Dimensions and Relations of the Dentogingival Junction in Humans

Anthony W. Gargiulo, Frank M. Wentz, Balint , and Orban


Achieving gingival esthetics.

Reddy MS.


Abstract

INTRODUCTION:

Dentists traditionally have thought of periodontal treatment as a means of saving the teeth while leaving the patient with an esthetic problem. This no longer is true. The goal of this article is to show how esthetic crown-lengthening procedures, papillary regeneration and root coverage may enhance the overall esthetic results of periodontal treatment.

METHODS AND RESULTS:

Esthetic crown lengthening aims not only to provide biological width for the healthy restoration of teeth, but also to permit esthetic gingival and prosthetic contours. Papillary regeneration aims to fill the dark spaces that may occur interproximally with the progression of periodontitis or as a result of tooth alignment. Finally, root coverage procedures now can provide predictable results with the application of connective-tissue periodontal grafts and plastic surgery techniques. This article presents a case report for each type of procedure, each of which resulted in improved esthetics and cosmetic appearance.

CLINICAL IMPLICATIONS:
Periodontal treatment now is part of the solution for certain esthetic problems. While technically demanding, these procedures, in the hands of an appropriately trained and experienced clinician, can improve the overall results of patient treatment.

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**Dental restorations: a risk factor for periodontal attachment loss?**

Broadbent JM, Williams KB, Thomson WM, Williams SM.


**Abstract**

**BACKGROUND:**

Dental caries and restorations in proximal tooth surfaces often impinge upon the periodontal biological width.

**AIM:**

This study examines whether these factors may contribute to risk for periodontal attachment loss at these sites.

**METHODS:**

The study is based upon data from the Dunedin Multidisciplinary Health and Development Study, a long-standing cohort study. Approximal tooth surfaces of 884 study members were evaluated for restorations and caries at age 26 and again at 32 years, and probing depth and gingival recession were recorded in millimetres at age 32. Attachment loss was computed as the sum of pocket depth and gingival recession. Data were analysed using generalized estimating equations.

**RESULTS:**

Where a caries/restorative event had occurred on an inter-proximal tooth surface before age 26, the age-32 attachment loss at the corresponding periodontal site was approximately twice more likely to be \( \geq 3 \) mm than if the adjacent tooth surface had remained sound to age 32. This was also true where a caries/restorative event had occurred subsequent to age 26. The association remained after controlling for potential confounders, including smoking.

**CONCLUSIONS:**

Site-specific periodontal attachment loss due to dental caries or restorative events occurs in adults in their third and fourth decades of life.

Factors that influence the position of the peri-implant soft tissues: a review.

Sorni-Bröker M, Peñarrocha-Diago M, Peñarrocha-Diago M.


Abstract

INTRODUCTION:

The implantological rehabilitation of the anterior sector is one of the most demanding and complex treatments due to the necessity of obtaining an optimum esthetic result. At the level of the soft tissues, it involves obtaining the complete formation of the papilla and creating a harmonic contour of the gingival margin.

OBJECTIVE:

A bibliographical review has been carried out on the factors that influence the final position of the soft tissues.

MATERIAL AND METHODS:

A search has been carried out in the Pubmed database of articles written in English and Spanish. Articles that presented a clinical series of less than five patients and a monitoring of less than one year were excluded.

RESULTS:

At the level of the papilla, there are two decisive factors that play an influential role: the formation of the biological width and the distance between the alveolar crest and the contact point. The position of the gingival margin depends mainly of the height and width of the facial bone, as well as on the biotype. The surgical technique, as well as certain prosthodontics aspects related to the implant, can influence the final position of the soft tissues.

CONCLUSIONS:

Although, today we know much more about the factors that influence the position of the soft tissues, there are still certain aspects that should be studied more in-depth, for example the influence of the micro and macro-structure of the implant in the position of the soft tissues.

→ http://www.medicinaoral.com/pubmed/medoralv14_i9_p475.pdf
Surgical crown lengthening: evaluation of the biological width.

Lanning SK, Waldrop TC, Gunsolley JC, Maynard JG.


Abstract

BACKGROUND:

Previous surgical crown lengthening studies have investigated positional changes of the free gingival margin but not the biological width. Histological studies utilizing animal models have shown that postoperative crestal resorption allowed reestablishment of the biological width. However, very little work has been done in humans. Therefore, the purpose of this study was to evaluate the positional changes of the periodontal tissues, particularly the biological width, following surgical crown lengthening in human subjects.

METHODS:

Twenty-three (23) patients who needed surgical crown lengthening to gain retention necessary for prosthetic treatment and/or to access caries, tooth fracture, or previous prosthetic margins entered the study. The following parameters were obtained from line angles of treated teeth (teeth requiring surgical crown lengthening) and adjacent teeth with adjacent and non-adjacent sites: plaque and gingival indexes, free gingival margin, probing depth, attachment level, bone level, direct bone level, and biological width. During surgery, the bone level was reduced based on the future prosthetic margin and predetermined biological width; flaps were placed at the bony crest. Patients were examined at baseline and at 3 and 6 months postoperatively.

RESULTS:

Eighteen patients completed the study. Overall, the amount of bone resected was 1 to 5 mm. At 90% of treated sites, > or = 3 mm of bone was removed. At 3 months, the apical displacement of the free gingival margin at non-adjacent, adjacent, and treated sites was 2.46 +/- 0.25 mm, 2.68 +/- 0.20 mm, and 3.07 +/- 0.16 mm, respectively. There was no significant change in the position of the free gingival margin from 3 to 6 months. The biological width at all sites was smaller at 3 and 6 months compared to baseline (P<0.05) except for the treated sites, which were not significantly different from baseline at 6 months.

CONCLUSIONS:

During surgical crown lengthening, the bone level was lowered for placement of the prosthetic margin and reestablishment of the biological width. The biological width, at treated sites, was reestablished to its original vertical dimension by 6 months. In addition, a consistent 3 mm gain of coronal tooth structure was observed at the 3- and 6-month examinations.
Esthetic crown lengthening for maxillary anterior teeth.

Sonick M.


Abstract

In the maxillary anterior region, the gingival labial margin position is an important parameter in the achievement of an ideal smile. The relationship between the periodontium and the restoration is critical if gingival health and esthetics are to be achieved. Periodontal therapy is a necessary and useful adjunct when any anterior restoration is undertaken. Anterior surgical crown lengthening may be undertaken to avoid restorative margin impingement on the biologic width. Crown lengthening is also used to alter the gingival labial profiles. This article discusses the esthetic parameters of ideal gingival labial positions and presents a classification of crown-lengthening procedures and the procedure for a two-stage crown-lengthening technique. The two-stage crown-lengthening technique is surgically precise because healing is predictable.

Contemporary crown-lengthening therapy: a review.

Hempton TJ, Dominici JT.


Abstract

BACKGROUND:

The authors conducted a literature review regarding the rationale, basic surgical principles, contraindications and wound healing associated with periodontal crown-lengthening surgery. They present a report of a clinical case illustrating crown lengthening with osseous resection.

TYPES OF STUDIES REVIEWED:

The authors evaluated clinical and radiographic studies, as well as literature reviews. They selected only publications that pertained to the surgical exposure of the natural dentition to facilitate restorative therapy, esthetic concerns or both.

RESULTS:

Periodontal crown lengthening can be used for esthetic enhancement in the presence of delayed passive eruption. Moreover, for teeth with subgingival caries, fractures or both, this treatment can establish a biological width and, if needed, a ferrule length facilitating prosthetic management. Crown-lengthening surgery involves various techniques, including gingivectomy or gingivoplasty or apically positioned flaps, which may include osseous resection. Authors of wound-healing investigations have reported that an average of 3 millimeters of supragingival soft tissue will rebound coronal to the alveolar crest and can take a minimum of three months to complete vertical growth.

CLINICAL IMPLICATIONS:
Initiation of final prosthetic treatment should wait at least three months and possibly up to six months for esthetically important areas, as the free gingival margin requires a minimum of three months to establish its final vertical position. Dentists must be aware that osseous resection could affect periodontal stability and may pose a contraindication to crown-lengthening therapy.

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**The periodontal factor in esthetic smile design--altering gingival display.**

Bitter RN.


**Abstract**

The periodontal soft and hard tissues are an important determinant of restorative smile esthetics. Management of the periodontal tissues that “frame” each tooth is crucial to esthetic smile design. This article describes a four-step technique that makes it possible to sculpt the position of the labial gingival margin to provide additional crown height or length, a process the author describes as smile sculpting. This periodontal smile sculpting can aid in determining the pre-restorative treatment profile for teeth and create a blueprint for the restorative dentist to enhance a patient's final esthetic treatment results. Crucial to understanding this process is an appreciation of the periodontal principles that govern smile design, especially the periodontal biologic width and the influence of the underlying hard tissue bony architecture in defining the periodontal envelope from which the teeth emerge.

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**Aesthetic crown lengthening.**

Jorgensen MG, Nowzari H.