

THE INFLUENCE OF GASTROESOPHAGEAL REFLUX IN ORAL CAVITY

MARIA VITÓRIA JANKOVITZ¹, HENRIQUE DA GRAÇA PINTO², ROGÉRIO JARDIM CALDAS³, CARLA CRISTINA NEVES BARBOSA³, OSWALDO LUIZ CÉCILIO BARBOSA^{3*}

1. Undergraduate student, Dentistry Course, University of Vassouras; 2. Dental Surgeon. 3. Professor of the Dentistry Course, University of Vassouras.

* Lúcio Mendonça St, 24/705, Downtown, Barra do Piraí, Rio de Janeiro, Brazil. ZIP CODE: 27115-010. oswaldolcbarbosa@hotmail.com

Received: 04/02/2019. Accept: 04/30/2019

ABSTRACT

The gastroesophageal reflux disease (GERD) occurs from a failure of the esophageal valve, not having a single cause for this problem, but a series of factors that hinder the correct functioning of the valve, among which stand out: eating habits, smoking, some medications, which modify the stomach structure, compression of the abdominal cavity, obesity and pregnancy. This is due to the mechanisms involved in its pathophysiology, which once in contact with the oral cavity cause among others, dental erosion and canker sores. The objective of this study was to evaluate, through a literature review, how the gastroesophageal reflux disease influences patients' quality of life and their interference in the daily practice of the dental surgeon. In conclusion, the GERD interferes directly with patients' quality of life and with the daily practice of the dentist.

KEYWORDS: Oral cavity, gastroesophageal reflux disease, oral diseases.

1. INTRODUCTION

Gastroesophageal Reflux Disease (GERD) is a chronic condition resulting from failure of the esophageal valve, also called the cardiac valve, where its relaxation in the lower portion causes a return of inappropriate content to the esophagus and adjacent organs. The esophagus has in its histological constitution mucosa is similar to the mouth^{1,2}.

In cases of valve failure, the return of a stomach acid material not suitable for the esophageal mucosa, causing it to attack and causing lesions. The return of acid can reach the mouth causing various symptoms such as: burning, burning and discomfort¹.

The gastroesophageal reflux disease has multiple factors involved in its pathophysiology, the main one is the return of stomach acid through relaxation of the lower sphincter of the esophagus to the oral cavity, in this, the mucosa and hard tissues can be affected. The main interferences in the oral cavity are dental erosion and aphtha³.

Dental erosion is characterized by irreversible and progressive loss of dental hard tissue through a chemical process without bacterial action. Considered multifactorial erosion may have extrinsic sources such as dietary habits and lifestyle and intrinsic as systemic diseases⁴.

Aphtha (or APHTAE) was the term used by

Hippocrates (460-370 BC), the father of medicine, to identify oral disorders, later extending to any mucosal ulceration. Aphtha sores are classified into three types: Smaller (or Mickulicz), Greater (or Sutton's) and Hepetiformes^{5,6}.

Contact of the gastric juice of the larynx and pharynx causes inflammation and edema even with little exposure. The histology of the distal esophagus should complement the upper digestive endoscopy⁷. Histologically, the replacement of the typical stratified squamous esophageal epithelium with columnar epithelium with goblet cells, where it is believed that the appearance of columnar epithelium covering the distal esophagus is a restorative response, but that the addition of duodenal content to acid reflux is responsible by the appearance of intestinal cells and, consequently, of pre-malignant potential⁸.

The diagnosis through detailed anamnesis is important since several patients do not present symptomatology. This phase of absence of symptoms has a lot of relevance for dental surgeons, since the patients present with ulcerous lesion in the buccal mucosa. When the patient has symptoms, he reports the following symptoms: heartburn (or heartburn) and acid regurgitation, where the intensity, duration, triggers and improvement need to be evaluated. It is associated with imaging exams, such as: upper digestive endoscopy, prolonged esophageal pHmetry, contrast radiological study of the esophagus, esophageal manometry and esophageal impedanciometry; help to define the diagnostic hypothesis⁹.

The clinical treatment provides relief of symptoms, healing of lesions and prevention of relapses and complications, minimizing the aggressive potential of the acid content. Behavioral measures should be used in the treatment, among them we can mention: moderate the intake of fatty foods, citrus fruits, coffee, alcoholic beverages, among others, raise the bed head (15 cm), smoking cessation, slimming and special care for medicines that cause aggression of the mucosa as the antihypertensive beta-adrenergic agonists and calcium channel blockers⁹.

With respect to the pharmacological measures we can mention the intake of antacids based on calcium hydroxide, magnesium and aluminum, others as medications that accelerate gastric emptying, and still inhibitors of the proton pump⁹.

Dental treatment should begin with a treatment plan for oral rehabilitation where the dentist should intervene when the changed condition is resolved. Currently there are varieties of restorative materials that allow the natural structure of the tooth always preserved as possible. Minimally invasive treatments have a good prognosis, provided there is sufficient dental structure. Ceramic restorations, cast metal pins, pins, among others can be successful. The dental surgeon can use fluoride exerting the protective effect, where it can activate the process of remineralization⁴.

The diagnosis made through detailed anamnesis shows that several patients do not present symptoms. This stage of absence of symptoms has a lot of relevance for dental surgeons, since the patients present already with ulcerous lesion in the buccal mucosa. Through clinical history clinical history, we identified the characteristic symptoms, their duration, intensity, frequency, triggering and relief factors, pattern of evolution over time and impact on quality of life.

When it already has symptoms, it refers to the following: heartburn (or heartburn) and acid regurgitation, where the intensity, duration, triggers and improvement need to be investigated. Pyrosis is defined as a retrosternal burning sensation that radiates from the sternal manubrium to the base of the neck. It is associated with imaging exams, such as: upper digestive endoscopy, prolonged esophageal pHmetry, contrast radiological study of the esophagus, esophageal manometry and esophageal impedanciometry help to define the diagnostic hypothesis¹⁰.

In addition, other clinical manifestations may be due to gastroesophageal reflux. Atypical manifestations are the non-coronary chest pain, respiratory (cough and bronchial asthma), otorhinolaryngological (dysphonia, throat and throat sensation) and oral (dental erosion, thrush, halitosis)⁹.

GERD responds satisfactorily to clinical treatment. However, after withdrawal of the medication, symptoms return. This is because it is a chronic disease, necessitating, therefore, chronic administration of PPI. This is the so-called maintenance treatment, in which the minimum dose that can keep the patient without symptoms should be administered. Long-term therapy is effective, and there is no evidence of dysplasia or neoplasia¹⁰.

Finally, the surgical treatment indicated when there is intolerance to clinical treatment and complicated forms of the disease¹⁰.

The objective of this study was to evaluate, through a literature review, how the gastroesophageal reflux disease influences patients' quality of life and their interference in the daily practice of the dentist surgeon.

2. MATERIAL AND METHODS

A bibliographic search was carried out in the most up-to-date databases on the subject. Organizing in an exploratory way related to the proposed theme. The materials used were of various natures (among books, articles, periodicals, monographs, dissertations, theses

and scientific materials online), which were gathered through research on topics such as manifestations in the oral cavity, gastroesophageal reflux, and organized through the content presented in order to help in guiding the theme of the work.

3. DISCUSSION

Increasingly present in the daily clinic, it is estimated that GERD is one of the most common diseases in the world population, this compromises the quality of life of the patient, due to its complications, intensity and diversity of symptoms. It is estimated that in Brazil the incidence rate of this pathology is 20 million Brazilians or 12% of the population¹⁰.

The symptoms may be classic (of varying severity) or imperceptible by the patient over a long period of time where they end up harming the quality of life and can bring serious complications. This condition is also one of the most common causes of gastroenterological consultations^{1,11,12}.

The manifestations of GERD are also extra esophageal. Studies performed in the oral cavity show that the associated reflux content and its enzymes are still undervalued. These studies conducted in the last 40 years show that there is a failure of cellular balance in the presence of gastric contents in various places of the body. Saliva have several proteins that act on the essential functions of the homeostasis of involved structures and can be degraded by the pepsin of the origin of the returned secretion of the esophagus acting on the oral cavity of various forms¹³⁻¹⁵.

With so-called imperceptible symptoms, dental surgeons have been responsible for diagnosing the presence of GERD, where in a routine visit dental erosions can be observed, especially in posterior teeth. This is reported as the main symptom of silent GERD, which should serve as a warning sign. In addition to the above symptom, patients may report: thrush, sour taste, burning, sensitivity and halitosis, which may help the clinician to determine and perform a differential diagnosis. However, it is necessary to refer to a gastroenterologist to define the diagnosis^{3,16,17}.

The gastroenterologist has an important role for diagnostic confirmation, a detailed anamnesis is necessary, where the medical history is taken into account, as well as subsidiary examinations. Among the main exams we can mention the upper digestive endoscopy is the exam of choice that allows to diagnose conditions associated with GERD and is indicated for those patients who present chronic symptoms of the disease. Esophageal phmetry, exam that is given by the introduction of a probe in the esophagus that is able to monitor and measure the acidity present in it for a period of 24 hours, allowing including verification of esophageal acidity during sleep^{10,18,19}.

The discomfort caused by GERD causes patients with this disease to visit the dentist surgeon frequently in order to find relief from the discomfort caused by the various episodes of the symptoms reported extra esophageal. Meanwhile, the dental surgeon aims to

bring comfort to the patient to perform the treatment in a way that it successfully reaches its objectives, reestablishing the function that may be involved. In order for dental treatment to be performed and a successful prognosis is obtained, the patient must first perform the ideal treatment for reflux according to the physician, and may use antacids that neutralize salivary pH. Thus, the potential of regurgitated acid is diminished allowing the restorative therapy based on the symptoms that affect the patient^{4,16,18,19}.

GERD is an intrinsic factor of dental erosion, reduction of enamel brightness, polishing of dental surfaces and prosthetic teeth with a chamfer finish, these being the clinical manifestations of erosion. The rehabilitation therapy will depend on the amount of enamel lost, where the natural dental structure should be preserved. Currently there are various aesthetic, adhesive and mechanical resistance possibilities in restorative materials. Direct restorations in composite resin are considered excellent when there is a quantity of dental structure. However, when dental loss is extensive indirect metaloceramic or pure ceramic restorations may be used. Rehabilitation can be used in both the anterior and posterior regions, always evaluating the degree of hard tissue lost to indicate the best treatment^{4,18}.

The remineralization therapy with toothpaste with remineralizing capacity based on sodium fluoride, calcium, phosphate and fluoride was effective in the treatment of erosion when loss of enamel is not extensive²⁰.

In the dental office, the dentist can use the fluorine being this the main remineralizing agent that acts through the increase of the superficial resistance from the mineral recovery. Fluoride varnishes even the concentration of 0.01% also result in an increase in surface resistance exposed to erosive agents, having this effect being attributed to its mechanical action due to its adherence to dental structure²¹⁻²³.

Several studies have shown the sore as an extra esophageal symptom in patients with GERD. Even today, there is no consensus on the treatment of aphthous ulcers, many of them are still ineffective, and so it ends up being empirical, just to give comfort to the patient, relieving the discomfort of the same. For this, the dental surgeon can guide the patient to maintain a good oral hygiene and the exchange of a dental brush with a soft one to avoid trauma. Topical medications like Triamcinolone dramatically reduce pain but not the duration of the episode. Natural medicines have been used in the form of orabasis like propolis and the chamomile has had satisfactory results as the resolution of the pain and the time of healing by its anti-inflammatory actions thus having promising results^{2,4,6,24,25}.

The alteration of salivary pH due to GERD as shown in recent studies also causes xerostomia¹, where the affected patient may still complain about the sensation of dry mouth and difficulty in swallowing food. Sugar-free chewing gums and urea-containing gums help

stimulate secretion production. The dentist can also propose the use of artificial saliva for patient relief giving comfort to chew and food intake²⁶.

4. CONCLUSION

It is concluded that GERD has a variety of extra esophageal symptoms that mainly affect the oral cavity causing oral alterations where the dentist has a fundamental role in the diagnosis and treatment of the same. Among them are dental erosions, canker sores, oral burning and tooth sensitivity. Therefore, we can say that the presence of GERD oral cavity could be promotes symptoms that cause discomfort to the patient, worsening their quality of life. It is also important to emphasize that the diagnosis positively influences the choice of the patient's treatment plan can be performed by a multidisciplinary team (Dental Surgeon and/ or a Physician).

REFERENCES

- [1] Ranjitkar S, Kaidonis JA, Smales RJ. Gastroesophageal Reflux Disease and Tooth Erosion. *Int J Dent* 2012; 1(1):1-10. Doi:10.1155/2012/479850
- [2] Defácio JA. Refluxo gastroesofágico com epigastralgia persistente. *Relato de caso. Rev Dor* 2010; 11(1):87-89.
- [3] Corrêa MCCSF, Lercio MM, Henry MACA. Estudo de alterações na cavidade oral em pacientes com doença do refluxo gastroesofágico. *Arq Gastroenterol* 2008; 45(2):132-136.
- [4] Branco CA, Valdivia ADCM, Soares PBF, Fonseca RB, Fernandes Neto AJ, Soares CJ. Dental erosion: diagnosis and treatment options. *Rev Odontol UNESP*. 2008; 37(3): 235-242.
- [5] Consolaro A, Consolaro MFM-O. Aftas após instalação de aparelhos ortodônticos: porque isso ocorre e protocolo de orientações e condutas. *Rev. Dent. Press Ortodon. Ortop. Facial* 2009;14(1):18-24.
- [6] Gazel M, Frazão MSV, Avelar BM, Navarro-Rodriguez T. Aftas orais. *Rev. Clin. Ter.* 2005; 6(1):23-28.
- [7] Vieira MC, Pisani JC, Mulinari RA. Diagnóstico de esofagite de refluxo em lactentes: a histologia do esôfago distal deve complementar a endoscopia digestiva alta. *J Pediatr (Rio J)* 2004; 80(3):197-202.
- [8] Dotti, VP, Baretta GAP, Yoshii SO, Ivano, FH, Ribeiro HDW *et al.* Termocoagulação endoscópica do esôfago de Barrett com plasma de argônio sob diferentes potências: análise histopatológica e de sintomas pós-procedimento. *Rev. Col. Bras. Cir* 2009; 36(2):110-117.
- [9] Moraes-Filho JPP, Domingues G. Doença do refluxo gastroesofágico. *Rev. Bras. Med.* 2009; 66(9):303-310.
- [10] Henry MACA. Diagnosis and management of gastroesophageal reflux disease. *ABCD. Arquivos Brasileiros de Cirurgia Digestiva* 2015; 27(3): 210-215.
- [11] Ranjitkar, S, Kaidonis JA, Smales RJ.. Gastroesophageal Reflux Disease and Tooth Erosion. *International Journal of Dentistry* 2012; 6(3): 1-10. doi:10.1155/2012/479850
- [12] Nasi A, Moraes-Filho JPP, Ceconello I. Doença do refluxo gastroesofágico: revisão ampliada. *Arq Gastroenterol* 2006; 43(4):334-341.
- [13] RodriguesACPM. Presença de Biomoléculas Gástricas na Cavidade Oral: Consequências Bioquímicas e Fisiopatológicas. [Dissertação] Porto: Faculdade de Medicina Dentária da Universidade do Porto; 2016.

- [14] Corrêa .C, Lerco MM, Cunha M de L, Henry M. A., (2012). Salivary parameters and teeth erosions in patients with gastroesophageal reflux disease. *Arq Gastroenterol.* 2012; 49(3):214-8.
- [15] Filipi K., Halackova Z, Filipi V. Oral health status, salivary factors and microbial analysis in patients with active gastro-oesophageal reflux disease. *Int Dent J.* 2011; 61(4):231-237.
- [16] Alli DA, Brown RS, Rodrigues LO, Moody E, Nars M. Dental erosion caused by silent gastroesophageal reflux disease. *JADA* 2002; 1(133):734-737.
- [17] Vargas LT, Vargas NT, Cardenas GV. Erosiones dentales en pacientes con diagnóstico de enfermedad por reflujo gastroesofágico en el Hospital Nacional Arzobispo Loayza. *Rev Gastroenterol Perú* 2012; 32(4):343-350.
- [18] Yang VW, Wehbi M. *Understanding Acid Reflux and Its Dental Manifestations.* Tulsa; 2007. [acesso em abril 2019]. Disponível em www.dentistryiq.com.
- [19] Sujatha S, Jalihal U, Devi Y, Rakesh N, Chauhan P, Sharma S. Oral pH in gastroesophageal reflux disease. *Indian J Gastroenterol* 2016; 35(3):186-189.
- [20] Santos LGS. Distúrbios alimentares – erosão dental por refluxo de ácidos gástricos. *De Jure.indd* 2006; 1(6):165-179.
- [21] Messias DCF, Serra MC , Turssi CP. Estratégias para prevenção e controle da erosão dental. *Rev Gaúch Odontol* 2011; 59(1):7-13.
- [22] Vieira A, Ruben JL, Huysmans MC. Effect of titanium tetrafluoride, amine fluoride and fluoride varnish on enamel erosion in vitro. *Caries Res* 2005; 39(5):371-379.
- [23] Vieira A, Jager DH, Ruben JL, Huysmans MC. Inhibition of erosive wear by fluoride varnish. *Caries Res* 2007; 41(1):61-67.
- [24] Santana C. Aftas podem denunciar problemas gastrointestinais. *Blumenal*; 2019. [acesso em abril 2019]. Disponível em www.digest.med.br.
- [25] Pensin NR, Pensin C, Miura CSN, Boleta-Ceranto DCF. Efeito de Pomada de Própolis em Orabase para tratamento de ulcerações aftosas recorrentes – um estudo piloto. *Arq. Ciênc. Saúde* 2009; 13(3):199-204.
- [26] Guggenheimer J, Moor PA. Xerostomia. *JADA* 2003; 134(1):61–69.