



The Esophageal Diverticulum: About Two Cases

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Authors' contributions

All the authors contributed to the realization of this work. All authors also declared that they had read and approved the final version of the manuscript.

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Case Report

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ABSTRACT

The hypopharyngeal diverticulum of the cervical esophagus, also known as Zenker's diverticulum, is the most common esophageal diverticulum. It develops at the junction of the hypopharynx and the esophagus. The most present symptom is dysphagia. Between the period of 01/01/2018 to 31/12/2018, we accessed two patients with esophageal diverticulum. Both underwent surgical treatment - diverticulectomy at the department of the visceral surgery II of the Military Hospital Mohamed V of Rabat, Morocco.

The aim of this report is to evaluate the diagnostic methods and the surgical outcomes by comparing them to other techniques used in the treatment of the esophageal diverticulum.

Keywords: Cervical esophagus; Zenker's diverticulum; pathophysiology treatment; complications.

1. INTRODUCTION

The esophageal diverticulum is an acquired anomaly characterized by the protrusion of the esophageal mucosa between the muscle fibers of the esophagus through a variably wide orifice.

The cervical localizations represent 80% of the esophageal diverticulum. They are developed from a weak zone on the posterior wall of the pharyngo-esophageal junction. It seems interesting to make a clarification on this subject by reviewing the literature and to discuss the two

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cases operated at the Visceral Surgery II department of the Military Hospital Mohamed V of Rabat.

2. TOOLS AND METHODS

This is a retrospective study in which we reviewed the data of two patients who underwent a surgery of diverticulum of the cervical esophagus in the department of Visceral Surgery II of the Military Hospital Mohamed V of Rabat. between 01/01/2018 and 31/12/2018.

2.1 Observation n°1

A 46 years old, male, with no past medical history, admitted on October 2018 in Visceral Surgery II department, with complain of difficulty to swallow solid food which progress and became mixed during last two years and associated with gastroesophageal reflux.

On admission, general condition was satisfactory. The endoscopic exploration

revealed the presence of large latero-esophageal diverticulum with an uncomplicated hiatal hernia associated with chronic gastritis. The barium radiography showed an additional image located at the posterior part of the upper third esophagus thus confirming the diagnosis of Zenker's diverticulum (Fig. 1).

The surgery was performed under general anesthesia in the supine position with insertion of a nasogastric tube. We performed a resection of the diverticulum on the left cervical esophagus (Fig. 2)

Through an incision at the anterior border of the left sternocleidomastoid muscle, once the diverticulum was identified, a small opening was carried out to reassure that the nasal tube in situ, resection at the base of the pedicle was performed with a GIA 75 stapler, hemostasis secured, wound closed. duration of intervention was 1h 15 min. A control barium radiography done, after an uneventful recovery patient was discharged, and was seen after one month of surgery.



Fig. 1. Barium radiography: Additional image located at the posterior part of the upper third esophagus

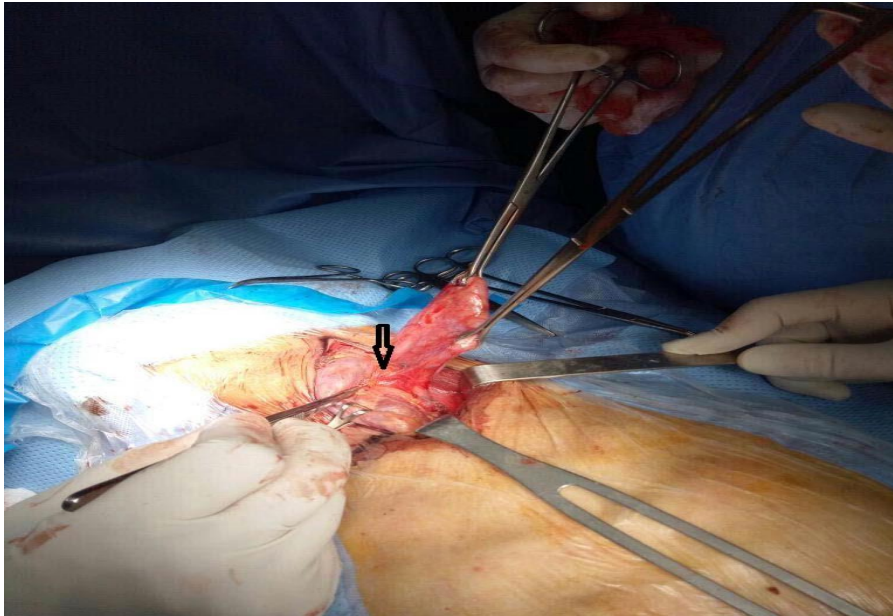


Fig. 2. Esophageal diverticulum dissection.

2.2 Observation n°2

80 yr old patient, male, with no past medical history, admitted with severe dysphagia.

The symptoms started 4 years ago with the appearance of an progressive odynophagia and dysphagia for solid than for liquid food.

On presentation, physical examination showed sign of malnutrition, dehydration, mild

pallor, no history of fever. patient had experienced a 15 kg weight loss for last two months. The endoscopic examination revealed a huge intra luminal pouch in the esophagus preventing the endoscope to progress further in the digestive tractus. Therefore the examination was supplemented by a barium radiography (Fig. 3) and a CT scan which showed a Huge diverticulum of the cervical esophagus.

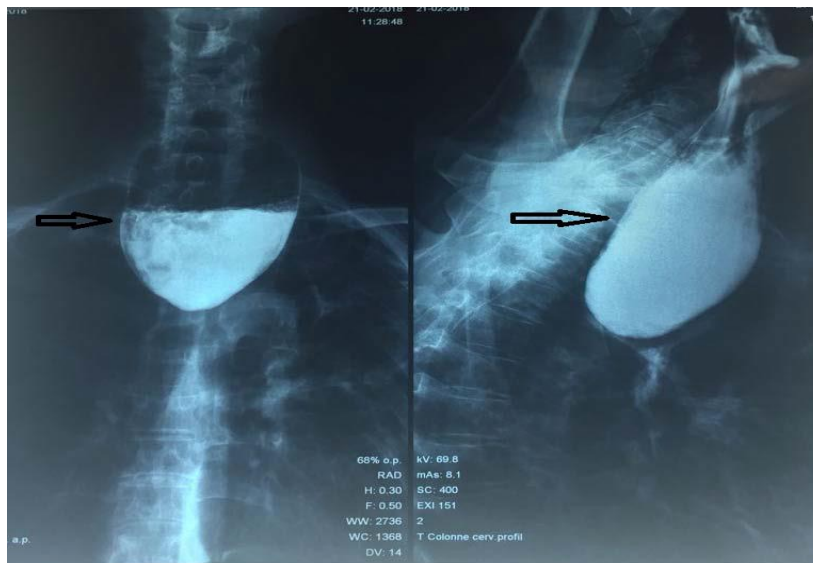


Fig. 3. Huge diverticulum of the cervical esophagus

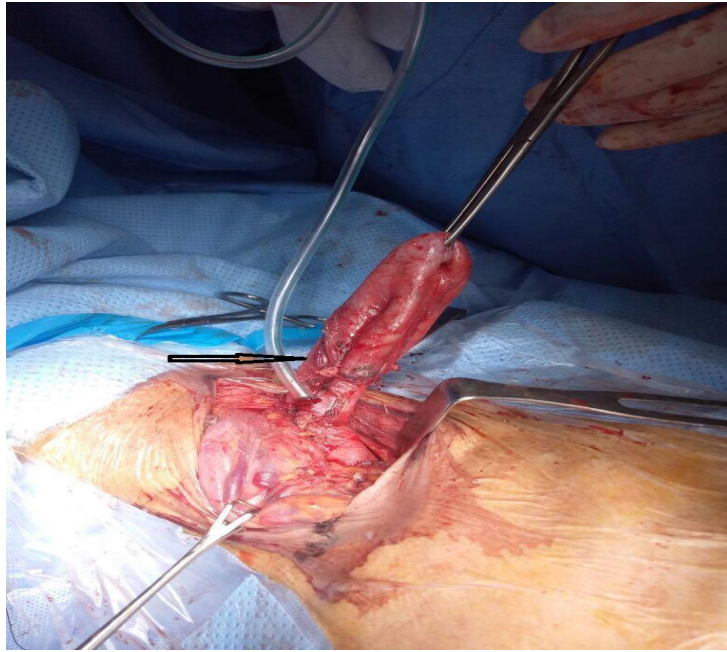


Fig. 4. Intraoperative image of diverticulum

The operation was performed under general anesthesia in the supine position. A cervicotomy along the internal edge of the left sterno-cleido-mastoid muscle was made, resection of the left thyroid lobe to access the esophageal compartment, release of the diverticulum (Fig. 4), opening of the bag to reassure the passage of the nasal tube, resection of the diverticulum with 75mm linear stapler. wound closed.

Post operative period was favorable, patient discharged

3. RESULTS

The analysis of the files focused on the functional signs, the evolution period, the complications associated with the evolution of the pathology, the additional explorations carried out and finely the surgical treatment performed for the 2 cases with its result. This study involves 2 male patients. The age of the operated patients is 46 years and 80 years. The average time from onset of symptoms to intervention was 2 years. The main symptom was dysphagia, present on both patients. It was associated with a gastroesophageal reflux in the first case and associated odynophagia in the second case.

Only the second patient presented complications related to the evolution of the diverticulum, such

as weight loss, dyspnea and extreme dysphagia (aphagia) which led to dehydration. The diagnosis of Zenker's diverticulum was made by performing barium radiography in both cases. Endoscopy was also performed in both cases but was not helpful. For the second patient because of the huge size of the diverticulum the CT scan performed to confirmed the diagnosis. No intraoperative complications were reported. The post-operative period uneventful, both patients were seen one month after the intervention without any complications. An histopathological examination was performed. There was no evidence of malignancy.

4. DISCUSSION

Despite a century of research, much controversy and imprecisions on the etiology and pathophysiology of the hypopharyngeal diverticulum persists. Zenker's diverticulum is a rare condition of the elderly [1]. It represents 80% of the esophageal diverticula, it's most likely affects men after 60 [2], rarely before 40. Its prevalence in the general population varies between 0.01 and 0.11%, but its incidence is difficult to specify because of the high number of asymptomatic patients [3]. We have collected two cases over a period of one year, which shows the rarity of this pathology. We note in the different series studied a male predominance which we also find in our study. Zenker's

diverticula are asymptomatic and incidentally discovered in 10 to 20% of cases [4]. The severity and diversity of the symptoms are variable and are not always correlated with the size of the diverticulum [5]. Dysphagia is the main symptom and we find it in both our patients. The regurgitations of undigested solid food occur very frequently during the evolution, constituting the other major symptom of this pathology. In our series 1/2 presented regurgitation. Respiratory manifestations are less frequent and occur in 17 to 60% of cases [6]. They are mainly represented by nocturnal coughs, inhalation, bronchopneumopathy, asthma, lung abscess and chronic respiratory failure. The infection of the diverticulum is exceptional and can cause hematemesis, giving birth to a cervical abscess, mediastinitis or esophageal fistula [7].

The barium radiography is the key method for diagnosing the pharyngo-esophageal diverticula. It requires multiple incidences and a sufficiently fluid contrast agent to opacify the narrow-necked diverticula. In our study, a barium radiography was performed on both patients. The cervico-thoracic scanner is rarely performed to identify a Zenker's diverticulum. On the other side, it is useful in the event of complications, such as an abscess, diverticulitis or a neoplasms [8]. This examination was carried out on the second patient

The endoscopic eso-gastro-duodenal examination is useful, not for the proper diagnosis, but to check the state of the diverticulum. The endoscopy should be performed carefully because of the risk of diverticular perforation, it explores the entire esophagus and stomach to rule out any neoplasm. This examination was carried out in both our patients, but did not succeed in the 2nd case because of the size of the diverticulum which was huge. The esophageal manometry was not carried out systematically, because on one hand the motor disorders of the upper esophageal sphincter are difficult to analyze due to the fat physiological mechanisms involved, and on the other hand because of the difficulties of placing correctly the probe in the pharynx and the esophagus. The swallowing video endoscopy study is now routinely used to analyze the swallowing process, it allows to describe a specific sign of Zenker's diverticulum: the swallowed bite disappears completely from the hypopharynx and then reappears, this sign is a on live visualization of a regurgitation and is

closely correlated with the existence of a Zenker diverticulum [9]. At the end of its evolution, dysphagia leads to weight loss and sometimes to a cachectic state.

Aspiration and inhalation are the cause of acute and chronic respiratory complications which occur in 20% of the cases [10]. Rare cases of digestive ulceration, perforation or hemorrhage have been reported, while the risk of cancer is very low with less than 1% of the cases in the Mayo Clinic series. The treatment of Zenker's diverticulum is surgical. Open surgery is sometimes associated with a significant morbidity, which is an incentive to the development of less invasive techniques, particularly when the interventions are performed on the elderly patients. Surgical strategies for the treatment of hypopharyngeal diverticulum have evolved with increasing knowledge of the pathogenesis. Before the role of the cricopharyngeus muscle (CPM) was identified, the surgical strategy was to focus on the diverticulum: Excisions, reversals and suspensions of the diverticula were all described and recommended. Now, the myotomy of the CPM is considered an important step of the surgical treatment.

The combination of a myotomy reduces the risk of fistulas postoperative, but does not seem to reduce the rate of recurrence compared to diverticulectomy alone.

The endoscopic treatment of Zenker's diverticula focuses on cutting the common wall separating the diverticulum from the esophageal lumen [11] by using a flexible endoscope and a diverticuloscope for good exposure of the diverticulum.

The endoscopic treatment is a safe procedure offering a rapid improvement of symptoms with a lower risk of complications and a shorter duration of hospitalization, and seems to be a good choice of therapy at least for patients with associated diseases that increase surgical risk. [11].

Only symptomatic and / or complicated diverticula should be treated. The technic chosen must consider the patient's age and the size of the diverticulum [12]. In our study, both our patients underwent "classic" surgical treatment: it was a diverticulectomy rather than diverticulopexy always associated with the myotomy of the PCM. Our teams have not yet

acquired the experience of the endoscopic treatment. The results obtained encouraged us to continue to apply the “classic” surgical way, these results can be explained either by the quality of the myotomy or by the fact that we were dealing with large diverticula. Preoperative undernutrition and an association with other physiological (endo-brachyoesophagus, esophageal motor disorders), neuromuscular (myositis with inclusions, polymyositis, dermatomyositis) or neurological (Parkinson's disease) esophageal pathologies, are the main factors of mortality and postoperative recurrences. Undernutrition should be corrected to reduce mortality and prevent post-operative complications. The persistence or recurrence of the dysphagia should, in the absence of recurrence of the diverticulum, raise suspicion of an associated pathology that must be sought.

5. CONCLUSION

The treatment of Zenker's diverticula must be adapted to the wishes of the patient but also to his personal context directing the treatment towards an endoscopic treatment or conventional surgery.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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