

Ulcer in the Basis of Zenker's Diverticulum Mimicking Esophageal Malignancy

Bülent Ödemis, MD; Hilmi Ataseven, MD; Ömer Basar, MD; Ibrahim Ertugrul, MD; Osman Yüksel, MD; and Nesrin Turhan, MD

Ankara, Turkey

Complications of Zenker's diverticulum are rare and include ulcer, bleeding and malignancy. Ulcer in the basis of diverticulum is a very rare complication and to date only four cases have been reported in the literature. Herein, we report a new case of ulcer in Zenker's diverticulum mimicking esophageal malignancy presumed to be due to aspirin and/or alcohol consumption. The exact diagnosis was troublesome and needed to perform diagnostic procedures repeatedly. The patient underwent external pharyngoesophageal diverticulectomy. We emphasize that endoscope should be withdrawn if any resistance is encountered during esophageal intubation—even with forward-viewing endoscope—especially when there is a Zenker's diverticulum suspicion and the patient receives ulcerogenic agents. Endoscopic examination should be performed prior to any definitive surgical procedure in all patients with Zenker's diverticulum.

Key words: Zenker's diverticulum ■ ulcer ■ esophageal malignancy

© 2006. From the Departments of Gastroenterology (Ödemis, Ataseven, Basar, Ertugrul) and Pathology (Turhan), Türkiye Yüksek İhtisas Hospital; and Department of Gastroenterology, Ankara Numune Hospital (Yüksel), Ankara, Turkey. Send correspondence and reprint requests for *J Natl Med Assoc.* 2006;98:1177-1180 to: Dr. Ömer Basar, Tepebaşı Mahallesi, Fatih caddesi, No: 181 / 12, 06290, Keçiören, Ankara, Turkey; phone: +90 312 3808161; fax: +90 312 3124120; e-mail: basaromer@hotmail.com

INTRODUCTION

The first case of posterior pharyngoesophageal diverticulum was published in 1769 by Ludlow,¹ and Zenker's name was attributed to it after his description of a serial in 1878.² Zenker's diverticulum is the most common diverticulum of the esophagus—a pouch protruding to posterior above the upper esophageal sphincter.³ The etiology and pathogenesis are not well understood. It usually occurs in elderly patients, and the typical symptoms are dysphagia, regurgitation, chronic cough, aspiration and weight loss. The duration of symptoms at presentation may vary from weeks to several years.⁴ The best diagnostic procedure is a barium swallow, with attention to the cricopharyngeal

area.³ In the management of Zenker's diverticulum, endoscopic diverticulectomy (endoscopic stapling, laser and argon plasma division) or external surgery (diverticulectomy and diverticulopexy with or without cricopharyngeal myotomy) may be preferred. Complications of Zenker's diverticulum are rare and include ulcer, bleeding and esophageal malignancy. Ulcer in the basis of diverticulum is a very rare complication and to date only four cases have been reported in the literature.⁵⁻⁸ Herein, we report a new case of ulcer in Zenker's diverticulum presumed to be due to aspirin and/or alcohol consumption.

Case Report

A 75-year-old man was admitted to the hospital with dysphasia to solids and weight loss of 5 kg for the last three months. In his medical history, he had hypertension for five years and had been receiving doksazosine 4 mg daily and aspirin 300 mg daily since the diagnosis, and he consumed alcohol over 40 years. Physical examination was unremarkable and laboratory tests were within normal limits. Esophagogastroduodenoscopy (EGD) revealed a 2-cm ulcer in diameter at 18 cm from the incisor teeth, and the esophageal lumen could not be found (Figure 1). Hence, barium contrast radiography was performed, showing a decreased flow of barium with dilatation of proximal esophagus. EGD was repeated because of the high suspicion of malignancy; multiple biopsies were taken around the ulcer, revealing inflammatory debris and granulation tissue, and fibrosis consisting of benign ulcer (Figure 2).

Repeat barium contrast esophagography with attention to the cricopharyngeal area showed a diverticulum of 2.5x4 cm in diameter extending to the posterior esophagus (Figure 3). The third EGD revealed narrow, angulated esophageal passage in the proximal part of diverticular sac. Esophagus was intubated by exchanging scopes over a guidewire inserted into esophagus (Figure 4). Completed EGD was normal except for diverticulum. The patient underwent external pharyngoesophageal diverticulectomy without cricopharyngeal myotomy. Histopathologic examination of the

resected specimen showed a benign ulcer. In the postoperative period and three months follow-up, he was free of symptoms.

DISCUSSION

Malignancy, ulcer and bleeding are complications of Zenker's diverticulum. Carcinoma is a rare but the most serious complication. To date, 45 cases of carcinoma have been reported in the English literature.⁹ The main predisposing factor for carcinoma development in diverticula is thought to be the chronic inflammation of the pouch secondary to the retention of foods. A possible malignancy in a pouch should be suggested when there is a sudden increase in the severity of symptoms, particularly if progressive dysphasia or aphasia is present or if there is pain, hemoptysis or more marked regurgitation of foods is observed.¹⁰ Malignancy in Zenker's diverticulum is often diagnosed at surgery; therefore, a careful examination with an esophagoscope should be performed prior to any definitive surgical procedure.⁹ In barium swallow studies, any loss in the smooth contour of the pouch should suspect a carcinoma.¹⁰

Ulcer in the basis of Zenker's diverticulum is a rare entity and, to the best of our knowledge, only four cases were reported in the literature to date.⁵⁻⁸ Three of them had massive bleeding due to ulcer presumed to have been caused by chronic aspirin ingestion,^{5,7,8} whereas one had multiple ulcers in the Zenker's diverticulum probably resulting from reflux of the gastric content.⁶ The histology of the normal pouch usually shows a sac containing an epithelial lining, which is stratified squamous epithelium, and the submucosa often shows fibrous tissue surrounding it. Close to the neck of the sac, scanty muscle fibers may be found inside the wall.⁴

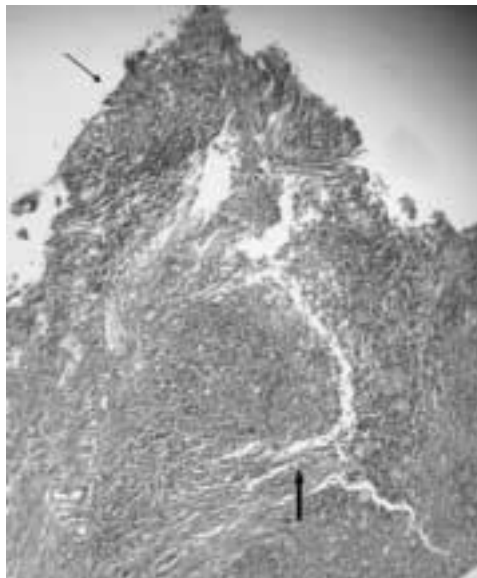
In the present case, we presumed that an ulcer has been caused by chronic aspirin ingestion. One should be careful when prescribing ulcerogenic agents in patients known to have Zenker's diverticulum. Chronic alcohol abuse was the other contributing factor. Alcohol is known to predispose ulcer formation by facilitating the development of gastroesophageal reflux due to reducing the pressure of the lower and upper esophageal sphincter,¹¹ reducing the extend of primary peristalsis¹¹ and increasing transient lower esophageal sphincter relaxation¹² and stimulation of acid secretion.¹³

Esophageal perforation may result in significant rates of morbidity and mortality, especially during blind intubation in patients with pharyngeal or esophageal anomalies with instruments, such as side-viewing duodenoscope, nasogastric tube and transesophageal echocardiogram.^{14,15} Various techniques for esophageal intubation in patients with Zenker's diverticulum during endoscopic retrograde cholangiopancreatography (ERCP) and transesophageal echocardiography (TEE) have been described. Wai et al. described a difficult intubation of a patient with Zenker's diverticulum during ERCP. They accomplished the intubation of the duodenoscope by exchanging scopes over a guidewire after forward-viewing gastroscope was inserted carefully under direct vision and emphasized that a side-viewing duodenoscope should be withdrawn if any resistance is encountered.¹⁴ Malik et al. and Smith et al. also advised esophageal intubation by using guidewire in patients with Zenker's diverticulum.^{16,17} In a patient with a large diverticulum, a balloon may be used to occlude the ori-

Figure 1. Esophagoscopy showing ulcer at 18 cm from incisor teeth



Figure 2. Biopsy consisting of a benign ulcer showing fibrinopurulent exudate (thin arrow) on the surface and granulation tissue (thick arrow) in the base composed of new capillaries and inflammatory cells



fice to allow a safe passage for the TEE probe.¹⁸

In the management of Zenker's diverticulum, endoscopic diverticulectomy is preferred more frequently nowadays. In comparison with standard open technique—although endoscopic stapling diverticulectomy has a very low complication rate, shorter operative time, lower hospitalization and restarting oral feeding period^{2,17}—lesions such as cancer can be potentially left in pouches by this technique. Therefore, although cases of carcinoma in situ or small carcinomas may not be detected by endoscopic examination, endoscopic procedures should be performed prior to any definitive surgical procedure in all patients of diverticulum.

Figure 3. Barium contrast esophagography showing a diverticulum of 2.5x4 cm in diameter extending to posterior esophagus

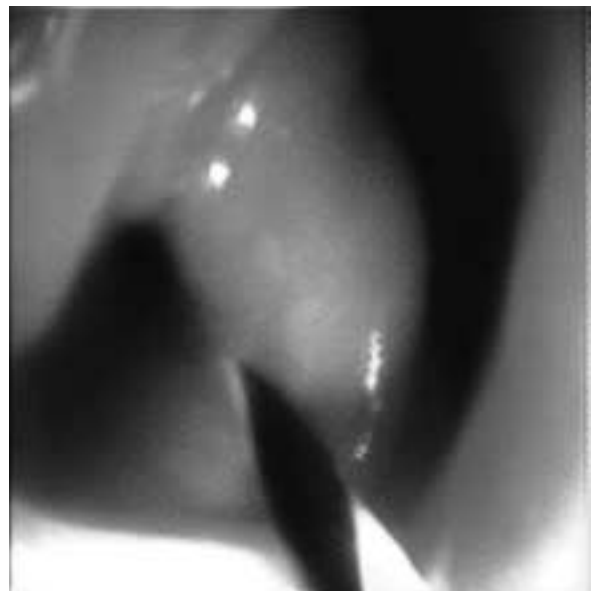


As a summary, the present case is an unusual complication of Zenker's diverticulum who was initially misdiagnosed as having esophageal malignancy. The diagnosis of Zenker's diverticulum may be troublesome, and we may need to perform diagnostic procedures repeatedly. We emphasize that endoscope should be withdrawn if any resistance is encountered during esophageal intubation, even with forward-viewing endoscope. This is especially important when there is Zenker's diverticulum suspicion and the patient receives ulcerogenic agents, such as aspirin, in pill form that may get lodged in the diverticulum.

REFERENCES

1. Ludlow A. A case of obstructed deglutition from a preternatural dilatation of and bag formed in the pharynx. *Medical observations and enquiries by a society of physicians in London* 2nd ed. 1769;3:85-101.
2. Stockli SJ, Schmid S. Zenker's diverticulum. *Schweiz Med Wochenschr.* 2000;130:590-596.
3. Achkar E. Zenker's diverticulum. *Dig Dis.* 1998;16:144-151.
4. Bowdler DA. Pharyngeal pouches. In: Kerr A, ed. *Scott Brown's textbook of otorhinolaryngology.* 6th ed. Oxford: Butterworth-Heinmann 1997:1-21.
5. Hendren WG, Anderson T, Miller JI. Massive bleeding in a Zenker's diverticulum. *South Med J.* 1990;83:362.
6. Shirazi KK, Daffner RH, Gaede JT. Ulcer occurring in Zenker's diverticulum. *Gastrointest Radiol.* 1977;2:117-118.
7. Vaghei R, Harrison I, Ortiz RA. Massive bleeding from the pharyngo-esophageal diverticulum. *Am Surg.* 1976;42:917-919.
8. Kensing KP, White JG, Korompai F, et al. Massive bleeding from a Zenker's diverticulum: case report and review of the literature. *South Med J.* 1994; 87:1003-1004.
9. Siddiq MA, Sood S, Strachan D. Pharyngeal pouch (Zenker's diverticulum). *Postgrad Med J.* 2001;77:506-511.
10. Bradley PJ, Kochaar A, Quraishi MS. Pharyngeal pouch carcinoma: real or imaginary risk? *Ann Otol Rhinol Laryngol.* 1999;108:1027-1032.
11. Mincis M, Chebli JM, Khouri ST, et al. Ethanol and the gastrointestinal tract. *Arq Gastroenterol.* 1995;32:131-139.

Figure 4. Intubation of esophagus was by exchanging scopes over a guidewire



12. Castell DO, Murray JA, Tutvian R, et al. Review article: the pathophysiology of gastro-oesophageal reflux disease-oesophageal manifestations. *Aliment Pharmacol Ther.* 2004;20 Suppl 9:S14-S25.
13. Bor S, Bor-Caymaz C, Tobey NA, et al. Esophageal exposure to ethanol increases risk of acid damage in rabbit esophagus. *Dig Dis Sci.* 1999;44:290-300.
14. Wai CT, Yeoh KG, Ho KY. Esophageal intubation with duodenoscope in the presence of pharyngeal pouch by a guidewire and catheter-guided technique. *Surg Laparosc Endosc Percutan Tech.* 2002;12:362-363.
15. Nutter KM, Ball OG. Esophageal diverticula: current classification and important complication. *J Miss State Med Assoc.* 2004;45:131-135.
16. Malik A, Chitnavis V, Epstein A. Use of a hydrophilic wire for esophageal intubation in Zenker's diverticulum. *Gastrointest Endosc.* 1994;40:523-524.
17. Smith SR, Genden EM, Urken ML. Endoscopic stapling technique for the treatment of Zenker diverticulum vs standard open-neck technique: a direct comparison and charge analysis. *Arch Otolaryngol Head Neck Surg.* 2002;128:141-144.
18. Fergus I, Bennett ES, Rogers DM, et al. Fluoroscopic balloon-guided transesophageal echocardiography in a patient with Zenker's diverticulum. *Am Soc Echocardiogr.* 2004;17:483-486. ■

C A R E E R
O P P O R T U N I T Y

The Department of Anesthesiology at the University of Texas Medical Branch in Galveston, Texas is recruiting full-time, board-eligible or board-certified Anesthesiologists. Preferred requirements include a clinical fellowship and a research fellowship. Responsibilities include providing clinical anesthesia, instructing residents, and supervising CRNAs. Night and weekend call are required. Competitive benefits package and retirement plan. Please send a letter and C.V. to: Donald S. Prough, MD, Professor and Chairman, Department of Anesthesiology, UTMB, 301 University Blvd., Galveston, Texas 77555-0591, or e-mail: dsprough@utmb.edu. Tel.: 409-772-2965, Fax: 409-772-4166. UTMB is an equal opportunity, affirmative action institution, which proudly values diversity. Candidates of all backgrounds are encouraged to apply.

STAND UP.

Going to work shouldn't mean enduring an atmosphere of intimidation or fear.

The NMA Council on Clinical Practice can help.

If you are under professional attack, contact James S. Tate Jr., MD, chair of NMA's Council on Clinical Practice, at (702) 388-4292.



The National Medical Association's 2006 Annual Convention and Scientific Assembly

August 5-10, 2006 ■ Dallas, TX ■ <http://nmanet.org>