Endoscopic Incision with Esophageal Stenting Helped to Remove a Gastrostomy Tube in a Patient with Refractory Stricture

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Abstract

Most cases of esophageal benign stricture can be successfully managed with dilation; however, refractory stricture is often unresponsive to repeated dilation. Endoscopic incision is a novel technique for treating refractory esophageal stricture, although recurrence is noted in patients with stricture measuring greater than 1.5 cm, thus requiring the use of repeated incisions and/or preventive dilation. We herein report a case of refractory esophageal stricture treated with an endoscopic incision and esophageal stenting, which successfully allowed the gastrostomy tube to be removed.

Key words: esophageal stricture, gastrointestinal endoscopic surgical procedures, stent, gastrostomy

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Introduction

Dilation has been proven to be both safe and effective as a first-line therapy for esophageal stricture, whereas surgical resection is indicated in cases of established refractory stricture (1). However, extensive injury and postoperative restenosis often ensue. Esophageal stent placement is an alternative method, although the rate of migration is high and the long-term efficacy remains unsatisfactory (2, 3). Recently, a few studies of the use of endoscopic incision for refractory esophageal stricture have shown exciting results. However, repeated incisions and/or preventive dilations are required in patients with long-segment stricture (4-6). We herein report a case of refractory esophageal stricture treated with endoscopic incision and esophageal stenting at our hospital.

A 58-year-old woman visited our hospital with a four-year history of vomiting and dysphagia. She had received a previous diagnosis of esophageal stricture and undergone balloon dilation three times. However, recurrence was noted within one month after each procedure, and gastrostomy was subsequently performed to relieve the patient’s symptoms (Fig. 1a). A diagnosis of malignant stricture was excluded based on the findings of endoscopic ultrasound (UM-2R, 12 MHz; UM-3R, 20 MHz, Olympus, Tokyo, Japan), computerized tomography and a histological examination. The dysphagia score (7) was 4.

The patient provided her informed consent, and the procedure proceeded under conscious sedation with diazepam (10 mg) with the patient in the left lateral position. An incision was created under direct visualization using a single-accessory channel endoscope (GIF-Q260; Olympus) with a transparent cap (D201-11804; Olympus) attached to the front. The site of stricture was located at 30 cm from the incisors (Fig. 2a). Radial incisions were consequently made using the insulation-tip (IT) knife (KD611 L,IT2, Olympus) along a virtual line connecting the esophageal lumen on the anal side and the lumen on the oral side of the area of stricture (Fig. 2b-d). The electrosurgical unit was set in Endo Cut mode (effect 2, 50-60 W, ICC 200; ERBE Elektromedizin, Tübingen, Germany). A sufficient depth was defined as involving the muscularis propria and/or the presence of the bottom of the incision along the virtual line, and the entire region of stricture site between the adjacent incisions was removed (Fig. 2e). After the procedure, the wound surface of the stricture site was closely observed for hemorrhage or perforation, and a fully covered retrievable metal...
Figure 1.  a: Endoscopic view of the gastrostomy tube. b: Removal of the gastrostomy tube

Figure 2.  a: Preoperative stricture. b-d: Radial endoscopic incision. e: Dilated esophageal lumen after incision. f: Fully-covered stent after incision

stent (Delman Technology, Jinan, China) was placed (Fig. 2f). The whole procedure was completed uneventfully within approximately 30 minutes. No migration was noted until stent removal at Week 8 after implantation. Consequently, a sustained improvement in symptoms was obtained, and the gastrostomy tube was removed one month after the surgery (Fig. 1b). The diameter increased obviously during the three-month follow-up period (Fig. 3), and the dysphagia score was 1.

Discussion

Most cases of esophageal stricture can be managed successfully with dilation. However, refractory stricture that does not respond to repeated dilations is difficult to manage. Affected patients often suffer from recurrent dysphagia and vomiting, which severely impair their quality of life and ability to consume an adequate amount of food.

Endoscopic incision is a novel technique for treating refractory esophageal stricture and has shown exciting results (4-6). However, recurrence has been reported in patients with long-segment stricture measuring 1.5 to 5.0 cm, requiring a mean of three treatments (4). In Muto’s study, preventive dilation was performed repeatedly to maintain patency, for a median number of four sessions (6). In the present case, several previous attempts of dilation failed to
obtain a sustained symptomatic improvement, and gastrostomy was performed to relieve the patient’s symptoms prior to her visit to our hospital. Upon admission, the area of stricture measured 1.5 cm and was successfully managed with IT-knife incision and stenting, with a sustained symptomatic improvement over the three-month follow-up period. In contrast to the procedure reported by Muto et al., we employed stenting rather than dilation to prevent restenosis. Stenting is superior to dilation for the following three reasons. First, dilation generates such a large amount of pressure within a short period of time, potentially tearing the scar and inducing perforation and restenosis. In contrast, stenting provides continuous, radially oriented dilation pressures over a longer period of time (3), thus being conducive for scar remodeling and lowering the risks of perforation and restenosis. Second, fully covered stents can be used to protect the incision wound surface from gastric acid erosion, possibly reducing the incidence of recurrence. Third, dilation is recommended once a week after incision, for an average of four episodes. However, stenting may be retained for up to four to six weeks, thereby reducing the frequency of invasive surgery as well as the risk of operation-related complications and the burdens on economic and healthcare resources.

In conclusion, the use of endoscopic incision with esophageal stenting is feasible, safe and effective for treating refractory esophageal stricture, allowing the gastrostomy tube to be successfully removed in the present case. Large comparative studies are warranted to further confirm our findings.

The authors state that they have no Conflict of Interest (COI).

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