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# New Crown Lengthening Techniques and Biologic Width?

**tannermck | Total Posts: 3 | Member Since: 08/03/05 | Location: Madison, WI | Posted: 6/19/2006 7:34:42 PM | Post: 1 of 41**

Alright, I've got questions about perio crown lengthening [CL], now called "gum lifts," with lasers. To sum it up, if one uses a soft-tissue laser to recontour the free gingival margin, and possibly ablate attached tissue also, what has been done about the osseous crest? The soft tissue may look great immediately, but if any restorative is going to follow, won't you be violating the biological width? Setting up multiple long-term problems? If so, it seems as though the soft-tissue laser is really no better than a good electrosurgery unit and not a true replacement for osseous crown lengthening.

I am interested in opinions of operators doing various techniques. Periodontists and self-proclaimed cosmetic dentists are invited to weigh in.

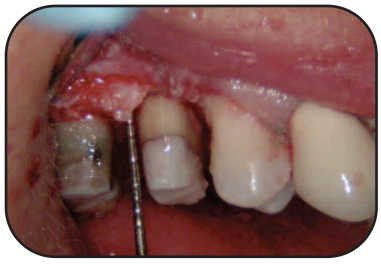
**Harry J. Jackson | Total Posts: 964 | Member Since: 03/07/05 | Location: Ft. Hood, TX | Posted: 6/19/2006 8:00:32 PM | Post: 3 of 41**

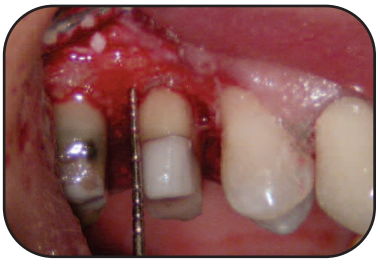
I don't know who's calling it "gum lifts," I hope it's not doctors! You need to understand the difference between a gingivectomy and crown lengthening. Crown lengthening involves osseous surgery. Some say that they can do this with an envelope-type flap, or even better, a sulcular flap without papilla release. I don't see how it's possible! The osseous surgery that is required is so delicate and exacting that I think you need to have x-ray vision to do it well.

When CL has been treatment planned it doesn't matter what you use to make that initial gingivectomy incision; laser, electrosurge, or my preference, a blade. But, you have to make sure that a flap is reflected and the osseous is done properly. Please, I really hope we don't start calling anterior esthetic crown lengthening "gum lifts."

**Matt Brink | Total Posts: 3589 | Member Since: 04/28/04 | Location: Wheaton, IL | Posted: 6/19/2006 8:04:16 PM | Post: 5 of 41**

And here is why closed-flap cannot be used predictably on the facial.





**Miguel | Michael J. Melkers, DDS, FAGD | Total Posts: 14116 | Member Since: 09/09/00 | Location: Spokane, WA | Posted: 6/19/2006 8:21:31 PM | Post: 6 of 41**

Matt, how did they get those defects? Are those Danny's [Melkers] pics or yours? I am curious. Also, did you create the defects and then flap? Pt consent? Just curious... I agree that this is the wrong application for the laser. I have done a few.

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**Matt Brink | Total Posts: 3589 | Member Since: 04/28/04 | Location: Wheaton, IL | Posted: 6/20/2006 4:39:59 AM | Post: 7 of 41**

Mike, these are my pictures. Thanks for mistaking them as Danny's. It made my day. I did the RR [root reshaping] and CL with a bur and photographed the site prior to making bony corrections anywhere else. It shows what you would have to do with a laser. Could it be done closed flap? I sure don't know how it would be possible.

**Linc | Lincoln Harris | Total Posts: 216 | Member Since: 10/14/05 | Location: Queensland, Australia | Posted: 6/20/2006 5:01:32 AM | Post: 8 of 41**

Matt, do you just use your high-speed (emphysema risk?) or do you have a special surgical hand piece?

**tannermck | Total Posts: 3 | Member Since: 08/03/05 | Location: Madison, WI | Posted: 6/20/2006 6:02:26 AM | Post: 12 of 41**

Thanks for the comments. Your comments generally agree with my thoughts on the subject. I'd like to share a few additional thoughts:

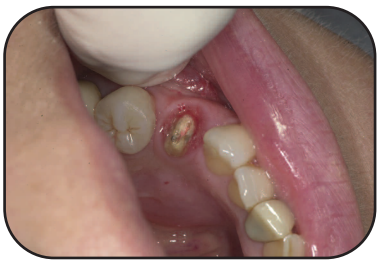
1) Many "cosmetic dentists" are using the term "gum lift" routinely now, especially in advertising in my area. I put cosmetic dentists in quotations because every dentist is a cosmetic dentist whether you realize it or not. Indeed, it is a sugar-coated term, but I feel it is misleading.
2) I recommend to all doing any type of osseous surgery using a surgical handpiece, such as an Impact Air. If you do enough using a traditional high-speed, you will have an episode of air emphysema. It's only a matter of time.

**dkimmel | Total Posts: 7804 | Member Since: 09/11/01 | Location: Bayonet Pt., FL | Posted: 6/20/2006 5:59:20 PM | Post: 15 of 41**

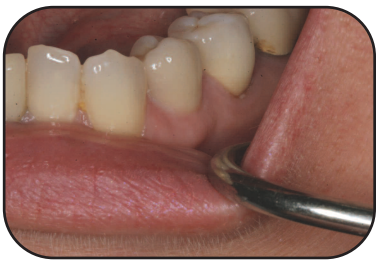
Matt, I guess I might as well step in it big time. I will agree that closed-flap crown lengthening [CFCL] by laser is not easy and case selection is of utmost importance. Operator skill is also a consideration, as in any technique. However, it can work. Now, your photos of how this is an example of why closed CL cannot work is a bit, shall we say, staged? These are some pretty big troughs in the bone that you are showing. Any experienced laser user could feel these troughs with the laser tip and know they are present. It is just not a matter of ditching around a prep and doing a GV [gingivectomy]. You have to think and visualize what you want. In my mind the more common problems are removing attached gingiva when there is not enough to begin with. Then, there are times that root reshaping is indicated instead of removing bone. There are also interproximal areas that are just too wide to blend, as well as thick buccal plates that you cannot get access to, to blend facially. These are indications to do an open procedure. In my practice it is rare to do a closed CL, but I do think there are indications.

Here is one.

Be nice.



*Tooth # 21 pre-op*



*Two-and-a-half years post-op before periodontal probing*

**Matt Brink | Total Posts: 3589 | Member Since: 04/28/04 | Location: Wheaton, IL | Posted: 6/20/2006 6:22:00 PM | Post: 16 of 41**

Is the fiber much tougher than the fiber used with the PerioLase? I don't know how much I could feel with that tip. I am not familiar with the feel of other fibers.

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If you could feel the ledging, could you correct it to the same degree CF [closed-flap] as OF [open-flap]? So, do you think that you could have finished the cases that I posted with CFCL? Can it ever be done interproximal without ledging? I sure don't see how it can be done. I submit that if one has not done a lot of open-flap CL then CFCL should not be attempted by the operator. Shoot, look at my molar case. I had the case flapped and still left a widow's peak of bone at the line angle of the adjacent tooth. There are a lot of variables that can be very difficult to predict with anatomy. How do you feel this type of ledging CF? I sure cannot. I could not feel it and I did not even see it.

Are there successful CFCL cases out there? Yep. Can most operators do these procedures routinely with great success? You tell me. I just want people to be aware that there are huge limitations to CFCL.

**dkimmel | Total Posts: 7804 | Member Since: 09/11/01 | Location: Bayonet Pt., FL | Posted: 6/20/2006 6:46:17 PM | Post: 18 of 41**

Matt, we agree that there are limitations to closed CL. I would also agree that if you have never done an open CL then there is no way you can begin to visualize what you are doing in a closed case. There is no comparison to the PerioLase fiber and a Biolase Z-6 tip. You do have some tactile sense with the PerioLase fiber as you feel for calculus. The Z tips are thicker and firmer. You can use these in contact and do blunt dissections releasing the tissue to smooth out the bone. Not ledging an interproximal area? Sure, but you are limited by the width. The wider, the tougher. The more contoured the roots, the tougher. 360 degree access is key.

As to your case, without pre-ops it is hard for me to say. I do believe that an experienced trained dentist can do closed crown lengthening. I also believe that this is very dependent on a narrow range of indications. I believe that doing so can be predictable. I also believe that you need to be prepared to change a case from closed to opened if you cannot obtain the results you are seeking.

**Harry J. Jackson | Total Posts: 964 | Member Since: 03/07/05 | Location: Ft. Hood, TX | Posted: 6/20/2006 7:44:16 PM | Post: 19 of 41**

David, studies show that we can't even get calculus off of roots using a "closed" technique. Why or how should we be able to do anything as intricate as osseous recontouring? I just don't see it happening. If it works, it works on patients that have a huge biologic tolerance. And for that I would agree that case selection is very, very important.

**Matt Brink | Total Posts: 3589 | Member Since: 04/28/04 | Location: Wheaton, IL | Posted: 6/20/2006 7:48:43 PM | Post: 20 of 41**

I would like to see some photos of a CFCL opened up with a flap. I guess I will reserve final judgment until I see it opened on a number of patients in a row. Until then, I will continue to do my cases open. I am just not brave enough to try it. I have big doubts.

**dhirji | Dil | Total Posts: 959 | Member Since: 08/20/03 | Location: Brampton, Ontario | Posted: 6/20/2006 9:16:25 PM | Post: 21 of 41**

The physics of CFCL just do not make any sense when it comes to cratering. I have never done it and probably never will. There is just no way that a crater is not made when the laser tip is inserted vertically in the sulcus. There obviously is no way to smooth out the trough that is produced as you are limited in your horizontal movement by the sulcus.

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**Matt Brink | Total Posts: 3589 | Member Since: 04/28/04 | Location: Wheaton, IL | Posted: 6/21/2006 9:23:36 PM | Post: 22 of 41**

Dil, I am with you on this one. We all have a percentage of patients who we could do anything and they would be fine. What I shoot for is predictability. For me, 100% of patients of the cases can be treated successfully with an open flap. How do you know if a CFCL is going to be successful? I think you have to wait and see and hope. This is not what is going to come out of my office.

**dkimmel | Total Posts: 7804 | Member Since: 09/11/01 | Location: Bayonet Pt., FL | Posted: 6/23/2006 7:18:01 AM | Post: 23 of 41**

There are a few things that you have each said that I feel need to be expanded upon. I think you have a misconception of how this procedure is done. I got this clue first from Harry when he compared it to calculus removal, when it was mentioned that you would have to trench when using a laser and Matt when he thought the laser tip was like that of the Nd:YAG.

I can see why Harry would be concerned if this was done like scaling and root planing. This is like washing a car with a blindfold on. Only the very skilled could even come close to getting 80% of the car clean. This is closer to a modified Widman procedure. You release the sulcus, undermined the papilla and the buccal and lingual tissue. Often with high magnification you can see the osseous. It is not like you are just bone sounding and blindly going 360 degrees around the tooth.

As far as Matt's concerns: Trenching is easy to do with a laser, as well as a bur from a handpiece. You can trench with a bur, but you don't as you feather and blend the osseous. This is no different with a laser. If anything with proper tip selection, it can be less an issue. You use these tips in contact. You can feel a trench, you can feel an uneven area of bone (think back to endo visualize what you feel).

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One huge downside is the tissue does not look anything like an immediate post-op from Danny. The tissue is rough and as you would expect from a blunt dissection. Interesting side is post-op pain is very minimal.

Let me walk you through this case. You know she is medically compromised. She is a clincher/grinder. She is a dental phobic and esthetics are a concern. She was seen as an emergency on the weekend. Long story short, she was given alternative Tx options, all of which I wanted her to take as I wanted to go back to sailing. She wanted the laser treatment with the understanding that if I could not do this without surgery I would have to do surgery. I explained this like my surgeon did for me: "We will do your gallbladder laparoscopic, but if we have any doubt we will have to do this as an opened procedure." After anesthetic I determined the depth of her sulcus and the level of her AG [attached gingival]. I determined how much tooth structure I wanted. I then determined I had plenty of AG. At that point we did a GV. The osseous was removed to give me what I had determined was a proper BW [biological width]. The osseous was blended by blunt dissection of the tissue and feel. This process is very slow and no where near as fast as open with hand instruments or a bur. Then the root was root planed to remove any bone that might still be attached to the root surface. Hemostats were obtained. The core placed and a temp made. She was kept in a temp for three months for healing and evaluated before the final impression was taken.

Several things are import to this case's outcome. One is that she had plenty of AG for a GV. If she did not, this would have been a contradiction for the procedure. She did not have any root concavities and root reshaping alone would not have given me enough tooth structure. I had 360 degree access. The buccal and lingual plates were not too thick and not too thin. Too thick and you leave a blunt ledge. Too thin and it is harder to control the reduction of the bone, that is it seems with thin bone it angles back more and is harder to access and control. The interproximal distance in this case was ideal as well. Too close you often need to reshape the root as well. Too wide and you just cannot gain access without a flap. Then, there is keeping her in temps for three months to let the tissue mature and determine the outcome before a final restoration is made.

As far as opening this case. I did ask the patient if I could do this. She looked at me like I was from Mars. She didn't want to do surgery before and she sure didn't want to now. So, opening these cases when they work sounds easier than it is.

Like Matt, predictability is very important to me. That is why I look at this case for clues to indications and contraindications.

I have to laugh at myself as I go through this process of this post. Harry gave me a great idea and it was in front of me all the time. We often get in a pattern of how we do things and don't step out of the op and think about what we do. His analogy to calculus was great. Just as we no longer do traditional scaling in my office for the reasons he has stated I can do the same with another closed CL. That is I can use the Perioscope. If I can work out how to capture the images I'll try to post it.



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