CLINICAL ASPECTS OF THE ORAL MUCOSA IN PATIENTS WITH SLEEP-OCCURRING BRUXISM

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ABSTRACT

Aim of the study The objective of this study is represented by the identification of the clinical aspects of the oral mucosa in patients with bruxism occurring during sleep. **Material and methods.** The study group was represented by a number of 70 patients, women and men. The oral examinations were performed on a number of 51 patients who self-reported bruxism during sleep at the Oral Rehabilitation Clinic of the Faculty of Dentistry, "Ovidius" University in Constanța between January 2018 and January 2019. The collected data have were analyzed using the MICROSOFT-EXCEL program. **Results.** A number of 127 modifications in the oral mucosa were analyzed. The most frequent modifications were in the following regions**:** jugal mucosa (24%), inferior buccal alveolar mucosa (17%), superior buccal alveolar mucosa (10%), the dorsal surface of the tongue (10%). The presence of linea alba was observed in 51% of patients. The presence of geographic tongue (11.8%) and the presence of dental impressions (10.7%) was also observed. **Conclusions**. Oral mucosal modifications in patients with self-reported sleep bruxism are frequently found at the level of the jugal mucosa, inferior alveolar vestibular mucosa, superior alveolar vestibular mucosa and the dorsal surface of the tongue. Some of these modifications are manifestations in the context of bruxism, others have not been associated with bruxism until now.

Key words: clinical aspects, oral mucosa modifications, self-reported bruxism, sleep-occurring bruxism

INTRODUCTION

Nocturnal bruxism is described in the specialized literature either as a parafunction of the masticatory apparatus, or is included in the context of sleep disorders. In the general context of scientific concerns about bruxism, it should be noted that in 2013 an international consensus was reached by which bruxism was defined as a repetitive activity of the masticatory muscles characterized by clenching or grinding of the teeth and/or by the stiffening or thrusting of the jaw. Also, depending on the cicardian manifestation phenotype, the two types of bruxism were established and defined separately - occurring during sleep and during wakefulness [1].

Numerous studies have been conducted on the etiology of bruxism. They highlighted the role of genetic factors, psychosocial factors, certain drugs, occlusal interferences, certain conditions (Parkinson's disease, mandibular torus, oro-mandibular dystonia, Rett syndrome, Down syndrome, trauma and atypical facial pain). [2] Current biomedical literature suggests that sleep-induced bruxism is centrally and not peripherally regulated. [3]

For both sleep-onset and awake-onset bruxism, non-instrumental assessments include self-report (questionnaire, oral history) and clinical inspection. The instrumental assessment of bruxism involves the use of electromyographic recordings (EMG). [1,4]

MATERIAL AND METHODS

The study group was represented by a number of 70 patients, women and men. These patients were administered the clinical questionnaire to identify possible sleep

bruxism, 19 of whom were excluded from the study because they had no self-reported episodes of bruxism. Therefore, examinations of the oral mucosa were carried out in a number of 51 patients in the Oral Rehabilitation Clinic of the Faculty of Dentistry, "Ovidius" University of Constanța between January 2018 and January 2019. The clinical examination was carried out with the help of the consultation kit under good lighting conditions, using sterile compresses and consultation gloves. The examination covered the following regions: labial mucosa, jugular mucosa, bottom of the upper and lower mucobuccal fold, alveolar gingivo-mucosa, ventral surface of the tongue, dorsal surface of the tongue, lateral edges of the tongue, oral floor, soft palate, retromolar regions. Each patient's written consent was obtained after the procedure was explained. Inclusion criteria in the study were as follows: patients over 18 years of age, patients who expressed their consent to participate in the study. The exclusion criteria were the following: age younger than 18 years, pregnant patients, patients with malignant pathology in the Oral and Maxillo-Facial region, patients with autoimmune conditions, patients with neurological and/or psychiatric conditions regardless of the therapeutic status, patients who do not express their written consent to participate in the study. The collected data were analyzed using the MICROSOFT-EXCEL program.

RESULTS AND DISCUSSIONS

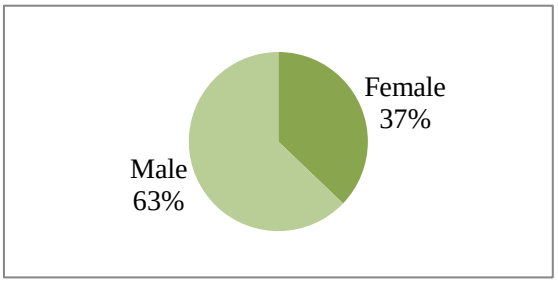

Figure 1: Distribution of the study grup by gender

In the present study, 37% of patients were female and 63% were male.

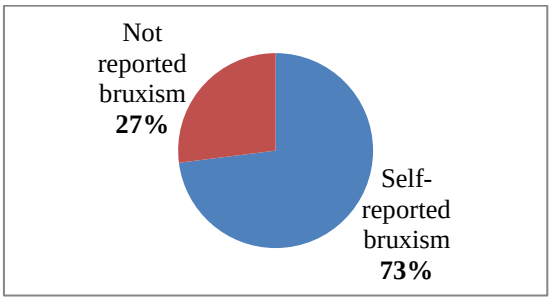

Figure 2: Distribution of the study group according to self-reported bruxism

73% of all patients self-reported episodes of bruxism during sleep.

Injuries caused by bruxism can be minor or substantial, affecting hard tissues, dental fractures, fractures of dental restorations. Also, episodes of bruxism can lead to damage or changes in soft tissues by traumatizing them (ulcerations, hypertrophy or hyperplasia). [5]

Among the cases studied, it was noted that the most common changes in the oral mucosa in patients with self-reported sleep bruxism were found in the following areas: jugal mucosa, inferior alveolar vestibular mucosa, superior alveolar vestibular mucosa, dorsal surface of the tongue (tab. I). In this study, it was noted that among the changes that existed at the level of the jugal mucosa, the most frequent is represented by the linea alba (51%) (fig. 3).

Moreover, Piquero et al.found no correlation between the appearance of linea alba and teeth grinding. [7] In a study carried out by Dimova-Gabrovska et al. it was highlighted that there is an uneven distribution of the masticatory load.

Tabel I: The number and percentage distribution of the observed modifications in certain regions of the oral cavity in patients with bruxism occurring during sleep time

Region (oral cavity)	Percentage distribution	Number of modifications
Labial mucosa	2%	3
Jugal mucosa	24%	31
Superior mucobuccal fold	0%	0
Inferior mucobuccal fold	2%	2
Superior buccal alveolar mucosa	10%	15
Superior oral alveolar mucosa	9%	11
Inferior buccal alveolar mucosa	17%	22
Inferior lingual alveolar mucosa	6%	8
Ventral surface of the tongue	4%	5
The dorsal surface of the tongue	10%	10
Lateral edges of the tongue	6%	8
The floor of the mouth	0%	0
Soft palate	4%	5
Retromolar region	6%	7

Tabel II: Distribution of modifications in the jugal mucosa

Type of modification in the jugal mucosa	Distribution of modifications in the jugal mucosa
The presence of linea alba	51%
Traumatic injuries	8.8%
Tumors	3%
No modifications	37%

Tabel III: Distribution of modifications in the dorsal surface of the tongue

Type of modification in the dorsal surface of the tongue	Distribution of modifications in the dorsal surface of the tongue
Traumatic injuries	0%
Geographic tongue	11.8%
No modification	88.2%

Tabel IV: Distribution of modifications in the lateral edges of the tongue

Type of modification in the lateral edges of the tongue	Distribution of modifications in the lateral edges of the tongue
Traumatic injuries	5.9%
The presence of dental impressions	10.7%
No modification	83.4%

The specialized literature, through the studies published by certain authors, highlights the fact that the presence of the linea alba is not conclusive evidence for the presence of bruxism, as this change also occurs in patients who do not present episodes of bruxism [6].

Figure 3: The presence of linea alba bilaterally in one male patient

Figure 4: The presence of a tumor on the jugal mucosa in one female pacient

Figure 5: The presence of geographic tongue and dental impressions on the lateral surfaces of the tongue in the same pacienT

According to them, in 76% of the cases, occlusion disorders were detected, in 88% of the patients hyperkeratosis of the oral mucosa was observed, and in 77.3% it presented a location on the line of occlusion of the teeth. [8]

Among the tumor formations identified at the level of the oral mucosa in this study, the most frequent were represented by the tumor formations with the appearance of a mucocele (fig. 4) located at the level of the jugal mucosa (tab. II). Minor salivary gland mucoceles are common oral lesions with a prevalence of 2.5 cases per 1000 people and are caused by obstruction of an excretory duct. Mechanical trauma is a likely cause, sometimes being associated with bruxism. [9]

The presence of dental indentations on the lateral edges of the tongue is considered to be a manifestation of bruxism and a clinical sign of stress. [10] In our study we observed the presence of dental impressions at the level of the lateral edges of the tongue in 10.7% of patients (tab. IV). At the same time, the coexistence of dental impressions at the level of the lateral edges of the tongue and the tongue with a geographical aspect was observed in only one case (fig. 5). No studies were found associating the presence of a geographic tongue with bruxism. Numerous studies have shown a link between asthma, allergic rhinitis, patients with higher levels of immunoglobulin E and geographic tongue. [11]

CONCLUSIONS

1. Oral mucosal modifications in patients with self-reported sleep bruxism are frequently found at the level of the jugal mucosa, inferior alveolar vestibular mucosa, superior alveolar vestibular mucosa and the dorsal surface of the tongue.
2. Some of these modifications are manifestations in the context of bruxism, others have not been associated with bruxism until now.
3. New research is needed on all oral mucosal modifications in the context of bruxism.

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