



Full Mouth Crown Lengthening A Boon To Full Mouth Rehabilitation – A Case Report

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Abstract

Background: The aim of this case report was to establish good anterior esthetics and functional occlusion by surgical and restorative intervention.

Methods: A 20 years old female patient was reported to the out patient department of a Government Dental College and Hospital with generalized malformed teeth causing esthetic problem and difficulty in chewing food. Combined surgical crown lengthening procedure in all four quadrants and full mouth rehabilitation with regular follow up was performed.

Results: The patient was satisfied with treatment and was happily married.

Conclusions: Surgical crown lengthening procedure plays a great role in maintaining gingival health surrounding the fixed prosthesis.

Keywords: Surgical crown lengthening, Biologic width, Full mouth rehabilitation

Introduction

A short clinical crown is defined as any tooth with less than 2 mm of sound, opposing parallel walls remaining after occlusal and axial reduction. The common causes of short clinical crown include caries, erosion, tooth malformation, fracture, attrition, excessive tooth reduction, eruption disharmony, exostosis, and genetic variation.¹

This deficiency in clinical crown length should be increased when margins of caries or margins of the tooth fractures are subgingivally placed, the crown is too short for retention of the restoration, there is an excess of gingiva and anatomical tooth crown is partially erupted.²

Biologic width (BW) is defined as the physiologic dimension of the junctional epithelium and connective tissue attachment, according to the pioneering study conducted by Gargiulo et al.³ Kois

mentioned that a length of 3 mm was crucial for gratifying the requirements for a constant BW. Defiance of the BW may cause bone resorption and inflammation.⁴

In average, in human the combination of a connective tissue attachment of 1.07 mm, above the alveolar bone crest, and a junctional epithelium, below the base of the gingival sulcus, of 0.97 mm constitutes the biologic width, that is, 2.04 mm in average. Ingber et al. suggested that an additional 1 mm might be coronally added to the 2 mm dentogingival junction, as an optimal distance between the bone crest and the margin of a restoration, to permit healing and proper restoration of the tooth.⁵ The concept of crown lengthening (CL) was first introduced by D.W. Cohen.⁶

Since the resetting nature of this procedure, there is a risk of reducing the attached gingiva width; thus, this width should be carefully diagnosed and evaluated when planning crown lengthening procedure.^{4,7}

The aim of this case report was to improve esthetic and functional requirement of dentition in a young girl of 20 years age.

Case Report:

A 20 years old female patient was reported to the out patient department of a Government Dental college and Hospital with generalized malformed teeth causing esthetic problem and difficulty in chewing food. The patient presented with good general health with no systemic diseases. But on clinical examination there was generalized moderate gingivitis. Orthopantogram revealed the crown-to-root ratio was about 1:3. No periodontal pockets were present and sufficient width of attached gingiva was present in the all teeth. All other clinical parameters were normal. The primary concerns of this patient included small discolored teeth with generalized spaces between all teeth. Dental history and clinical examination revealed that she had enamel hypoplasia and all four first molars were missing resulting in closed bite anteriorly. To establish good anterior esthetics and functional occlusion surgical and restorative intervention was essential.

After discussion with the restorative dentist, esthetic crown-lengthening was recommended to allow a healthy, optimal relationship between the teeth and the periodontium. The whole treatment plan was explained to the Patient and patient's relatives and their consent was taken in a consent form.

Initial preparation phase for treatment consisted of oral hygiene instructions, scaling and root planing. Re-evaluation were done 4 weeks after the completion of this first phase of therapy. Routine blood investigation was normal.

Customized surgical stent was used to guide gingival recontouring and ostectomy procedure under local anesthesia (2% Lidocaine anaesthetic solution containing 1:200,000 Lidocaine Hydrochloride with Adrenaline). Internal bevel gingivectomy was performed and suture was given. The patient was given appropriate postoperative instructions.

Patient was recalled after 7 days and four weeks. After 6 weeks patient was referred to restorative dentist. Final preparation of the teeth began a half year later, since gingival recession can occur as long as 6 months after the surgery.⁸ Full mouth rehabilitation was performed by restorative dentist. After completion of treatment the patient was satisfied and started her happy married life.

Figure 1a:Initial Facial View



Figure 1b:Initial Radiograph Figure 1c:Initial Radiograph



Figure 1d:Initial Orthopantogram

Figure 1e :Initial Left and Right Side Views

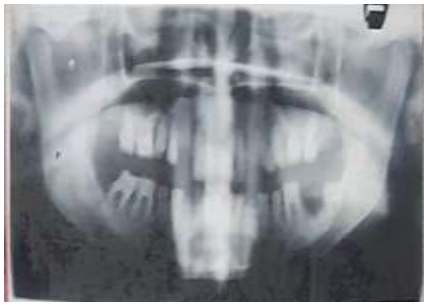


Figure 2a: After Gingivectomy



Figure 2b: After Suturing



Figure 2c: After Suturing



Figure 3: After Final Prosthesis



Discussion :

The esthetic crown lengthening requires gingivectomy procedures to expose the needed additional tooth structure; therefore, a minimum of 2 to 5 mm of keratinized tissue is necessary to ensure the gingival health.^{9,10} The interproximal bone should be carefully removed in order to maintain the anatomic structures, so that the interproximal tissues are allowed to coronally proliferate; the papilla should replace the distance from the bone crest to the base of the contact area (about 5 mm or less).^{11,12} Any smaller residual interproximal space can be eliminated by apically positioning the contact area of the definitive restoration.^{13,14}

In this case report, after flap elevation slight labial and lingual bone removal was done in maxillary and mandibular anterior region for restoring biological width. After placement of permanent prosthesis there was no features of gingivitis present.

Conclusion:

Discolored small teeth with generalized spacing create a great esthetic and psychological problem in young girls. Full mouth rehabilitation procedure is like a boon for managing this type of situation.

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