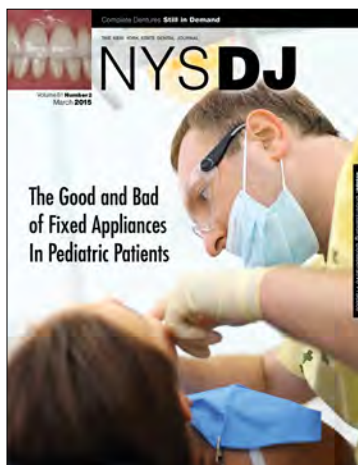


# NYS DJ


Volume 81 Number 2

March 2015



**Cover:** Over-retained appliances pose risks to oral health. To minimize the danger, practitioners need to be prepared to effectively convey to patients and their parents the need for oral hygiene, device maintenance and commitment to follow-up appointments.

- 2 Editorial  
*Staving off extinction*
- 5 Attorney on Law  
*Dental togetherness*
- 9 Association Activities
- 47 General News
- 52 Component News
- 64 Read, Learn, Earn
- 67 Classifieds
- 70 Index to Advertisers
- 72 Addendum  
*Legislative Day*

The New York State Dental Journal is a peer reviewed publication. Opinions expressed by the authors of material included in The New York State Dental Journal do not necessarily represent the policies of the New York State Dental Association or The New York State Dental Journal. EZ-Flip version of The NYS DJ is available at [www.nysdental.org](http://www.nysdental.org) and can be downloaded to mobile devices. 



Use your smartphone to scan this QR Code and access the current online version of The New York State Dental Journal.

## 16 Follow-Up Problems with Fixed Appliances in Pediatric Dentistry

*Timucin Ari, D.D.S., Ph.D.*

A poor outcome to fixed appliance treatment is almost guaranteed if patients fail to keep follow-up appointments. Success depends upon proper patient selection and effective communication between dentist and patient/parents regarding the importance of regular checkups. *Case reports.*

## 21 Successful Nonsurgical Management of Post-orthodontic Gingival Enlargement with Intensive Cause-related Periodontal Therapy

*TaeHyun Kwon, D.D.S., M.M.Sc.; David M. Kim, D.D.S., D.M.Sc.; Liran Levin, D.M.D.*

By targeting the primary etiologic factor, that is, plaque, periodontal health may be restored without surgery. Reducing the bacterial load gives the biologic natural healing capacity of the body the opportunity to stabilize the periodontal condition and should be considered as the first line of intervention. *Case report.*

## 24 What it Means to be a Doctor Sensitizing the Dentist and the Student to Professionalism

*Ronald I. Maitland, D.M.D.*

Professional demeanor and inter-personal behavior play a large part in building patient trust. Commanding an image of respect is determined largely by ethical and proper relationships between doctor and patient. How that relationship can unravel is told through a collection of true image-damaging episodes.

## 29 Surgical and Prosthetic Management of a Complex Edentulous Patient for Fabrication of Complete Dentures

*Alper Çomut, D.M.D., D.M.Sc.; Tanya Somohano, D.M.D.*

Clinical report describes surgical and prosthetic treatment of patient who presented with epulis fissuratum in the maxilla and severely resorbed alveolar tissue in the mandible.

## 34 Maxillary Implant-retained Partial Overdenture with Dolder Bar Attachment

*Hyeongil Kim, D.D.S., M.S.; Robert J. Buhite, D.D.S.; Edward A. Monaco Jr., D.D.S.*

Technique for maintaining maxillary Kennedy III partial removable dental prosthesis design in patient with non-restorable failing abutments by replacing the abutments with dental implants is described. Additional retention and support was provided, significantly increasing patient satisfaction.

## 38 An Analysis of the Hemophilia of the Royal Families of Europe, Its Startling Implications and Dentistry's Role in Treating the Hemophiliac Patient

*William James Maloney, D.D.S.; George Raymond, D.D.S.; David Hershkowitz, D.D.S.; Glenn Rochlen, D.D.S.*

Despite being known popularly as "The Royal Disease," hemophilia affects many people living in our communities. These patients must receive proper dental treatment and home care education to prevent possibly life-threatening emergency dental episodes.

## 42 Effect of Apically Separated Rotary Instruments on Bacterial Leakage of Obturated Root Canals Using Resilon

*Zahed Mohammadi, D.D.S., M.Sc.; Rasoul Yousefi Mashouf, D.D.S., M.Sc.; Hamid Jafarzadeh, D.D.S., M.Sc.; Ali Heydari, D.D.S., M.Sc.; Sousan Shalavi, D.D.S.*

Study was undertaken to determine the effect of a separated rotary instrument on the time required for bacterial penetration of obturated root canals using Resilon.

# Successful Nonsurgical Management of Post-orthodontic Gingival Enlargement with Intensive Cause-related Periodontal Therapy

TaeHyun Kwon, D.D.S., M.M.Sc.; David M. Kim, D.D.S., D.M.Sc.; Liran Levin, D.M.D.

## ABSTRACT

**Successful nonsurgical management of severe post-orthodontic gingival enlargement and erythema in a 24-year-old male is presented. The patient received an intensive cause-related periodontal therapy, consisting of oral hygiene instruction, scaling and root planing, and weekly recall visits. At week five, complete resolution of the lesions was achieved. By targeting the primary etiologic factor, i.e., plaque, periodontal health was restored without needing surgical intervention. Reducing the bacterial load will give the biologic natural healing capacity of the body the opportunity to stabilize the periodontal condition and, thus, should be considered as the first line of intervention before a surgical approach is taken.**

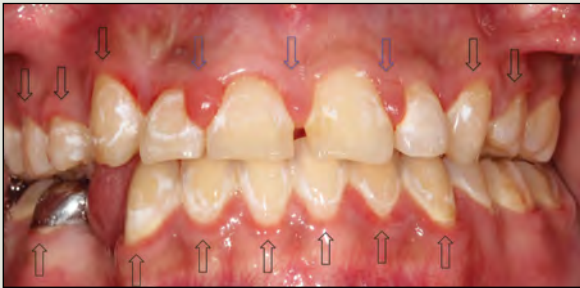
Periodontal complications might be a concern among patients undergoing orthodontic treatment.<sup>1,2</sup> Clinically, patients might present with gingival enlargement, erythema and edema, which may be accompanied by pain, spontaneous bleeding and esthetic concerns. These lesions may persist after completion of orthodontic treatment.<sup>3-5</sup> Orthodontic appliances such as fixed brackets and lingual fixed retainers can act as local plaque-retentive factors and, thus, might cause an environmental shift in microbial flora from

aerobic to predominantly anaerobic strains, including the so-called “red complex” periodontal pathogens.<sup>5-9</sup> This microbial shift is often accompanied by elevated gingival crevicular fluid flow and its pro-inflammatory cytokine levels, such as interleukin-1 beta, transforming growth factor-beta 1.<sup>5,6,7</sup> Thus, if untreated, they can result in irreversible destruction of the periodontium.<sup>1,10-12</sup>

The purpose of this report is to describe a patient presenting with post-orthodontic gingival enlargement. Gingival enlargement is a condition that commonly develops during orthodontic treatment.<sup>3,7,13,14</sup> Even after debonding, complete resolution is not often attainable<sup>3,13</sup> necessitating surgical intervention, which may be complex and carry morbidity to patients.<sup>3,14,15</sup> In this case report, an intensive, cause-related periodontal therapy targeting the etiologic factor, i.e., dental plaque, resulted in successful management of gingival enlargement.

## Case Report

Following completion of orthodontic treatment, a 24-year-old male was referred to Harvard School of Dental Medicine, Division of Periodontology, for a gingivectomy procedure due to gingival enlargement. The patient was systemically healthy, with no history of smoking. His oral hygiene was poor. Clinical examination revealed severe gingival enlargement in the interproximal gingiva around the maxillary anterior teeth (Figure 1). Furthermore, there was generalized gingival inflammation, as suggested by erythema at the marginal gingiva (Figure 1). These conditions appeared in the last six months before completion of orthodontic treatment and debonding. Radio-



**Figure 1.** Clinical view of periodontal condition at initial presentation. Significant gingival enlargement was noted in maxillary anterior sextant (blue arrow). Generalized erythema was noted at marginal gingiva (black arrow). Generalized hypocalcified lesions were also noted on dentition, which may further suggest inadequate oral hygiene during orthodontic treatment.



**Figure 2.** Clinical view of periodontal condition at week two. Persistent gingival enlargement was noted in maxillary anterior sextant (blue arrow); however it reduced in size. Complete resolution of marginal gingival erythema was noted. Patient reported gingival ulceration due to brushing trauma (yellow arrow), and his brushing technique was reviewed. There was minimal amount of dental plaque on mandibular right first molar after using plaque disclosing solution (black arrow). All other areas were clinically free of dental plaque, which suggests improvement in patient's home care.



**Figure 3.** Clinical view of periodontal condition at week three. Further resolution of gingival enlargement was noted in maxillary anterior sextant (blue arrow). There was reduced amount of dental plaque on mandibular right first molar after using plaque disclosing solution (black arrow). All other areas were clinically free of dental plaque, which suggests adequate patient home care.



**Figure 4.** Clinical view of periodontal condition at week five. Complete resolution of gingival enlargement and gingival erythema was noted. Clinically, healthy gingiva was noted, free of any signs of inflammation. Patient's home care was maintained at adequate level.

graphic examination did not reveal any significant finding. The diagnosis of plaque-induced gingival enlargement was made.<sup>10-12</sup>

Intensive, cause-related, nonsurgical periodontal therapy was planned to avoid surgical treatment.<sup>16</sup> At the initial treatment visit, the patient's oral hygiene status was assessed and scored using a plaque-disclosing tablet. It revealed generalized plaque deposits around the gingival margin and interproximal areas (O'Leary plaque score >90%).<sup>17</sup> A personalized oral hygiene instruction program of removing dental plaque with a toothbrush and an interproximal toothpick (*Stim-U-Dent, Madison, Revive Personal Products Co., NJ*) was provided to the patient. The patient was instructed to use these aids three times a day. Finally, dental prophylaxis in conjunction with localized scaling and root planing treatment in the maxillary anterior sextant was provided to the patient.

Thereafter, the patient was recalled at weeks one, two and three (Figures 2, 3). At each recall visit, the patient's home care was re-assessed, reinforced and scored using a plaque-disclosing tablet; and the patient was immediately instructed to remove any residual plaque. Subsequently, supragingival debridement was performed. At week five, the patient's periodontal condition was re-evaluated (Figure 4). Clinical examination revealed complete resolution of the gingival enlargement and inflammation. Pre-existing gingival erythema and edema were no longer present. All periodontal clinical parameters were within normal limits, without any deep periodontal pocket or bleeding upon probing. No additional periodontal intervention was necessary.

The patient was scheduled for periodontal maintenance for every three months. His oral hygiene was excellent, as suggested by O'Leary plaque score index <5%.<sup>17</sup>

## Discussion

During orthodontic treatment, patients are susceptible to developing gingival or periodontal disease.<sup>1</sup> Orthodontic brackets and wires may make it challenging to physically remove dental plaque around them and, thus, may act as local plaque-retentive factors.<sup>1-9</sup> Furthermore, Atassi and Awartani<sup>2</sup> found that approximately 60% of patients undergoing orthodontic treatment exhibited poor oral hygiene status. They also reported that 68% of patients reported not having a dental hygiene visit during their orthodontic treatment.<sup>2</sup> Similarly, Berlin-Broner, et al.<sup>18</sup> found only 52% of patients reported that their orthodontist verified if they had attended regular checkups by their general dentists.

In comparison, continuous patient motivation by treating clinicians was associated with significant improvement in patients' gingival health during orthodontic treatment.<sup>19</sup> In addition, Zanatta, et al.<sup>20</sup> found that orthodontic patients using dental floss regularly exhibited significantly better gingival conditions than those who did not use floss. Similarly, according to Silvestrini Biavati, et al.,<sup>21</sup> proper toothbrushing during orthodontic treatment was associated with improvement in plaque and gingival indices.

Therefore, establishment of a stringent preventive program among a general dentist, an orthodontist and a patient is strongly recommended before initiating orthodontic treatment.<sup>1</sup> Through this program, patients should be able to demonstrate that they can effectively remove plaque using a toothbrush and interproximal cleaning aid. General dentists, as well as orthodontists, should also closely monitor patients' compliance with home care and their periodontal condition during the active orthodontic treatment phase, with frequent recalls and periodontal prophylaxis. In case of any emergence or recurrence of severe gingival or periodontal disease, treating clinicians should consider discontinuing orthodontic treatment until periodontal health is restored.

This case report demonstrates successful management of post-orthodontic gingival enlargement and inflammation. By targeting the primary etiologic factor—dental plaque—with stringent oral hygiene instruction, in combination with frequent supragingival cleaning, the patient's periodontal health was restored without needing surgery. Reducing the bacterial load by these means will give the biologic natural healing capacity of the body the opportunity to stabilize the periodontal condition and, thus, should be considered as the first line of intervention before the surgical approach is taken. ✍

Queries about this article can be sent to Dr. Kwon at [taehyun\\_kwon@hsdm.harvard.edu](mailto:taehyun_kwon@hsdm.harvard.edu).

## REFERENCES

- Levin L, Einy S, Zigdon H, Aizenbud D, Machtei EE. Guidelines for periodontal care and follow-up during orthodontic treatment in adolescents and young adults. *J Appl Oral Sci* 2012;20(4):399-403.
- Atassi F, Awartani F. Oral hygiene status among orthodontic patients. *J Contemp Dent Pract* 2010;11(4):E025-E032.
- Barack D, Staffileno H Jr, Sadowsky C. Periodontal complication during orthodontic therapy. A case report. *Am J Orthod* 1985;88(6):461-465.
- Levin L, Samorodnitzky-Naveh GR, Machtei EE. The association of orthodontic treatment and fixed retainers with gingival health. *J Periodontol* 2008;79(11):2087-2092.
- Naranjo AA, Triviño ML, Jaramillo A, Betancourth M, Botero JE. Changes in the subgingival microbiota and periodontal parameters before and 3 months after bracket placement. *Am J Orthod Dentofacial Orthop*. 2006;130(3):e17-e22.
- van Gastel J, Quirynen M, Teughels W, Coucke W, Carels C. Longitudinal changes in microbiology and clinical periodontal parameters after removal of fixed orthodontic appliances. *Eur J Orthod* 2011;33(1):15-21.
- Gong Y, Lu J, Ding X. Clinical, microbiologic, and immunologic factors of orthodontic treatment-induced gingival enlargement. *Am J Orthod Dentofacial Orthop* 2011;140(1):58-64.
- van Gastel J, Quirynen M, Teughels W, Coucke W, Carels C. Influence of bracket design on microbial and periodontal parameters in vivo. *J Clin Periodontol* 2007;34(5):423-431.
- Socransky S, Haffajee AD, Cugini MA, Smith C, Kent RL Jr. Microbial complexes in subgingival plaque. *J Clin Periodontol* 1998;25(2):134-144.
- Armitage GC. Development of a classification system for periodontal diseases and conditions. *Ann Periodontol* 1999;4(1):1-6.
- Marriotti A. Dental plaque-induced gingival disease. *Ann Periodontol* 1999;4(1):7-17.
- American Academy of Periodontology. Consensus report: Dental plaque-induced gingival diseases. *Ann Periodontol* 1999;4(1):18.
- Kouraki E, Bissada NF, Palomo JM, Ficara AJ. Gingival enlargement and resolution during and after orthodontic treatment. *N Y State Dent J* 2005;71(4):34-37.
- Gama SK, De Araújo TM, Pozza DH, Pinheiro AL. Use of the CO(2) laser on orthodontic patients suffering from gingival hyperplasia. *Photomed Laser Surg* 2007;25(3):214-219.
- Fornaini C, Rocca JP, Bertrand MF, Merigo E, Nammour S, Vescovi P. Nd:YAG and diode laser in the surgical management of soft tissues related to orthodontic treatment. *Photomed Laser Surg* 2007;25(5):381-392.
- Kwon T, Levin L. Cause-related therapy: a review and suggested guidelines. *Quintessence Int*. 2014;45(7):585-591.
- O'Leary TJ, Drake RB, Naylor JE. The plaque control record. *J Periodontol* 1972;43(1):38.
- Berlin-Broner Y, Levin L, Ashkenazi M. Awareness of orthodontists regarding oral hygiene performance during active orthodontic treatment. *Eur J Paediatr Dent* 2012;13(3):187-191.
- Acharya S, Goyal A, Utreja AK, Mohanty U. Effect of three different motivational techniques on oral hygiene and gingival health of patients undergoing multibracketed orthodontics. *Angle Orthod* 2011;81(5):884-888.
- Zanatta FB, Moreira CH, Rösing CK. Association between dental floss use and gingival conditions in orthodontic patients. *Am J Orthod Dentofacial Orthop* 2011;140(6):812-821.
- Silvestrini Biavati A, Galaldo L, Dessi M, Silvestrini Biavati F, Migliorati M. Manual orthodontic vs. oscillating-rotating electric toothbrush in orthodontic patients: a randomised clinical trial. *Eur J Paediatr Dent* 2010;11(4):200-202.



Dr. Kwon



Dr. Kim



Dr. Levin

**TaeHyun Kwon, D.D.S., M.M.Sc.**, is a clinical instructor, Division of Periodontology, Department of Oral Medicine, Infection, and Immunity, Harvard School of Dental Medicine, Boston, MA.

**David M. Kim, D.D.S., D.M.Sc.**, is an associate professor, director of postdoctoral periodontology and director of continuing education, Division of Periodontology, Department of Oral Medicine, Infection, and Immunity, Harvard School of Dental Medicine, Boston, MA.

**Liran Levin, D.M.D.**, is a professor and head, Division of Periodontology, Faculty of Medicine and Dentistry, University of Alberta, Canada.

