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QUANTITATIVE AND QUALITATIVE ASSESSMENT OF SOFT TISSUE MATURATION

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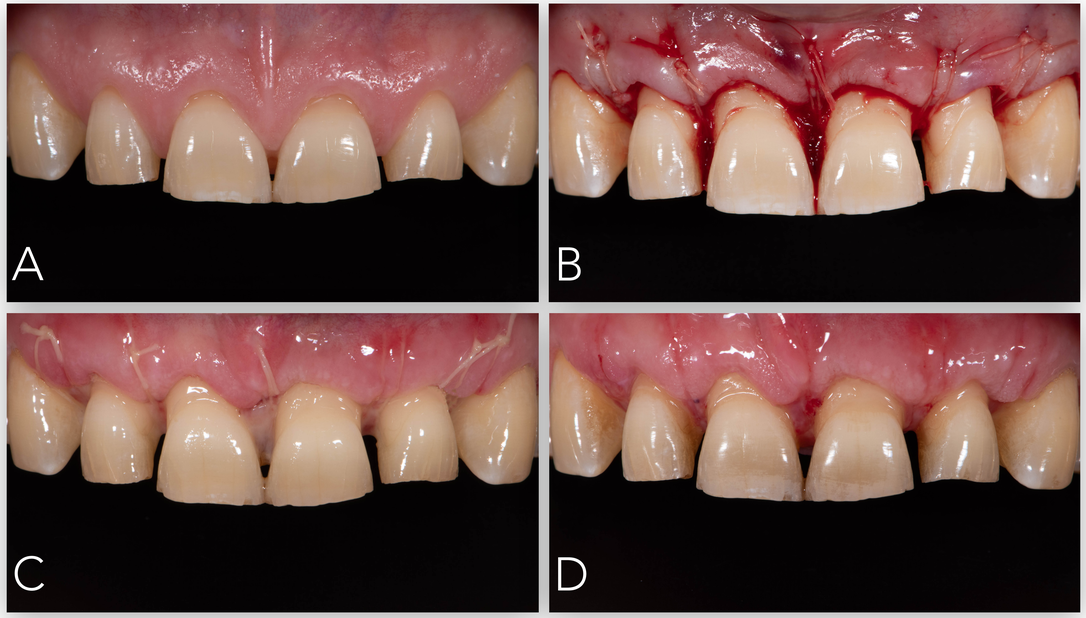
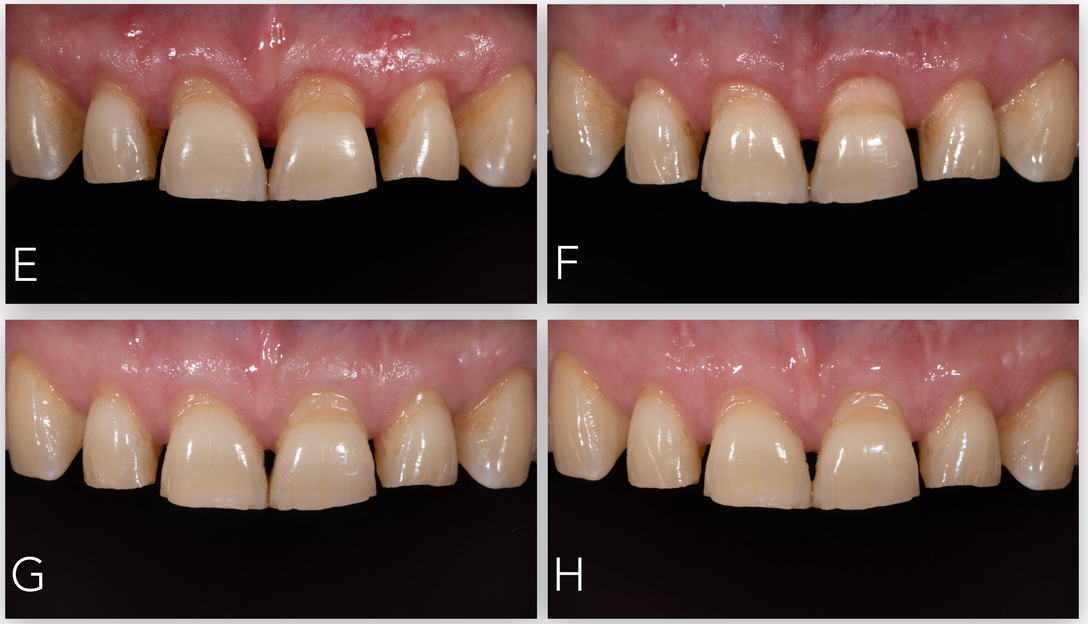
Introduction

Surgical crown lengthening/gingivectomy are performed to expose tooth structure for restorative treatment and/or for aesthetics to reduce excessive gingival display and gingival margin discrepancies.

Presently quantitative assessment of supra-crestal attachment is regarded as a reference for soft tissue maturation. However, qualitative variables such as soft tissue color, texture and fullness may be factors of interest in evaluating the optimal timepoint for restorative treatment.

Four cases of periodontal resective surgery cases are presented demonstrating the characteristics of soft tissue maturation.[1,2]





Case1. Crown lengthening: A, initial presentation frontal view; B, Immediate post-operation frontal view; C, 1-week post-operative frontal view; D, 2-weeks post-operative frontal view; E, 3-weeks post-operative frontal view; F, 6-weeks post-operative frontal view; G, 15-weeks post-operative frontal view; H, 19-weeks post-operative frontal view.

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Materials and Methods

Clinical Presentation

Two crown lengthening cases involving osseous resection and two gingivectomy cases were followed for the purpose of evaluating soft tissue maturation. Pre-surgical and post-surgical documentation included quantitative measurement of probing depth, supra-crestal attachment and qualitative assessment of tissue phenotype, color, texture and fullness.
Once the various tissue elements of the gingival unit are disturbed surgically, the end point of the maturation process was determined for each case by re-assessing the quantitative and qualitative variables. Re-establishment of these components for each of the cases at their appropriate dimensions maybe variable with restoration of soft tissue texture, color, and fullness. [3,4]

Case 1- 63-y/o Caucasian male diagnosed with altered passive eruption, treatment plan included crowns on #6,11 and partial labial veneers on #7, 8, 9, 10 and crown lengthening with osseous contouring. Tissue maturation- Patient achieved restoration of supra-crestal attachment at 15-weeks, tissue color and fullness was restored at 19-weeks.

Case 2- 62-y/o Hispanic male referred for aesthetic crown lengthening, treatment plan included partial labial veneers on #7, 8, 9, 10. Tissue maturation-Patient achieved restoration of supra-crestal attachment at 21-weeks, however, marginal gingival stability was still changing at 21-weeks.

Case 3- 14-y/o African American female referred for gingivectomy on maxillary dentition due to gingival hyperplasia. Tissue maturation- Patient achieved restoration of supra-crestal attachment at 8-weeks, tissue color, texture and fullness were restored at 8-weeks.

Case 4- 15-y/o Hispanic male referred for gingivectomy on maxillary dentition due to gingival hyperplasia. Tissue maturation- Patient achieved restoration of supra-crestal attachment at 6-weeks, tissue color and fullness were still changing at 8-weeks.

Case 2. Crown lengthening A, initial presentation; B, Immediate post-operative; C, 3-weeks post-operative; D, 5-weeks post-operative; E, 21-weeks post-operative.

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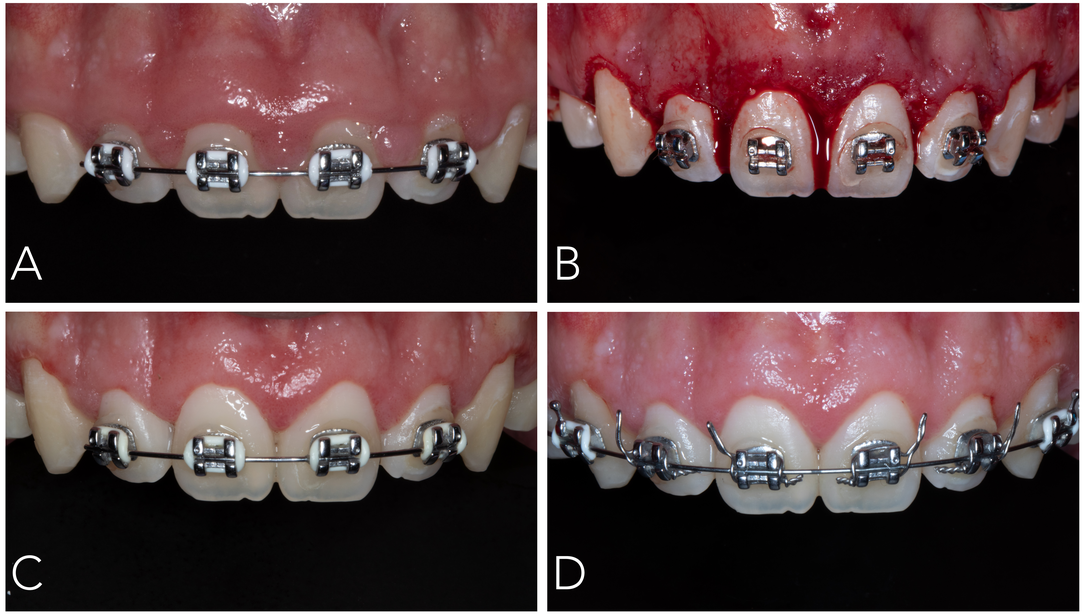

Case 3.left Gingivectomy: A, initial presentation frontal view; B, Immediate post-operation frontal view; C, 1 day post-operative frontal view; D, 1-week post-operative frontal view; E, 3-weeks post-operative frontal view; F, 8-weeks post-operative frontal view.

Case4.right Gingivectomy: A, initial presentation frontal view; B, Immediate post-operative frontal view; C, 2-weeks post-operative frontal view; D, 8-weeks post-operative frontal view.

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Results

This case series elucidates how the re-development of the supra-crestal gingival attachment restoration is not the sole indicator of soft tissue maturation, in addition qualitative variables, soft tissue color, fullness and texture must also be considered.

Existing literature does not adequately emphasize the re-establishment of the supra-crestal dimension or the qualitative variables as indicators of tissue maturation to serve as a guide to proceed with the restorative phase of treatment.[4, 5]

In the past literature, however, sufficient information has not been provided regarding the dimension of the postsurgical soft tissue modifications or the amount of time necessary to achieve the complete healing of the periodontal tissues; therefore, the stability of the soft tissue levels.

The timeline of the healing and maturation processes is influenced by the type of the resective procedure, tissue phenotype, and patient's biology. The speed and pattern of the soft tissue maturation differed for each case. Comparison of the pre- and post-operative quantitative and qualitative characteristics served as a means for determining the appropriate timeline for the restorative treatment phase.

Conclusion

This case series of crown lengthening involving osseous and soft tissue resection emphasizes the importance of re-establishment of the supra-crestal attachment postoperatively. This determinant in conjunction with color, texture and fullness should be used as a guide for the timing of the initiation of the definitive restorative treatment.

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