

**Case Report****Achieving Micro-esthetics Using Diode Lasers – A Case Report***Salome Ann*¹¹*General Dental Consultant, Ras-Al-Khaimah, United Arab Emirates*

How to cite: Salome A, Achieving Micro-esthetics Using Diode Lasers – A Case Report, *Int J Perio Rehab*. Volume 2023, Article ID 23154002, 5 pages

Received: 15.02.2023

Accepted: 22.02.2023

Web published: 12.03.2023

ABSTRACT: Excessive gingival display can seriously harm a person's appearance. In patients with poor aesthetics, periodontal plastic surgery with an aesthetic focus can be highly gratifying. A case is reported here on the cosmetic correction of flat gingival contour. Periodontal plastic surgery involving esthetic gingival contouring was performed in a single appointment using soft tissue diode laser. The outline of steps involved in the procedure is demonstrated.

Keywords: *Gingival hyperplasia, diode lasers, micro-esthetics, aesthetic dentistry, periodontal plastic surgery*

Address for Correspondence:

Dr. Salome Ann,

General Dental Consultant, PO Box – 30562, Maareidh, Ras Khaimah, United Arab Emirates

Email: salomeann98@gmail.com

INTRODUCTION

The ideal aesthetic smile is typically thought to include a conservative presentation of the marginal gingival that extends for two to three millimeters. On the other hand, an excessive gingival show can seriously harm a person's attractiveness. Gingival hyperplasia, altered passive eruption, and vertical maxillary excess are some of the aetiologies for excessive gingival show. Gingivectomy surgery can efficiently treat excessive gingival display brought on by gingival enlargement or changed eruption patterns. However, osseous reduction surgery is necessary to treat vertical maxillary excess [1]. Orthodontic treatment was carried out for functional and esthetic reason. Systematic examination

of facial and dental esthetics is done in three major steps, macro esthetics, mini esthetics and micro esthetics. Macro esthetics concerns with facial proportions, mini esthetics relates to esthetics in tooth and lip level, Micro esthetics explains intra tooth esthetics. Subtleties in the proportion and shape of teeth with their associated gingival contours have great importance in cosmetic dentistry.

CASE REPORT

A 22-year-old female patient was referred to Department of Periodontics for micro aesthetic management from Department of Orthodontics. Patient's chief complaint was proclined upper front teeth and unesthetic appearance. Patient had no relevant past dental or medical history. Patient was diagnosed with Class I malocclusion with maxillary vertical excess (Figure 1,2). The patient completed fixed orthodontic therapy.

On gingival examination it was seen that, patient had flat gingival contour with thick marginal gingiva with decreased clinical crown in relation to upper premolars and anterior teeth. On periodontal probing, the sulcus depth was 4mm along the upper anterior and pre molar. On radiographic examination the marginal bone was 2 to 3 mm apical to level of cemento enamel junction. There was minimal crestal bone loss seen along upper anterior region. Since there was adequate marginal gingiva, gingival contouring was planned without intruding the biological width. Positioning of the zenith relative to the long axis of the maxillary anterior teeth is advised. In contrast to central incisors and canines, lateral incisors have zeniths that are congruent with the long axis of the tooth [2,3]. Diode laser assisted gingival contouring was planned for the patient.

The objective of the treatment was to achieve ideal gingival curvature, gingival zenith of maxillary anterior and to restore the gingival contour with sharp interdental papilla and equally tapered gingival margins at the cervical third region of the tooth. Initially the recommended zenith placement was marked (Figures 3 and 4). This was used as a guide to recontour the gingival margin (Figure 5). The diode laser excision was performed at 1 watt continuous mode with an activated tip (Photon Plus 10 Watt . Zolar Technology). Precision upto 0.5mm was achieved using diode lasers. The post-operative healing was uneventful and was evaluated at one week and third week after the procedure. (Figure 6). Patient was comfortable during the post operative period and acceptable smile was achieved.



Fig 1: Pre-operative lateral views of Class I malocclusion



Fig 2: Pre-operative labial views of Class I malocclusion with maxillary vertical excess



Fig 3: Recommended zenith placement marked



Fig 4: Intra-operative view



Fig 5: 3 weeks post-operative view

DISCUSSION

Diode laser cosmetic gum contouring is a predictable, minimally invasive procedure that can deliver results right away and is patient-friendly [4,5]. Even a general dentist can perform the treatment with full control thanks to the use of a diode laser since it allows for repeated contouring and greater eyesight in a bloodless environment, producing

outstanding outcomes in terms of the height, shape, and symmetry of the gingiva.

Preserving biologic width should be the main priority when performing excision. The sum of junctional epithelium and supra crestal connective tissue connection determines biological width. Changes in biological width can cause gingivitis, pain, recession, neighbouring bone loss, and the development of pockets. When crowns or veneers are scheduled following gingival contouring, this value becomes more crucial [6,7].

Although lasers work well when used with the proper parameters, excess carbonization can occasionally happen with higher power levels, which can have undesirable side effects such tooth sensitivity, gingival recession, and post-operative pain. During executing the surgery, the doctor must be cautious of these occurrences [8,9,10].

CONCLUSION

It is well accepted that laser surgery has a place in the mouth cavity. Throughout the surgery, the patient was at ease. The patient had not taken any medication, and the healing process went without incident. Simple operations like frenectomy, gingivoplasty, gingivectomy, and crown lengthening that boost a person's confidence can now be incorporated into standard dental practise thanks to the use of lasers in clinical practise. This case report gives an insight that use of diode lasers aid us in achieving micro esthetics to a precision of 0.5mm which is very difficult to achieve with scalpel.

ACKNOWLEDGEMENT: NIL

CONFLICT OF INTERESTS: NIL

SOURCE OF FUNDING: NIL

REFERENCES

1. Dolt AH, 3rd, Robbins JW. Altered passive eruption: An etiology of short clinical crowns. *Quintessence Int.* 1997;28(6):363–72.
2. Sarver DM. Principles of cosmetic dentistry in orthodontics: Part 1. Shape and proportionality of anterior teeth. *Am J Orthod Dentofacial Orthop.* 2004;126(6):749–53.
3. Pawar B, Mishra P, Banga P, Marawar PP. Gingival zenith and its role in redefining esthetics: A clinical study. *J Indian Soc Periodontol.* 2011 Apr;15(2):135-8. doi: 10.4103/0972-124X.84382. PMID: 21976837; PMCID: PMC3183664.
4. White JM, Swift EJ. Lasers for use in dentistry. *J Esthet Restor Dent.* 2005;17(1):60.
5. Prichard J. Gingivoplasty, gingivectomy and osseus surgery. *J Periodontol.* 1961;32:275–82.
6. Nugala, Babitha, et al. "Biologic width and its importance in periodontal and restorative dentistry." *Journal of conservative dentistry: JCD* 15.1 (2012): 12.
7. Loe H, Listgarten MA, Terranova VP. The gingiva: Structure and function. In: Genco RJ, Goldman HM, Cohen DW, editors. *Contemporary periodontics*. St. Louis: C.V. Mosby; 1990. pp. 3–32.

8. Sarver DM. Principles of cosmetic dentistry in orthodontics: Part 1. Shape and proportionality of anterior teeth. *Am J Orthod Dentofacial Orthop.* 2004;126(6):749–53
9. Charruel S, Perez C, Foti B, Camps J, Monnet-Corti V. Gingival contour assessment: Clinical parameters useful for esthetic diagnosis and treatment. *J Periodontol.* 2008;79:795–801.
10. Ganji KK, Alam MK, Alanazi AF, Aldahali M. Facial profile based evaluation of gingival zenith position in maxillary central incisors among Saudi, Indian & Bangladeshi population. *Saudi Dent J.* 2018 Oct;30(4):342-347. doi: 10.1016/j.sdentj.2018.05.008. Epub 2018 Jun 2. PMID: 30202172; PMCID: PMC6128319.



Published by MM Publishers
<https://www.mmpubl.com/ijperior>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

Copyright © 2023 Salome Ann