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Treatment by Diverticulopexy of a Recurrent Zenker Diverticulum after Failure of Endoscopic Treatment: A Case Report

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Abstract **Case Report**

Zenker's diverticulum is a hernia of the esophageal mucosa through the muscular layer of the pharyngoesophageal junction. It is often asymptomatic, its diagnosis is made by opacification of the esophagus**.** There is no medical treatment, only symptomatic DZs should be operated. Surgical treatment includes several techniques: open surgery with resection or pexy associated with myotomy of the cricopharyngeal muscle or endoscopic treatment with diverticulostomy. Flexible endoscopy has gained considerable importance in recent times it is easy and does not require general anesthesia however it also has its limitations especially recurrences**.** Here we report a 38-year-old patient without notable pathological ATCD presenting Zenker diverticulum treated by diverticulopexy after failure of flexible endoscopy.

Keywords: Zenker diverticulum, diverticulopexy, Diverticulectomy.

INTRODUCTION

Zenker's diverticulum was first discovered by Ludlow in 1764. A century later (1877), Zenker and von Ziemssen described 23 cases of this type of diverticulum, giving their name to this hernia of the esophageal mucosa. The diverticulum appears in the upper and posterior part of the esophagus at the level of a zone of lesser resistance called "Killian's point" located between the inferior constrictor of the pharynx and the cricopharyngeal muscle [1-4].

The pathophysiology of these diverticula is not completely elucidated. It seems to be due to a lack of relaxation of the cricopharyngeal muscle [3]. Zenker's diverticulum is a rare pathology The incidence of ZD in the general population is 0.01% to 0.11%2 [5]

The reference treatment of which is surgical, without any consensus on the technique. Different options are available: open surgery with resection or pexy, associated with a myotomy of the cricopharyngeal muscle, and endoscopic treatment with esophageal diverticulotomy.

The flexible endoscopic technique is currently used as an initial treatment option as it is easy and does not require general anesthesia [3]. However, it still has a failure rate of 20°/° according to the literature [6].

Here we report a 38-year-old patient without notable pathological ATCD presenting Zenker diverticulum treated by endoscopy. The aims of this work is to show the role of diverticulopexy to treat DZ after endoscopy failure.

OBSERVATION

A 38-year-old patient without notable pathological ATCD presented in gastroenterology consultation for high dysphagia to solids and liquids with GERD and regurgitation evolving for 2 years in a context of conservation of the general condition.

The clinical exam was unremarkable. The biological assessment objectified. Hb 15.9 GB 7000 sodium 139 potassium 4 .3 urea 0.28 creatinine 8.

The TOGD had objectified a regular centered and tight stenosis of the esophageal junction located at the level of the cervico-thoracic region responsible for an upstream esophageal dilation.

The FOGD showed the presence of a large diverticulum from just below Killian's mouth. The patient underwent an endoscopic diverticulotomy. One

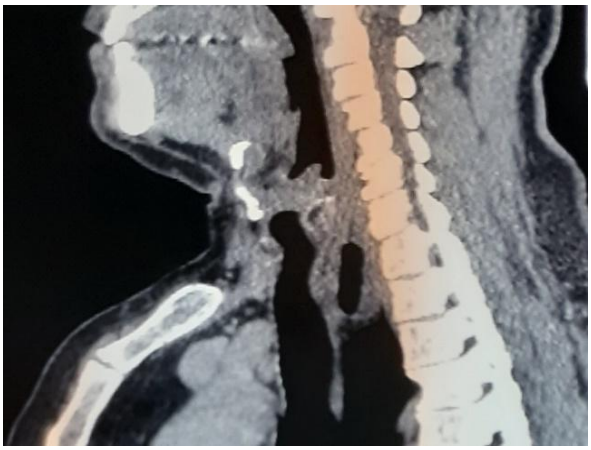
year later, the patient presented with a recurrence of his symptoms. FOGD was in favor of a mid-size Zenker.

With clips still in place. The cervico-thoracic CT had objective the presence of a cervico-thoracic retro-pharyngeal lesion formation having a digestive wall with hydro-aeric content measuring 46 * 39 * 19 mm communicating with the cervical esophagus through a 10 mm fistula located at 16 cm from the dental arch.

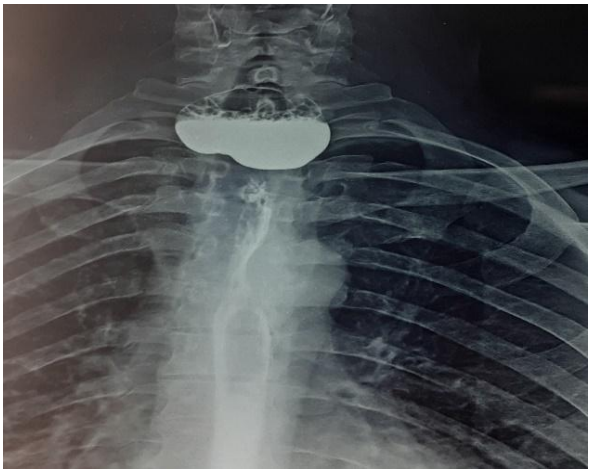
The management of this patient was surgical with the realization of a diverticulopexy.

The patient is positioned supine with a log under the shoulders and the head hyperextended and turned slightly to the right. The left posterior neck incision is made ventral to the sternocleidomastoid muscle. After division of the subcutaneous tissue and platysma, the pharynx and cervical esophagus are exposed by retracting the sternocleidomastoid and carotid sheath laterally and the larynx and thyroid gland medially. Once the pouch is identified, it is fixed to the posterior pharyngeal wall (diverticulopexy).

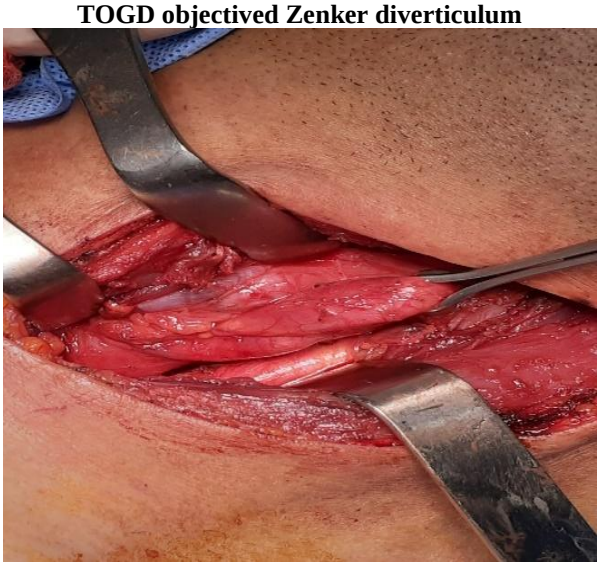
The post-operative consequences were simple with disappearance of the dysphagia and regurgitations. The patient reported no complications or recurrences during three years of follow-up in a follow-up consultation.



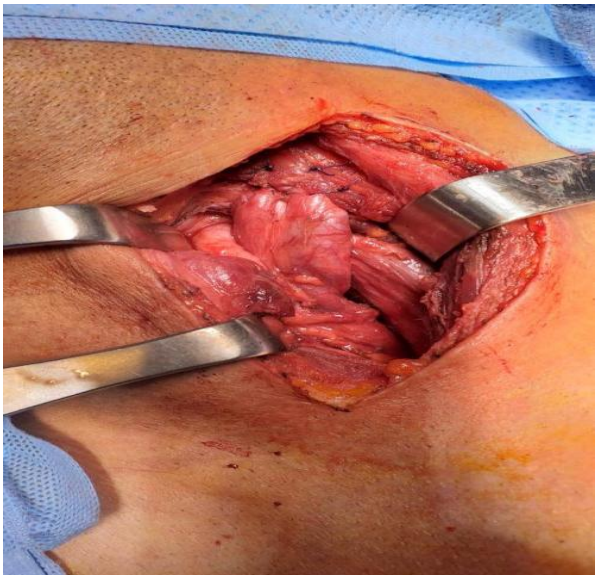
Cervical CT scan showing Zenker's diverticulum



TOGD objectived Zenker diverticulum



Peroperative image objectifying the diverticulum



Diverticulopexy

DISCUSSION

Zenker's diverticulum is the most common type of esophageal diverticulum with a prevalence of 0.01-0.11%, usually found in middle-aged and older patients. The most common symptoms are dysphagia and regurgitation [7]. Treatment is recommended in symptomatic patients and consists of myotomy of the cricopharyngeal muscle [5].

The primary therapeutic goal is to create a communicating portal between the diverticulum and the esophageal lumen by transecting the septum to remove the reservoir of the diverticulum, facilitating the passage of the alimentary bolus. Treatment should be reserved for symptomatic patients , whereas small asymptomatic diverticula do not require treatment because the risk of serious adverse complications, cancer, and aspiration is low [6].

Treatment procedures for DZ include open cricopharyngeal myotomy with diverticulectomy or diverticulopexy or diverticular reversal, myotomy alone, staple-assisted endoscopic diverticulotomy, CO2 laser endoscopic diverticulotomy, harmonic clamp endoscopic diverticulotomy, rigid endoscopic diverticulotomy, and flexible endoscopic diverticulotomy [3, 5–15].

The following surgical algorithm can be derived from the available literature: small symptomatic pouches (1 cm) are most likely well suited for myotomy alone, medium-sized diverticula (1 to 4 cm) are best treated by myotomy with suspension or inversion, and larger pouches probably warrant diverticulectomy with myotomy [4].

Flexible endoscopy is indicated in high-risk elderly patients. The procedure can be performed safely in the endoscopy room, in the hospital or outpatient setting, does not require general anesthesia, and is quick and efficient [3].

It shares the same principles as rigid endoscopy: dividing the septum separating the diverticulum from the esophagus and containing the cricopharyngeal muscle [3].

However, incomplete cricopharyngeal myotomy may explain the higher recurrence rates associated with flexible endoscopy, as in this patient [5, 6].

Diverticulectomy allows the removal of the pouch allowing histopathological examination of the diverticulum. However, this technique is associated with a higher risk of pharyngocutaneous fistula (up to 30%), recurrent transient or permanent nerve palsy and esophageal strictures. Some authors therefore suggest diverticulopexy as an effective, less traumatic and less complicated surgical treatment modality, which is what was recommended in this patient.

However, after diverticulopexy, no further inspection of the mucosa of the diverticulum is possible for early detection of malignancy, and this should be kept in mind in case of long-standing larger diverticula in which the risk of malignant degeneration is reported to be higher this is not the case in this patient with a medium-sized diverticulum[6, 16].

Flexible endoscopy is an interesting alternative and can overcome some of the technical limitations of open surgery and rigid endoscopy, as well as some of the constraints related to the size of the DZ and the conditions of the patient [17]. However, it is associated in the available literature with a clinical recurrence rate of 20% [6] .

The incision should not extend beyond the inferior border of the diverticulum as this may lead to mediastinal perforation, but a transection that is too short may lead to an incomplete cricopharyngeal myotomy and subsequently explain the higher clinical recurrence rates reported for flexible endoscopy [6]

The depth of the septotomy is a major technical problem. Unfortunately, when the incision is made from the top down, the inferior border may be difficult to define endoscopically, and there are no objective parameters or reliable anatomical landmarks (except for muscle fibers) to guide the endoscopist [18]. In this patient there was a recurrence of his diverticulum and a 10 mm fistula.

CONCLUSION

Cricopharyngeal myotomy combined with diverticulopexy is a reliable, effective and reproducible technique for medium-sized diverticula. Flexible endoscopy is a minimally invasive treatment option. However, the most suitable candidates are older, high-risk patients who are unsuitable for surgery.

Conflict of authors: The authors have no conflicts of interest to disclose.

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