

Oral stigmatic lesions of gastroesophageal reflux disease (GERD)

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ABSTRACT

Patients with gastroesophageal reflux may have extra-esophageal manifestations. We report a 46 years old ex-smoker woman presenting with a sensation of burning mouth, xerostomia and glossitis. The patient had a history of heartburn, dysphonia and cough. Mouth examination showed a bad hygiene and abundant accumulation of plaque. Esophageal pH measurement was abnormal. Laryngoscopy showed a posterior laryngeal inflammation and mucous secretion. With these data, a diagnosis of gastroesophageal reflux was reached.

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Key words: Gastroesophageal reflux; Oral hygiene; Pathology, oral.

Lesiones en la cavidad bucal en reflujo gastroesofágico. Informe de un caso

Los pacientes con reflujo gastroesofágico pueden tener manifestaciones extra esofágicas. Presentamos una mujer ex fumadora de 46 años que se presentó con sensación de quemazón en la boca, xerostomía y glositis. La paciente tenía además una historia de pirosis retroesternal, disfonía y tos. El examen bucal mostró una mala higiene bucal con abundante acumulación de sarro. Una medición de pH esofágico fue anormal. La laringoscopia mostró una inflamación laríngea posterior y secreción mucosa. Con estos antecedentes se llegó al diagnóstico de reflujo gastroesofágico.

Gastro-esophageal reflux disease (GERD) is a common condition and its prevalence varies in different parts of the world. GERD incidence in the population ranges from 20% to 60%^{1,2}. The most common symptoms of GERD are heartburn and acid regurgitation. Other common symptoms include water brash, belching, and nausea³. However, symptoms of GERD could affect various tissues and organ systems beyond the esophagus: they represent the so called "extra-esophageal manifestations" that include atypical chest pain that can simulate angina pectoris; ear, nose, and throat (ENT) manifestations such as globus sensation, laryngitis; pulmonary problems such as chronic cough, asthma, pulmonary aspi-

ration and sleep apnoea⁴. The Montreal definition and classification of GERD has described well-established associations, although not necessarily causal, between GERD and cough, laryngitis, asthma, and dental erosion¹. Upper respiratory tract manifestations of GERD (included the oral manifestations) such as dysphonia, laryngitis, temporomandibular disorders, xerostomia, halitosis and mucositis are widely described in the literature as related to GERD.

Classic reflux symptoms may be absent in more than half the patients presenting with extra-esophageal symptoms. For this reason, the first provisional diagnosis of GERD may be made by a dental practitioner as a result of clinical observation

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of enamel erosion or oral mucosal status⁵. The purpose of this report is to highlight GERD symptoms and signs involving oral hard and soft tissues.

Case report

A 63 years old Caucasian woman, former smoker, complaining for about one year a feeling of burning mouth with a greater emphasis to the lingual mucosa, presented to our observation. The symptom was increased after the consumption of acid foods and/or especially hot, determining an irradiation of the burning to the palatine mucosa. In addition she complained of xerostomia that the patient reported as a feeling of "stuck mouth". She had a history of high blood pressure, receiving ACE inhibitors and diuretics. In addition she took antacids for acid indigestion. She also referred occasional hoarseness, cough and heartburn. The intraoral examination showed poor oral hygiene conditions with abundant accumulation of plaque and calculus. Erosion of the enamel and dentin of the residual teeth (Grade 3 according to the scale of Eccles and Jenkins) were also noted⁶. The most involved teeth were the molars, above all their lingual and palatal surfaces. The tongue appeared markedly atrophic with a scrotal aspect (Figure 1) and the palatine mucosa (hard and soft palate) appeared hyperaemic, suffering and erythematous. The orifices of the salivary minor glands showed a classic appearance as pin-spot (Figure 2). The following examinations were then required: oral buffer for mycetes researching (*Candida* species), blood count with formula, finding of SSA and SSB auto-antibodies and gastroenterological evaluation for GERD. The patient's swab did not revealed any fungal infection (according to the negative lingual buffer) and the hemocromocitometric values were normal. SSA and SSB auto-antibodies (related to the suspicious diagnosis of Sjogren's syndrome) were not detectable. Distal esophageal pH monitoring recorded a DeMeester score of 16.23 -total of events: 92- events over 5 minutes: 0, total exposure time: 5.5%, events occurred when the patient standing/sitting or when laying down. pH metry was considered pathological. Endoscopic laryngeal examination revealed posterior laryngeal inflammation, slight vocal cord erythema and increased mucosal secretion. The urea breath test revealed that the patient was negative for *H. pylori*. A diagnosis of GERD, Grade II (according to Savary-Miller-

Monnier) was done. The patient was indicated to take omeprazole 20 mg daily for eight weeks. Amelioration of the symptoms and a considerable improvement of the oral lesions was observed (Figure 3). The dental hard tissues were properly restored and preserved.



Figure 1. Marked atrophy of the tongue dorsal surface causing burning sensation and xerostomia.



Figure 2. Pin-spot aspect of the palatal minor salivary glands: a sign of suffering leads to acid reflux.



Figure 3. Tongue healing after therapy.

Discussion

There is a close correlation between GERD and oral cavity diseases as it is recognized by gastroenterologists and other specialists⁷. The two possible mechanisms by which reflux related extra-esophageal tissue damages may occur are: 1) Direct damage deriving from mucosal contact (reflux theory) and 2) Vagally mediated reflex from distal oesophageal acid exposure (reflex theory)⁸. Therefore the refluxed acid material can damage extra-esophageal tissues included the oral cavity, particularly its hard and soft tissues. In some patients, a not particularly severe but chronic acid reflux, could damage the above mentioned tissues. In these cases, the quality and amount of saliva plays an important role in hard and soft oral tissues changes⁹. The hydroxyapatite crystals constituting the dental organic material may be dissolved by acid having a pH under the critical pH level of the dental enamel dissolution equal to 5.5¹⁰. The gastric reflux has a pH less than 2.0, so it can erode dental tissues¹¹. In 1933, Bodecker noted a relationship between gastrointestinal alterations and dental erosion; his thought was shared by Bergen and Austin in 1937 and two years later by Holst and Lange¹²⁻¹⁴. In 1971, Howden et al. reported that dental erosions may lead to the diagnostic suspect of acid reflux in patients with silent GERD¹⁵. The erosion determined by gastric reflux is typical because the lingual and occlusal surface of the posterior teeth is affected, as confirmed by some studies^{16,17}. The damaged teeth are the mandibular molars of the primary and permanent dentition. This kind of erosion is different from the vomiting one caused by bulimia because it involves the lingual surfaces of mandibular incisors. It also differs from the erosion caused by acids coming from extrinsic source, in which it is possible to note damage to the labial surfaces of the anterior teeth with a decreasing severity in the posterior area. Järvinen et al. underline the presence of burning mouth, aphthoid lesions and hoarseness in patients with disorders of the upper digestive tract¹⁸. Erythema of the soft palate and uvula, glossitis, epithelial atrophy, xerostomia could be common in GERD patients. However, the mucosal changes described are quite common and not pathognomonic and specific of GERD patients. In fact a careful differential diagnosis should be made with oral

candidiasis, Sjögren syndrome, changes in salivary flow, drug-related xerostomia and oral lesions induced by smoking. Moreover, dietary changes and poor oral hygiene can cause lesions similar to those induced by acid reflux. The association between oral mucosal manifestations, enamel erosions and the patient's symptoms should induce the dentist or the general practitioner towards the suspected diagnosis of GERD.

It is also relevant that the oral mucosa is protected by the buffering role of saliva: the salivary flow and, consequently, the amount of swallowed saliva, increases during the distal oesophagus acid stimulation because of the oesophagus salivary reflex¹⁹. The different clinical manifestations resulting from GERD require a correct clinical supervision in order to better characterize the clinical-pathological condition of the patient and to obtain an appropriate treatment to avoid eventual complications. Treatment options for GERD include lifestyle changes, medications, surgery, or a combination of methods. The classes of medications prescribed to treat GERD are pro-motility agents, H₂ blockers, and proton pump inhibitors. It is also necessary that the dentist recognizes the oral symptoms (dental erosion, burning mouth, epithelial atrophy, hyperaemia of palatine mucosal, halitosis, drooling) related to GERD and request the appropriate medical advice. On the other hand, patients affected by GERD, should be evaluated by a dentist to highlight the presence of oral involvement caused by GERD. The symbol of the stratification of the patients affected by GERD is the so-called "iceberg of Castell"²⁰. In this symbol, the "emergent" portion is the better-known, formed by all the patients complaining of typical symptoms, while the hidden part, called "emerging", is represented by patients with atypical symptoms which therefore require one or more medical consultations.

In conclusion, the fundamental requirement for a successful treatment of GERD is a multidisciplinary approach involving first of all the general practitioners: about 95% of GERD patients are managed in primary practice. Gastroenterologists, otorhinolaryngologists and dentists can support the medical management of GERD patients and they can recognize the secondary manifestations of GERD directing the patient towards the correct diagnosis.

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