon of enteroscope tip to prevent small bowel getting free. A randomized controlled trial reported that total enteroscopy rate of DBE is higher than one of SBE.⁴

Despite of lower rate of total enteroscopy, recent studies demonstrated that SBE and DBE have similar diagnostic, therapeutic yields and insertion depth in the patients with suspected small bowel diseases.^{5,6} There are two meta-analyses about diagnostic and therapeutic yields, and endoscopic performance of DBE and SBE, which also reported that both DBE and SBE have similar diagnostic and therapeutic yields.^{5,6}

In this issue of *Gut and Liver*, Kim *et al.*⁷ reported the retrospective analysis of SBE and DBE data by a single enteroscopist of a single center and meta-analysis of the efficacy and safety of SBE and DBE. From a prospective balloon-assisted enteroscopy registry, a total of 65 enteroscopic procedures in 44 patients with SBE and 73 procedures in 69 patients with DBE were included. The results of this issue reported that there were no significant differences in diagnostic yields, therapeutic yields and complication rate between DBE and SBE in their enteroscopy registry.⁷ Kim *et al.* also analyzed the meta-analysis including four small-scale randomized-controlled trials and three observational studies. This meta-analysis also demonstrated that there were no significant differences in the pooled relative risk and odds ratio for diagnostic and therapeutic yield and complication between SBE and DBE.⁷ Previous meta-analyses including four

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randomized controlled studies reported similar results to this issue.^{5,6} Meta-analysis of this issue included three large-scale of observations studies as well as four randomized controlled studies. The author suggested the large-scale of observational studies might reflect real practice of DBE and SBE.⁷

There are some limitations of this issue. This study is a retrospective study of comparison between SBE and DBE which might have some bias. The results might be dependent on which one was that the endoscopists had the experiences to overcome learning curve at the first time if the endoscopists do not have the same volume of experiences on DBE and SBE. Although there are some limitations, it seems that SBE shows similar diagnostic, therapeutic yields and complication rate to DBE. Either DBE or SBE can be used for the diagnosis or treatment of small intestinal diseases depending on the available endoscopic system in the hospital on the basis of this result. Well-designed randomized controlled trials of large sample size to compare these techniques are still needed to demonstrate the efficacy of both enteroscopy.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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