Bruxism: A Warning Sign For Psycholo-social Problems: A Case Report

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Abstract
Bruxism is nonfunctional clenching or grinding of the teeth that may occur during sleep or, less commonly in the daytime. It occurs in 5-20% of adults and about 30% of 5-6 year old children. Although research on bruxism is extensive, its etiology remains debatable. Literature suggests that bruxism is correlated with both experienced and anticipated life stress. The aim of this article is to present the role of psychosocial factors, emotional and physical stress that induces bruxism which leads to severe tooth surface loss and its simple management with overdenture.

Keywords: Bruxism, Psycho-social problems.

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Introduction
The term bruxism is defined as an involuntary rhythmic or spasmodic, non functional grinding, gnashing or clenching of teeth.¹ Voluntary clenching of the teeth is a common maneuver used to facilitate peripheral monosynaptic reflexes and motor system excitability as a reaction to stress.² It has also been indicated that an aggressive biting is associated with a significant attenuation of the stress-induced increase of nor-adrenaline turnover in the brain.³ Therefore, occlusion of the masticatory organ contributes significantly to an individual’s reaction to stress. Pathological tooth wear is often associated with bruxism, which appears in turn to be influenced by psychosocial factors.⁴, ⁵ Variables such as general, work-related, physical and emotional stress and personality traits have been increasingly considered as the initiating, predisposing and perpetuating factors for bruxism.⁵

Bruxism usually causes tooth-wear as evidenced by wear facets that can range from mild to severe. The facets can be localized or found throughout the dentition.⁶ Other trauma to the dentition and supporting tissues include thermal hypersensitivity, tooth hyper mobility, injury to the periodontal ligament and periodontium, hypercementosis, fractured cusps, pulpitis and pulp necrosis⁷. Bruxism in an otherwise normal dentition can be recognized as a valid system prophylaxis for all stress related situations. According to some researchers there is effect of life events on this activity⁸. One of the aims of this article is to present the role of psychosocial factors, emotional and physical stress that induce bruxism which leads to severe tooth loss.

Case Report
A 38 years old male presented to the Department of Prosthodontics in Punjab Dental Hospital Lahore with chief complaint of severe pain in all existing anterior teeth and loss of teeth body. On history, his spouse revealed grinding of teeth at night, but she could not tell for how long this had been going on. Ingestion of carbonated drinks and gastro-esophageal reflux disorder (GERS) was denied. The patient was an active person but with repeated loss in business and some social issues in past 4-5 years his personality deteriorated and frequent mood swings and history of being irritable and anxious.
There was no other significant finding in the medical history.

**Clinical Examination**

There was severe tooth surface loss in the maxillary anterior segment i.e. canine to canine and left first premolar. Mandibular anterior teeth were present as well as right first premolar. They did not exhibit attrition and were vital but having plaque and calculus deposits. The mandibular posterior teeth from second premolar onwards were missing bilaterally.

Oral mucosa was healthy except gingivae of the mandibular anteriors. Figure 2 There was thickening of cortical bone in the maxillary anterior segment. There was no clicking and deviation on opening with normal mouth opening.

**Radiographic Examination**

Post RCT O.P.G confirmed pronounced wear in the maxillary anterior teeth with pulp exposure. No damage to supporting tissues. Roots were long and healthy without any thickening of lamina dura.

![Figure 3: Post RCT panoramic radiographs of the case.](image)

**Course of Action**

After discussion with patient, a treatment plan was developed including; management of pain, endodontic treatment of all maxillary existing teeth and their permanent fillings with amalgam, management of occlusal vertical loss; determination of the occlusal vertical and rest vertical dimensions and regaining the lost vertical dimension in the prosthesis. The chosen prosthesis was an over denture at new established vertical dimension. Slightly whiter shade teeth were used on repeated demand of the patient. This was because the patients wished whitening of his remaining natural after getting the prosthesis. The various clinical pictures during the pre-prosthodontic and prosthodontic treatment are shown in Figure 4-8.
Patient was referred for psychological evaluation. Follow-up visits were scheduled every two months over the next six months duration.

By this time oral hygiene was maintained by the patient. Prosthesis needed some mild adjustment. The parafunctional habit i.e. bruxism was well managed with counseling and behavioural therapy. According to psychologist, moderate depression was present. No other psychological issues. The depression was managed accordingly.
Discussion

Mechanical affliction result in alterations to the tooth structure is generally manifested as tooth wear.\(^9\) Traditionally, it has been divided into three categories: an intervening slurry abrasion, by direct tooth “surface-to-surface” wear attrition, and corrosive environment erosion.

Bruxism is a condition of multifactorial etiology; psychomotor factor (total and average perceived stress, state and trait anxiety)\(^9\), local factors (occlusal interferences, malocclusion and Temporomandibular dysfunction)\(^10\) and systemic factors.\(^7\) Bruxism is a centrally induced phenomenon. The clenching and bruxing function of the masticatory organ is an emergency exit during periods of psychic overloading\(^9\). These biomechanical loads create many dental problems, such as abfraction, attrition, hypersensitivity, pain and irreversible damage to the teeth, periodontium, masticatory muscles and temporomandibular joint. Variables such as general stress, work-related stress, and personality traits have been increasingly considered as initiating, predisposing and perpetuating factors for bruxism.\(^9, 11\) Bruxism is related to certain personality characteristics — aggression, anxiety and hyperactivity mainly triggered by life events\(^12\). Nevertheless, Vanderas and others\(^13\) have demonstrated that stress and anxiety may be directly related to bruxism, as patients suffering from bruxism show a higher catecholamine level, generally ascribed to emotional stress. It has also been indicated that an aggressive biting is associated with a significant attenuation of the stress-induced increase of noradrenaline turnover in the brain that leads to decrease in salivary secretion\(^3\). Lubrication from saliva is necessary during sleep to protect tissue integrity and the health of oro-esophageal structures\(^14\). Thus absence of moisture in mouth will result in more friction on grinding and more teeth loss.

The patient in this case did not show occlusal interferences, temporomandibular dysfunction or malocclusion, as verified by intraoral examination.\(^8, 15, 16\) Thus, the possibility of physiological wear was eliminated. According to Imfeld\(^17\) and Lussi\(^18\) chemical dissolution of dental enamel is related to either acid diet or medications. Thus possibility of observed dental wear arising from a chemical process was discarded as there was absence of reflux and/or acidic diet.

Funch and Gale state that bruxism is correlated with psychological factors, suggesting that the kind of life the patient leads exerts great influence on the frequency, duration and severity of the condition.\(^19\) In this case, the patient’s personal history pointed out psychological factors with extremely marked tooth wear, exposing the dental pulp. In addition, his wife was empathetic in her statement that her husband had episodes of tooth gnashing and grinding.

Patient was referred to a psychologist, as it was believed that the level of emotional stress generated by life events experienced by the patients was a factor in his bruxism. A study by Restrepo and others\(^4\) demonstrated that several psychological techniques have been efficacious in reducing signs of bruxism. The efficacy of these techniques confirmed while managing this pt.

By Hachmann\(^20\) and McDonald and others\(^10\) a soft based bite-plate of 3mm thickness covering the occlusal surfaces of all teeth extended from the vestibular to the lingual surfaces should be used by patients suffering from bruxism to prevent continuous tooth loss is recommended but in this case as tooth loss is severe reaching pulp, painful condition and marked vertical loss. Root canal treatment of all upper teeth was carried out and fillings done with amalgam.

As vertical loss was obvious and maxillary posterior teeth were missing so over-denture was planned and given after preparing abutments and regaining occlusal vertical dimension. The over-denture also acted as a bite plate. It reduced muscle stress, thus providing more comfort to the patient\(^5\).

Research has attempted to correlate bruxism with socioeconomic factors and patient’s life events.
According to Lobbezoo and Naeije\(^1\), level of stress and personality type has been included in the etiology of bruxism. However, the exact contribution of psychological factors remains debatable. Although these findings were confirmed by a controlled questionnaire study\(^2\) demonstrated that those with bruxism generally present emotional imbalance and tend to develop more psychosomatic disorders. These findings have been confirmed by Kampe and others\(^21\), who also demonstrated the presence of a higher level of anxiety in a group of people with bruxism. More epidemiological investigations should be made to provide a better understanding of the etiological factors in bruxism.

Considering the problems intrinsic in modern society, bruxism is becoming an increasingly common condition. In treating this parafunctional habit, clinicians play a leading role in determining possible etiological factors. In many situations it is the dentist’s task to warn about this parafunctional habit and institute multidisciplinary treatment.

References: