



## Gastroesophageal Surgery Case Scenario

### A 45-Year-Old Man with Zenker's Diverticulum

CHRISTOPHER MORSE, MD  
*Massachusetts General Hospital*

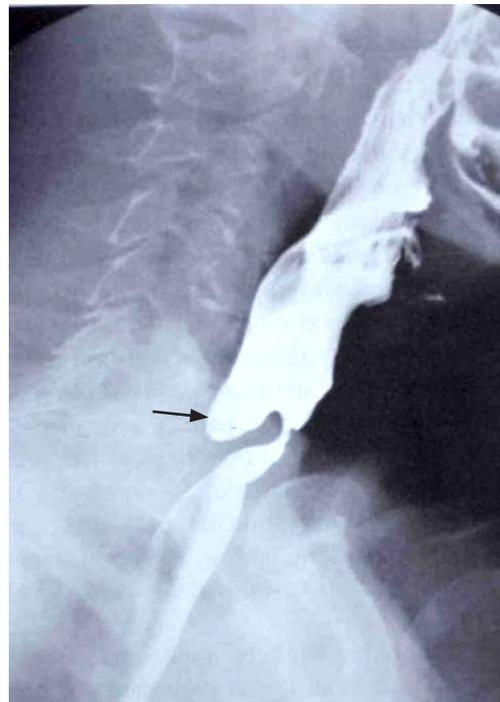
#### PRESENTATION OF CASE

A 45-year-old man with minimal past medical history began to have difficulty swallowing with the sensation of food getting stuck in his throat. Symptoms were evident with solid food, and he would often unpredictably regurgitate undigested food. This was particularly difficult in social and professional situations. He took anti-reflux medication for heartburn and often felt these pills got stuck in his throat. He also noted increasing episodes of halitosis/bad breath and frequently woke in the middle of the night with a coughing fit.

He was seen by his primary care physician who ordered a barium swallow revealing a cervical esophageal diverticulum, commonly known as a Zenker's diverticulum. He was seen by a surgeon at Massachusetts General Hospital and found to be a candidate for a transoral approach to his Zenker's diverticulum, which avoids the need for a neck incision. Following the 45-minute minimally invasive procedure at Mass General, he was kept in the hospital overnight and started on an advancing diet. He was discharged home the day after surgery. He returned several weeks later tolerating solid food, with resolution of his halitosis and no episodes of regurgitation.

#### DISCUSSION OF MANAGEMENT

Zenker's diverticulum is an "outpouching" that occurs in a typical location in the cervical esophagus. Symptoms secondary to a cervical



**FIGURE 1.** A typical barium swallow demonstrating a cervical (Zenker's) diverticulum. Arrow points to the diverticulum extending from the esophagus.

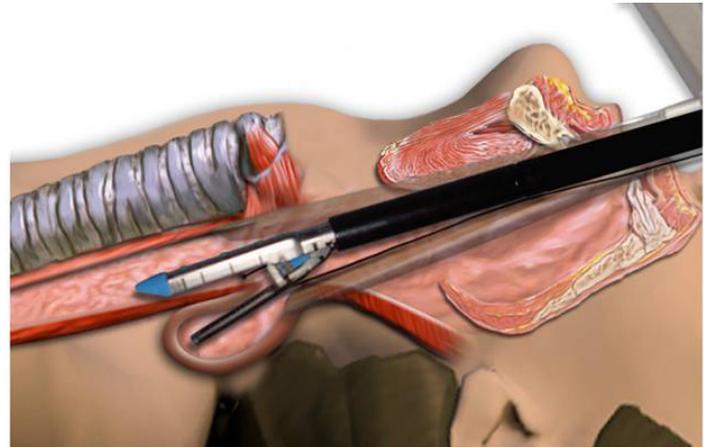
esophageal diverticulum include regurgitation of undigested food, halitosis and nocturnal coughing and/or regurgitation. More worrisome complications of a Zenker's diverticulum include aspiration pneumonia, which is more prevalent in the elderly. The work-up includes a barium swallow that will indicate the size of the diverticulum (Figure 1). An endoscopy to evaluate the rest of the esophagus is often performed at the time of a surgical repair.



Key components of a Zenker's repair include addressing the diverticulum ("the pouch") and splitting the muscle below the diverticulum thought to be the cause. Surgical repair has traditionally been performed through a small left neck incision with resection of the diverticulum and division of the cricopharyngeus muscle, which contributes to the formation of the diverticulum.

Recently there has been the development of a transoral approach, which involves passing a stapling instrument through the mouth to divide the common wall between the Zenker's diverticulum and the esophagus, opening the diverticulum and splitting the muscle<sup>1</sup> (Figure 2). This was the technique used for the patient described above. Limitations in the use of a transoral approach include restricted mouth opening and a small diverticulum, which does not allow for complete cricopharyngeal muscle division. If the diverticulum is too small and the muscle remains intact, there is a high opportunity for recurrence. Studies have shown the diverticulum needs to be 2.5-3 cm in size for a transoral approach.

Recent literature, including some published by Mass General surgeons, reveals a significantly shorter operative time with a transoral approach, a trend toward shorter hospital length of stay and the avoidance of a neck incision, which may result in less pain. The functional outcome in terms of relief from difficulty swallowing is similar between both transoral and open techniques<sup>3,4</sup>. Although not appropriate for all patients, a transoral approach increases therapeutic options in the primary repair of a Zenker's diverticulum, and is particularly helpful in reoperative surgery and those with a previous neck incision/operation.



**FIGURE 2.** Transoral stapling of a Zenker's diverticulum. Half of the stapling instrument extends into the diverticulum and half into the esophagus, dividing the "common wall" between them<sup>2</sup>.

## REFERENCES

1. Morse CR, Fernando HC, Ferson PF, Landreneau RJ, Luketich JD. Preliminary experience by a thoracic service with endoscopic transoral stapling of cervical (Zenker's) diverticulum. *J Gastrointest Surg* 2007;11(9):1091-4
2. With kind permission from Springer Science+Business Media: *J Gastrointest Surg*, Preliminary experience by a thoracic service with endoscopic transoral stapling of cervical (Zenker's) diverticulum, 11(9), 2007, 1092, Morse CR, Fernando HC, Ferson PF, Landreneau RJ, Luketich JD, figure 3
3. Chang CY, Payyapilli RJ, Scher RL. Endoscopic staple diverticulostomy for Zenker's diverticulum: review of literature and experience in 159 consecutive cases. *Laryngoscope* 2003;113(6):957-65
4. Bonavina L, Aiolfi A, Scolari F, Bona D, Lovece A, Asti E. Long-term outcome and quality of life after transoral stapling for Zenker diverticulum. *World J Gastroenterol* 2015;21(4):1167-72