Clinical Crown Lengthening & Flap Surgery

Basic Principles
expose adequate clinical crown for restoration of a tooth by apically positioning the flap with or without osseous recontouring
Dentogingival complex: 1mm connective tissue + 1mm JXNL epithelium + ~1mm sulcus
Ferrule: 2mm
Periodontal and restorative considerations for crown lengthening procedures

- **Damage to adjacent bone** **Aesthetic compromise**
- **Restorative prognosis** **Prosthetic value of tooth**
- **Periodontal prognosis** **Timing**

***BONE SETS THE TONE, TISSUE IS THE ISSUE**

Surgical Anatomy Considerations: Lingual Nerve; Lingual Artery; Mental Foramen; Infraorbital Nerve; Greater Palatine Artery/Canal; Buccal Artery; Facial Artery; Sinus floor

NO VERTICAL releasing incisions palatal or lingual >4mm past MGJxn **Do NOT reflect flaps**
FULL THICKNESS Flap reflection only **Keep incisions AGAINST BONE**
Palpate Greater palatine foramen **Image of Mental foramen**

Incisions: external bevel, internal bevel (marginal), sulcular; submarginal incision***
Vertical Incisions: Must extend beyond mucogingival line into mucosa, Incisions at line angles: include or avoid papilla ; Make the base at least as wide as the height

Flap Reflection

Armamentarium: Prichard Periosteal; 2/4 Molt Surgical Curette; 1/2 Allen Orban Knife, PR1/2 Prichard Periodontal Surgical Curette

-Presurgical tooth prep **-Access: 2 teeth mesial, 1 distal**
-Asepsis and saline irrigation **-Incision to bone**
-Clean, full thickness reflection **-Distal Wedge Procedures**

Osseous recontouring: "positive architecture" and physiologic contours

Armamentarium: burs: #4, 6, and 8 round carbides, round diamond, 958c 012 end cutting carbide
3S/4S Sugarman Periodontal File; 9/10 Schluger Periodontal File; OchsenBein Periodontal Chisel; TG/SK 13 Curette ("Back Action")

Suturing:

- **3/8 or ½ circle , reverse cutting, FS-1 or FS-2 needles; chromic gut or PGA material; 4-0 or 5-0 size**
- **Interrupted or mattress suture technique**
- **Periodontal dressing: Coe Pack or Barricade**

Postoperative Management: instructions similar to tooth extraction

Larger embrasures; Tooth/teeth will be longer; Temperature sensitivity; Meticulous hygiene; PAIN
Follow-up: 1 week; 8-12 week; revise prep & provisional, final impression
Complications: Infection; Swelling; Pain; Bleeding; Excessive osseous recontouring; Inadequate osseous recontouring

Esthetic Crown Lengthening: Excessive gingival display or "gummy smile"

- **Determine CEJ to Bone distance (osseous surgey vs. gingivectomy?), esthetic desires and frenum**

Documentation: Code: D4249 Crown Lengthening Proc. - Hard Tissue
Diagnoses: Fractured tooth or Inadequate restorative ferule and/or Invasion of biologic width Procedure

Consent for Crown Lengthening Surgery

Diagnosis: After a careful oral examination and study of my dental condition, my periodontist has advised me that I have insufficient tooth structure to properly restore my tooth or teeth. If untreated, the tooth or teeth cannot be restored properly and could adversely affect my periodontal health.

Recommended Treatment: In order to treat this condition, the recommended treatment includes periodontal surgery. I understand that local anesthetic will be administered. During the procedure, my gum will be opened to permit better access to the roots and the bone. Bone and tissue will be removed to allow for more tooth structure to be exposed for proper restorative reasons and a healthy periodontal attachment. My gum will then be sutured back, and a periodontal dressing may be placed.

I further understand that unforeseen conditions may call for a modification for change from the anticipated surgical plan. These may include, but are not limited to (1) extraction of hopeless tooth or teeth due to amount of bone and tissue loss and to enhance healing of adjacent teeth, (2) the removal of a hopeless root of a multi-rooted tooth as to preserve the tooth, (3) opening of the furcation or space between the roots of the tooth to allow for proper maintenance and to preserve the tooth or (4) termination of the

procedure prior to completion of all the surgery originally outlined.

Expected Benefits: The purpose of the periodontal surgery is to gain adequate tooth structure so that the tooth or teeth can be properly restored to function with maintaining a healthy periodontal attachment. The surgery is intended to help me keep my tooth or teeth in the operated areas.

Principal Risks and Complications: I understand that a small number of patients may not have sufficient support, bone and tissue to properly maintain the tooth or teeth needing crown lengthening, and in such cases, the involved tooth or teeth may be lost. Because each patient's condition is unique, long-term success may vary.

I understand that complications may result from the periodontal surgery, drugs, or anesthetics. These complications include, but are not limited to, post-surgical infection, bleeding, swelling and pain, facial discoloration, transient, but on occasion, permanent numbness of the jaw, lip, tongue, teeth, chin or gum, jaw joint injuries or associated muscle spasm, transient but on occasion permanent increased tooth looseness, tooth sensitivity to hot, cold, sweet or acidic foods, shrinkage of the gum upon healing, resulting in elongation of the tooth or teeth and greater spaces between the teeth, cracking or bruising of the corners of the mouth, restricted ability to open the mouth for several days or weeks, impact on speech, allergic reactions, and accidental swallowing of foreign matter. The exact duration of any complications cannot be determined, and they may be irreversible.

There is no method that will accurately predict or evaluate how my gum and bone will heal. I understand that there may be a need for a second procedure if the initial results are not satisfactory. In addition, the success of periodontal procedures can be affected by medical conditions, dietary and nutritional problems, smoking, alcohol consumption, clenching and grinding of teeth, inadequate oral hygiene, and medications that I may be taking. To my knowledge, I have reported to my periodontist any prior drug reactions,

allergies, disease, symptoms, habits or conditions which might in any way relate to this surgical procedure. I understand that my diligence in providing the personal daily care recommended by my periodontist and taking all prescribed medications are important to the ultimate success of the procedure.

Alternative to Suggested Treatment: I understand that alternatives to periodontal surgery include: no treatment—with the expectation of possible tooth loss; or extraction of tooth or teeth involved.

Necessary Follow-up Care and Self-Care: I understand that it is important to come for appointments following my surgery so that my healing may be monitored and my periodontist can evaluate and report on the outcome of surgery upon completion of healing. I know that it is important to abide by the specific prescriptions and instructions given by the periodontist and to see my regular dentist for continued treatment after surgery.

No Warranty or Guarantee: In most cases, the treatment should provide benefit to restore my tooth or teeth and maintain proper periodontal attachment. However, a periodontist cannot predict certainty of success. There are risks, possible additional treatment and loss of tooth or teeth, despite the best of care.

Publication of Records: I authorize photos, slides, x-rays or any other viewing of my care and treatment during or after its completion to be used for the advancement of dentistry and reimbursement purposes. My identity will not be revealed to the general public.

I CERTIFY THAT I HAVE READ AND FULLY UNDERSTAND THIS DOCUMENT.

_____ _____

(Date) (Signature of patient, parent, or guardian)

_____ _____

(Date) (Signature of witness)

Post Operative Instructions

Please take the time to read these instructions following your treatment today as it will help you to understand what to expect following your procedure. These instructions are to serve as a general guideline for your use following surgery, however if you have questions or feel as though you are having an emergency please contact _____.

Today the following procedure(s) was completed for you:

Tooth Removal Bone Graft Placement Membrane Placement
Dental Implant Placement

Sinus Elevation Second Stage (uncovery) Scaling and root planning
Gingival Grafting

Frenectomy Biopsy Crown Lengthening/Osseous SurgeryGingivectomy

Immediately following your treatment you will remain numb or partially numb for up 4 hours. This will depend on the amount of anesthesia given as well as your individual body metabolism. During this time please avoid chewing as you may inflict harm on the surgical site or to other oral structures such as your lips or tongue. It is very important to avoid "playing" with sutures or the surgical area in general with your fingers or tongue, this can cause premature loosening of sutures and exfoliation of dressings.

Following any surgical procedure the following is considered normal: moderate (sometimes severe) discomfort for up to 72 hours following treatment. Bleeding that may continue for several hours following treatment. If you take medications which thin the blood such as Coumadin, warfarin, aspirin, ibuprofen or certain supplements like those high in Omega-3 you are more likely to have slightly more swelling, bleeding, bruising and discomfort. It is important to note that a small amount of blood mixed with saliva will often look like a large volume of fluid; gentle pressure with gauze will usually help stop this bleeding as well as sitting upright with your head elevated above the level of your heart. You can also use a cold, moist tea bag can instead of gauze (in most cases this works better than gauze) as the caffeine will often help slow bleeding. Avoid any strenuous exercise or activity for 36hrs after surgery.

Sensitivity of teeth or other oral structures is also not uncommon following treatment. You may have jaw soreness as a result of keeping your mouth open for an extended period of time as well. Sensitivity can be as a result of biting pressure, temperature (hot/cold) or oral appliances that have been fabricated for you. Most of the time, pain or sensitivity following treatment is associated with plaque accumulation so if you have been instructed, maintain gentle plaque control measures in the area where treatment was completed.

For certain types of procedures the development of swelling following surgery is unavoidable. Those procedures lasting less than fifteen minutes are not usually associated with swelling. Those lasting 15-45 minutes may be accompanied by mild-moderate swelling. Those lasting 45 minutes to 90 minutes may be accompanied by moderate swelling and those lasting longer than 90 minutes may have significant swelling that persists for three days or more. As long as you are not feverish (above 102 degrees for 24 hours) there is generally no need for concern. Take your medications as they have been prescribed to you. If you have problems with the medication please discontinue their use and contact your doctor. Swelling can be minimized by the application of cold packs to the outside of the face where surgery was completed. Ice water can also be held in the mouth (if tolerable) to help minimize swelling.

Smoking It is extremely important that you avoid cigarette smoking following treatment. Cigarette smoke inhibits normal healing and can result in the failure of treatment. Following the manipulation of gum tissue, jaw bone and teeth smoking will constrict the capillaries that are necessary for the delivery of vital nourishment to the area following surgery. <u>The most critical period of time is the first three days following treatment and one week if bone grafting, dental implant placement or sinus elevation was completed.</u>

Sinus Lift/Elevation If you have had a sinus lift completed you are required to use an antihistamine for a period of two weeks in addition to your other medications following the procedure. Avoid sneezing or nose blowing during this time. You may experience slight nose bleeds during the first two days and this is considered normal.

*Tissue graft: If you have had a gum graft and tissue was harvested from the palate of your mouth, you may be given a tray called a "**palatal stent**" which is designed to protect the roof of your mouth. It is best if you try to leave this in place as much as possible for the first few days. The palatal stent/tray can be removed to clean several times a day. Use caution in removing and replacing the tray if any portion of it is close to the area where your gum graft was completed (to avoid disturbing stitches).

P**ost Operative Instructions**

ICING is most important applied to the outside of your face/cheeks near the surgical area during the first 24 hrs. Apply a cold pack/ice in a ziplock bag to the exterior of your face for 20 minutes at a time giving yourself breaks. This is only effective during the first 24 hrs. After the initial 24hr time period ONLY apply **HEAT** to the exterior of your face (this will increase blood flow, carry away fluid causing swelling, and improve discomfort) for no more than 20 minutes at a time several sessions per day. Gentle rinsing with cold salt water for the first day following treatment and warm salt water thereafter can be completed up to five times a day. This does not mean rinsing vigorously, rather gentle head movements in either direction.

If sutures and/or a dressing (putty-like packing) has been placed they may start to exfoliate after five days and any remaining sutures (or dressing) will be removed at your first post operative visit. If this visit was not made for you before leaving please email our office or call.

The following classes of medications have been prescribed for you.

Rinses: Peridex (Chlorhexidine) OTC Crest Prohealth or Listerine At home salt water rinses

If Peridex has been prescribed please use it twice daily for 10 days after surgery. Light brushing after use of Peridex will help prevent short term staining of the teeth. If you are wearing a denture please remove the denture when using Peridex.

Antibiotic: Amoxicillin Metronidazole (No alcohol) Clindamycin Cephalexin No AB necessary

Azithromycin 250 mg (Z-Pak)

Your antibiotic has been prescribed because the mouth is a dirty place! Use your antibiotic as directed on the bottle. If you develop itchy/scratchy skin or have trouble breathing please discontinue the use of the antibiotic and contact your doctor or call the office. If this itching persists please start taking oral Benadryl and contact your physician. Some gastric upset is common with the use of antibiotics, however if you feel severe stomach upset, with frequent (5+ times daily) diarrhea, please contact your doctor as a change may be required.

Anti-inflammatory: Ibuprofen 600mg Ibuprofen OTC Tylenol

Anti-inflammatory medications like ibuprofen are excellent in maintaining a low level of inflammation following treatment, reducing soreness in jaw muscles and providing pain control following treatment. The doctors recommend the use of Ibuprofen either prescription (if prescribed) or over the counter (Tylenol can be used interchangeably) for at least three days following treatment and longer if discomfort, swelling or pain persists.

Pain Medication: Hydrocodone (aka Norco) Percocet (aka Oxycodone) Tramadol Tylenol #3

Opiate mimicking drugs like Norco/Hydrocone and Percocet all can be associated with drowsiness, sleepiness, sleeplessness, nausea and mild feelings of euphoria. If you feel sick to your stomach or vomit following treatment, it is usually due to the pain medication. It is possible to halve your medication by cutting the pill in half or quarter the pill initially until you have built a tolerance to the medication. Your doctor can provide refills on pain medication on an as needed basis, however in most instances this is not required.

In summary, use your best judgment following your treatment. It is not advisable to exercise vigorously or plan a long meeting for the few days after treatment. Although most patients experience minimal discomfort following treatment these guidelines should help to instruct you on what to expect following treatment. As always please feel free to contact the office with any additional questions. We consider it a privilege to take part in your oral care. Please contact the office with any questions about these or any other instructions that were given to you following your visit.

NUTRITION AFTER PERIODONTAL AND DENTAL IMPLANT SURGERY

For the Week Following Surgery: Good nutrition is always important. For the next week it is even more important for you to eat well-balanced meals. If you eat enough of the foods your body needs every day you may heal faster and with less discomfort.

Not Hungry? You may not be interested in eating now. You may not be hungry for the next few days. This is not an unusual experience following surgery. If you do not feel hungry, be sure that your meals are good to look at as well as to eat. An attractive meal will stimulate your appetite more than a drab one.

How to Eat: You may find chewing slow, difficult, and uncomfortable. It may be easier for you to eat small meals throughout the day rather than your usual 3 meals. As long as you eat the necessary amounts of food it is not important when you eat during the day.

What to Eat: You should not eat or drink any foods or liquids for at least 6 hours following surgery.

In the days immediately following periodontal surgery, it is recommended that you eat soft food and avoid any hard food products. This does not mean that you can only eat soup and juice for the next week. There are many good nutritious foods. The following are some suggested foods from the basic food groups that will be suitable for your temporary soft diet:

MILK GROUP (2 or more servings/day)
Whole or Skim milk
Buttermilk
Yogurt
Cottage Cheese

MEAT GROUP (2 or more servings/day)
Ground, Minced, or Pureed Meat
Seafood, Tuna, Salmon, Shrimp
Eggs

VEGETABLES/FRUITS (4 or more servings/day)
Stewed, Pureed Fruits and Vegetables
Vegetable Juices
Fruit Juices
Soup

BREAD/CEREAL (4 or more servings/day)
Hot or Cold Cereals
Cream of Wheat
Bread, Soft Rolls

You may find acidic juices such as orange juice are irritating to tender tissues around the surgical sites. Diluting the juice may be more comfortable for you.

Bisphosphonate Drugs

Patient Name Date

Please initial each paragraph after reading. If you have any questions, please ask your doctor or the staff before initialing.

Fosamax, Actonel, and Boniva are oral medications that belong to the family of drugs called **Bisphosphonates.** There are intravenous forms of Bisphosphonates called **Aredia** and **Zometa** that are taken by patients who are being treated for malignancies with bony metastasis like Multiple Myeloma, Breast Cancer, Prostate Cancer, and other types of solid tumors. There has been evidence over the past five years that the intravenous type Bisphosphonates can be related to significant changes in the density of bone in the jaw of patients who take them. There have been a small number of cases in which similar symptoms have developed in patients who have been taking oral Biosphosphonates for long periods if time.

The particular increase in the bone density of the jaw that has been related to the Bisphosphonate drugs appears to adversely affect the blood supply to bone, thereby reducing or eliminating the bone's ordinary excellent healing capacity. This risk is increased after surgery, extractions, implant placement, or other "invasive" procedures that might cause even mild trauma to the bone. The clinical development of "exposed bone" has been noted in significant numbers of patients who have taken the I.V. Bisphosphonates "Aredia" and "Zometa" and in very small numbers of patients taking oral bisphosphonates. This clinical development is called "Osteonecrosis of the Jaw" and it can be describes as a smoldering, long-term, destructive process in the jawbone that is often difficult if not impossible to eliminate.

Elective oral surgical procedures on patients who have taken intravenous forms of the bisphosphonates are not recommended and every effort is being made to avoid exposure of the bone with extractions or major oral surgical procedures in the cases. Prior use of "Oral Bisphosphonates" does not contraindicate oral surgery, but patients who have been taking oral bisphosphonates need to be aware that there is a possibility that a complication of any oral surgical procedure could be a slowly healing zone of exposed bone or development ultimately of Osteonecrosis of the jaw. The current literature does not recommend that patients who have taken oral bisphosphonates discountinue using their oral bisphosphonates (Fosamax, Actonel, or Boniva) and it appears that the small risk of complications following surgery is far outweighed by the multitude of benefits gained from the treatment with the oral bisphosphonates. It has been suggested in some medical centers that oral bisphosphonates be discontinued two months prior to oral surgery on patients who have been taking the drug for at least two years. The drug is then to be started again as soon as primary healing has attained in the surgical site. Your doctor will determine your specific case what regimen will be followed in your particular situation. Our goal today is to make sure that our patients are aware of any possible complications that could develop during and following your treatment in our office.

Your medical/dental history is VERY important. We must know the medications and drugs that you have received or have taken in the past and those are currently receiving or taking. An accurate medical history, including the names of your physicians is important.

1. Antibiotic therapy may be used to help control possible post-operative infection. For some patients, such therapy may cause allergic responses or have undesirable side affects such as gastric discomfort, diarrhea, colitis, etc.
   _____

2. Despite all precautions, there may be delayed healing, osteonecrosis, loss of bony and soft tissues, or other significant complications.
   _____

3. If osteonecrosis should occur, treatment may be prolonged and difficult, involving ongoing intensive therapy.
   _____

4. Even if there are no immediate complications from the proposed dental treatment in case involving I.V. bisphosphonates, the area is always subject to spontaneous breakdown and infection due to the precautious condition of the bony blood supply. Even minimal trauma from the toothbrush, chewing hard food, or denture sores may trigger a complication in these compromised cases.
   _____

5. Long-term post-operative monitoring may be required and cooperation in keeping scheduled appointments is important. Regular and frequent dental check-ups with your dentist are important to monitor and attempt to prevent breakdown in your oral health.
   _____

6. I have read the above paragraphs and understand the possible risks of undergoing my planned surgery with Dr._____, I understand and agree to the following treatment plan:

   _____

_____

7. I understand the importance of my health and affirm that I have given any and all information that may impact my care. I understand that failure to give true health information may adversely affect my care and lead to unwanted complications.
   _____

8. I realize that, despite all precautions that may be taken to avoid complications: there can be no guarantee as to the result of the proposed treatment.

Consent

I certify that I speak, read, and write English and have read and fully understand this consent for surgery. My questions have been answered and I certify that all blanks were filled in prior to my initials or signature.

Patient's (or legal Guardian's) Signature Date

Doctors Signature Date

Witness's Signature Date