

## Accepted Article

Severe halitosis as presentation of epiphrenic diverticulum

Elizabeth Montes de Oca Megías, Guillermo Noa Pedroso, Miguel Ángel Martínez Alfonso, Frank Pérez Triana, Osvaldo Seijas Cabrera, Elsy Garcia Jordá

DOI: [10.17235/reed.2016.3933/2015](https://doi.org/10.17235/reed.2016.3933/2015)

Link: [PDF](#)

Please cite this article as: Montes de Oca Megías Elizabeth, Noa Pedroso Guillermo, Martínez Alfonso Miguel Ángel, Pérez Triana Frank, Seijas Cabrera Osvaldo, Garcia Jordá Elsy. Severe halitosis as presentation of epiphrenic diverticulum. Rev Esp Enferm Dig 2016. doi: 10.17235/reed.2016.3933/2015.



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Severe halitosis as presentation of epiphrenic diverticulum

Elizabeth Montes-de-Oca-Megías<sup>1</sup>, Guillermo Noa-Pedroso<sup>2</sup>, Miguel Ángel Martínez-Alfonso<sup>1</sup>, Frank Pérez-Triana<sup>1</sup>, Osvaldo Seijas-Cabrera<sup>1</sup> and Elsy García-Jordá<sup>1</sup>

<sup>1</sup>National Center of Minimal Access Surgery. Havana. Cuba. <sup>2</sup>Medical University of Havana. Havana, Cuba

Received: 30/07/15

Accepted: 03/09/15

Correspondence: Elizabeth Montes-de-Oca-Megías. National Center of Minimal Access Surgery. Párraga 420. Víbora. 10 de Octubre. La Habana, Cuba  
e-mail: elizabethmm@infomed.sld.cu

### ABSTRACT

Halitosis is a common condition, whose main etiology does not respond to diseases of the gastrointestinal system. Epiphrenic diverticula are a rare cause of this manifestation, thus they are not frequent and they are usually asymptomatic. However, they may produce symptoms with inability for patient. A patient with severe halitosis is presented. In his study, an epiphrenic diverticulum is diagnosed and the laparoscopic abdominal diverticulectomy is performed with a complete resolution of symptomatology.

Key words: Halitosis. Malodor. Epiphrenic diverticulum. Esophageal diverticulum.

### INTRODUCTION

Halitosis is not a disease but a clinical manifestation of some physiological process, disease or an inappropriate oral hygiene. It also appears occasionally in relation to some food styles or associated toxic habits like alcohol or tobacco consumption (1,2).

There is a trend that takes into account its main etiology as of gastrointestinal origin, but on the contrary, it is mainly secondary to existence of affections at the level of the oral cavity (1,3,4).

Halitosis may be presented in a transitory or permanent way. Generally, it is not perceived by the affected person and it may involve social communication (2). It is entirely solved if its original cause is corrected (1,5).

### **CASE REPORT**

A 62-year-old black male, with backgrounds of compensated high blood pressure with Enalapril as treatment (one tablet every 12 hours). Patient came to consultation referring intense halitosis of 2 years of evolution, affecting its quality of life, with non digested food regurgitation, as well as intermittent dysphagia indiscriminately to solid and liquid foods, plus occasional retrosternal pain in lower third, of slight intensity not irradiated and that increased with deglutition of solid and liquid foods. A physical examination was carried out without any information of diagnostic guidance, neither the stomatological nor ENT examination.

A contrasted esophagogram was performed observing a sacular dilatation of left wall of esophagus with 3 cm in diameter (Fig. 1). Later, an upper digestive endoscopy was carried out noting the presence of a diverticulum of 3 cm of base, exploring its sac without alterations of the mucosa at that level neither food rests; it was located approximately at 5 cm over the esophageal hiatus (Fig. 2). Later, an esophageal manometry was carried out including: point of inverse pressure coinciding with the zone of high pressure of lower esophageal sphincter, which shows basal mean pressure in the normal upper limit, stable, of a good length with complete responses to deglutition. At body level, some less than half of the peristalsis was normal, with presence of high amplitude waves, prevailing in the distal third. The upper esophageal sphincter is hypotonic, with a good response to deglutition and pharyngo-esophageal coordination.

With these findings, a diverculectomy via abdominal laparoscopy was carried out observing a diverticulum at 5 cm of the gastro-esophageal junction (GEJ) with left posterolateral location of 3 cm of base.

After 15 days, there was not any symptomatology, remaining at a month and at 6 months. In this last visit the esophagogram was repeated without visible sacular image.

## **DISCUSSION**

Halitosis is not a disease; it is a symptom secondary to a series of conditions present in a significant number of patients and with a big impact in society due to affections in the quality of life and the personal interrelations (4,6). It is calculated that approximately 50% of population is affected. The ratio man/woman is the same and the incidence is increased according to age (6).

The scarce information about its causes, diagnosis and treatment has contributed occasionally to the patient to be referred to the gastroenterology consultation, believing that its etiology is of a gastrointestinal origin. However, the gastrointestinal system is isolated from the respiratory airways and the lower esophageal sphincter remains closed, except during deglutition. Only gases are expelled by mouth from the stomach with the person belch, but these are not mixed with the exhaled air and their smell is generally characteristic of food and drink recently ingested.

It is estimated that 90% of causes are originated in the mouth and that a high percentage comes from the tongue. Normally, the oral cavity gives shelter to a significant amount of bacteria, much of them responsible of producing volatile sulfuric compounds with a disagreeable smell. The remainder 10% has its origin in problems of respiratory airways and in other affections of the organism, like renal diseases, diabetes, liver dysfunction and cancer, among others (4,6).

In most of the cases it is totally impossible to solve halitosis provided that treatments are applied according to cases originating the symptomatology (2,4,7).

Epiphrenic diverticula were described by Mondiere in 1833 and the first resection was performed by Stierling in 1916 (8). In fact, their prevalence is unknown but they are not frequent and they are developed in the last 10 cm of the esophagus, by means of a pulsion mechanism with a great presentation from the mean age and in men (8,9). The 80% of these are asymptomatic, when they produce symptoms these may vary from slight to disabling, being the more frequent dysphagia, regurgitations, thoracic pain,

halitosis and respiratory symptomatology (10-12). The intensity of symptoms defines the therapeutical behavior (8,9) .

The main diagnostic method is the esophagogram, which shows the diverticulum and other possible abnormalities. Endoscopy completes the findings of the esophagogram and allows to assess the mucosa of the diverticular sac and to discard the associated pathology. Manometry is a mandatory study in these patients. The epiphrenic diverticulum is more a complication of some disorders of the motility of the esophagus than an anatomical abnormality, thus the manometry should be carried out within 24 hours instead of performing stationary lectures (11-13).

The surgical treatment is controversial (9). Performing a diverticulectomy together with an esophagomyotomy is proposed to avoid recurrence; this latter with a variable extension being necessary an anti-reflux technique if the lower esophageal sphincter is involved (8-10). It is possible to use the conventional via, but minimal invasive surgery may be more useful (14). Both laparoscopy and video-assisted thoracoscopy are feasible, their election being dependent on the easiness to approach the diverticulum (9,14,15).

In short, this is a patient with a severe halitosis as a form of presentation of the epiphrenic diverticulum, which is an uncommon manifestation for this location. The patient underwent diverticulectomy, without taking into account the carrying of a myotomy because there were not motor alterations in the manometry. Six months after surgery he was asymptomatic, and the esophagogram and the control endoscopy were normal. The diverticulectomy repaired the anatomical defect and improved the quality of life of patient.

## **REFERENCES**

1. Cortelli JR, Barbosa MD, Westphal MA. Halitosis: A review of associated factors and therapeutic approach. *Braz Oral Res* 2008;22(Suppl1)44-54. DOI: 10.1590/S1806-83242008000500007
2. Van den Broek AM, Feenstra L, De Baat C. A review of the current literature on management of halitosis. *Oral Dis* 2008;14:30-9.

3. Lee SS, Zhang W, Li Y. Halitosis update: A review of causes, diagnoses and treatments. *J Calif Dent Assoc* 2007;35:258-60,262,264-8.
4. Rösing CK, Loesche W. Halitosis: An overview of epidemiology, etiology and clinical management. *Braz Oral Res* 2011;25:466-71. DOI: 10.1590/S1806-83242011000500015
5. Bollen CM, Beikler T. Halitosis: The multidisciplinary approach. *Int J Oral Sci* 2012;4:55-63. DOI: 10.1038/ijos.2012.39
6. Akos N, Zsolt B, Péter N, et al. Clinical importance and diagnosis of halitosis. *Fogory Sz* 2012;105:105-11.
7. Lee PP, Mak WY, Newsome P. The etiology and treatment of oral halitosis: An update. *Hong Kong Med J* 2004;10:414-8.
8. Soares R, Herbella FA, Prachand VA, et al. Epiphrenic diverticulum of the esophagus. From pathophysiology to treatment. *J Gastrointest Surg* 2010;14:2009-15. DOI: 10.1007/s11605-010-1216-9
9. Ruiz de Angulo Martín D, Ortiz Escandell MA, Martínez de Haro LF, et al. Divertículos epifrénicos: ¿cuándo y cómo operar? *Cir Esp* 2009;85:196-204.
10. Kilic A, Schuchert MJ, Awais O, et al. Surgical management of epiphrenic diverticula in the minimally invasive era. *JSLs* 2009;13:160-4.
11. Khan N, Ismail F, Van de Werke IE. Oesophageal pouches and diverticula: A pictorial review. *SAfr J Surg* 2012;50:71-5. DOI: 10.7196/sajs.1299
12. Zaninotto G, Portale G, Costantini M, et al. Therapeutic strategies for epiphrenic diverticula: Systematic review. *World J Surgery* 2011;35:1447-53. DOI: 10.1007/s00268-011-1065-z
13. Palanivelu C, Rangarajan M, Maheshkumaar GS, et al. Minimally invasive surgery combined with peroperative endoscopy for symptomatic middle and lower esophageal diverticula: A single institute's experience. *Surg Laparosc Endosc Percutan Tech* 2008;18:133-8. DOI: 10.1097/SLE.0b013e31815acb97
14. Hirano Y, Takeuchi H, Oyama T, et al. Minimally invasive surgery for esophageal epiphrenic diverticulum: The results of 133 patients in 25 published series and our experience. *Surg Today* 2013;43:1-7. DOI: 10.1007/s00595-012-0386-3

15. Zaninotto G, Parise P, Salvador R, et al. Laparoscopic repair of epiphrenic diverticulum. Semin Thorac Cardiovasc Surg 2012;24:218-22. DOI: 10.1053/j.semtcvs.2012.10.009



Fig. 1. Esophagogram. The arrow indicates a distal esophageal diverticulum. It is also observed an esophageal sacular dilatation; in the voiding, the presence of barium in the diverticular sac was maintained.

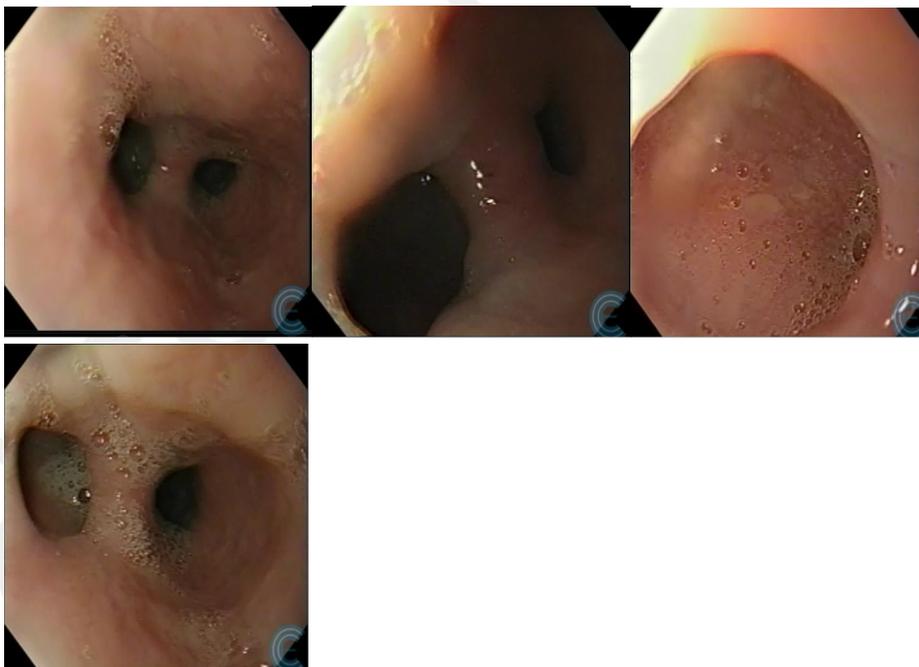


Fig. 2. Endoscopy images. The sacular dilatation in correspondence with an esophageal diverticulum is observed in the distal third.

Accepted Article