

Creating A New Smile With Gingivectomy After Fixed Orthodontic Treatment: A Case Report

Mustafa Özey Uslu^{1*} and Filiz Uslu²

¹Department of Periodontology, Faculty of Dentistry, Inonu University, Malatya , Turkey

²Department of Orthodontics, Faculty of Dentistry, Inonu University, Malatya , Turkey

*Corresponding author: Uslu MO, Head of Department of Periodontology, Faculty of Dentistry, Inonu University, Postcode: 44280, Malatya, Turkey, Tel: +905439518587; E-mail: mustafaozayuslu@hotmail.com

Received: September 14, 2018; Accepted: October 05, 2018; Published: October 08, 2018

Abstract

Objective: An aesthetic smile can be achieved by the perfect harmony of teeth, the gingiva and lips. In this case, a new smile design which was created with combining the crown lengthening and the orthodontic anomalies corrected by orthodontic treatment was presented.

Case Report: A 17-year-old female patient, who had completed orthodontic treatment, was admitted to our clinic with chief complaints of short crown lengths and excessive appearance of the gingiva during smiling. After Phase-I periodontal treatment, surgical planning was performed considering the aesthetic expectations of the patient. Under the local anesthesia, the gingivectomy line was first identified with the help of a pocket marker in the region between the upper right and left 1.st premolar teeth. Because of depths of pockets were sufficient to not require osteoplasty for maintaining the biological width, the crown lengthening was performed via only gingivectomy.

Adjustment of the zenith points of teeth was done. The labial frenulum was eliminated by frenectomy (using 5-0 resorbable suture [Pegelak, Doğsan]). The periodontal surgical pat (Coe-Pak, GC America INC) was covered for healing. After 7 days sutures and surgical pat was removed. The patient was seen at the 7th day and the 1st month to check for wound healing and gingival contours and the clinical records were taken.

Conclusion: There were no complications observed in terms of soft tissue healing. The patient was satisfied with the newly created smile line. As in this case, it is seen that the design of the smile with the crown lengthening gives very successful aesthetic results especially at right indications.

Keywords: Smile design; Crown lengthening; Orthodontic treatment

1. Introduction

Aesthetic smile is a harmony of function and aesthetic's of oral tissues with together. Some factors such as subgingival caries, excessive gingival display and poor retention of remaining tooth causes crown lengthening procedures need. And also sometimes the gingival overgrowth can be seen after an orthodontic treatment due to orthodontic forces and poor oral hygiene of patient [1]. All these situations lead to the surgical treatments.

Crown lengthening procedures can be achieved by different techniques including such as gingivectomy, orthodontic eruption of teeth and apically positioned flap with or without osseous surgery [2]. The technique determination depends on several clinical and patient related factors such as clinical crown/root ratio, root anatomy, prosthetic planning, aesthetics and economic factors [3]. In cases which the biological width is damaged or further crown length is needed, osteotomy is necessary for rebuilding the new biological width and maintaining the periodontal tissue health. In other cases a gingivectomy & gingivoplasty procedure is an adequate and simple way to obtain aesthetic clinical outcomes.

Orthodontic treatment need and demand varies in different populations with different social and cultural conditions and the duration of therapy usually long. It was observed that the treatment demand in the higher socioeconomic groups greater (11.7%) than in the lower groups (1.8%) [4]. The poor oral hygiene is one of the important factors which cause gingival overgrowth and gingivitis. A complete periodontal control is necessary after fixed orthodontic treatments and usually some minor or major gingivectomy & gingivoplasty operations are needed for proper gingival form. In this case report it was presented an aesthetic smile design with crown lengthening technique after fixed orthodontic treatment of patient.

2. Case Description

A 17-year-old female patient with no systemic disease was admitted to our clinic with chief complaints of short crown lengths and excessive appearance of the gingiva during smiling (FIG. 1). The patient had a Class-II Division-1 Malocclusion (according to Angle Classification). The patient received orthodontic treatment for approximately 3 years and the periodontal status was controlled periodically by a periodontist. The excessive gingival display was occurred after orthodontic treatment due to minimal intrusion of teeth and gingival overgrowth both. After Phase-I periodontal treatment, surgical planning was performed considering the aesthetic expectations of the patient. Under the local anesthesia, the gingivectomy line was first identified with the help of a pocket marker in the region between the upper right and left 1st premolar teeth. Because of depths of pockets were sufficient to not require osteoplasty for maintaining the biological width, the crown lengthening was performed via only gingivectomy (FIG. 2).



FIG. 1. Pre-operative extraoral view of the patient. Non-aesthetic smile due to excessive gingival display.



FIG. 2. Intraoral view of oral gingival tissues.

Adjustment of the zenith points of teeth was done. The labial frenulum was eliminated by frenectomy (using 5-0 resorbable suture [Pegelak, Doğsan]) (FIG. 3).



FIG. 3. Frenectomy operation was performed to upper mid-labial frenulum. The alignment of gingival Zenith points with gingivectomy & gingivoplasty operation.

The periodontal surgical pat (Coe-Pak, GC America INC) was covered for healing. After 10 days sutures and surgical pat was removed. The patient was seen at the 10th day (FIG. 4) and the 1st month to check for wound healing and gingival contours and the clinical records were taken. There were no complications observed in terms of soft tissue healing. The patient was satisfied with the newly created smile line.



FIG. 4. Post-operative healing of gingival tissues at 10th day.



FIG. 5. Post-operative aesthetic smile of patient.

The periodontal surgical pat (Coe-Pak, GC America INC) was covered for healing. After 10 days sutures and surgical pat was removed. The patient was seen at the 10th day (FIG. 4) and the 1st month to check for wound healing and gingival contours and the clinical records were taken. There were no complications observed in terms of soft tissue healing. The patient was satisfied with the newly created smile line (FIG. 5).

3. Discussion

The condition of the oral tissues, the gingival outlines, and the position of the lips and the symmetry of the teeth form appearing the basis of an aesthetic smile. Aesthetically desirable smiles demonstrate a gingival appearance of up to 3 mm. Excessive gingival display depends on sometimes maxillary growth patterns, drug related gingival hyperplasia and upper lip position and sometimes related with poor oral hygiene after surgical and orthodontic treatments.

Crown lengthening is performed for a good functional and aesthetic results and this operation can establish an accurate biological width and correct gingival asymmetries [5]. The aesthetic crown lengthening requires gingivectomy surgery in order to obtain adequate clinical crown; therefore, a minimum of 2 to 5 mm keratinized tissue is required to preserve gingival health [6]. Generally the upper jaw has enough keratinized tissue and adequate gingival tissue can be established after gingivectomy.

The gingivectomy can prefer if no osseous surgery is needed and it was less invasive than other approaches. When the literature is reviewed, discomfort, postoperative bruising and swelling reported to be minimal. Also, the duration of surgery was less time than other surgical procedures [7].

4. Conclusion

There are many treatment modalities such as gingivectomy & gingivoplasty, crown lengthening, reverse vestibuloplasty, botulinum toxin injection, and orthodontics and/or orthognathic surgery, for correction of a gummy smile. As in this case, it is seen that the design of the smile with the crown lengthening gives very successful aesthetic results especially at correct case selection, treatment planning, surgical treatment and careful evaluation.

REFERENCES

1. Tomar N, Bansal T, Bhandari M, et al. The perio-esthetic-restorative approach for anterior rehabilitation. *J Indian Soc Periodontol*. 2013;17(4):535-8.
2. Nemcovsky CE, Artzi Z, Moses O. Preprosthetic clinical crown lengthening procedures in the anterior maxilla. *Pract Proced Aesthet Dent*. 2001;13(7):581-8.
3. Bensimon GC. Surgical crown-lengthening procedure to enhance esthetics. *Int J Periodontics Restorative Dent*. 1999;19(4):332-41.
4. Wheeler TT, McGorray SP, Yurkiewicz L, et al. Orthodontic treatment demand and need in third and fourth grade schoolchildren. *Am J Orthod Dentofacial Orthop*. 1994;106(1):22-33.
5. Fletcher P. Biologic rationale of esthetic crown lengthening using innovative proportion gauges. *Int J Periodontics Restorative Dent*. 2011;31(5):523-32.
6. Maynard JG, Jr., Wilson RD. Physiologic dimensions of the periodontium significant to the restorative dentist. *J Periodontol*. 1979;50(4):170-4.
7. Kamer FM. "How I do it"--plastic surgery. Practical suggestions on facial plastic surgery. Smile surgery. *Laryngoscope*. 1979;89(9 Pt 1):1528-32.