

Gummy Smile Correction: Case Report

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Abstract

In the modern day practice of dentistry, it is no longer acceptable to revive single teeth. Patients anticipate a final appearance which is not only physiologically and mechanically sound but also aesthetically pleasing.

A gummy smile poses a restorative challenge for dentists attempting to achieve ideal aesthetics. Also, excessive gingival display space is a major concern for a large number of patients visiting the dentist. Cosmetically acceptable smiles show a gingival display of up to 3 mm. Gingival display of greater than 3 mm results in a gummy smile which is often unsightly for the individual and correction is sought. However with the advances in cosmetic dentistry; bleaching, bonding, veneering and laminates have opened doors to a wide variety of elective dental treatments to enhance aesthetic appearance, often reversing the visual signs of aging. A case is reported here on the cosmetic correction of gummy smile wherein periodontal plastic surgery for esthetic crown lengthening was performed in a single appointment using a diode laser and the teeth were restored with laminates for aesthetic enhancement.

Keywords: Gummy smile; Aesthetics; Crown lengthening; Laminates

Introduction

'Smile', a person's ability to express a range of emotions with the structure and movement of the teeth and lips, can often determine how well a person can function in society. A gummy smile is seen usually when more than 3 mm of gingival is visible [1]. The form and position of lips during speech and smiling cannot be changed easily, but the dentist can modify the form of the teeth, interdental papilla, and position of the gingival margin and incisal edges of the teeth [2]. Periodontal therapy is a necessary and useful adjunct when any anterior restoration is undertaken [3,4]. Prior to developing a suitable treatment plan, it is essential to establish a complete and accurate assessment of the conditions with which the patient presents which include; reasons for seeking treatment, assessment of systemic health, symmetry of face; profile of lips, smile line, dimensions of teeth, width of keratinized gingiva, gingival biotype and thickness of bone levels [5]. Porcelain laminate veneers have been used for several decades due to minimally invasive preparation designs and modern ceramic materials make this treatment option increasingly conservative to the natural tooth structures, while providing both predictable and long-lasting aesthetics [6].

The following case reports depicts two cases where a diode laser was used for correction of gummy smile and in the first case restoration with laminates was done thereafter.



Figure 1: Pre-operative view.

Case Report

Case report I

A 23-year-old female reported to the dental specialty clinic with the chief complaint of disproportionate display of teeth (Figure 1). On intra oral examination, it was found that the patient had an angles class 2 div 2 occlusion with a short upper lip, maxillary prominence and a gummy smile after orthodontic treatment. Also the teeth were found to be hypo plastic in nature. Patient underwent orthodontic treatment alignment for alignment of teeth with space closure and changing the gingival profile including the interdental papilla eliminating other treatment options to alter the long axis of the tooth. No alteration in the biological width was done.

Gingivoplasty was planned to decrease the gingival display and increase the length of the tooth and ceramic laminates were planned to improve the color and texture of the hypo plastic teeth.

The treatment plan was explained to the patient and a written consent was obtained. The procedure was accomplished by using a diode laser of wavelength 980-nm (KAVOGENTLE RAY).

Following infiltration and local anaesthesia (2%lidocaine, 1:80,000 epinephrine), the outline of the gingivoplasty was marked with laser points using 300µm fibre and the gingival tissue was incised by placing the laser tips at the base of the gingiva and moving to and fro on the marked line for gingivoplasty (Figure 2).

At the one week's recall visit, the healing was found to be uneventful and the patient had neither post-operative complaints nor any

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Figure 2: Laser Assisted Gingivectomy done.



Figure 3: Post-operative after One Week – Tooth Preparation done to Receive Laminates and Provisional Restorations placed.



Figure 4: Ips Emax Laminates were placed.



Figure 5: Post-operative after 2 Weeks.

discomfort. The tooth preparation was done to receive laminates on the anterior teeth and the final impression was made, at which stage the soft tissue surgical sites appeared healed, firm, and healthy with good contours of the gingival margin. The provisional restorations were fitted with composite by spot etching and bonding on the same day (Figure 3).

The IPS emax laminates were luted using CALIBRA Caulk [Dentsply] laminate cement and soft cured following removal of any excess cement and later complete curing of the luting cement for 20 seconds (KERR 501) (Figure 4).

The prosthetic stages proceeded as per the normal restorative treatment and a 1 week post-operative view of the final laminates showed good adaptation of the gingival tissues at the crown margins (Figure 5).

Case report II

An 18 year old male reported to the dental specialty clinic with a chief complaint of display of gums while smiling (Figure 6). Intra oral examination revealed short crowns and excess of gingival display while smiling. The patient had undergone orthodontic treatment for correction of his malocclusion but wanted the gingival display to be reduced.

The treatment plan was explained to the patient and informed consent was obtained. This procedure was also carried out with a 980 nm wavelength laser (KAVOGENTLE RAY). After adequate anaesthesia was administered (2% lidocaine, 1:80,000 epinephrine), the gingival tissue was incised with the laser for optimal contouring of the gingiva. Immediate post-operative showed increase in crown length and decrease in the gingival exposure (Figure 7). Follow up was done after a week which showed good adaptation of the crown margins and satisfactory healing (Figure 8).

Discussion

Gummy smile correction is done by gingivoplasty to increase the crown lengths for either aesthetic or functional purposes. The surgical procedure is aimed at re-establishing the biological width, apically, while exposing more tooth structure. During the early times, the conventional surgical techniques were the main treatment modalities for performing soft tissue surgeries [7]. The entire practice of dentistry



Figure 6: Pre-Operative View.



Figure 7: Gingival Countouring done with Laser.



Figure 8: Post-operative after One week.

has been revolutionized ever since Lasers for dental applications were introduced in 1985. Kenneth used a diode laser to correct the gummy smile of a patient [8]. Govila et al. in 2011 performed various soft tissue surgical procedures like frenectomies, gingivoplasties, vestibuloplasties, depigmentations and second stage implant surgeries by using diode lasers and they achieved significant results [9]. A diode laser is said to be ideal for soft tissue procedures. It is absorbed in haemoglobin and melanin. Diode laser can precisely cut, coagulate, ablate, and vaporize the target tissue. Patient is comfortable and there is faster gingival healing [10]. The uses of a diode laser in soft tissue procedures are advocated because it helps in bacterial decontamination promotes re-establishment of connective tissue attachment and are less invasive nature which reduces postoperative swelling [11,12].

Also, with laser the conventional protocols requiring a waiting period of four to six weeks for sufficient healing of the attachment apparatus, prior to initiating restorative procedures is decreased [13].

The clinical crown height and the gingival contour achieved with the laser therapy were highly remarkable. Porcelain laminate veneers were the treatment of choice due to their minimally invasive preparation designs [6]. After one week, the patient was recalled and the preparation for laminate was done and it was cemented [14]. The ceramic veneer which was cemented had an excellent colour match, which ultimately enhanced the aesthetics and the beauty of her smile.

In the second case, since the chief complaint of the patient was excessive gingival display. He was satisfied with the laser gingivoplasty procedure which helped enhance aesthetics.

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