ORIGINAL ARTICLE

Enhanced suction for removal of esophageal food impaction

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Food impaction is a common endoscopic emergency that requires prompt removal of the impacted food bolus to avoid esophageal and extra-esophageal adverse events.[1] Conventional methods of removing impacted food boluses with devices such as polypectomy snares, rat-tooth forceps, alligator forceps, or polyp graspers are less effective and are time-consuming when used for a tightly impacted food bolus that easily becomes fragmented when removal is attempted.[2-4] In such patients, increased procedural time puts them at risk of adverse events such as aspiration, prolonged intubation, perforation, and readmission.[1]

We present an enhanced suction method for removing esophageal food impaction that is less time-consuming and very effective in removing a tightly impacted food bolus made of easily fragmentable particles (Video 1, available online at www.videogie.org). A similar technique was previously described by Sobani et al[3] for significant upper GI bleeding and Tanaka et al[5] for retained food debris in achalasia patients.

An 86-year-old woman with a history of dementia was transferred from an outside facility after unsuccessful attempts at endoscopic clearance of esophageal food impaction. An upper endoscopy was performed with the patient under general anesthesia, and a large amount of food mostly made up of small- to medium-sized particles was seen in the esophagus starting at the upper esophagus (Fig. 1). For this procedure, a gastroscope (GIF-H190; Olympus, Center Valley, Pa, USA), an esophageal overtube (Guardus Overtube; Steris, Mentor, Ohio, USA), a gastric overtube (Guardus Overtube; Steris) and a suction tube (Presource Kit canister 1200cc; Cardinal Health, Dublin, Ohio, USA) were used.

The patient was intubated for the procedure, which was performed with the patient under general anesthesia. On evaluation with a regular endoscope, we found food particles occupying the entire length of the esophagus from the proximal to the distal esophagus. Most of the food material was made up of small- to medium-sized particles that can be very difficult to remove endoscopically. Using a pair

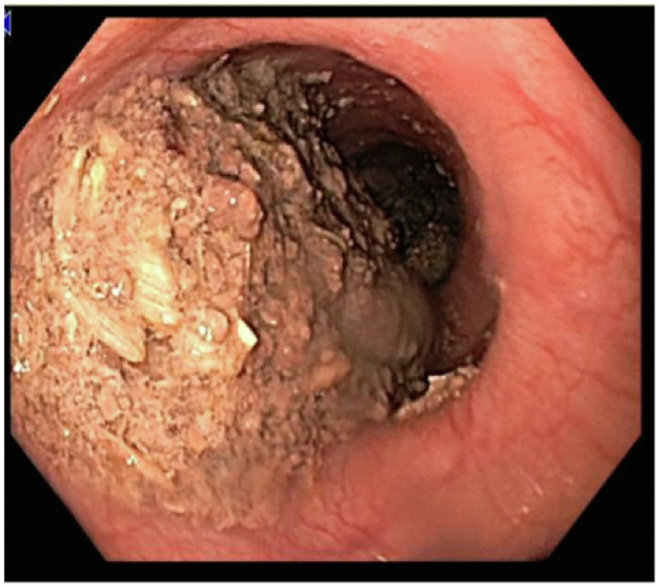

Figure 1. Impacted food bolus.

Figure 2. Modified device made up of suction tube taped to the endoscope.

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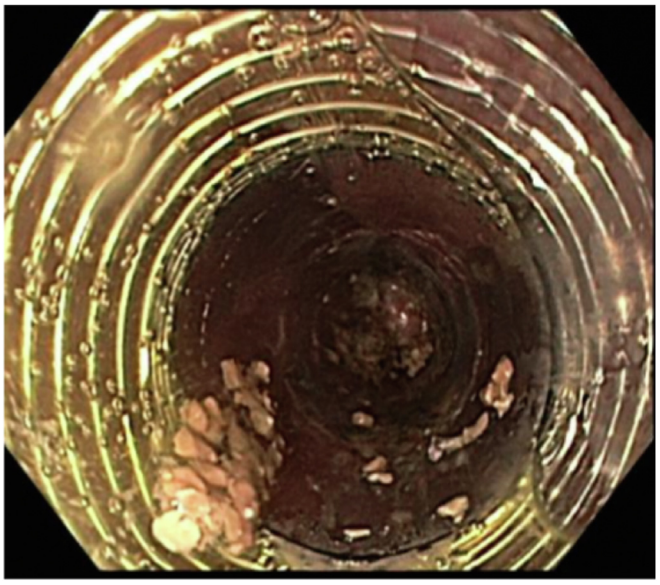

Figure 3. Gastric overtube in the esophagus.

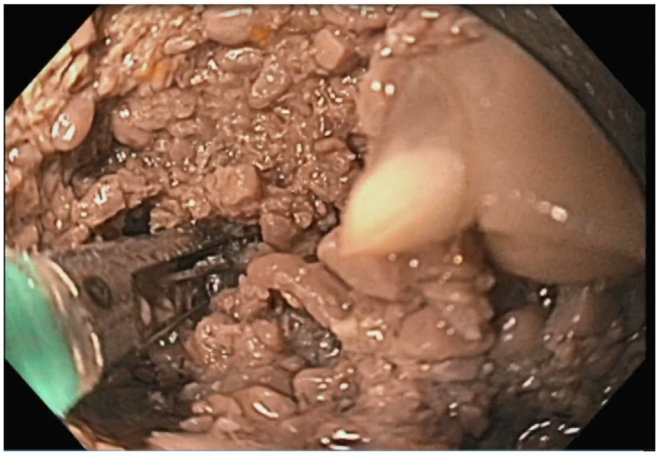

Figure 4. Rat-tooth forceps to break down impacted food bolus.

of scissors, we cut off the connector of the suction tube that has an inner diameter of 5 mm, making sure that the cut end was smooth with no sharp edges. We then attached the suction tube to the endoscope using half-inch Hy-Tape pink tape (Hy-Tape International, Patterson, NY). The suction tubing can be attached to the endoscope at 3 to 4 points starting at the distal tip followed by 2 to 3 points, 5 to 10 cm apart (Fig. 2). The suction catheter has an area approximately 218% larger than a conventional gastroscope and 83% larger than a therapeutic gastroscope. Lubricant gel was then used to pass the device through the overtube into the esophagus (Fig. 3). After passing the device through the esophageal overtube, the proximal part of the food bolus was cleared by continuous copious irrigation and suction using the suction tube. We then switched from the esophageal overtube to a gastric overtube to access the distal portion of the food bolus, which contained impacted debris that could not be cleared by irrigation and suction. Rat-tooth forceps were used to break the impacted food into smaller pieces, which could then be suctioned through the suction tube (Fig. 4). After clearing all the food particles, the overtube was removed and we then switched to the regular endoscope to complete the evaluation. We did not find any mucosal injuries or strictures that raised suspicion of a motility disorder (Fig. 5).

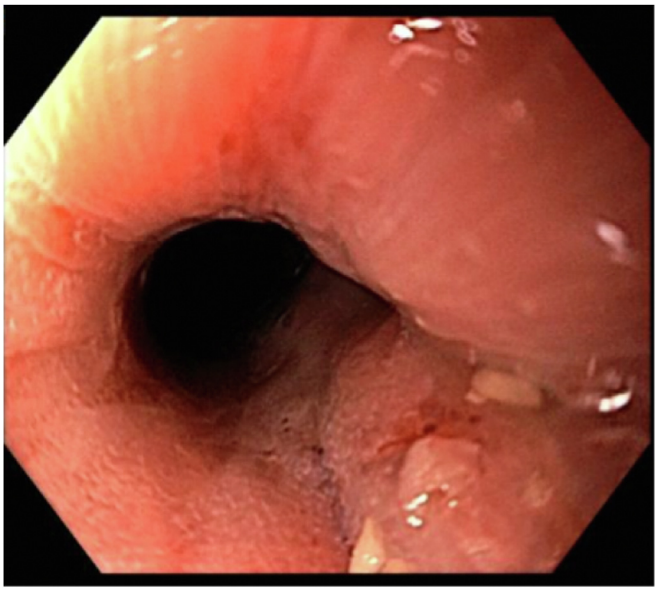

Figure 5. Esophageal lumen after food bolus clearance.

In summary, we present an enhanced method for removing esophageal food impaction using an endoscope taped to a suction tube. This provides a safe and effective way to remove certain food impactions largely composed of small- to medium-sized particles.

Potential limitations for using this technique include equipment availability, general anesthesia availability, and the fact that this procedure might not work for larger impactions. Safety concerns to consider include the possibility of mucosal injury related to direct suction, and aspiration if endotracheal intubation is not used.

DISCLOSURE

Dr Holzwanger is a consultant for Virgo. Dr Gabr is a consultant for Medtronic, ConMed, Olympus, Boston Scientific, Fuji, and Adaptiv Endo. Dr Berzin is a consultant for Boston Scientific, Medtronic, and Fuji. Dr Pleskow is a consultant for Boston Scientific, Medtronic, Olympus, and Fuji. The other authors did not disclose any financial relationships.

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