

Aesthetics Enhancement – Crown lengthening Procedure with Internal Bevel Gingivectomy – a Case Report

R Srivastava, P Tandon, K Gupta, A Srivastava

Citation

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Abstract

Periodontal surgery is generally perceived as excisional in nature with pocket elimination being the treatment goal. The appearance of anterior teeth has a significant psychological and emotional impact on the patient owing to their prominent position within the dentition. A common esthetic problem is excessive gingival display or a “Gummy Smile”. This problem can be resolved by simply removing the gingiva, via precisely planned incisions which often produces satisfactory esthetic results. The successful integration of esthetics and function is a result of the meticulous development of clearly defined anatomic parameter and their subsequent incorporation into the final result. This clinical report describes an internal bevel gingivectomy procedure for reduction of excessive gingival display.

INTRODUCTION

Most periodontal esthetic procedures can be grouped into one heading – Periodontal Plastic Surgery. Miller in 1993, proposed this term. It includes surgical procedures performed to correct or eliminate anatomic, developmental or traumatic deformities of the gingiva or alveolar mucosa. Periodontal surgery is generally perceived as excisional in nature with pocket elimination being the treatment goal. The appearance of anterior teeth has a significant psychological and emotional impact on the patient owing to their prominent position within the dentition. Changes in the anterior region of the mouth, from what is perceived as normal by the society may lead to low self-esteem or a lack of self confidence.¹ A common esthetic problem is excessive gingival display or a “Gummy Smile”. This problem can be resolved by simply removing the gingiva, via precisely planned incisions which often produces a satisfactory esthetic results.²

The esthetic rehabilitation of a patient involves a multidisciplinary approach. The successful integration of esthetics and function is a result of the meticulous development of clearly defined anatomic parameter and their subsequent incorporation into the final result.³ An evaluation of gingival architecture and any subsequent plans for its modification should be considered based on the amount of gingival display and ability to achieve a desirable gingival architecture and tooth proportion. For instance, in the

presence of a good crown - to - root ratio, esthetic crown lengthening can provide an appropriate proportions of the anterior teeth, along with pleasing gingival symmetry.⁴ This clinical report describes a gingivectomy procedure for reduction of excessive gingival display.

CASE REPORT

A 17 years old female patient came to the Department of Periodontics, Sardar Patel Post-graduate Institute of Dental & Medical Sciences, Lucknow; with the complaint of swelling and bleeding gums in the upper anterior region of the jaw since 2 months. History revealed that the swelling started progressively and attained the present size since 2 months. No history of any medications. Patient was systemically healthy. She was neither a smoker/alcoholic, no chewing habits.

Various clinical parameters were recorded with a UNC-15 (Hu-friedy) Probe and a Pocket marker.

Probing Pocket Depth.

Width of Attached Gingiva by measuring the distance from the base of the pocket to the Mucogingival Junction.

The surgical technique was explained to the patient and informed consent was obtained. Preparation of the patient included Scaling and Root Planing of the entire dentition; and oral hygiene instructions.

INVESTIGATIONS

Intra Oral Periapical radiograph of 12, 11, 21, 22 regions.

Complete Blood Count, Differential Count, Bleeding and Clotting time.

REPORTS

IOPA-X ray revealed normal crestal bone height and blood Picture was within normal range.

SURGICAL TECHNIQUE

When Crown Lengthening Procedure is planned to increase the length of the available tooth, the biological width needs to be considered and not encroached upon, as this may lead to periodontal breakdown.⁵ The proportions of crown length are also very important. This technique is generally used to improve esthetics and takes the form of a Gingivectomy, to excise the soft tissue. Normally, the gingival margin is 1mm coronal to the CEJ. If it is greater, then the clinical crown is shorter than the anatomical crown; and Crown Lengthening Procedure is required.

First of all we measured the pocket depths and marked them with a pocket marker (Fig.1 & 2).

Figure 1

Fig.1-Pre-operative, pocket depth- 4mm



Figure 2

Fig.2 - Pocket marks



Probing pocket depth came to be 4mm and the CEJ was at 4mm from the gingival margin. The gingival tissue was of thick biotype and had adequate attached gingiva. So we summarized our surgical procedure by excising 2-3mm of gingival tissue from the gingival margin, in order to maintain sufficient esthetics in the anterior region and to avoid the appearance of long clinical crown post-operatively. The thick, fibrous gingival tissue was excised with an inverse bevel incision (Internal Bevel Gingivectomy), following a scalloped pattern around the gingival margin, with a 15 no. blade (Fig.3 & 4).

Figure 3

Fig.3-Internal bevel incision placed



Figure 4

Fig.4- Excessive tissue being excised



Inverse bevel incision was given in order to remove the pocket lining and further maintain the periodontal health (Fig.5 & 6).

Figure 5

Fig.5 - Excised tissue



Figure 6

Fig.6 - After excision



This was followed by a second incision, into the intracrevicular sulcus. The incision was extended distally 1-2 teeth to blend into the gingival sulcus of the untreated teeth. The third incision is then placed interproximally to release the interdental papilla, after which a full thickness flap was raised to allow the bone exposure for osseous recontouring (Fig.7).

Figure 7

Fig.7 - Flap reflection



Additional minor gingival recontouring was performed to establish symmetrical gingival margins. The flap was then recontoured to follow the new position and sutured (Fig.8).

Figure 8

Fig.8 - Sutures placed



Periodontal dressing was placed on the operated site. Post-operative instructions were given. Patient was given analgesics and antibiotics to control any post-op infections.

HEALING

The sutures were removed 7 days after the procedure. The surgical site was examined for uneventful healing. There were no post-operative complications and healing was satisfactory (Fig.9&10). The patient did not have any post-operative morbidity. The patient was instructed to use soft tooth brush for mechanical plaque control in the surgical area.

Figure 9

Fig.9 - Before treatment



Figure 10

Fig.10 - After treatment



DISCUSSION

Today's dental patients are demanding youthful, attractive smile. Crown Lengthening Procedure is carried out for various restorative and esthetics issues, such as short teeth, excessive gingival display (Gummy Smile), uneven gingival contour and to provide a 'ferrule' for post crown provision. An evaluation of clinical and anatomic crown lengths in patients with a high lip line is important because incomplete anatomical crown exposure may be the principle factor in the esthetics of a case.⁷ Ideally the smile should expose minimal gingiva, the gingival contour should be symmetrical and in harmony with the upper lip, the anterior and posterior segments should be in harmony and the teeth should be of normal length. To obtain optimum esthetic result, the gingival form, tooth anatomy and the relationship of the underlying bone to the CEJ must be completely understood. Precise determination of the location of the CEJ prior to surgery and precise placement of incisions are necessary in order to achieve this goal.

Several procedures have been proposed for Crown Lengthening Procedure. In this case internal bevel gingivectomy was taken as the treatment of choice, in order to maintain the periodontal health and post-operative esthetics of the patient. The amount of attached gingiva needs to be measured as a part of the assessment. It has been shown that, to maintain periodontal health, there should be 2-3mm of attached gingiva.⁸ In this case adequate attached gingiva was present. Ideally, the gingival margin is 2mm coronal to CEJ. Whereas in this case it was 4mm from CEJ and bone level was adequate. So, in order to eliminate the existing pocket depth i.e. 4mm, the procedure was

accomplished with an inverse bevel incision in order to excise 2-3mm of thick fibrous gingival tissue, in a scalloped pattern. When flap was raised, it was determined that the anatomic crown was also a bit longer than its normal size. When full exposure of the anatomic crown was achieved surgically, there was a dramatic improvement in esthetics by the concomitant lengthening of the teeth and reduction of the gingival exposure, which significantly altered the ratio of crown to marginal tissue in favour of teeth. Symmetrical smiles are deemed esthetically pleasing, therefore, following the exposure of six anterior teeth, it is usually necessary to reduce the marginal gingiva of the premolars to prevent any disharmony of the anterior and the posterior segments. The post-operative esthetic result was satisfactory for the patient.

CONCLUSION

Excessive gingival display is associated with different etiologies, which must be identified before treatment. Internal bevel gingivectomy to remove the excess gingival tissue can be a treatment of choice to move the gingival margin apically, and to restore normal tooth dimensions and

dentogingival relationships.

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Author Information

Ruchi Srivastava, BDS

Postgraduate Student, Dept. of Periodontics, Sardar Patel Postgraduate Institute of Dental & Medical Sciences

Pradeep Tandon, MDS

Professor & Head, Dept. of Periodontics, Sardar Patel Postgraduate Institute of Dental & Medical Sciences

K.K. Gupta, MDS

Professor, Dept. of Periodontics, Sardar Patel Postgraduate Institute of Dental & Medical Sciences

Amitabh Srivastava, MDS

Reader, Dept. of Periodontics, Sardar Patel Postgraduate Institute of Dental & Medical Sciences