

Overview of Biologic Shaping **by Daniel J. Melker, DDS**

When doing conventional crown lengthening the previous margin of the old restoration is used to determine the necessary amount of bone to be removed so there will be adequate space for the Biologic Width. By adequately creating a space for the Biologic Width the new margin will not infringe upon it. One significant problem of this procedure is that at times significant bone will be removed that can weaken the tooth or in fact create a weakened furcation area. The more bone removed in the furcation the greater the likelihood of future problems with maintenance. It is critical to try to preserve as much bone to support the tooth especially in the furcation area. The clinical prerequisites and steps for success with Biologic Shaping is as follows:

1. All previous restorative materials and decay should be removed.
2. A core buildup should be placed where necessary to add volume to the teeth. The material should be a composite bonded resin. The core helps the Periodontist determine where the final margin placement of the new restoration will be placed.
3. Acrylic provisionals placed with Durelon as the temporary cement. Durelon is antimicrobial and helps decrease sensitivity.
4. Removal of provisional at time of surgery for access.
5. Shape root and remove old margin as well as 360 degrees of CEJ's.
6. Correct any reverse architecture and remove any necessary bone where B.W. issues are still present.
7. 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 in the decrease of 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 with a Polycarboxylate cement. Tylok or Durelon.
10. Homecare is Chlorhexidine used twice daily morning and evening. Prevident used 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 to allow 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.

Reasons for biologic Shaping:

1. Replace or supplement the current indications for clinical crown lengthening.
2. Minimize osteotomy.
3. Facilitate supragingival or intrasulcular margins to preserve the 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.
8. Facilitate hygiene and maintenance procedures.
9. Reduce or eliminate cervical enamel projections.
10. Facilitate ideal restorative emergence profile. Flat is better than fat contours.

Picture 1- Biologic width violation along with a severe inflammatory response.



Picture 2- Provisional removed and now the surgeon has the ability to treat the tooth vertically.



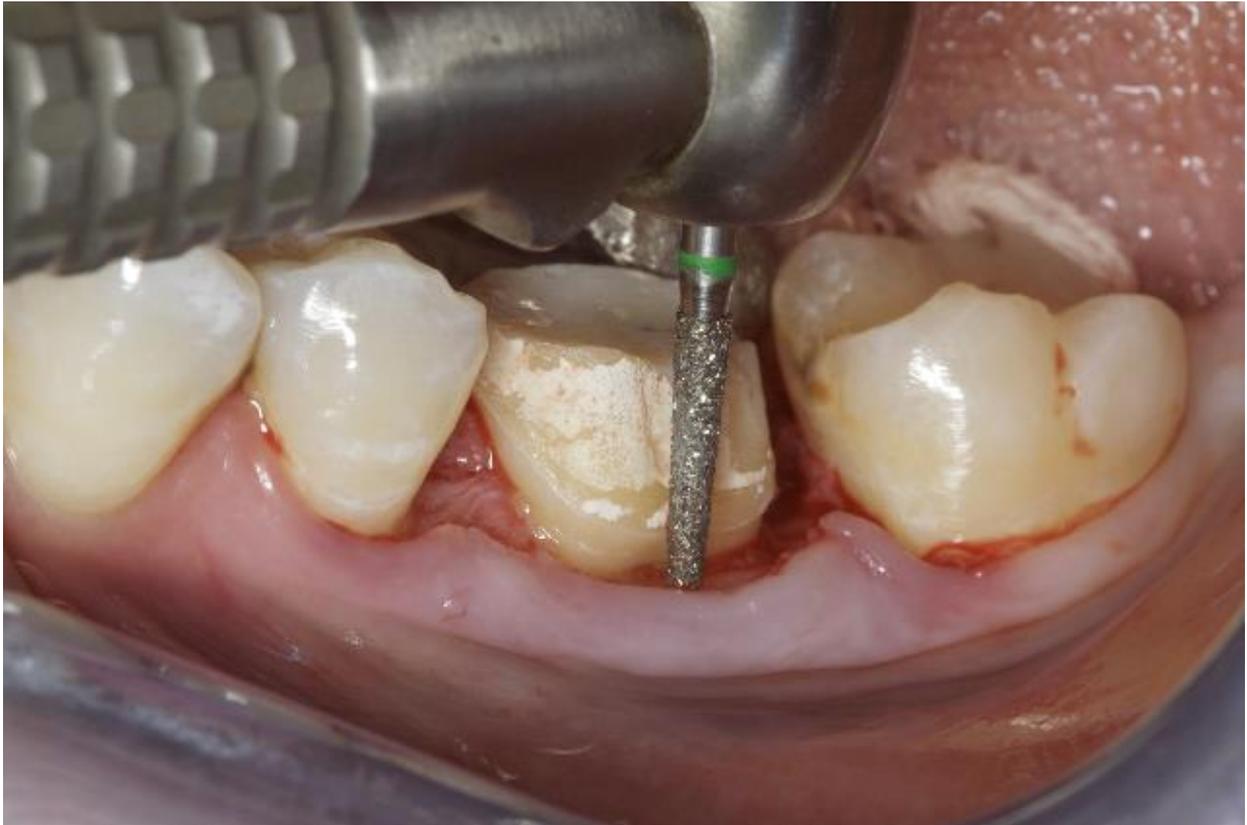
Picture-3 the depth of the margins can be seen with inflammation noted on the distal of #19.



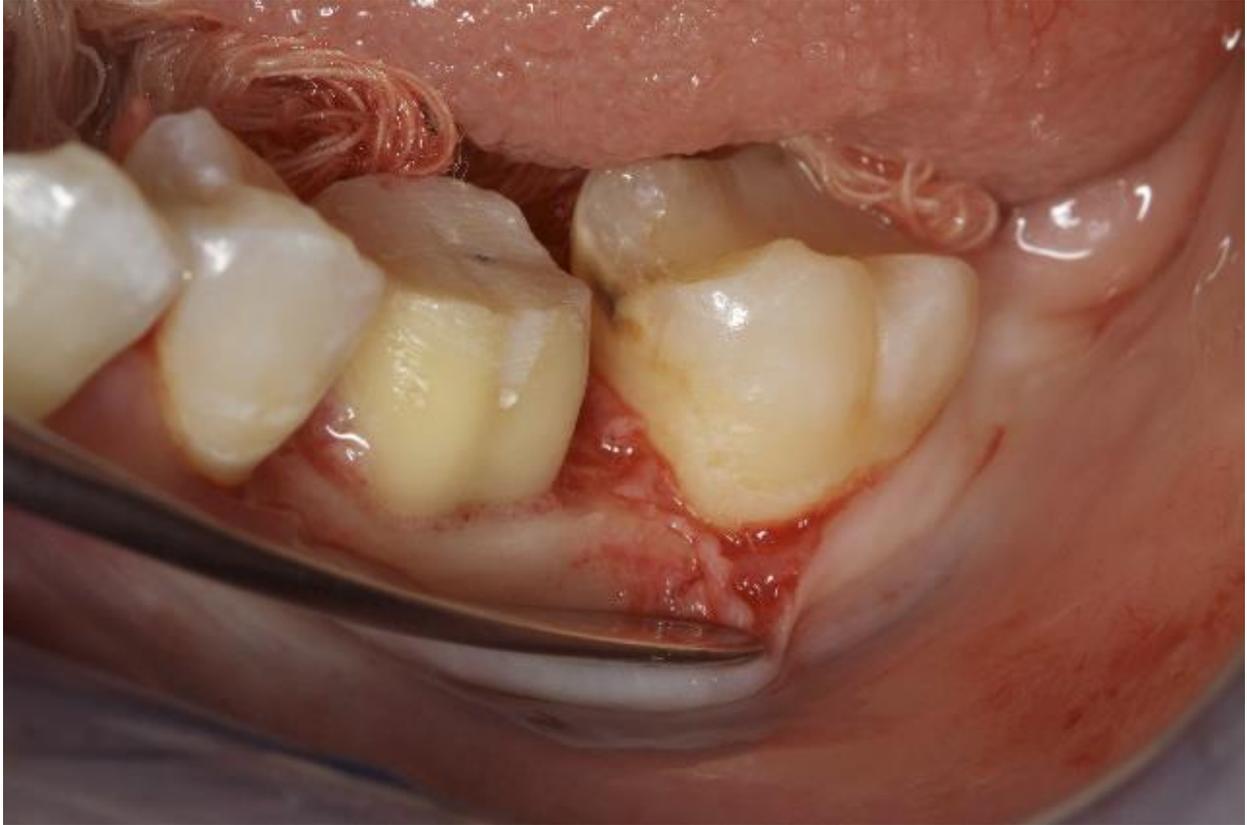
Picture-4 A split thickness flap is retracted to see the underlying defects and location of the existing margin. One can see the reverse architecture present and close location of the existing margin to the bone.



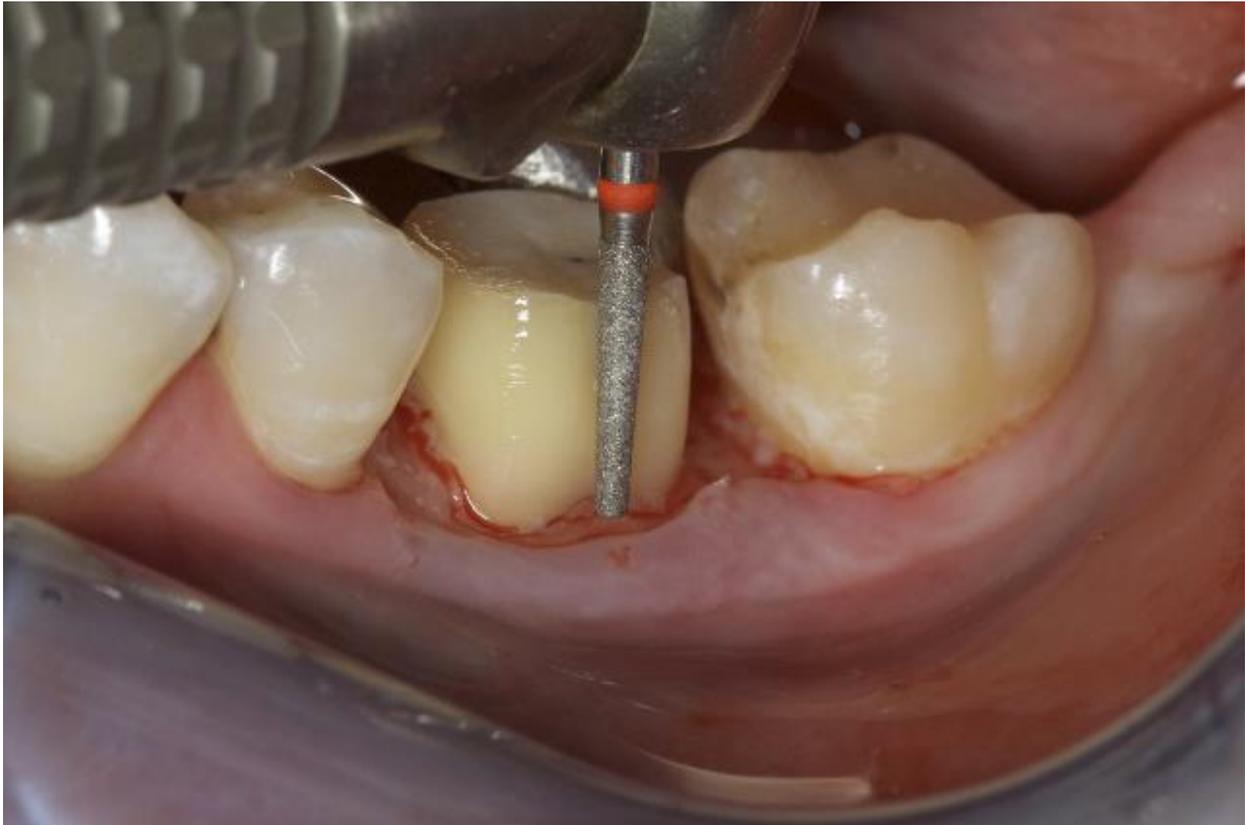
Picture 5- The use of a coarse diamond bur on the tooth surface to remove the old margin. By doing this procedure first there may be less osseous removal after completion of shaping.



Picture 6- The tooth is smoothed grossly but now one can see that with the old margin removed the space for the B.W. is already created and no excessive bone was removed.



Picture 7- A superfine diamond bur is used to further smooth the tooth surface. This allows for long term maintenance of the tooth.



Picture 8- A diamond round bur #8 is used to create a parabolic architecture.



Picture 9- Parabolic architecture created for ideal architecture for placement of tissue over the bone.



Picture 10- tissue sutured just coronal to the bone. 5-0 Chromic suture material



Picture 11- Occlusal view showing 360 degrees of perfect tooth surface to place a margin at the gingival collar once it has healed.

