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Case Report

Interdisciplinarity in Anterior Oral Rehabilitation: Periodontal Plastic Surgery with Aesthetic Restorative Treatment

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Abstract

Concerns and expectations for dental aesthetics are becoming increasingly widespread. Therefore, interdisciplinary treatments for rehabilitation of previous aesthetics have increased, requiring the development of increasingly predictable techniques. The gingival smile and the presence of diastemas in the anterior region are common characteristics in the population, being considered unpleasant during the smile, negatively affecting facial aesthetics. The objective of this article was to report the previous aesthetic rehabilitation using a surgical guide for the correction of gingival smile and restorative finishing with composite resin. A 48-year-old patient attended the dental clinic with aesthetic dissatisfaction smiling. Clinical examination revealed the presence of an altered passive eruption and diastemas in the anterosuperior region. The aesthetic rehabilitation took place by surgery to increase the aesthetic clinical crown with the use of a surgical silicone guide, and subsequent restorative treatment with composite resins. After 1 year of follow-up, periodontal tissue stability and restorations could be verified. The combination of periodontal and restorative treatment has been shown to be effective in previous aesthetic rehabilitation, therefore the use of periodontal surgical guide with subsequent restorative treatment can be an alternative to increase the predictability of rehabilitation in aesthetic regions.

Keywords: *Dental Esthetics; Crown Lengthening; Gingiva; Mouth Rehabilitation*

Introduction

Aesthetics is part of contemporary dental practice, and the smile is considered essential to obtain it, because the most important expressions of the human being are manifested through it [1]. Teeth, lips and gums are the three main components of an aesthetic smile. According to De Castro., *et al.* [2] an ideal smile must present: symmetry between teeth, gingiva of the anterior superior teeth and the upper lip, minimal gingival exposure, interproximal space completely filled with gingiva, teeth with adequate shape and position and incisal edges parallel to the lower lip.

Gingival excess is recognized by the American Academy of Periodontology as a mucogingival deformity around the tooth [3]. The phenomenon called gingival smile occurs when a disproportionate amount of gingival exposure occurs during the smile, being considered unpleasant, which can negatively affect patients' perception of attractiveness, friendliness, intelligence and self-confidence [4].

The altered passive eruption is a dentogingival condition that can be perceived as unsightly, as it is characterized by gingival margins coronal to the cervical dental convexity [5]. Periodontal plastic surgeries such as an increase in the clinical crown may be necessary to establish conditions for obtaining a smile harmonic and aim to improve the symmetry of anterosuperior teeth and decrease gingival exposure during the smile [6,7].

Expectations regarding facial beauty have increased, causing the methodologies used in aesthetic rehabilitation to be increasingly improved [8]. According to Malik and Tabiat-Pour [9], the use of auxiliary guides in aesthetic periodontal surgery from waxing Diagnostics are a highly predictable option, where the surgeon can anticipate the amount of gum to be removed during the surgical procedure.

The presence of diastemas or spaces between the anterior teeth is also a common anti-aesthetic complaint, which may be present in the mixed and permanent dentition, being more prevalent in the maxilla in relation to the mandible [10]. Its extension and etiology must be properly evaluated, and the correct diagnosis it is crucial for planning rehabilitation treatment [11].

Objective of the Study

The objective of this clinical case was to demonstrate the use of a periodontal surgical guide to increase the clinical crown and rehabilitation with composite resin restorations, promoting functional and aesthetic improvement, with consequent correction of the symmetry of the smile.

Case Report

Patient JA C, female, 48 years old, without systemic involvement, non-smoker, attended the dental clinic, at the University Center of União da Vitória, reporting aesthetic dissatisfaction when smiling due to the large gingival exposure during the smile and increased spacing between the teeth. upper teeth. At the initial clinical examination, the presence of an altered passive rash and diastemas in the anterior region was observed (Figure 1). Excellent oral hygiene, low plaque index, absence of periodontal disease and carious lesions were observed. Initial molding to obtain a study model was performed prior to clinical planning. The treatment of choice was aesthetic periodontal surgery with osteotomy in the anterosuperior region, with reverse planning, and restorative treatment with composite resin in dental elements 13 to 23.

Figure 1: *Initial aspect.*

Diagnostic waxing was performed including the anterior superior dental elements, with closing of diastemas and determination of the new cervical dental anatomy, aiming at aesthetic harmonization. After the patient's approval regarding the result presented by the waxed model, a silicone surgical guide (specification) was made (Figure 2).

Figure 2: *Surgical guide.*

Preoperative asepsis was performed using a mouthwash with 0.12% chlorhexidine digluconate (Periogard, Colgate, São Paulo, SP, Brazil) for 1 minute. Infiltrative anesthesia of the entire anterosuperior region and nasopalatine nerve was performed with mepivacaine with 2% epinephrine 1: 100,000 (Mepiadre, Nova DFL, Rio de Janeiro, RJ, Brazil). After proper placement of the surgical guide, an internal bevel incision was performed. The device was then removed, and an intrasulcular incision was made for subsequent removal of the gingival tissue with Gracey curettes # 5-6. The mucoperiosteal flap was removed, exposing the underlying bone tissue. Then, with the repositioning of the surgical guide, osteotomy was performed with Oschsenbein chisels, promoting a distance of 3 mm between the gingival margin of the guide and the marginal bone tissue. Irrigation with saline was followed by flap repositioning and simple sutures with 6-0 nylon.

For the postoperative period, nimesulide 100 mg was prescribed every 12 hours for 3 days, paracetamol 750 mg every 8 hours for 3 days and mouthwashes with 0.12% chlorhexidine digluconate, twice a day, for 1 week. After 10 days the suture was removed and clinical follow-up was started (Figure 3 to 5).

Figure 3: *Incisions.*

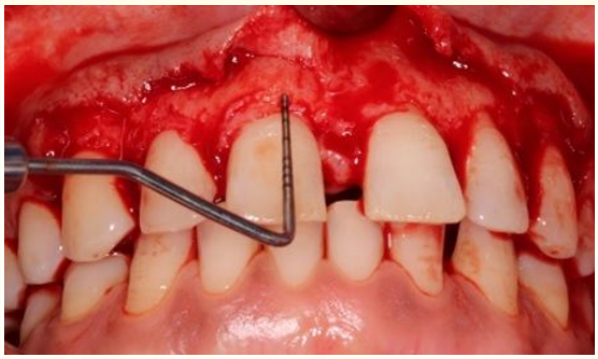

Figure 4: *Biologic space.*

Figure 5: *Sutures.*

After 3 months of surgery, restorative treatment was performed. After 1 year of follow-up, gingival stability and restorations could be verified (Figure 6).

Figure 6: *1-year follow-up.*

Discussion

Aesthetics is subjective and depends, among other factors, on cultural characteristics, gender and age, being strictly related to basic human perception [12]. In dentistry, aesthetics is closely related to the smile, which to be pleasant depends on the gingival architecture and dental characteristics [1]. The proportionality between width and height of the teeth, as well as position and shape are important factors of appearance when smiling. When there is a failure in proportionality, unpleasant changes in aesthetics can occur, affecting the quality of life [4].

The treatment of aesthetic cases often involves interdisciplinarity, such as the association between periodontal and restorative treatment [13]. In the present clinical case, the patient presented aesthetic dissatisfaction when smiling, due to excessive gingival exposure, in addition to inadequate positioning and shape of the anterior teeth. Interdisciplinary treatment, with guided aesthetic periodontal surgery and restorative treatment, proved to be effective for anterior oral rehabilitation and patient satisfaction.

Altered passive eruption is characterized by excessive gingival exposure, which may have a skeletal, muscular or dentogingival origin. The exact mechanism by which this condition occurs is unknown, however, genetic and developmental factors seem to be involved [14]. Treatments may include clinical crown augmentation, lip replacement, application of muscle relaxants, orthodontics and orthognathic surgery.

The success of the previous aesthetic rehabilitation treatment is closely related to the correct diagnosis. Clinical crown augmentation is a classic periodontal procedure, indicated for functional and/or aesthetic purposes. According to Lee [15], several methodologies have been described for this surgical procedure, including tissue removal with osteotomy. The choice of the technique to be used depends on several factors, such as medical history, medications, periodontal biotype, location of the cemento-enamel junction, surgery that precedes restorative treatments and maintenance of oral hygiene [11].

The performance of osteotomy during the procedure to increase the clinical crown aims to maintain the biological space preserving periodontal health [16]. Several studies indicate that a minimum distance of 3 mm between the margins of the restorations and the bone crest would be adequate for maintenance periodontal [17,18].

The development and use of surgical guides to increase the clinical crown has been increasing [1,6,11]. They can be used in order to increase the predictability in surgical procedures involving many teeth, through manufacturing prior to the surgical procedure in order to facilitate the obtaining of proper architecture of gingival and bone tissue [19].

The results of periodontal tissues after surgical therapy for clinical crown augmentation may be regrowth, stability or recession, because healing involves bone remodeling with possible resorption of the height of the bone crest [20]. The time interval between the surgical procedure and the performance of the restorative treatment raises great concern, mainly because the stability of periodontal tissues after surgical therapy is controversial [21,22]. Studies address changes in the position of the gingival margin and alveolar bone after periodontal therapy [17]. For some authors, restorative treatment can be performed after a period of 3 - 6 months of healing [6,23], while other authors recommend waiting 6 - 12 months [24].

The presence of anterior diastemas can interfere with the harmony of the smile, negatively influencing the self-perception of dental appearance [25]. According to Keene [26] diastema is defined as a space greater than 0.5 mm between the two upper central incisors, and may present as etiology high brake insertion, microdontia, macrognathia, tooth absences, cysts and harmful habits.

The increase in aesthetic demand by patients and professionals has led to the improvement of aesthetic restorative procedures, such as direct and indirect restorations. In the present clinical case, restorative treatment with direct composite resins was performed. Since its introduction on the market, composite resin restorations have been one of the most performed dental procedures, due to their

properties of minimal removal of dental structure and high aesthetics [27,28]. Currently, composite resins are the first choice for previous restorative treatments [29]. When compared to indirect restorative treatments, the main reasons for their choice are: absence of prosthetic preparation, high repair potential and low cost and time required [30].

Conclusion

The treatment of aesthetic cases involves interdisciplinarity, such as the association of periodontal and restorative treatments. Reverse planning of esthetic oral rehabilitation is essential for predictability of success. The use of a surgical guide to correct gingival smiles and restorations showed excellent immediate results, with adequate stability after 1 year of follow-up the present case.

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