Endostitch-Assisted Endoscopic Zenker’s Diverticulostomy: A tried approach for difficult cases
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INTRODUCTION

Endoscopic approaches for the repair of Zenker’s diverticulum have been around since the early 1900s. Since first described by Mosher in 1917, many surgeons have tried modifying the original technique with the goals of improving functional results, minimizing hospital stay, and decreasing post-operative complications. The endoscopic staple technique, first described by Collard in 1993, accomplishes these goals when compared to the open surgical procedure. Although the endoscopic approach is often considered the treatment of choice, in some cases this method is limited by anatomical variations that reduce visualization or diverticular sacs that are especially large or small. The ability to get proper visualization and adequate purchase of the party wall is often the rate-limiting step in performing an adequate endoscopic staple-assisted procedure.

METHODS AND MATERIALS

This is a retrospective study of seven patients who underwent endostitch-assisted endoscopic Zenker’s diverticulostomy for dysphagia at an urban tertiary care center. Patient records were retrospectively reviewed; including pre- and postoperative swallowing status, radiographic findings, operative findings, and follow up results. Results: Seven patients were reviewed, each of whom had successful endoscopic treatment of ZD. Notably, in each case an anatomical factor precluded the sealing of the GIA stapler on the party wall without the use of endoscopic retention sutures. The majority of the patients were discharged on postoperative day one. All but one patient noted a marked improvement in swallowing function immediately following the procedure and at their outpatient follow-up visit. Conclusion: Endoscopic Zenker’s diverticulostomy has been well described and established as a reliable technique in a majority of cases. We report on our experience using a previously described technique specifically for difficult, unfavorable, or contraindicated cases and suggest the employment of this technique as an alternative method to facilitate endoscopic repair and possibly limit the need for an open approach.

RESULTS

Seven patients were reviewed, ranging in age from 61 to 92, with a mean of 76. All seven patients presented with varying degrees of dysphagia, including near total intolerance to solids (n=3), dysphagia to solids with regurgitation (n=2), and dysphagia to liquids (n=2). Two of the patients noted significant, unintentional weight loss, ranging from 5 to 50 pounds. Six of the patients were discharged on a soft diet, while one had PEG tube placement after an extended hospital course complicated by aspiration pneumonia. Of the six patients that were discharged on a soft diet, all six progressed to a normal diet by the time of their follow up appointment, which ranged from one to five weeks later.

Five of the patients had their surgery scheduled electively, while two of the patients were a result of inpatient consultation. Of the two inpatients, one presented to the hospital due to progressive dysphagia, while the other presented for a ruptured globe. The length of hospital stay ranged from 1 to 21 days, with an average of 5 days (+/- 8.9). In the case of the patient who remained hospitalized for 6 days after surgery, the reasons for continued admission were related to her initial reason for admission (syncope/ruptured globe) and unrelated to her Zenker’s diverticulum (Table 1). All of the patients had uncomplicated surgeries. The patients displayed a wide variety of anatomical variations that necessitated the use of the endo-suture for traction during the surgery (Table 1).

DISCUSSION

Although the endoscopic approach is widely considered first-line surgical treatment, there are factors that may limit the effectiveness of the endoscopic procedure. Anatomical variations within the patient’s upper aerodigestive, neck, or characteristics of the diverticulum, itself, may make exposure of the party wall or adequate purchase with the stapler difficult. Some of these unfavorable features include an inability to open the mouth wide, retrognathia, inability to extend the neck in patients with kyphosis, or in patients with a very large (>10cm) or very small sac (<3cm). With such anatomy or smaller pouches who may otherwise be relegated to a tertiary care center. Patient records were retrospectively reviewed, each of whom had successful endoscopic treatment of ZD. Notably, in each case an anatomical factor precluded the sealing of the GIA stapler on the party wall without the use of endoscopic retention sutures. The variables reviewed were age of patient, gender of patient, pre-operative diet, post-operative diet, size of Zenker’s pouch, operative complications, anatomic variations, length of hospital stay, presenting symptom, whether the procedure was elective, distance of sac from lip, and postoperative complications.

After exposure with the Weerda bivalved diverticuloscope, the AutosutureTM EndostitchTM device (US Surgical, Norwalk CT) was used to place traction sutures in the party wall and used to tent up the mucosa with 0-2 silk suture (Figures 1, 2). Using the sutures to proach proximal traction of the party wall, an endoscopic GIA stapler (US Surgical, Norwalk CT) was used to perform a chirophyragyomyotomy, creating a common cavity between the sac and esophageal lumen.

CONCLUSIONS

Endoscopic staple-assisted Zenker’s esophagodiverticulostomy (ESED) has been well described and established as a reliable technique in a majority of cases. Conversion rates to this procedure from an open one has ranged from 3-30%. Certain anatomical factors such as a long neck, retrognathia, cervical kyphosis or osteophytes, prominent anterior teeth and small or shallow Zenker’s pouches have precluded the use of an endoscopic approach in some cases. We report on our experience using the previously described technique of endosuture assisted endoscopic Zenker’s diverticulostomy. We suggest that it may have particular benefit in difficult, unfavorable, or contraindicated cases and suggest the employment of this technique as an alternative method to facilitate endoscopic repair and possibly limit the need for an open approach.

REFERENCES