

THE SUCCESSFUL CONTROL OF THE BRUXISM. A NEW GENERATION OF OCCLUSAL TRAY

V. NICOLAE¹

“Lucian Blaga” University of Sibiu

Keywords: bruxism, occlusal tray

Abstract: Bruxism represents one of the major dental diseases, a recent study demonstrating that up to 50% of the population shows significant signs of wear on the surface of the teeth. The control of the bruxism can be achieved through a few successful methods. This article is based on a simple and efficient method which is yet not fully used- the use of the simple occlusal trays, especially the anterior tray. Since the bruxism can cause headaches and temporal mandibular joint dysfunctions, the following part will be based on the destructions caused to the teeth and to the restorations .

Cuvinte cheie: bruxism, occluzale, gutiere

Rezumat: Bruxismul reprezintă una dintre bolile dentare majore, un studiu recent demonstrând că până la 50% din populație prezintă semne semnificative de uzură pe suprafața dinților. Controlul bruxismului poate fi realizat prin câteva metode de succes. Acest articol se axează asupra unei metode simple și eficiente, care este totuși mult sub utilizată - folosirea gutierelor occluzale, cu accent pe gutiera anterioară. Deoarece bruxismul poate provoca cefalee și disfuncții temporomandibulare (DTM), comentariul următor se va axa pe distrucțiile provocate dinților și restaurărilor.

SCIENTIFIC ARTICLE PREDOMINANT THEORETICALLY

The dental destructions

The bruxism is one of the important causes of the dental attrition. In the younger persons with minimal dental wear it is easy to forget that there is a developing process that can lead in time to the severe deterioration of the teeth. This process is emphasised by a few factors including the presence of the acid in the diet, the low salivation and certain medicines. The diagnostic of the early signs of the bruxism and of the teeth wear , the identification of the triggering factors and the intervention to stop the process, together with the prevention of the worsening of the affliction have a remarkable importance. The fractures of the dental substance are also usual phenomena, especially those which imply teeth with deep and extensive restorations.

The deterioration of the restorations

It is generally known the fact that the veneers, the crowns, the bridges and the inlays placed in the oral cavity of the patients with bruxism are prone to the fracturing of the ceramics or to major destructions due to the oversoliciting. However, many ceramics restorations are inserted when there are signs of mild to severe bruxism , in the absence of other protection forms. The sum of the forces developed is bigger during sleep. This is the moment when there is the maximum probability for the deteriorations to appear in the restorations and the teeth.

The occlusal tray

The occlusal tray is an efficient solution to ensure the protection of the teeth and of the restorations. Despite the fact that it has an important protective purpose , it is well known the fact that the occlusal tray is not fully used. Why is it that the occlusal trays are not routinely prescribed knowing the fact that up to 50% of the patients present significant attrition? There are serious reasons why the dentists are sceptical in offering occlusal trays for such patients. Most of these reasons are due to the complete occlusal tray.

A. Problems associated to the complete occlusal tray

1. *The compliance of the patient*

Many dentists have discovered that due to its relatively large dimensions, the compliance and the long term comfort of the patients are often difficult to obtain for the occlusal tray. This is mainly the case of the patients who are not motivated by the need to control their pain and who wear the dentures only for protection purposes.

2. *Time consumption from the clinical point of view*

To achieve the necessary criteria for the use of a tray for the entire oral cavity it might be necessary a difficult and time consuming procedure which assumes the obtainance of the simultaneous contact of all the antagonist teeth, as well as the cuspid and the anterior guidance.

3. *The bruxism on the tray*

The studies have proved the fact that the bruxism continues during the wear of the complete occlusal tray and that the forces with action on the tray can be close to the maximum voluntary contraction. This persistence of the bruxism can be frequently noticed due to the wear and the fissures which appear on the occlusal surface of the tray. The continuing of the intense occlusion on the tray during sleep often leads to pain in the masticatory muscles and headaches, often present in the morning. The anterior tray avoids the problems previously described associated with the complete tray.

B. The anterior tray

The experts and the dentists specialised in general dentistry have successfully used the anterior trays for many years. Recently, the anterior trays have gained an important popularity after the anterior tray has been approved by the Food and Drug Administration(FDA)from the United States of America for the bruxism control, temporal-mandibular joint pains and headaches.

The advantages of the anterior tray

a. The significant reduction of the intensity of the bruxism

A major advantage of the anterior tray is represented

¹Corresponding Author: V. Nicolae, 44-46, Bl. Victoriei street, Sibiu, Romania; e-mail: dento.medica@yahoo.com; tel +40-0721212878
Article received on 20.08.2010 and accepted for publication on 21.02.2011
ACTA MEDICA TRANSILVANICA March 2011; 2(1)249-250

by the significant reduction in the bruxism intensity when the device is worn. A recent study has indicated a reduction of over 70% of the maximal possible occlusion force both for the masseters as well as for the temporals with the use of the anterior tray properly conceived. The anterior trays are conceived so that there are no contacts on the lateral teeth for any mandible movement. When only the anterior teeth are in contact with the tray, the pressure receptors from the periodontal ligament diminish the intensity of the occlusion forces. In the case of the use of a complete tray, the studies have shown that there is no reduction of the maximal voluntary contraction. It has also been proved that the anterior tray has a strong effect in the reduction of the symptoms associated with the pains in the temporal mandibular joint.

b. The minimal intraoral covering

The nonobstructive dimension in which usually there are covered 6 anterior teeth, ensures a maximal degree of comfort and the acceptance of the patient.

c. Minimal time spent in the dental practice

The anterior contact on 2-4 teeth is the only necessary thing to obtain the inhibiting effect over the bruxism. It obviously contrasts with the complete tray which often requires much longer interventions in the dental practice in order to obtain the simultaneous occlusal contact on all the antagonists.

C. Myths associated with the trays with partial covering

1. Over-eruption

Many dentists believe, reflecting on this problem, that the teeth uncovered by an occlusal tray will suffer from over-eruption, with harmful effects on the occlusion. FDA from the United States has recently coordinated a study in which it has examined the possibility of over-eruption of the teeth when the anterior trays are worn during sleep only. In this study there have been interviewed 40 remarkable American orthodontists and it has been revised the specialty literature over this concern. The study has concluded that the "use during daytime of the device in the conditions of a normal dental function will not induce and will not allow the dental over eruption".

2. The overloading of the antagonist teeth

Even if there can only be 2 anterior antagonists which contact the occlusal surface of the device in centric occlusion, they do not become over solicited due to the decrease in the intensity of the bruxism.

D. The therapy with the help of the occlusal tray in the case of the headache.

A new and interesting treatment method for the dentists. It has been proved the fact that the headache can be successfully treated with the help of the anterior tray. The migraine and the headache in the form of the tension feeling in the head belong to a category known as benign headache. While the headache diagnostic can be established only by the practicing doctor, multiple studies have reached the conclusion that the bruxism and the muscular dysfunction are major favouring factors and that the dentists play an important part in the control of the headache.

The therapy through the use of an anterior occlusal tray represents an efficient non-medicine treatment, without adverse effects for a lot of people who suffer from headaches.

BIBLIOGRAPHY

1. Hutu E. și colab. : Tehnici curente în practica dentară. Ed. Didactică și Pedagogică, București 1999
2. Bakke M. Moller: Occlusion, Malocclusion and Craniomandibular Function. Quintessence-Chicago, 1991
3. KLINEBERG: "Bruxism: Aetiology, Clinical Signs And Symptoms" - Aust Prosthodontic J, 1994, 8, 9 – 17
4. THORPY M. J.: "Parasomnia, International Classification Of Sleep Disorders" - Rochester, 1990
5. SLAVICEK R. : " Reflexions Sur Les Soi - Disant Parafonctions" - Rev Orthop Dent, 1996, 30, 75 – 88
6. CHAPOTAT B.: "Bruxisme Du Sommeil" - J Parodontologie, 2003, 18, 3, 277 – 289
7. OHAYON M.: "Risk Factors For Sleep Bruxism In The General Population" - Chest, 2001, 119, 1, 53 - 61

CONCLUSIONS

The bruxism, that main entity in the myriad of dysfunction occlusal vertical and horizontal is abrades, dysfunctional teeth on both dental arches