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When Toothbrush Troubles!!!!! Toothbrush Trauma - A Case Series

Dr. Shraddha Kode[1], Dr. Praneeta Kamble[2], Dr. Abhinav Deshpande[3]

[1] Post-graduate student, Dept of Periodontology, Nair Hospital Dental College, Mumbai, Maharashtra State, India

[2] Additional Professor, Dept of Periodontology, Nair Hospital Dental College, Mumbai, Maharashtra State, India

[3] Post-graduate student, Dept of Periodontology, Nair Hospital Dental College, Mumbai, Maharashtra State, India

Abstract: ***Toothbrushing forms a vital part of the daily oral hygiene program and toothbrush is the most widely used oral hygiene aid. However wrong or improper toothbrushing could result in trauma to the soft and hard tissues of the oral cavity. This article presents a case series of toothbrush trauma and its management following non-surgical intervention.***

Keywords: Toothbrush, trauma, injury, toothbrushing, gingival

1. Introduction

Plaque control refers to the preventive measures aimed at removing dental plaque and preventing its recurrence. To maintain a healthy oral environment, most of the preventive measures are directed towards elimination of the plaque and minimising its effect.

Toothbrush is the principal mechanical tool and the most widely used oral hygiene aid. Toothbrushing is a vital part of the daily oral hygiene program. The basic purpose of toothbrushing is to remove bacterial plaque from the tooth surfaces. However, if brushing is not done judiciously it could result in trauma to the soft and hard tissues of the oral cavity.

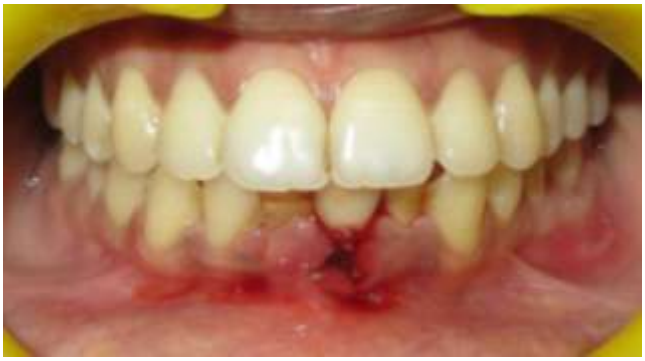
This article describes a case series of trauma to the soft tissues due to vigorous toothbrushing which healed uneventfully following a non-surgical intervention.

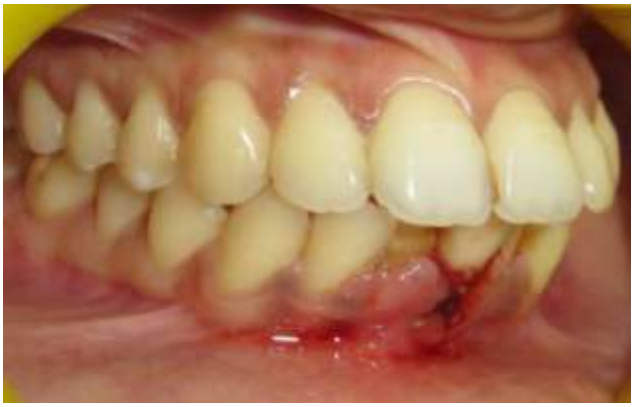
2. Case 1

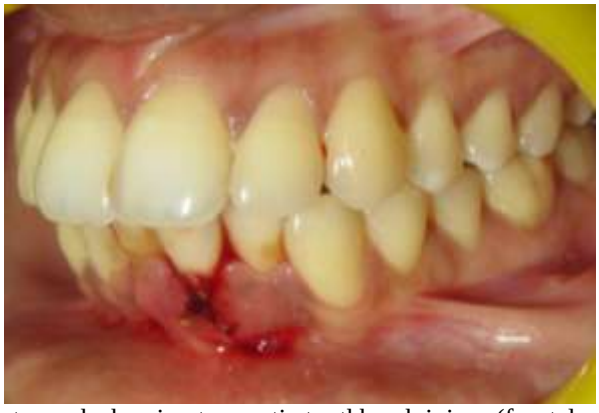
A healthy 24 year old young woman presented to the Outpatient Department of Periodontics, Nair Hospital Dental College complaining of bleeding gums in the lower front jaw region. The patient gave history of accidentally injuring the gums while brushing her teeth vigorously 1 week back. Following the incident, the patient had stopped brushing her teeth using a toothbrush due to fear. On examination 2×1cm oval laceration was present with respect to the free and attached gingiva and alveolar mucosa of 31 exposing the underlying connective tissue. The site was tender. No active bleeding was observed. The tooth 31 suffered most damage because it was positioned buccally as compared to the other lower anteriors. The patient was anxious regarding the injury.

Scaling and root-planing was done using topical local anaesthesia with respect to that site. The wound was copiously irrigated with an antiseptic solution. The patient was prescribed analgesics, antibiotics, topical 2% Chlorhexidine gel and Povidone iodine gargles. The wound was not sutured. The use of sutures would have caused further damage and impaired healing. Oral hygiene instructions were given and the Modified Bass brushing technique[1] was demonstrated to the patient. The patient was instructed to change the toothbrush after every 3 months[2] and not wait till the bristles of the toothbrush frayed with use. The injury had occurred due to overzealous toothbrushing and negligence by the patient. On re-examination after 1 week, the wound edges had healed and spontaneously re-approximated.

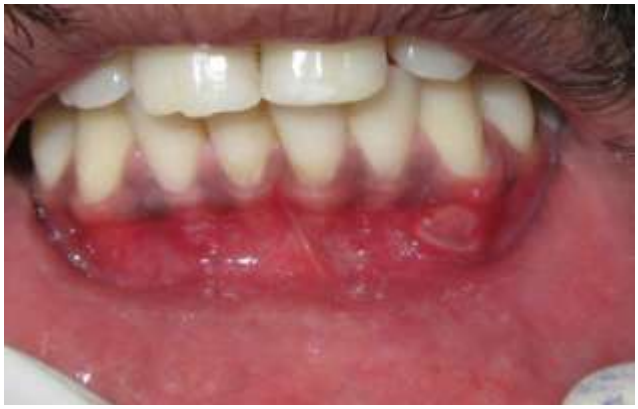
The patient returned for follow-up twice in a month. There was absence of scar formation and satisfactory healing was observed.



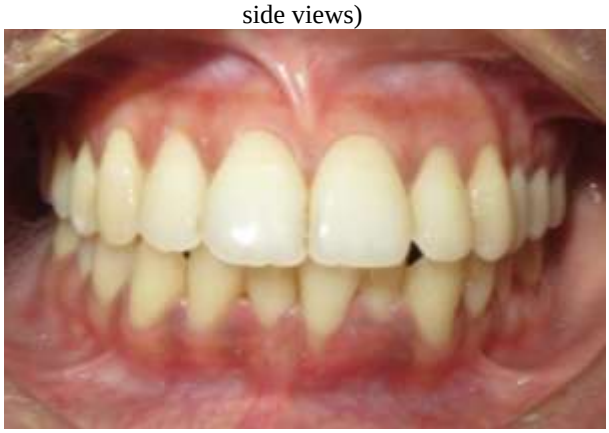




Photograph showing traumatic toothbrush injury (frontal and side views)



Photograph showing traumatic toothbrush injury (frontal and side views)



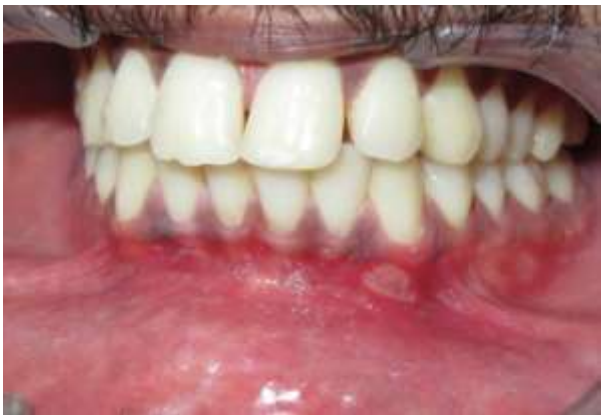
Post-operative photograph showing satisfactory healing

Post-operative photograph showing satisfactory healing

3. Case 2

A healthy 21 year old boy presented to the Outpatient Department of Periodontics, Nair Hospital Dental College with the chief complaint of ulcer in the lower front jaw region. The patient gave history of vigorous toothbrushing in the posterior and superior direction after which he suffered burning sensation in the same region. On examination an oval ulceration was present with respect to the attached gingiva and alveolar mucosa of 32 and 33.

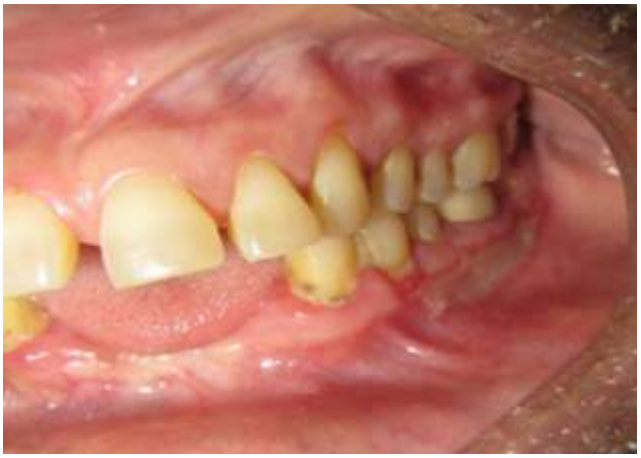
Ultrasonic scaling was done after applying topical local anaesthesia with respect to that site. Oral hygiene instructions were given and the Modified Bass brushing technique[1] was demonstrated to the patient. The patient was prescribed topical local anaesthesia gel for relief from the burning sensation related to the ulceration. On re-examination after 1 week, satisfactory healing was observed.



4. Case 3

A healthy 40 year old female patient was referred to the Department of Periodontics for oral prophylaxis. The chief complaint of the patient was replacement of lower front missing teeth. During the check-up, a 7× 3cm oval ulceration was noted in the vestibular region involving the attached gingiva and alveolar mucosa with respect to 34,35,36 and 37 teeth. On inquiry regarding the site, the patient gave history of slippage of toothbrush in the vestibular region while brushing her teeth 2 days ago. After the injury, the patient gave history of application of ghee over the site and thought that it would heal on its own. Due to persistent burning sensation in that area the patient preferred chewing food from the opposite side.

Thorough scaling and root-planing was done after applying topical local anaesthesia over that site. The wound was copiously irrigated with an antiseptic solution. Oral hygiene instructions were given and the Modified Bass brushing technique[1] was demonstrated to the patient. The patient was prescribed topical local anaesthesia gel for relief. The patient was recalled twice in a month for follow-up. On re-examination, satisfactory healing was noted and then the patient was referred further for replacement of missing teeth.



Photograph showing traumatic toothbrush injury (side view)

Post-operative photograph showing satisfactory healing

5. Discussion

Toothbrushing is the gold standard of mechanical plaque control. However, wrong or improper toothbrushing can be considered traumatic to the gingiva. It has been found to result in moderate to severe injuries to the gingiva in many cases[3]. Vigorous tooth-brushing has been traditionally linked with gingival abrasion and recession but research has been unclear due to the multi-factorial etiology of gingival recession[4]. Gingival recession is a fairly common phenomenon[5],[6] whereas gingival abrasion is not a common finding[3].

Most gingival abrasions were located in the mid-gingival aspect and were mostly defined as small to medium whereas large abrasions were found to be relatively uncommon[3],[7].

The optimal force to be applied while toothbrushing is between 300 to 400g. Also, many authors concluded that no correlation has been found between force and efficacy of toothbrushing[8],[9]. Factors other than force like brushing technique, frequency and duration have been found to be equally important[12].

Injuries caused by a toothbrush may be classified as below (on the basis of clinical presentation alone)[10]:
Blunt injury – When there is no mucosal break or perforation
Penetrating injury – When there is deep laceration or perforation of soft tissues but the toothbrush has already been extricated from the wound at the time of presentation to the hospital
Impalement injury – When the toothbrush is impacted within the soft tissues due to fish-hooking of bristles
Embedded injury – When the head of toothbrush breaks and is retained deep within the tissues

These injuries do not imply that one type of injury may be more severe than the other. Local management of the wound is very essential depending on the type of injury to avoid the complications.

6. Conclusion

Daily chores like toothbrushing can cause injuries to the oral cavity. In case of such injuries, it is important to report to the hospital however minor the injury may seem to avoid complications. The combined effect of soft to medium toothbrushes, low abrasive toothpastes and better patient education about less aggressive and right brushing technique will contribute to less concern regarding traumatic gingival lesions[11].

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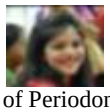
Author Profile



Dr. Shraddha Kode obtained her bachelor's degree from Nair Hospital Dental College and is currently a second year post-graduate student in the Department of Periodontology of the same prestigious institute.

Dr. Praneeta Kamble completed her graduation in the year 1996 from Nair Hospital Dental College and post-graduation from Government Dental College, Mumbai in the year 1999. She is an additional professor in the Department of Periodontology of Nair Hospital Dental College. She has 16 years of teaching experience and 8 years of experience as a guide. She has 7 publications in the national and international journals.

Dr. Abhinav Deshpande passed B.D.S from Nair Hospital Dental College and is currently a final year post-graduate student in the Department of Periodontology.