When performing conventional crown lengthening, the existing margins of an old restoration or the cementoenamel junction (CEJ) of a non-restored tooth are used to determine necessary bone removal to establish adequate space for biologic width. Creating proper space for biologic width ensures that the new margin will not infringe upon the periodontal complex and reduces the likelihood for future inflammation. One significant problem of this procedure is that, at times, significant bone must be removed. This can weaken the stability of the tooth or create a weakened and vulnerable furcation area. The more bone removed in the furcation, the greater the likelihood of future problems with maintenance. It is critical to preserve as much bone as possible to support the tooth, especially in the furcation area.

Considering these and other important aspects of crown lengthening, the concept of “Biologic Shaping” was established. Reasons for Biologic Shaping include: 1) Replace or supplement the current indications for clinical crown lengthening; 2) Minimize ostectomy; 3) Facilitate supragingival or intrasulcular margins to preserve biologic width; 4) Eliminate developmental grooves; 5) Eliminate previous subgingival restorative margins; 6) Reduce or eliminate furcation anatomy and thus facilitate margin placement; 7) Allow supragingival or intracrevicular impression techniques.

The following article presents a series of Biologic Shaping cases and the author discusses requirements for successful treatment gleaned over the past 33 years of his career in which he has used this technique on over 30,000 teeth.

KEY WORDS: Biologic shaping, biologic width, ostectomy, osteoplasty

1. Private practice limited to periodontics, Clearwater, Florida, USA
The clinical prerequisites and steps for success with Biologic Shaping are as follows:

1. All previous restorative materials and decay should be removed.

2. A core buildup of composite bonded resin should be placed where necessary to add volume to the teeth. The core helps determine where the final margin placement of the new restoration will be placed.

3. Acrylic provisionals should be placed with Durelon (3M™ ESPE™; St. Paul, Minnesota, USA) as the temporary cement. This cement is recommended for its antimicrobial properties and ability to help decrease sensitivity.

4. Removal of provisional restorations at time of surgery to allow better access.

5. Shape root and remove old margin as well as 360 degrees of CEJ’s. Reduce or eliminate cervical enamel projections. Facilitate ideal restorative emergence profile (Flat is better than fat contours). Diamond burs are recommended for this process.

6. Correct any reverse architecture and remove necessary bone where violation of biologic width may still be anticipated.

7. If insufficient keratinized tissue is present at the surgical site, add sufficient connective to protect bone from bacterial infiltration. The connective also protects underlying periodontal tissues from impression material and cementation irritation.

8. Once the flaps are adapted, Potassium oxylate should be used to help decrease post-surgical sensitivity. The liquid is applied to the root surface for 45-60 seconds and then lightly air dried. Repeat 2-3 times.

9. Cement provisional prosthesis with a Polycarboxylate cement such as Tylok® (Dentsply International; York, Pennsylvania, USA) or Durelon.

10. Homecare instructions include rinsing with Chlorhexidine twice daily (morning and evening) and brushing with Prevident at bedtime. After meals the patient rinses with water or Listerine to remove any food particles.

11. At 4 weeks, the provisionals are either remade or relined leaving 1mm of space for continued Biologic Width growth in a coronal direction. No margination of tooth surface at this time.

12. At 14 weeks Chamfer margins are placed at the gingival collar and impressions taken. When endodontics is present the new margin may be placed within the sulcus.

13. Facilitate hygiene and maintenance procedures.

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