

Application of double-balloon enteroscopy for small bowel tumors

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See “Endoscopic and histological characteristics of small bowel tumors diagnosed by double-balloon enteroscopy” by Suleyman Dolu, Soner Onem, Zarni Htway, et al., Clin Endosc 2023;56:83–91.

Several tumors can develop in the small bowel. The rarity of small bowel tumors (SBTs) and their nonspecific symptoms often complicate the diagnosis of these lesions. SBTs can be classified into benign tumors, such as adenomas, leiomyomas, and lipomas, or malignant tumors such as adenocarcinomas, neuroendocrine tumors, lymphomas, gastrointestinal stromal tumors (GISTs), and sarcomas.¹ Determining the benign or malignant nature of SBTs is clinically challenging. However, double-balloon enteroscopy (DBE) is a good tool that can be used for the visualization and sampling of SBTs.²

Dolu et al.³ reported the endoscopic and histological characteristics of DBE-diagnosed SBTs. Although the endoscopic classification of SBTs into small intestinal polyps and masses has not been demonstrated, the authors defined polyps as protrusions without ulcers and masses as ulcerative or infiltrative protruding lesions, sessile lesions larger than 3 cm, and submu-

cosal lesions. They reported a retrospective analysis of 152 DBE procedures in 90 patients (12.7%) with polyps or masses in their small bowel out of 704 patients. According to their endoscopic appearance, 48 patients (53.3%) had polyps and 42 (46.7%) had masses. Fifty-three patients (58.9%) had benign SBTs, while 37 patients (41.1%) had malignant SBTs, depending on their histological characteristics. Endoscopically detected polyps were all benign, and five of the 42 endoscopically detected masses were also benign. Compared with masses, polyps were diagnosed at a younger age. Further, 73 patients (81%) were diagnosed histologically using DBE. In this study, the most common malignant SBT was GIST, and hamartomatous polyps were the most common type of polyps because the hospital where the study was conducted was a reference hospital for Peutz-Jeghers syndrome.

In other studies, the most common malignancies were adenocarcinomas, lymphomas, neuroendocrine tumors, and GISTs,⁴⁻⁷ while adenomatous polyps were the most common type of benign tumors.^{8,9} Lesions were most often found in the proximal part of the small intestine^{3,4,8}; therefore, when an asymptomatic SBT is suspected, enteroscopy from the oral route is preferred.

The greatest advantage of DBE is localization and tissue acquisition, and in approximately 70% to 80% of cases making a histological diagnosis is possible.¹ The diagnosis rate may vary depending on endoscopic classification. In patients who were endoscopically considered to have a polyp ($n=48$), the histological diagnosis was confirmed as a benign SBT using DBE in all patients (100%). However, among patients with a mass on

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endoscopy ($n=42$), the histological diagnosis was confirmed using DBE in 25 patients (59.5%).³ Polyps found in DBE are likely to be histologically diagnosed, and unnecessary surgery can be avoided. DBE was found to be less effective for the histological diagnosis of GIST among other malignant tumors.^{3,10} Many cases of GIST are diagnosed postoperatively and can be suspected by preoperative DBE.

Gastrointestinal bleeding (occult or overt) is shown to be the most frequent indication for DBE^{4,8}; however, it can also be helpful in cases of SBT or polyposis syndrome. DBE can cause significant major complications, such as intestinal perforation, pancreatitis, and aspiration pneumonia, but the incidence is lower than expected at 0.72%.¹⁰

The results of this study suggest that DBE could be a successful method for both endoscopic and histological diagnosis of SBTs. Therefore, DBE should be considered when a SBT is suspected in clinical practice or in cases of polyposis syndrome.

Conflicts of Interest

The author has no potential conflicts of interest.

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REFERENCES

1. Lee BI, Choi H, Choi KY, et al. Clinical characteristics of small bowel tumors diagnosed by double-balloon endoscopy: KASID multi-center study. *Dig Dis Sci* 2011;56:2920–2927.
2. Yamagami H, Oshitani N, Hosomi S, et al. Usefulness of double-balloon endoscopy in the diagnosis of malignant small-bowel tumors. *Clin Gastroenterol Hepatol* 2008;6:1202–1205.
3. Dolu S, Onem S, Htway Z, et al. Endoscopic and histological characteristics of small bowel tumors diagnosed by double-balloon enteroscopy. *Clin Endosc* 2023;56:83–91.
4. Chen WG, Shan GD, Zhang H, et al. Double-balloon enteroscopy in small bowel tumors: a Chinese single-center study. *World J Gastroenterol* 2013;19:3665–3671.
5. Cangemi DJ, Patel MK, Gomez V, et al. Small bowel tumors discovered during double-balloon enteroscopy: analysis of a large prospectively collected single-center database. *J Clin Gastroenterol* 2013;47:769–772.
6. Mitsui K, Tanaka S, Yamamoto H, et al. Role of double-balloon endoscopy in the diagnosis of small-bowel tumors: the first Japanese multicenter study. *Gastrointest Endosc* 2009;70:498–504.
7. Robles EP, Delgado PE, Conesa PB, et al. Role of double-balloon enteroscopy in malignant small bowel tumors. *World J Gastrointest Endosc* 2015;7:652–658.
8. Zhang C, Hong L, Zhang T, et al. Clinical characteristics of small bowel tumors diagnosed by double-balloon endoscopy: Experience from a Chinese tertiary hospital. *Turk J Gastroenterol* 2020;31:30–35.
9. Fry LC, Neumann H, Kuester D, et al. Small bowel polyps and tumours: endoscopic detection and treatment by double-balloon enteroscopy. *Aliment Pharmacol Ther* 2009;29:135–142.
10. Xin L, Liao Z, Jiang YP, et al. Indications, detectability, positive findings, total enteroscopy, and complications of diagnostic double-balloon endoscopy: a systematic review of data over the first decade of use. *Gastrointest Endosc* 2011;74:563–570.