Construction and Use of a Surgical Guide for Anterior Periodontal Surgery

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The importance of gingiva in relation to anterior esthetics has been well documented.[1-4] A number of different methods for altering gingival levels have been described, including a gingivectomy,[5] an apically positioned flap with osseous recontouring,[6-8] and the use of orthodontics to position the gingiva apically or coronally by intruding or extruding teeth.

Communicating The Expected Outcome

Whenever an alteration in gingival levels is contemplated, one of the challenges is how to communicate the expected outcome to the patient to determine if he or she will find the planned outcome acceptable. One of today's more common methods to communicate what a patient's smile will look like after a gingival alteration is computer imaging.[9]

Computer Imaging

Computer imaging has several advantages. First, it is reasonably instantaneous. After taking a photograph of the patient's smile, today's imaging systems can very rapidly add or remove tissue, thereby making the teeth appear either shorter or longer. Another advantage is that nothing has to be fabricated by the dentist or the technician to provide the patient with an idea of what the final esthetic outcome could be. However, as powerful as computer imaging is in giving patients a concept of the vision, it does have a significant limitation. The primary limitation is the two-dimensional nature of the image, which does not allow the practitioner or patient to evaluate any proposed changes to the gingiva or teeth during the dynamics of lip movement.

Despite this limitation, computer imaging provides enough information to accurately depict the final outcome whenever the planned surgery will alter the gingiva on one or two teeth while leaving the gingival levels on the adjacent teeth in their existing position. Even if the planned gingival change involves moving tissue 1 mm or 2 mm on all the teeth with a simple gingivectomy, computer imaging is probably all that is necessary before proceeding with surgery.

Composite Resin Surgical Guide

However, when the surgery will involve many or all of the anterior teeth and will result in moving gingiva several millimeters, to the extent that a flap will be raised and bony levels altered, an additional guide is necessary before surgery.

This article will describe a technique for the construction and use of a composite resin surgical guide to facilitate communication of the patient's desired gingival alteration to the surgeon.

Construction

After 10 years of constructing these types of surgical guides with a variety of materials and methods, the composite resin surgical guide fabricated with **Triad® (DENTSPLY® Caulk®)** composite and made directly on a stone model is by far the easiest and the least time-consuming.

Before beginning the construction of the guide, it is necessary to complete the treatment planning on the patient with regard to the incisal edge position and the desired gingival levels. To facilitate this, using two primary photographs is recommended. The first photograph is with the patient's upper lip in repose to evaluate the amount of upper incisor displayed at rest, and the second photograph is with the patient in a full smile to evaluate the amount of lip mobility relative to the incisal edge. After determining the final incisal edge position, it is then possible to determine how much gingival alteration is necessary.[10]

Case Report 1: Lori

Lori presents as a 38-year-old woman unhappy with the appearance of her anterior teeth and her smile (Figure 1A). Her dental history included congenitally missing lateral incisors and orthodontics as a child to move the canines into the lateral incisor position. In addition, the

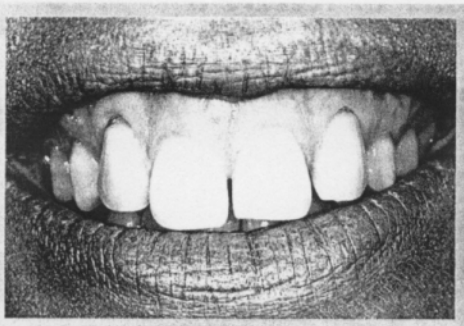

Figure 1A—Lori presents unhappy with her smile, both with tooth position and the amount of gingival display.

Figure 1B—The planned changes for the final result are drawn on the Polaroid photograph after first placing tape over the photograph. This way, if the changes are not what the patient wants, it is easy to peel off the tape, place a new piece of tape, and redraw the changes.

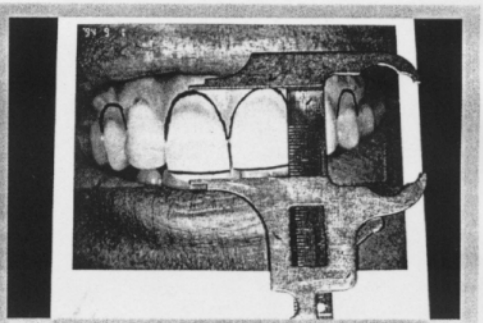

Figure 1C—The advantage of using the twice life-size photograph is that the measurement can be divided in half to transfer how much change will occur to the patient's stone model.

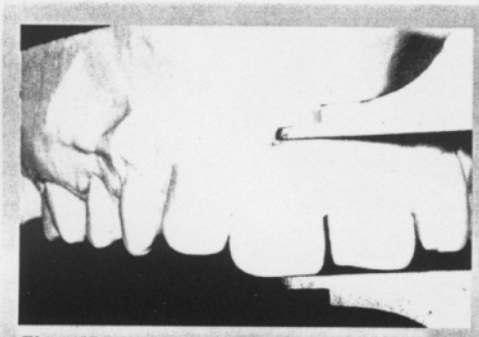

***Figure 1D**—Using the existing incisal edge of the patient as a reference, the desired gingival levels drawn in the photograph are transferred to the patient's stone model.*

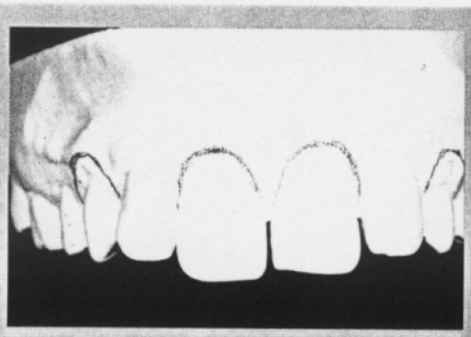

***Figure 1E**—Transfer the gingival level changes to the model, duplicating what was done in the photograph.*

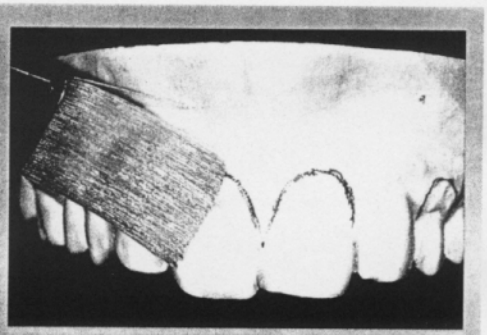

***Figure 1F**—Before fabricating the guide, liberally lubricate the model with petroleum jelly.*

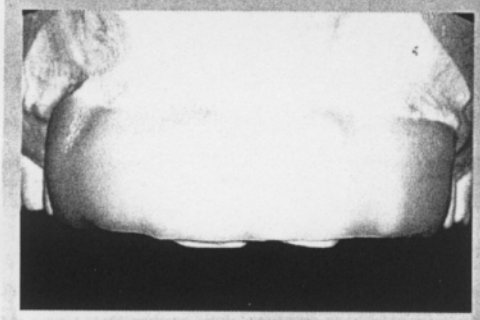

***Figure 1G**—A patty of Triad® is pressed over the teeth to be restored, leaving 1 mm to 1.5 mm of thickness so that the red lines drawn on the model are visible through the soft Triad®.*

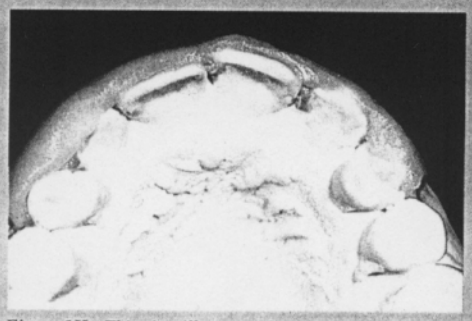

***Figure 1H**—This view illustrates the approximate thickness of the patty of Triad® as it is compressed over the teeth.*

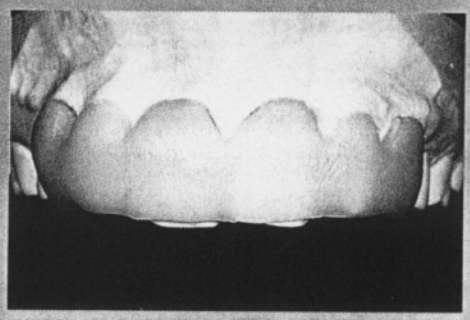

***Figure 1I**—Using an interproximal carver, the soft excess Triad® is removed to the level of the red lines and, in the case of the lateral incisors, to the level of the existing gingival margins of the patient.*

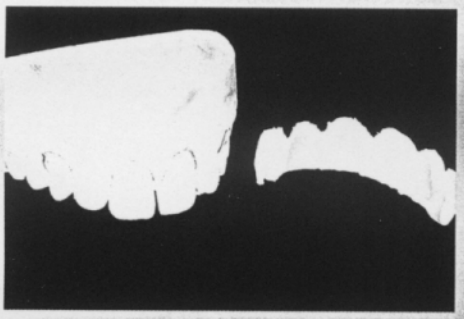

***Figure 1J**—After curing the Triad® with either a curing light or a Triad® oven, the guide is removed from the lubricated model.*

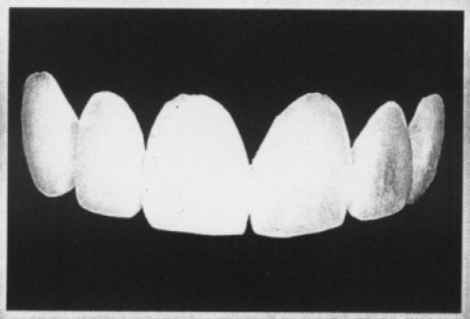

***Figure 1K**—Double-sided diamond discs and acrylic burs are used to contour the guide and create the embrasure form.*

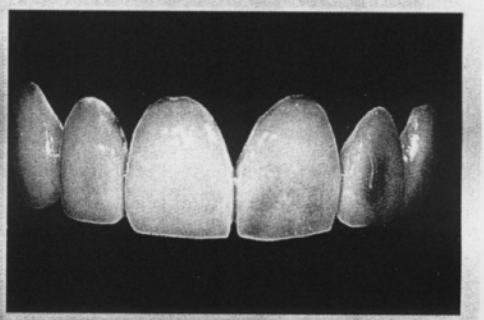

***Figure 1L**—Palaseal® has been painted over the guide and light cured to produce a surface glaze.*

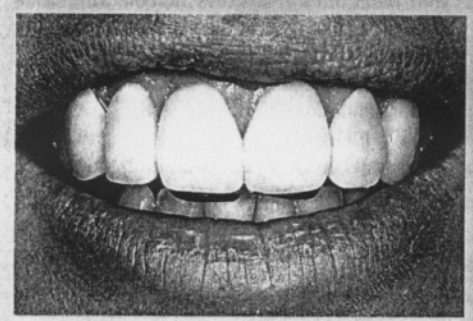

***Figure 1M**—After a marking pen has been used to black out the incisal edges of the patient's centrals, the guide is placed, giving the patient an accurate representation of the desired gingival level change that can be accomplished.*

***Figure 1N**—The completed restoration, after osseous surgery on the first premolars® to simulate canine tissue levels, and on the central incisors, raising the tissue apically to a correct position.*

***Figure 1O**—Lori's pretreatment smile.*

Figure 1P—Lori's post-treatment smile, 1 year after the completion of treatment.

mandibular first premolars were removed. However, even after the orthodontic treatment, there was still an arch-size discrepancy between the maxillary arch with the missing laterals and the mandibular arch with the removed first premolars. Because of this, Lori ended up with an anterior open bite and the subsequent overeruption of the maxillary central incisors.

With the overeruption of the maxillary centrals, both teeth are now located too far coronally relative to her face. In addition, as the teeth overerupted, the gingiva followed, and is now positioned too far coronally relative to the gingiva on the canines that are now in the lateral position. The gingiva on both first premolars, which in Lori's case are exceptionally short, is also located too far coronally relative to the canines, if the canines are to act as lateral incisors.

Treatment Plan

In developing a treatment plan for Lori, several options exist. Esthetically, the ultimate treatment plan would require apically positioning the central incisors until the incisal edge is in the correct plane. As this is done, the gingiva would also move apically, correcting the gingival problem on the centrals.

The canine teeth normally have tissue heights at the same level as centrals, but when they are moved mesially to replace lateral incisors, the tissue levels on the canines are often located too far apically compared to where the tissue levels on the natural teeth would be. In Lori's case, erupting the canines about 1 mm would bring the gingiva 1 mm coronally at the same time the centrals are being positioned apically, resulting in the relative gingival levels becoming more ideal. The tissue over both maxillary first premolars will also need to be moved apically to the correct level, which is more apical than both canines in the lateral position, so that the premolars can be restored to look like canines.

Starting Point: Orthodontics

After describing the ultimate concept of the treatment plan to Lori, the next decision to make was how to implement it. As a starting point, orthodontics was recommended to correct the tooth positional changes that had taken place since her childhood. She was referred to an orthodontist to

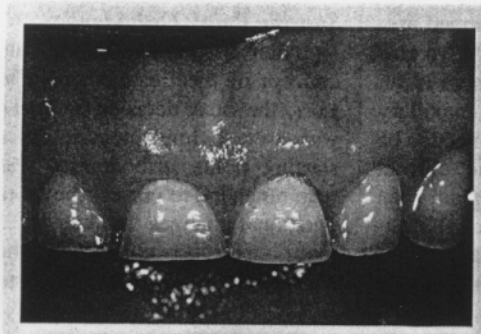

Figure 2A—Debbie presents unhappy with the length of her teeth.

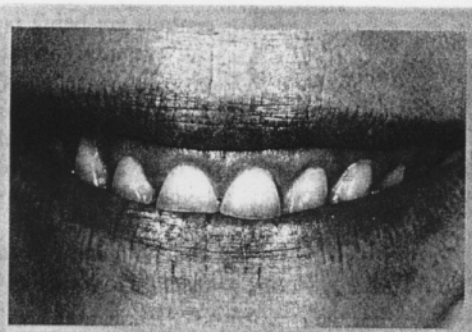

Figure 2B—This photograph illustrates the etiology of Debbie's complaint. The teeth show excessive wear and have erupted as they have worn, bringing the tissue with them. The correct method of increasing the tooth size will not be to increase incisal edges, but rather to apically position the tissue.

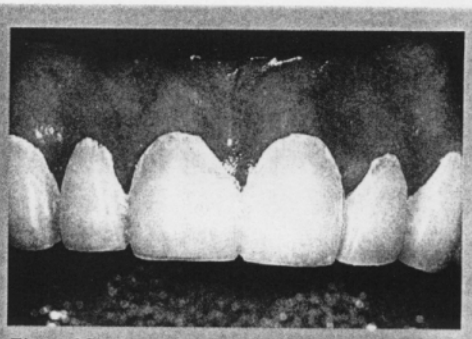

Figure 2C—The gingival guide in place, constructed as described previously for Lori.

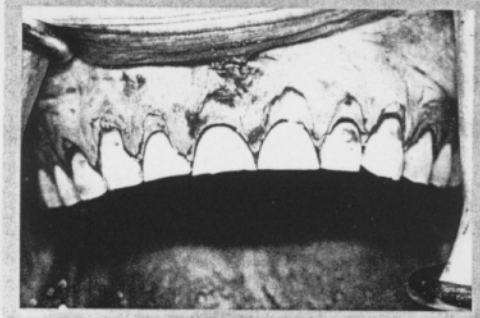

Figure 2D—The periodontist has made the initial incision by following the outline of the gingival guide.

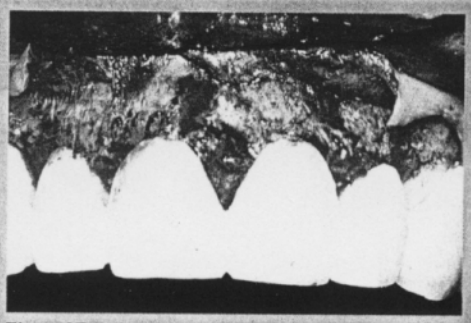

Figure 2E—After removing the excess tissue, the flap has been reflected, illustrating the existing bony level. Note: the guide is currently covering the bone on several of the teeth.

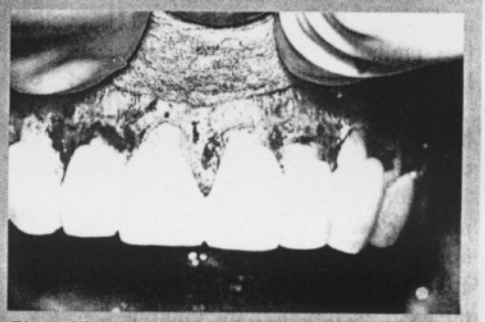

Figure 2F—The bone has been moved the correct distance from the edge of the guide, which illustrates the desired free gingival margin location. In this patient, the bone was moved 3 mm from that location, creating adequate space for biologic width and a sulcus.

Figure 2G—The interproximal papilla was also reflected with the guide left in place so that the interproximal bone can be placed the correct distance from the incisal edge, ensuring that the papilla will be located 5 mm to 6 mm from the incisal edge.

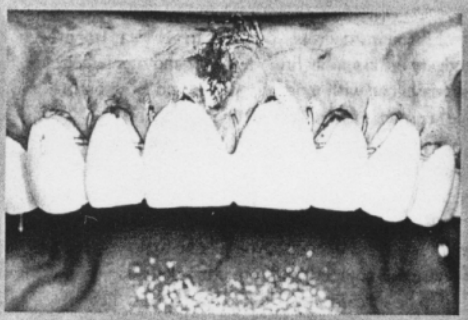

Figure 2H—The flaps are replaced and sutured close to the edge of the guide. This places the flap 3 mm above the facial bone and 4.5 mm to 5 mm above the interproximal bone.

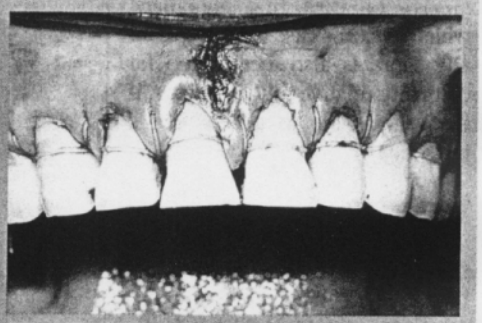

Figure 2I—Debbie's appearance the day of surgery.

intrude the two central incisors, mildly extrude both canines, and intrude both first premolars.

One of the challenges of this treatment plan is that, as the centrals are positioned apically to correct the gingival levels, the problem of the anterior open bite remains. In addition, the corrected tooth position after orthodontic repositioning will need to be maintained. It became obvious that if the teeth were repositioned and the orthodontist was unable to gain anterior contact by modifying the tooth position on the mandibular anteriors, some type of restoration would be necessary on the maxillary centrals to create an occlusal stop on the lingual, preventing the reeruption of these teeth. This would also be necessary on the first premolars if occlusal contact could not be achieved by the orthodontist.

Restorative Dentistry

The ultimate plan after orthodontics was to restore both first premolars to look like canines, to restore both canines to look like lateral incisors, and to restore both central incisors with restorations that overlapped the lingual surface to create an occlusal stop. Another orthodontic plan considered was to remove the maxillary first premolars, move the canines distally into the premolar position, level the central incisors to the correct location, and replace the lateral incisors with either pontics or single tooth-implants.

Alternative Treatment Plan: Surgery

However, after the consultation with the orthodontist, Lori returned, stating that she did not want to go through orthodontic therapy. This is a common comment, and when a patient states an unwillingness to go through orthodontics as

an adult, informing the patient of all the potential advantages or disadvantages of alternative treatment plans is recommended.

Having orthodontic therapy usually becomes the difference between whether the teeth will have to have significant restorations performed to correct the alignment. Lori's case, however, even after orthodontics, would still result in a significant amount of necessary restorative dentistry. She wanted to know if there was an alternative way for her to obtain what she wanted in the final result, avoiding orthodontics in the process. In her case, would it be possible to move the gingival levels on the centrals and the first premolars to an acceptable level and then to restore the anterior teeth rather than doing any orthodontic repositioning?

In evaluating this situation, it became obvious that the amount of tissue level change on both the centrals and the first premolars would be significant, far more than the capabilities of a simple gingivectomy. In fact, the faciogingival margin would need to be moved apically from 3 mm to 4 mm. With this amount of gingival change required, some osseous surgery would need to be performed. Whenever a significant amount of osseous surgery is necessary, the root length on radiographs must first be evaluated. Although Lori did not have excessively long roots, she did have an adequate root length, so that after the osseous surgery, it would still leave 9 mm to 10 mm of root in bone on the facial surface, and even more interproximally and palatally.

Lori then wanted to know what the final outcome would look like if this treatment were done surgically instead of orthodontically. She wanted to know what size the teeth would be and approximately what they would look like after treatment. Because Lori was very committed to having the surgery and the restorations done, showing her a computer image of what it might look like became superfluous. Therefore, we proceeded directly to the fabrication of the surgical guide so that she could specifically see the chosen level of the gingiva before surgery.

Fabricating the Guide

Drawing & Measuring

The first step in fabricating the guide is to draw the proposed treatment plan on a photograph of the smile. Use a Polaroid photograph taken at a specific magnification (2X or twice life-size). Because the magnification is known, the transfer of all the changes from the photo directly to the patient's model is easily accomplished with a simple mathematical calculation. Anything seen in the photograph will be exactly twice life-size. Draw in the desired incisal edge position and gingival height that will be correct for the patient on the Polaroid photograph (Figure 1B).

The second step is to use a caliper to measure on the photograph from the patient's existing incisal edge to the desired gingi-

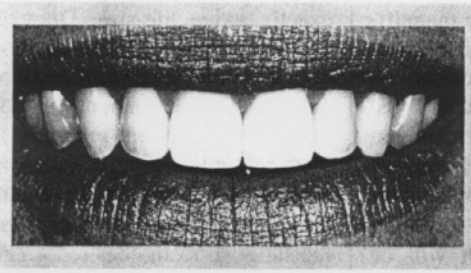

Figure 2J—The completed final restorations, showing the new tooth length and gingival form. Note the absence of any black spaces.

val margin level on the teeth where the tissue will be changed (Figure 1C). Then take the measurement on the caliper and divide it in half to determine the actual numbers to be transferred to the patient's stone cast. Reset the calipers to the correct measurement for the patient (half of what it was on the photograph), and transfer the gingival levels to the patient's stone cast using an existing incisal edge position on each tooth as the reference for the measurements (Figure 1D). After transferring the free gingival margin location, draw the desired shape of the gingival margin on the cast for each of the teeth that are planned for surgery (Figure 1E).

Cutting & Shaping

After the drawings are completed, lubricate the stone cast with petroleum jelly (Figure 1F). Cut a piece of the Triad® material to the appropriate length for the number of teeth for which the guide will be made, which in Lori's case are the six anterior teeth. Press the rope to create a thickness of 1 mm to 1.5 mm of Triad® extending from the incisal edge to the new gingival levels (in this case, from the right to the left first premolars) (Figures 1G and 1H). Try to keep the shape and the thickness of the Triad® even across all the teeth.

Because both central incisors are being shortened, it is necessary to allow the central incisors to extend beyond the Triad®. If the treatment plan were to lengthen the incisal edges, extending the Triad® beyond the incisal edges to the desired incisal edge position would allow for the evaluation of both the incisal edge and the gingival level change with the guide in place.

Thinning, Curing & Carving

Gingivally, it is important to thin out the Triad® by pressing it against the stone so that the drawn red lines indicating the desired gingival level can be seen through the Triad®. Using a scaler, pick off all the excess Triad® apical to the red lines (Figure 1I). As soon as the Triad® material is cut back to the desired gingival and incisal levels, it is ready to cure, either with a handheld curing light or by placing it in a Triad® curing oven for 2 to 3 minutes. The guide can then be removed from the model (Figure 1J).

Draw lines where the facial and incisal embrasures should be created between the teeth; using a thin, double-sided diamond disc,

create the embrasure form by carving the embrasures into the Triad®. It is also possible to use an acrylic bur to reshape the facial surfaces or thin the guide before carving in the embrasures.

One of the limitations of this technique is that, because the guide is lying on top of the patient's teeth, it may appear bulky to the patient. Therefore, it is often preferable to thin out the guide to less than 1 mm in thickness across the facial surfaces of the teeth. This is done before carving in the embrasures because the guide becomes more fragile after the embrasures are carved (Figure 1K).

Polishing

After recontouring the guide with the diamond disc and the acrylic burs, the next step is to polish it. Because it is relatively fragile, polishing it on a lathe with pumice is not recommended. It is preferable to paint on a light-cured composite glaze. The glaze of choice is **Palaseal® (J.F. Jelenko & Co., Inc.),** a denture-sealing resin. Use a small brush to paint on two thin layers of Palaseal® (light curing between layers) to provide a very natural-looking luster to the finished guide (Figure 1L).

Figure 2K—Debbie's pretreatment facial appearance.

Figure 2L—Debbie's posttreatment facial appearance, 18 months after treatment.

Trying In the Guide

The completed surgical guide can then be tried in the patient's mouth. If the model was accurate and if the stone was not fractured when the Triad® was being taken off and on the model, which often occurs when lubrication is inadequate, the guide should go immediately to place. If there is any binding or lack of seating, simply use a product such as **FIT CHECKER™ (GC America, Inc.),** a silicone checking material, to locate the area that is binding and relieve it with a bur to allow complete seating. If the guide has gaps underneath, it may be easily relined with any of the

composite temporary materials on the market, such as **Luxatemp® (Zenith Dental/DMG)** or **3M™ Iso-Temp™ (3M Dental Products).** If the guide fits loosely and does not stay in place, which can occasionally occur when the incisal edges are not being overlapped, denture adhesive products can be used to hold it in place for patient evaluation. Whenever possible, extending the guide over the incisal edge and slightly down the lingual surface gives it a very positive seat, making it snap to place quite firmly.

In Lori's case, when the guide was first placed, the incisal edges of her central incisors extended coronally below the end of the guide. This problem was easily solved by taking a black marker, blacking out the incisal edges of her natural teeth, and replacing the guide in position (Figure 1M).

Evaluating With the Guide

By standing 4 to 6 feet away from a mirror, Lori could evaluate what the gingival levels and incisal edges would be like. She could watch herself speak, see a full and partial smile, and evaluate the changes as her lips moved naturally. In addition, because the guide is removable, it is possible for the patient to take the guide home and show it to friends and family for their opinions, as well.

If the patient thinks the tooth length is excessive (the planned gingival alteration will remove the tissue too far apically), use a rubber wheel, diamond disc, or acrylic bur to shorten the guide to the amount desired by the patient. If the patient thinks the teeth could be longer, it is also easy to add more of the Triad® material with a composite instrument to add length to the guide, extending it farther up over the patient's tissue.

It is necessary to remind the patient that, because the guide is lying on top of the teeth and gingiva, it will feel bulkier to the lip and tongue than the final result. In Lori's case, she was extremely pleased with the position of the new incisal edge and the gingival levels on the guide as it was constructed.

Figures 1N through 1P show Lori before treatment and after surgery and restoration of the six anterior teeth.

Case Report 2: Debbie

Debbie presents at age 36 unhappy with the appearance of her teeth. The teeth were worn down, and therefore very short (Figure 2A), and she showed more gingival tissue than she wanted to in her smile (Figure 2B). An evaluation of the incisal edge of the anterior teeth determined that their current position was acceptable. This indicated that as the teeth wore away, a compensatory eruption occurred so that, as the teeth erupted, the gingiva came down with them.

Because of the diagnosis as to why the teeth were so short, restoring more length to the incisal edge to correct the problem would be inappropriate. Instead, moving the gingival tissue apically would be the appropriate method for increasing the size of the teeth and minimizing the amount of gingival display during the smile.

Guide Evaluations

Debbie brought in a photograph of herself when she graduated from high school, which showed very large central incisors, from 10.5 mm to 11 mm, and very little gingiva displayed in a high smile. With this in mind, a guide was constructed, just like the guide made previously for Lori. Figure 2C shows the guide tried on Debbie's teeth, illustrating the desired gingival change. As in Lori's case, Debbie took the guide home and was able to show it to her husband and friends.

Communicating With the Periodontist

After Debbie approved the gingival levels in the guide, the next step was to communicate this information to the periodontist who would be performing her surgery. The guide represents the desired final free gingival margin location after surgery. This provides several benefits to the surgeon: (1) It can be used during the initial incision process to locate the incisions at the correct level, and (2) it can be used during surgery after the flaps are reflected to aid in the bony recontouring so that the bone is repositioned to the correct distance from the desired final free gingival margin location.

Initial Incisions

Before surgery, it is necessary to determine how much tissue alteration is planned and whether the patient has an adequate zone of attached tissue to allow an excisional type of incision where, although some of the attached tissue is removed, an adequate zone remains.[11] If an adequate zone of attached tissue is not available, it is necessary to perform an apically positioned flap, which is a more complicated surgery in terms of postoperative healing. In Debbie's case, there was an extremely wide zone of attached tissue that made it possible to excise the desired amount of tissue with the initial incision. Figure 2D shows the initial incisions made by the surgeon scribing around the edge of the guide.

Osseous Recontouring

After the initial incision is made, the portion to be removed is curetted off and discarded. It is then possible to elevate the flap on the facial surface. Figure 2E shows the guide in place with the facial flap elevated. Note that the underlying bone on several of the teeth is currently at the same level as the guide (ie, the underlying bone on the facial is actually at the desired level of the final free gingival margin level).

Because the guide can be placed when the flap is reflected, it is possible to use the guide as a reference point, measuring from the guide to the bone during osseous recontouring to re-create an adequate zone for biologic width and adequate sulcus depth. In Debbie's case, there was an average biologic width of 2 mm. Because it is desirable to have a minimum of 1 mm sulcus depth built into the surgery, the bone was moved api-

cally 3 mm from the guide on the facial surface (Figure 2F).[12] In some patients, it will be necessary to remove more bone than this if the height of their attachment is greater than the average 2 mm.[13,14]

After the facial bony height was corrected using the guide as a reference, it was necessary to reflect the papilla, which also had to be moved apically in Debbie's case, and to correct the interproximal bony level. Rather than using the margin of the guide, use the incisal edge of the guide as a reference for correcting the interproximal bone level.

In a patient with an average biologic width of 2 mm, the interproximal bone is typically placed 9 mm to 10 mm from the final incisal edge position. This results in an interproximal papilla that is 5 mm to 6 mm from the final incisal edge,[15,16] which is esthetically and structurally desirable in most patients (Figure 2G).

Replacing the Flaps

As soon as the osseous recontouring has been completed, it is possible to replace the flaps and complete final suturing. This is another area int which the guide is extremely useful. Without it, it is difficult for the surgeon to know where to place the flap in an apicoincisal direction. With the guide, however, it is obvious that the border of the guide is the desired gingival margin. The surgeon only has to put the flap back in a position so that when it is sutured, the edge of the flap and the edge of the guide are in proximity to each other (Figure 2H). This re-creates an adequate zone for the attachment below the free gingival margin and simultaneously re-creates at least a 1-mm sulcus (Figure 2I). After an adequate healing time, it is possible to prepare the teeth and place a temporary restoration.

> The guide is invaluable whenever significant alterations in gingival levels that require flap reflection and osseous surgery are planned.

The Final Restoration

As soon as the patient has evaluated and approved the provisional, the final restoration can be completed. In Debbie's case, because she had chosen to restore the maxillary arch from first molar to first molar, the surgery was performed from second premolar to second premolar on each side, lengthening the incisors, the first premolars slightly, and the second premolars. Figures 2J through 2L show the completed restoration 1 year after the restoration was inserted and almost 2 years after surgery, compared to a facial photograph of Debbie the day of her initial exam.

Conclusion

This article describes a technique for the fabrication and use

of a composite resin surgical guide. The guide is simple to make, extremely useful for both patient and surgical communication, and invaluable whenever significant alterations in gingival levels that require flap reflection and osseous surgery are planned.

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References

1. Chiche GJ, Pinault A: *Esthetics of Anterior Fixed Prosthodontics*. Chicago, Quintessence Publishing, pp 1-15, 1994.
2. Rufenache CR: *Fundamentals of Esthetics*. Chicago, Quintessence Publishing, pp 1-20, 1990.
3. Studer S, Zellweger U, Scharer P: The aesthetic guidelines of the mucogingival complex for fixed prosthodontics. *Pract Periodontics Aesthet Dent* 8(4):333-341, 1996.
4. Kay HB: Esthetic considerations in the definite periodontal prosthetic management of the maxillary anterior segment. *Int J Periodontics Restorative Dent* 2(3):44-59, 1982.
5. Dolt A, Robbins J: Altered passive eruption: an etiology of short clinical crowns. *Quintessence Int* 28(6):363-372, 1997.
6. Lie T: Periodontal surgery for the maxillary anterior area. *Int J Periodontics Restorative Dent* 12(1):73-82, 1992.
7. Becker W, Ochsenbein C, Becker B: Crown lengthening: the periodontal-restorative connection. *Compend Contin Educ Dent* 19(3):239-254, 1998.
8. Townsend CL: Resective surgery: an esthetic application. *Quintessence Int* 24(8):535-542, 1993.
9. Ganz CH, Brisman SA, Tauro V: Computer video imaging: Computerization, communication, and creation. *QDT Yearbook*, pp 64-68, 1989.
10. Spear F: Facially generated treatment planning. American Academy of Esthetic Dentistry, 16th Annual Meeting, Santa Barbara, CA; August 8, 1991.
11. Davarpanah M, Jansen C, Vidjak F, et al: Restorative and periodontal considerations of short clinical crowns. *Int J Periodontics Restorative Dent* 18(5):425-433, 1998.
12. Kois J: Altering gingival levels: the restorative connection. Part 1. Biologic variables. *J Esthet Dent* 6:3-9, 1994.
13. Gargiulo AW, Wentz FM, Orban R: Dimensions and relations of the dentogingival junction in humans. *J Periodontol* 32:261-267, 1961.
14. Vacek J, Gher M, Assad D, et al: The dimensions of the human dentogingival junction. *Int J Periodontics Restorative Dent* 14(2):155-165, 1994.
15. Van der Veldon U: Regeneration of the interdental soft tissue following denudation procedures. *J Clin Periodontol* 9(6):455-459, 1982.
16. Tarnow D, Magner A, Fletcher P: The effect of the distance from the contact point to the crest of bone on the presence or absence of the interproximal papilla. *J Periodontol* 63(12):995-996, 1992.

Product References

Product: 3M™ Iso-Temp™
Manufacturer: 3M Dental Products
Address: 3M Center
Building 275-2SE-03
St. Paul, MN 55144
Phone: 800.634.2249
Fax: 612.733.2481

Product: FIT CHECKER™
Manufacturer: GC America, Inc.
Address: 3737 West 127th Street
Alsip, IL 60803
Phone: 800.323.7063
Fax: 708.371.5103

Product: Luxatemp®
Manufacturer: Zenith Dental/DMG
Address: 242 South Dean Street
Englewood, NJ 07631
Phone: 800.662.6383
Fax: 201.894.0213

Product: Palaseal®
Manufacturer: J.F. Jelenko & Co., Inc.
Address: 99 Business Park Drive
Armonk, NY 10504
Phone: 800.431.1785
Fax: 914.273.9379

Product: Triad®
Manufacturer: DENTSPLY® Caulk®
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