

CASE REPORT

## 식도절제술 및 대장치환술 후 발생한 양성협착과 대장종양의 성공적인 동시치료: 증례보고

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### Successful Simultaneous Treatment of Benign Stricture and Colonic Neoplasm Arising from Colonic Interposition after Esophagectomy: A Case Report

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Colonic interposition is the main procedure used in esophageal reconstruction. We report a rare case of simultaneous treatment of an anastomotic site stricture and a neoplasm in the interpositioned colon. A 69-year-old female visited our outpatient clinic with symptoms of progressive dysphagia for 1 year. At the age of 30 years, the patient underwent esophagectomy with retrosternal colonic interposition because of severe esophageal burns after chemical ingestion. Upper gastrointestinal endoscopy revealed stricture at the anastomosis site and a 10-mm flat elevated high-grade dysplasia in the interpositioned colon. First, through-the-scope balloon dilatation was performed for strictures. However, stenosis was observed during the second upper gastrointestinal endoscopy session. Therefore, a second session of through-the-scope balloon dilatation was performed, and simultaneously, endoscopic submucosal dissection was also successfully performed. After 2 months of follow-up, stenosis persisted; consequently, balloon dilatation was performed. No recurrence of neoplasm was confirmed endoscopically. Through-the-scope balloon dilatation of the stricture site and simultaneous endoscopic submucosal dissection of the neoplasm in the interpositioned colon were successfully performed. (Korean J Gastroenterol 2023;82:140-144)

**Key Words:** Colonic neoplasms; Dilatation; Endoscopy; Esophageal stenosis; Stricture

## INTRODUCTION

Colonic interposition can be used for esophageal reconstruction after esophagectomy for esophageal cancer or corrosive injuries. Neoplasms can develop in colonic interposition grafts, although such cases are rare.<sup>1</sup> To date, this

has less than 10 case reports.<sup>2</sup> Moreover, only one case report on endoscopic submucosal dissection (ESD) treatment in interpositioned colon has been published; all others were on surgical treatment. The incidence of stenosis, as a late complication of colonic interposition, is approximately 12.8%.<sup>3</sup> The general treatment for benign esophageal stricture is through-the-scope

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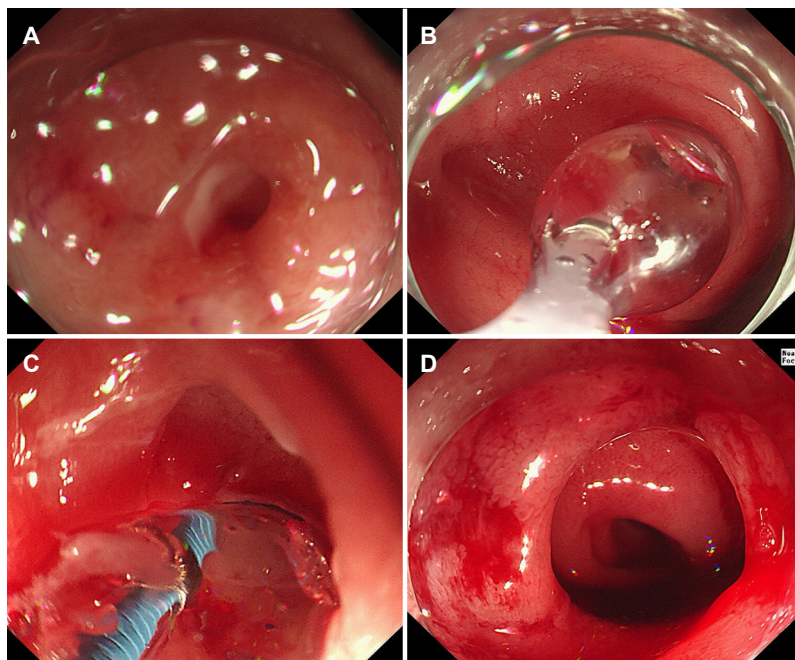
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(TTS) balloon dilatation, which has a success rate of 80–90%.<sup>4</sup> However, the recurrence rate of esophageal stricture is as high as 33%.<sup>5</sup> To date, no cases on the co-occurrence of post-operative stricture and colonic neoplasms have been reported. Herein, we report a rare case of high-grade dysplasia and stricture treated with colonic interposition that developed 40 years after esophageal reconstruction. We successfully performed simultaneous TTS balloon dilatation and ESD in the interpositioned colon.

## CASE REPORT

A 69-year-old female who had undergone esophagectomy 40 years previously was admitted to our outpatient clinic with symptoms of progressive dysphagia for 1 year. The patient had undergone esophagectomy with retrosternal colonic interposition for severe esophageal burns 40 years ago due to chemical ingestion. Another underlying disease was chronic hepatitis B, which was treated with tenofovir. The patient's symptoms started gradually 1 year prior, and intake of solid food and liquid became difficult 6 and 1 months prior, respectively. Dietary intake was not possible one week prior to hospital admission. Subsequently, upper gastrointestinal

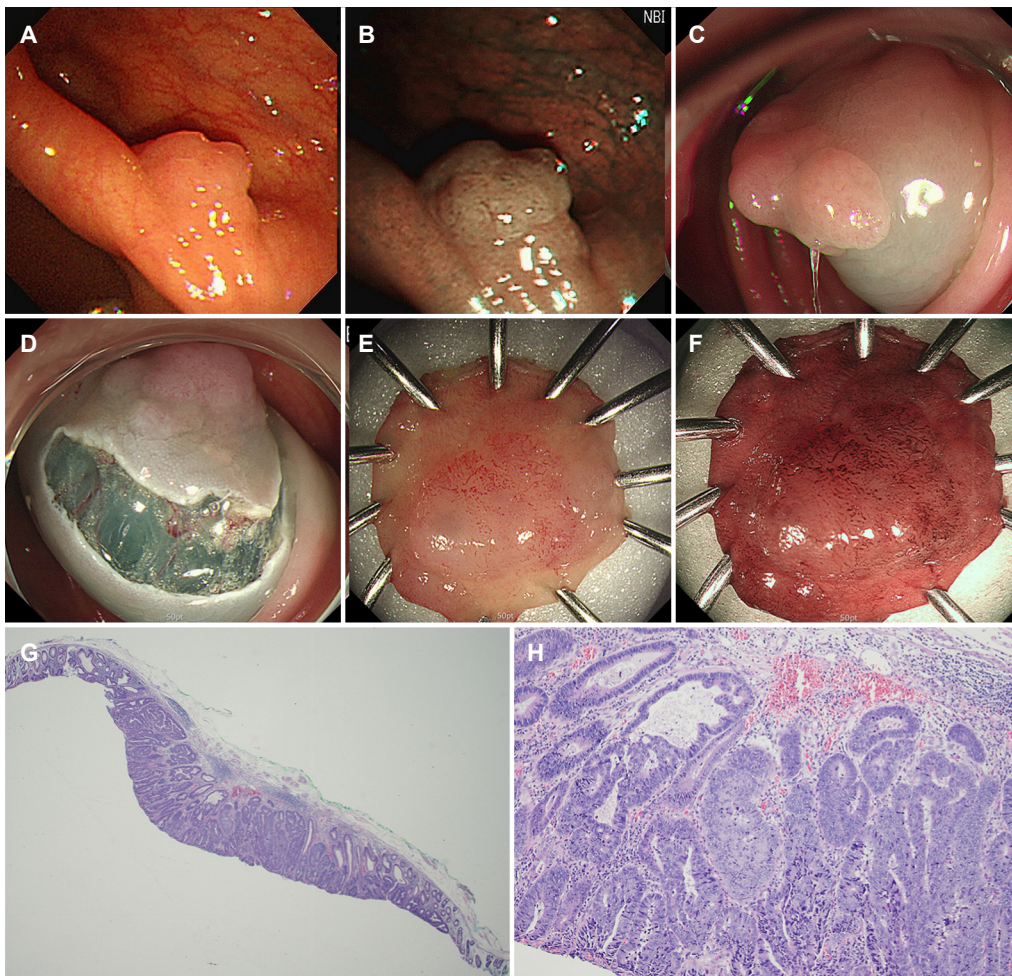
endoscopy at a local hospital was nearly impossible because of luminal narrowing. Fig. 1A presents the reference images from the local hospital's endoscopic findings. Imaging revealed severe narrowing and strictures that prevented the insertion of endoscopic instruments. Therefore, we decided to perform a biopsy via nasopharyngoscopy to access the stricture site. The stricture site was approximately 18–23 cm from the upper incisor, which is the proximal anastomotic site. Luminal narrowing close to total obstruction was observed (Fig. 1A). Additionally, a 10×10-mm nodular lesion was observed 33 cm from the upper incisor (Fig. 2A, B). We performed biopsies of the stricture site and nodular lesions. Laboratory tests revealed normal levels of white blood cells (6,200/ $\mu$ L [3,300–8,600/ $\mu$ L]), C-reactive protein (0.22 mg/dL [0.00–0.3 mg/dL]), aspartate transaminase (26 U/L [13–30 U/L]), alanine transaminase (14 U/L [7–23 U/L]), and total bilirubin (0.71 mg/dL [0.4–1.5 mg/dL]). The patient's vital signs were stable. Jaundice or palpable masses were not observed. Overall, no specific results were noted. Information regarding the patient's family history was not available. Biopsies of the luminal narrowing and nodular lesion sites revealed a benign stricture and high-grade adenoma, respectively. Initially, to widen the stenotic area, we performed



**Fig. 1.** The first through-the-scope (TTS) balloon dilatation to treat the stenosis. (A) An approximately 18–23 cm site from the upper incisor, which is the proximal anastomotic site, demonstrating luminal narrowing with near total obstruction. (B–D) Treatment with the first TTS balloon dilatation.

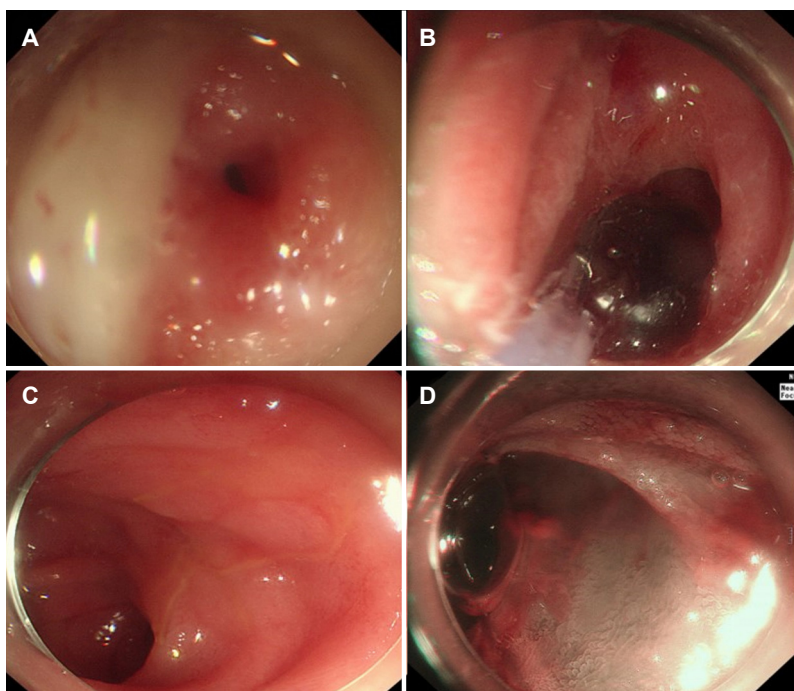
TTS balloon dilatation at diameter of 9-mm for 60 sec and 10-mm for 60 sec (Fig. 1B–D). Immediately after the procedure, the stricture site was accessed by general endoscopy. The patient was discharged without acute complications. Three weeks later, we attempted to insert a duodenoscope for ESD; however, this was not possible because of restenosis of the stricture site. Therefore, we simultaneously performed TTS balloon dilatation and ESD. Preferentially, we again performed 10-mm and 11-mm TTS balloon dilatations (each for 60 sec). Subsequently, passage of the general endoscope was possible. Thus, restenosis may have occurred 3 weeks after the first TTS balloon dilatation. Bleeding and pain were not severe after balloon dilatation, and the procedure was performed within 10 min because the nodular lesions were small. However, because of the high-grade dysplasia, which may

progress to advanced lesions, we performed ESD simultaneously (Fig. 2C, D). ESD was successfully performed without complications (Fig. 2E, F). For ESD, we used only the upper endoscope; an ESD knife (dual knife; Olympus, Tokyo, Japan) and an injector were used for the colon-ESD procedure (Olympus device). Fibrosis was not observed during the procedure and no massive bleeding occurred, allowing ESD to be performed in 10 min. The final histological analysis of the ESD tissue revealed high-grade dysplasia (Fig. 2G, H). The patient was discharged after 2 days without any acute complications. Follow-up duodenoscopy was scheduled after a month. The patient resumed eating regular meals. However, during follow-up endoscopy, we confirmed that the stenosis had recurred. Consequently, a third TTS balloon dilatation with 10-mm, 11-mm, and 12-mm diameter (each for 60 sec) was



**Fig. 2.** Feature of the detected nodular lesion, treated by endoscopic submucosal dissection (ESD), and pathological examination results. (A, B) An approximately 10-mm nodular lesion was observed at 33 cm from the upper incisor position. (C, D) Performance of ESD. (E, F) Resected tissue. (G, H) Histologic examination of the resected lesion revealed a high-grade dysplasia with R0 resection (hematoxylin and eosin staining; magnification,  $\times 20$  and  $\times 100$ , respectively).





**Fig. 3.** Through-the-scope (TTS) balloon dilatation was repeated due to re-stenosis, and endoscopic submucosal dissection (ESD) of the site was checked. (A) Follow-up endoscopy that confirmed recurrence of the stenosis. (B) A third TTS balloon dilatation was performed. (C, D) ESD scar lesion was checked. No evidence of recurrence was observed endoscopically.

additionally performed, and the scar lesion from the ESD was checked. No evidence of recurrence was observed on endoscopy (Fig. 3).

## DISCUSSION

Colonic interposition is a surgical method performed when esophageal malignancy or chemical burns make esophageal removal difficult.<sup>6</sup> Late complications may include dysphagia, stricture/stenosis, reflux, fistula, dumping syndrome, and even death. Stricture or stenosis is the third most common complication after dysphagia and reflux.<sup>7</sup> To date, the occurrence of neoplasms is a very rare complication reported in the literature.<sup>8</sup> Furthermore, incidentally identifying both stricture and colonic neoplasm synchronously is infrequent. The incidence of neoplasms in interpositioned colons has rarely been reported, making them difficult to confirm. The mechanism of malignancy in the general environment of the colon tissue and the process of malignancy in interpositioned colons may differ slightly. It is an environment in which the pH is lowered owing to exposure to gastric acid, and exposure to raw food is expected to have some effect on the occurrence of malignancy in colonic tissues; however, few studies have

been conducted on this.

We share our experience of simultaneously performing TTS balloon dilatation and ESD. We initially planned to resolve the stenosis first and then remove the neoplasm through ESD; however, after TTS balloon dilatation, the stenosis recurred, prompting us to perform the two procedures simultaneously. Subsequently, the restenosis persisted, and access to the previous ESD site was not possible without TTS balloon dilatation. The European Society of Gastrointestinal Endoscopy guidelines recommend hot snare polypectomy with or without submucosal injection for 10–19 mm sized sessile colorectal polyps without submucosal invasion.<sup>9</sup> Korean guidelines do not classify polyps according to size, and recommend ESD for resectable early colorectal cancer for which en bloc resection may be difficult by endoscopic mucosal resection.<sup>10</sup> In this case, histologic examination revealed high-grade dysplasia; however, there was a possibility of histologic upgrade to early colorectal cancer, and en bloc resection with endoscopic mucosal resection seemed difficult, so we chose ESD as an endoscopic treatment method. If en bloc resection is possible for a 10–19 mm sized colorectal polyp, endoscopic mucosal resection could be a good alternative. In the case of restenosis of the interpositioned colon, TTS dilatation has been recom-

mended as the first choice, and if it continues to recur, incisional therapy with injection or stent insertion should be considered.<sup>5</sup> However, no well-designed studies recommend incision and balloon dilatation as effective treatments. If the stenosis does not resolve, and ESD is not possible, surgery should be performed. However, surgery is accompanied by general anesthesia and is difficult to perform in the older adults or in patients with many underlying diseases. As reports on simultaneous TTS and ESD are rare, it remains unclear whether it is possible to manage bleeding or perforation risk. In this case, the patient was old, did not experience significant bleeding during the first TTS, and did not have any coagulopathy-related diseases. Thus, simultaneously performing TTS and ESD was possible for small-sized neoplasms. Hence, the simultaneous procedure was successfully completed without bleeding or perforation. Although experience in performing such a simultaneous procedure is limited, it can be considered if the lesion is not in the advanced stage of cancer and endoscopic treatment is possible. Thus, performing TTS and ESD simultaneously may be a suitable alternative in cases of stenosis in the entrance route and malignancy behind it. Despite limited experience with simultaneous TTS balloon expansion and ESD, this procedure may be an option for cases of stenosis with synchronous neoplasms.

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