Morphogenic Bone Splitting: Description of an Original Technique and Its Application in Esthetically Significant Areas

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Purpose: This article presents a regenerative technique, morphogenic bone splitting (MBS), which overcomes the limitations associated with expansion techniques described to date. Materials and Methods: The authors propose a method whereby the bone-mucosa-gingival complex (BMGC) is displaced in its entirety, establishing a new focus for a secondary hinge located in the coronal reaches of the osteotomy. Depending on clinical needs, this approach modifies or eliminates the facially inclined hinge displacement characteristic of ridge expansion techniques. By exploiting the inherent capacity for second intention healing, the regenerative MBS technique avoids the use of graft material, membranes, or mechanical devices. It effectively harnesses the intrinsic regenerative capabilities of the treated site. Results and Conclusions: The MBS technique is performed in a single operation. By permitting the insertion of implants of an appropriate size in the optimum position for esthetic and functional requirements, it achieves the desired 3-dimensional reshaping of the BMGC and thereby restores the anatomy of the implant site. This reshaping includes: root prominences, keratinized gingiva, papillae, fornix, and the mucogingival junction. In addition to these esthetically significant issues, it permits implants to be placed at a functionally favorable axial inclination. Int J Prosthodont 2008;21:389–397.

One criterion for success that emerged from the Toronto Conference was described by Zarb and Albrektsson\textsuperscript{a} as follows: “The result of implant support does not preclude the placement of a planned functional and esthetic prosthesis that is satisfactory to both the patient and dentist.”

This underscores the notion that implant placement must be “prosthetically driven,” especially given the ever-increasing expectations expressed by both restorative dentists and patients. This need has driven the development of techniques that enable placement of implants in their most functional and esthetically desirable positions by modifying the anatomy of recipient sites that have been altered by events associated with edentulism.\textsuperscript{a–c}

A significant factor when evaluating the final outcome in areas of esthetic importance is the degree to which the implant-prosthesis successfully blends in with the normal anatomy of the adjacent areas. Such an evaluation must include the bone-mucosa- gingival complex (BMGC) along with the prosthetic restoration. The degree of success relates not only to the functional integration of the implant, but also to the overall anatomic appearance resulting from reconstruction efforts to correct both the anatomic deformities from preexisting disease and the implant surgery itself. Ideal results would include the following characteristics:

1. Bone volume that permits an implant of appropriate size to be placed in the most favorable position.
2. Alveolar mucosa and keratinized gingiva of appropriate size, volume, and color in correct anatomic relationship with the prosthesis and adjacent tissues.
3. Interproximal papillae of the proper shape at the correct level.
4. Mucogingival junction confluent with the adjacent sites.
5. Presence of root prominences of proper dimensions.
6. Prosthetic restoration(s) appropriate in form, emergence profile, and color.
7. Long-term maintenance of the results.

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Volume 21, Number 5, 2008 | 389

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