

DON'T STRESS ON YOUR BRUSH-A CASE SERIES

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ABSTRACT

Regular tooth brushing is widely accepted as an oral hygiene measure of great importance for the prevention of dental diseases. Unfortunately, a variety of disorders may result from oral hygiene procedures that are improperly applied. Literature shows that horizontal brushing method with tooth pastes was capable of tooth loss at cervical areas. The present case series brings about the effect of psychological stress on toothbrushing behavior and its effect on the teeth and the periodontium. Dentists play a significant role regarding the well-being of the patients by early detection of existing oral manifestations and appropriate treatment of the patient. A wide knowledge about dental signs and symptoms related to medical conditions

appears to be a key factor for successful outcome. However dental management of patients with mental stress is quite challenging.

INTRODUCTION

Tooth brushing is must in oral hygiene maintenance. It is important to use the toothbrush carefully otherwise any inadvertent trauma could result in soft tissue and hard tissue loss. Tooth wear/ tooth surface loss (TSL) or non-cervical carious lesions (NCCL), has been defined as the “pathological loss of tooth tissue by a disease process other as dental caries”¹. The etiological factors of tooth wear may include attrition, erosion and abrasion. The estimated percentage of tooth wear in adults ranges from 3% at the age of 20 to 17% at the age of 70^{2,3}.

Although tooth wear can have detrimental dental effects, yet it can also serve as an important screening and diagnostic criteria for identifying a number of mental and psychological conditions and disorders^{4,5}. Stress is defined as any threat to the homeostasis of an organism, whether it is physical, psychological, environmental, or derived from within the individual. Moreover, stress can be a predisposing factor of depression through depletion of serotonin, dopamine and norepinephrine⁶. The aim of the present case series is to discuss about the effect of aggressive brushing behavior on teeth and periodontium. The present case series brings about the effect of psychological stress on toothbrushing behavior and its effect on the teeth and the periodontium.

CASE DESCRIPTION:

We encountered four patients with psychological stress and aggressive brushing behavior who reported to the department of Periodontology, Manipal College of Dental Sciences, Mangalore.

CASE 1: A 43 years old male patient reported with chief complaint of pain in the right upper back teeth region since 10 days. Patient gave history of vigorous brushing on that side and was under medication for depression since a year. On hard tissue examination, no tooth decay was noted, but cervical abrasions in right upper second premolar and second molar and deep cervical abrasion involving enamel dentin and pulp were observed. Soft tissue examination showed gingival recession and 5mm pocket depth in right upper first molar. Tooth was found to be non-vital. Radiographic examination showed periapical radiolucency in right upper first molar. Patient was clearly explained about the clinical scenario and was educated about proper

tooth brushing technique. Psychiatrist consent was taken and root canal treatment was done on maxillary right first molar.

CASE 2: A 40 years old male patient reported with chief complaint of pain and swelling in the right lower front teeth region since a week. The patient reported of toothbrush trauma in the same region a few months back, he also complained of pain and swelling in the same region. Patient had the habit of brushing his teeth twice daily. Clinically swelling was present in relation to mandibular central incisors with 8mm pocket depth and exudate was present. Intra oral periapical radiograph (IOPA) revealed bone loss till middle third of root in relation to mandibular central incisors. Tooth was vital. Patient underwent open flap debridement in relation to same tooth after the nonsurgical therapy (scaling and root planning).

Case 3: A 35 year old male patient reported with the chief complaint of progressive increase in tooth size and was uncomfortable in smiling since 1 year. History of sensitivity on taking cold items was present. Patient gave an additional history that he was teased by others for his smile and he always used to hide his smile with a cloth. On intra oral examination, patient had good oral hygiene, generalized gingival recession (Millers class I and II), thin gingival biotype with no attached gingiva and generalized cervical abrasion. Co-relating with the clinical findings, detailed history of patients brushing habit was asked. Patient gave the history that he used to brush aggressively for almost 7-10 minutes, twice a day. The oral condition and the treatment plan were explained to the patient. But the patient showed his unwillingness for any dental treatment. Patient was then counseled by the dental team and also professional psychological counseling was advised for the patient along with dental treatment.

Case 4: A 36 year old female patient had the complaint of irregular tooth surface in the upper front tooth region. Patient had discomfort in smiling and also on taking cold food since 6 months. Patient was using toothpaste and toothbrush regularly for all the teeth, whereas she had used fresh lemon juice to clean her maxillary left central incisor since 1 year as she thought that would give brighter appearance for the discolored tooth. On asking for the medical history, patient was on antidepressant therapy since one year as she had family issues. On intra oral examination, patient had a good oral hygiene with irregular, abraded tooth surface reaching dentin on maxillary left central incisor. Pulp vitality test showed that the tooth was vital. Patient was

clearly explained about the clinical scenario and was educated not to use lemon juice for tooth cleaning. Psychiatrist consent was taken and composite restoration on the facial surface of maxillary central incisor was done.

DISCUSSION:

Tooth brushing is the commonest mechanical plaque control measure in day to day life. If tooth brushing is not done in a proper way, it can affect both hard and soft tissues. Unfortunately, people do not have awareness about the harmful effects associated with the improper technique of brushing. In the present case series, we reported about four cases with periapical and periodontal problems due to incorrect way of brushing method. The method of brushing, type of bristles, direction, frequency and magnitude all appear to be important factors in preventing/causing tooth brush trauma⁷. Medical conditions and lifestyle factors, such as smoking, gastro-oesophageal disorder (GERD), stress and diet are also related to tooth wear. In present cases we found stress could be one of the factor⁸.

Among the described cases all were male except case 4 and were aged between 35 to 45 years. In case 1 along with multiple cervical abrasions, involvement of pulp and periapical region was seen in relation to maxillary right first molar, as a result of excessive brushing force which might be secondary to patient's mental stress. Whereas in case 3 cervical abrasions were not deep to the pulp, but soft tissue loss was prominent. Literature shows that horizontal brushing method with tooth pastes was capable of tooth loss at cervical areas⁹. However, frequency of brushing was not found to be associated with NCCL significantly in a study done by Bartlett DW¹⁰. Case 2 had crowding in lower front teeth region and showed bone loss this could be due to chronic trauma because of excessive brushing force which led to inflammation in that region, where patient was not able to maintain and further progressed into pocket formation and bone loss. In case 4 the vigorous brushing habit of the patient had led to dentin exposure and yellowish discoloration of the teeth. As the patient used lemon juice for improving the color of teeth it further led to dental erosion. This may be due to the acidic nature of lemon juice which could dissolve hydroxyapatite crystals and cause demineralization. Moreover, acid eroded enamel is known to be more susceptible to abrasion and attrition than normal enamel¹¹. Commonly, all 4 cases had multiple cervical abrasion, which could be explained by the fact that bucco-cervical regions of the teeth are the most vulnerable region of stress concentration¹².

Psychiatric counseling for case 2 and 3 who were not under antidepressant medication, would have prevented further progression of stress related issues. Dentists play a significant role regarding the well-being of the patients by early detection of existing oral manifestations and appropriate treatment of the patient. A wide knowledge about dental signs and symptoms related to medical conditions appears to be a key factor for successful outcome. However, dental management of patients with mental stress is quite challenging. Hence one should know to take proper history which will be helpful in identifying the etiology. Along with that referral to appropriate healthcare professional (General Medical Practitioner, Psychiatrist, etc.) might be useful in obtaining a definitive diagnosis and medical care.

Awareness among the public regarding these kind of dental injuries is significant in preventing such injuries. It is a responsibility of the dental team to counsel the patients about the ill effects of mental stress and the importance of teeth and periodontium. Also, dental students should be taught about the importance of history taking in all cases, so that the etiology is identified and the case is treated accordingly. As the quote says 'An ounce of prevention is worth a pound of cure' the ill effects of improper brushing technique should be added with oral hygiene instructions so that they can be prevented from such injuries.

CONCLUSION:

The damage associated with mental stress on the tooth and periodontium may not be reversible. Hence with more reports of such defects in the literature, awareness among the dentists' is expected. This may be one such report showing the ill effects of stress on tooth and periodontium. Hence severe tooth wear may act as a medical marker in identifying patients with mental stress.

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Figures

Figure 1

Case 1



Figure 2

Case 2



Figure 3

Case 3



Figure 4

Case 4

