

CORRESPONDENCE

Therapy of Zenker's Diverticulum

by Dr. med. Arnd Vogelsang, Dr. med. Brigitte Schumacher, Prof. Dr. med. Horst Neuhaus in volume 7/2008

Endoscopic Diverticulotomy

Endoscopic mucomyotomy fell into disfavor in Germany in the 1950's as the result of three fatal hemorrhages.

In the 1980's, van Overbeek and Hoeksma (1982, 1984) and van Overbeek (1994) reported on 545 cases of mucomyotomy with a CO₂ laser that was directed by mirrors through the operating microscope. Thus, after the development of the Weerda spreading diverticuloscope—not the Weerda laryngoscope, as was stated in the article—and of other new instruments, we were able to start performing endoscopic mucomyotomy in Germany once again. An intraluminal Doppler ultrasonography device was used to localize large blood vessels (1, 2).

A residual septum remains in the fundus when division is performed with the Endo-GIA-30 stapler, because the foot of the stapler is 1 cm in size (2).

An important complication was not mentioned: The mediastinum is always opened, and this happens to the greatest extent in the area of the fundus. This situation is depicted incorrectly in *figure 3*. The consequences occasionally include dramatic subcutaneous and mediastinal emphysema. These phenomena are not due to microscopic openings, as was stated in the article.

In a group of patients that had not undergone surgery, we observed fever in 53.1%, as a sign of mediastinal irritation; 1.6% developed mediastinitis (2, 3).

We attribute the high recurrence rates to two causes: (a) the septum is not divided all the way to the fundus, and (b) after division, the cut edges come together again and fuse, particularly in the vicinity of the fundus (2).

In order to minimize these complications, we have proposed the following measures (1–3):

- After mucomyotomy with the CO₂ laser, the mediastinum should be sealed with fibrin glue under optimal vision through the spreading diverticuloscope.
- Superfluous mucosa should be resected.
- The fundus and the cut edges should be closed microsurgically.

We recommend a liquid diet postoperatively. For medicolegal reasons, we also recommend a brief period of in-hospital observation.

If all of these recommendations are followed, endoscopic mucomyotomy becomes a low-risk operation, but not a risk-free one. It remains superior to open surgery.

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In Reply:

Splitting of the septum between the diverticulum and the esophagus is performed through a flexible endoscope either with argon-plasma coagulation (APC) or with a needle-knife in the endo-cut mode. In both techniques, the cut edges of the wound are coagulated, so that no free perforation into the mediastinum occurs as long as the cut is taken no deeper than 5 mm above the fundus of the diverticulum. This explains why only a single case of perforation with mediastinitis has been reported in the more than 400 cases that have been published in clinical series to date (1). Because a risk of perforation still exists when the cut is carried downward too deeply toward the floor of the diverticulum, the physician performing the procedure may opt to close the wound edges with endoscopically applied clips.

Subcutaneous or mediastinal emphysema occur in up to 20% of cases and can be explained by the elevated pressure associated with coughing or vigorous insufflation of air. These phenomena caused no serious problems and regressed within a few days.

Even when a stapler is used for treatment, perforations occur in up to 3% of cases, resulting in the conversion of the endoscopic procedure to open surgery. These perforations are attributable to injury either by the rigid spreading diverticuloscope or by the stapler itself (2, 3).

There has not yet been a single reported case of a hemorrhage that could not be managed endoscopically in a patient treated via flexible endoscopy. The same holds for stapler treatment. Doppler ultrasonography is not necessary as an adjunct to either of these two techniques.

The number of repeated procedures is higher after flexible endoscopy than after stapler treatment; this can be explained as the result of postoperative adherence of the wound edges to each other near the fundus. With increasing expertise, repeated procedures become rarer (on average, 2.3 treatment sessions are needed for newly arising symptoms) (1). Thus, in view of the low complication rate and the low degree of invasiveness of

the procedure—no endotracheal anesthesia, no possibility of conversion to open surgery—we consider flexible endoscopy to be the method of choice for the treatment of Zenker's diverticulum, particularly in elderly patients.

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