

THE EFFECTS OF BRUXISM ON STOMATOGNATHIC SYSTEM

S. NICOLAE¹

PHD candidate "Lucian Blaga" University of Sibiu

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Abstract: Bruxism, one of the major disturbance of the stomatognathic system, affects almost half of the population in the countries where there have been performed studies about this disease. These studies have shown important signs of usage of the occlusal surfaces of the teeth. Evaluation and rehabilitation of patients suffering from bruxism is a major challenge and can be performed by using some simple and effective therapeutic techniques. This study is about a simple, very effective method which is in handy for any practitioner, but is not really used: placement of night guards on the occlusal surfaces of the teeth with the accentuation of functional usage of the anterior guards. Because in most of the studies there have been outlined temporo-mandibular dysfunctions, diffuse headaches and muscular disorders, in this study we will highlight the complications caused by teeth destruction and by restorations.

Rezumat: Bruxismul, una din afecțiunile majore ale aparatului dento-maxilar, afectează aproape jumătate din populația țărilor în care s-au dispus studii pe această temă. Aceste studii au evidențiat semne importante de uzură a suprafețelor ocluzale a dinților. Evaluarea și reabilitarea pacienților cu bruxism este o provocare, dar, totodată poate fi realizată prin câteva tehnici cu succes terapeutic. Prezentul studiu se va rezuma la o metodă simplă și la îndemâna oricărui practician, metodă deosebit de eficientă, dar care este totuși puțin utilizată: plasarea gutierelor pe suprafețele ocluzale ale arcadei dentare cu accentuarea utilizării funcționale a gutierelor anterioare. Deoarece în majoritatea studiilor au fost relevate mai ales disfuncțiile temporo-mandibulare, cele musculare și cefaleele difuze provocate de bruxism, în următoarele rânduri ne vom axa pe complicațiile provocate de distrucțiile dentare și pe cele provocate de restaurările protetice.

SCIENTIFIC ARTICLE OF THEORETICALLY PREDOMINANCE

Bruxism and loss of tooth substance from the occlusal surface

Bruxism is one of the major causes of attrition and the negative phenomenon produced by it, reason why the practitioner is bound to identify some criteria of evaluation of the patients with potential in producing bruxism:

- Diagnosis of early signs of bruxism
- Early identification of other causes of tooth wear production
- Identification of exacerbation factors of bruxism
- Control and techniques appliance in order to stop and eliminate the causes of tooth wear process
- Identifying all methods of prevention of aggravation of the phenomenon of bruxism

Often, it is passed too easily over the loss of discrete causes of tooth substance caused by pathological tooth wear in younger patients. This overlooks the fact that these processes are ongoing and in time can lead to sever dental damage. It is important to identify the fractured tooth substance, bruxism usual phenomenon, particularly pronounced in teeth with deep and extensive restorations (fillings on non-vital teeth, MOD fillings, on-lay). Abrasion of the teeth is enhanced by several factors, such as excessive consumption of acid foods and liquids, reduced salivary secretion or administration of drugs that reduce acid secretion.

Bruxism and prosthetic restorations destructions

All practitioners know that the mixed restoration crown facets or total physiognomy ceramic crowns, fixed partial

dentures, especially components, in-lay installed in sites in the oral cavity of patients with bruxism are prone to fracture or major destruction over night due to overload. More recently, prosthetic restorations on implants are subject to the same negative phenomena, adding the risk of fracture of the over-implant components (screws, abutments, cervix) or even the implant body. However, many ceramic dentures are placed in the oral cavity were found discretely signs of bruxism, sometimes even with moderate or severe signs, without the practitioner to take the most basic forms of protection of restorations. It is known that the total of forces which are developed within bruxism are at their maximum peak during sleep (in the form of nocturnal bruxism).

Night is when there is maximum likelihood for the occurrence of damage, for the prosthetic reconstruction and for the natural teeth.

The occlusal mouth guard in bruxism

Occlusal mouth guard is an effective therapeutic solution to ensure better protection of teeth and prosthetic restorations. Although, these occlusal mouth guards have an important protective role, it is well known that in practice, they are rarely used. Probably, if the dentists would know that up to 50% of our patients present at various stages evolutionary attrition, they would frequently prescribe occlusal mouth guards worn overnight. There are reasons why some dentists have reservations in recommending occlusal mouth guards for patients with moderate signs of bruxism. Most of these reserves are due to dissatisfaction experienced by patients on the comfort of wearing total mouth guards.

¹Corresponding Author: S. Nicolae, 44-46, Bd. Victoriei street, Sibiu, România; e-mail: dento.medica@yahoo.com; tel +40-0721212878
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Total mouth guards adherence

Dental practitioners have again found that due to its relatively large size, long-term compliance and comfort of the patients is often difficult to obtain using an occlusal mouth guard with extended throughout the arch.

This is amplified in recalcitrant patients, especially those who do not understand the long-term consequences of pathological abrasions, and those who have no obvious signs of collateral are not motivated by need of pain control. Other patients do not accept that the toothless prosthetic restoration protocol treatment should begin by wearing mouth guards to eliminate bruxism or after prosthesis, maintaining full mouth guards for other long-term control of bruxism and to protect the prosthetic restorations.

Carrying total mouth guards is time consuming in clinical treatment. Therefore, to meet the criteria required for an entire arch mouth guard, the procedure is very time consuming, involving achieving simultaneous contact of all antagonist teeth and cuspidian guiding and anterior guiding.(1)

Bruxism on total mouth guard

It is shown that bruxism continues to affect even during night wearing of the mouth guards; the occlusal forces exercised on the mouth guard may be close to maximum voluntary contraction. The phenomenon of persistence of bruxism is evidenced by the numerous instances when fractures of the guards occur or wearing of the guards. Further action of the masticatory forces, maintaining intense bite on the guard's surface (maintaining the status of "clenching teeth") during sleep, has frequently resulted in the persistence of the same masticatory muscular pain, joint pain and temporo-mandibular dysfunction and headaches, manifested especially in the morning.

Using the above described guards can eliminate unpleasant accompanying phenomena of wearing the total mouth guards. (3)

Anterior mouth guard

Used for over 10 years in dental practice, anterior mouth guard became a utility after 2005, when ADA (American Dental Association) approved it in the U.S. as a therapeutic solution to control bruxism, temporo-mandibular dysfunction and headache caused by the dento-maxillary disturbances.

The anterior mouth guard has some advantages. The first major advantage is the significant reduction of bruxism intensity when the device is worn. By myographic studies demonstrated a reduction of over 70% of bite force of the masticatory muscles after wearing correctly the anterior mouth guard.

The main technical characteristic of the anterior mouth guard which gives it a major advantage is its design that allows the absence of occlusal contacts on lateral teeth from any type of movement of the mandible. When only the anterior teeth come in contact with the mouth guard, pressure receptors from the periodontal ligaments of the frontal teeth deplete the intensity of occlusal forces applied by the masticatory muscles.

In cases of use of total mouth guards it was observed that there is no reduction in maximum voluntary muscle contractions. In addition to reducing occlusal forces, the anterior guard has a strong positive effect in reducing symptoms associated with temporo-mandibular dysfunction caused by bruxism.

The second important advantage is minimal coverage compared to total mouth guard.

The reduced size, in which we usually cover up to 6 teeth, ensures a maximum level of comfort, compliance and the patient acceptance is maximum.

Another advantage, equally important, is the short

time spent in the dental office of the patient. The contact of 4-6 teeth is the only necessary thing to obtain the inhibitory effect of bruxism.

Maneuvers to achieve simultaneous contacts of 4-6 frontal teeth takes relatively little time in striking contrast to the time required to implement total occlusal mouth guards that require laborious work in practice to obtain simultaneous occlusal contacts of all opposing teeth.

There is some criticism coming from some practitioners who claim that teeth which are not covered by an occlusal guard over-erupt causing dysfunctional effects on occlusion and dento-maxillary status.

The possibility to use anterior guards by the dental practitioners in the U.S. is the side-effect of studies in which there were examined possibilities of over-eruption of the lateral teeth when the anterior mouth guards are worn during sleep. Combined with materials published in the literature on this topic, the study concluded that daytime use of the device, under a normal dental function, will not cause nor allow over-eruption of the teeth. They invoked the idea that sometimes there is overload applied to the opposing teeth.

As a result of use over more than 5 years, we can say that it is possible to be involved only 4 opposing teeth to come in contact with the occlusal surface of the device in centric occlusion, and they would not be overloaded due to the decrease of bruxism over time.

Anterior mouth guard has benefic effects in treatment and control of headaches and it is considered to be a new and exciting therapeutic modality now available to dentists.

It is shown that headache can be successfully treated by insertion and correct wear of anterior guards.

Migraines and headaches likened the sensation of intra-cranial pressure; belong to a category known as benign headaches. Of course, etiology and diagnosis of headaches should be established only by the specialist; in some cases it was concluded that nocturnal bruxism and temporo-mandibular dysfunction and masticatory muscles are major contributory factors for these patients, the dentist playing an important role in controlling symptoms such discomfort.(4)

Conclusion

For these reasons, we believe that therapy using an anterior guard is a non-drug treatment, cheap and effective without any side-effects for many of the great mass of people suffering from headaches.

If we add increased comfort, high acceptance levels and short time to adapt to the new type of device, we feel that we have enough arguments in recommending the anterior mouth guard as a treatment for bruxism and adjacent dysfunction.

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