



Postsurgical Care Following Recession Coverage Procedures

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Mario Taba Jr.

Abstract

Periodontal surgeries usually involve gingival tissue manipulation and sometimes bone remodeling. In order to reduce risk of complications after surgery and support the recovery process, an appropriate postoperative care including a comprehensive planning and proactive measurements must be systematically implemented. Therefore, the aim of this chapter is to provide a concise advice on the care of postsurgical situations aiming to contribute for the successful esthetic and functional periodontal soft tissue reconstruction.

11.1 Introduction

Most periodontal surgeries involve repositioning of the gingival tissues and sometimes bone remodeling. In regenerative procedures, bone and biomaterials are used to reconstruct the periodontal tissues. Periodontal plastic surgery has increased the use of palatal area for donor tissue, with the most common complication being excessive bleeding from the palate after harvesting tissue [1].

Postsurgical or postoperative care is the care given after a surgical procedure. The type of postoperative care that is required depends on the type of surgery it was performed, as well as the health history of the patient [2]. Considering the main focus of this chapter are soft tissue surgeries, the required postsurgical care is usually limited to pain management and wound care.

M. Taba Jr., D.D.S., M.Sc., Ph.D.

Department of Oral Surgery and Periodontology, University of São Paulo, School of Dentistry at Ribeirão Preto, Ribeirão Preto, Brazil

e-mail: mtaba@usp.br

11.2 Importance of Postsurgical Care

Postsurgical care begins immediately after surgery. It lasts for the duration of the healing process and may continue after until the complete tissue remodeling. As part of the postoperative care, it is important to explain to the patients all about the potential side effects and complications of the medication and the surgical procedure and how to manage each of them [2].

The postsurgical care that is involved with a scheduled surgical procedure usually requires beforehand preparations of patient agenda such as time for resting, restrictions of physical activities, and avoidance of solar exposure and excessive talking in the first 24–48 h [2–4]. Therefore, it is better to anticipate and be cautious with patients' routines. Based on how well the surgical procedure has gone and how well the patient is recovering, it is always simpler to revise the instructions after the surgical procedure.

After the surgical procedure is completed, the patient should receive the postsurgical instructions and preferably a written form with the recommendations and prescription of analgesics, anti-inflammatory agents, and antibiotics when needed [4, 5].

The success of the surgical procedure also depends on the uneventful healing phase, and for that, it is very important that the patient should be aware they must follow the postoperative instructions after leaving the clinic. Take medications as prescribed, watch out for potential complications, and keep the follow-up appointments.

11.3 Tissue Graft and Healing

11.3.1 Tissue Graft

Three different types of gingival tissue grafts are typically performed, and the postsurgical care is highly dependent on the type of the procedure.

11.3.1.1 Connective Tissue Grafts

This is the gold standard method used to treat gingival recessions. In this procedure, a donor tissue from under the flap, called subepithelial connective tissue, is removed and then sutured to cover the exposed root [6, 7]. The donor area is sutured with primary union of the wound [8].

11.3.1.2 Free Gingival Grafts

Similar to a connective tissue graft, free gingival grafts involve the use of tissue from the hard palate. But instead of making a flap and removing the internal tissue under the epithelial portion of the flap, a small total amount of tissue (epithelial plus connective tissue) is removed directly from the palate and then sutured in the target area [6, 9]. In this procedure, the hard palate would remain exposed, and the healing will occur by second intention [8].

11.3.1.3 Pedicle Grafts

In this procedure, instead of harvesting tissue from the palate, the gingival tissue is grafted from the gum around or near the tooth needing root coverage. The flap, called a pedicle, is only partially cut away so that one edge remains attached. The tissue is managed to cover the exposed root and sutured. The pedicle graft procedure purpose is to avoid the second surgical site for harvesting the graft [8].

11.3.1.4 Tissue Substitute

As an alternative to avoid the second surgical site, due to poor quality of the donor area or because of patient's preference, one can use graft material from a tissue bank or commercially available acellular dermal matrix instead of having the tissue harvested from the hard palate [10].

11.3.2 Healing

During the normal postoperative healing of a gingival surgery, mild to moderate pain is expected following the procedure. Second intention wounds generated by free gingival graft are more painful than the other grafting techniques [3, 6].

In general, pain may occur following any periodontal surgery that involves the opening of a flap, gingival grafts, or gingivectomy/frenectomy procedures. The postsurgical pain experienced within the first 3 days after surgery is considered normal and should progressively diminish throughout the healing phase.

Most of the postsurgical pain are the result of extensive and long surgical procedures, poor tissue handling (including excessive tissue trauma and poor local anesthesia), poor infection control (which increases the risk of postoperative infection), or poor knowledge of surgical anatomy and important blood vessels (which increases the risk of complications, such as nerve injury, bleeding and edema) [3, 5].

The treatment of gingival recessions sometimes involves a relative large surgical site due to a generalized condition in three or more teeth and also due to a second area for harvesting the gingival graft. In these situations, extended flaps are raised to accommodate a large portion of the graft which can generate additional trauma and induce more edema. Also, the size of the required graft will demand large donor area with increased risk of advancing the flap over important anatomical structures. To minimize patient discomfort on eating, it is better to harvest the graft from the same side of the mouth that is receiving the graft. This will help patient to eat on the unaffected side of the mouth.

After all surgeries, the most important factor, which promotes healing, is stabilization of the flap and blood clot at surgical site, and it must remain undisturbed for at least 7–14 days [3].

11.3.3 Sutures

Sutures are placed to stabilize the graft in the proper position and wound closure for the ideal healing. Usually the stitches are removed 1–2 weeks after surgery

depending on the procedure. During this period the patients must be warned to do not disturb the sutures with the tongue or toothbrush or in any other manner since displacement may impair healing. The use of dressing may help to protect the sutured tissue against food, brushing, or even patient curiosity of pulling the lips to view the area.

11.3.4 Periodontal Dressings

Some grafting procedures do not require periodontal dressings. Root coverage procedures usually have first intention wounds and very stable flaps. Surgeries aiming keratinized tissue gain have second intention wounds that require extra protection by usage of dressing [11].

The periodontal dressing sets in about an hour and should not be disturbed. It should remain in place until your next appointment when it will either be removed or replaced. After removing the dressing, the graft may appear white after the first few days. This is a normal healing response.

11.3.5 Appearance of the Graft

During the normal course of healing, the tissue graft may change appearance and color. The color may appear white/gray/red during the healing period. It takes about 2–3 weeks for the normal color of the gingival tissue to be restored and months until the final result.

11.3.6 Rinsing

Rinsing, spitting, and drinking through straw must be avoided during the first days. Mouth washes in the first 24 h may prematurely dislodge the blood clot and cause bleeding. A gentle rinsing after meals and at bedtime is important. Patients can be informed to rinse out the mouth the day after the surgery. Explain to avoid spitting the rinse out. Instead, it is recommended to gently tilt the head from side to side to allow the rinse to wash the area and then tilt the head to allow it to drain without spitting. After 72 h, a more vigorous rinsing can be encouraged to maintain the mouth clean.

Some advices would help an uneventfully healing period. For example, habits that should be avoided: any strenuous physical activity such as sport, dance, or gym in the next 2–3 days, brushing the surgical area for at least 1 week, disturbing the stitches or interfering with blood clotting, drinking beverages through a straw, and smoking during the healing period. These actions can prolong healing or cause post-surgical occurrences.

11.4 Postsurgical Occurrences

11.4.1 Postoperative Care in the Office

An adequate postsurgical routine is important to prevent unnecessary pain, elongated recovery, and painful complications. The most common postsurgical events are bleeding, swelling and bruising, pain, infection, and nausea.

11.4.1.1 Bleeding

Minor bleeding may occur during the first 48 h following surgery. Bleeding may continue for a short time or may persist after any accidental contact to the wound. The donor site of the free gingival graft is more prone to bleeding [1]. Common causes of prolonged bleeding are often related to hot foods on the first day and repeated rinsing out. The first attempt to stop bleeding should be the use of gentle pressure to the area with cold moistened gauze. Keep in place for at least 10 min without looking to see if bleeding has stopped; otherwise, the clot will be disrupted and bleeding continues. If profuse bleeding or other problems occur, patient must be advised to call for urgent assistance.

Positive or negative pressure in the mouth which may dislodge the blood clot (such as forceful spitting, rinsing, drinking through a straw, or blowing your nose forcefully) may induce bleeding.

Patients sometimes get worried because of the amount of blood. Most of the blood in the mouth is actually blood mixed with a lot of saliva that will color the saliva increasing dramatically the volume perception. Some individuals do experience discoloration of the skin/bruising around the operated area. This is a result of bleeding into the soft tissues and will disappear within a week.

11.4.1.2 Swelling and Bruising

Swelling, bruising, discomfort, and slight jaw and muscle stiffness are normal reactions to surgery. Bruising and muscle soreness will resolve on their own and may take up to a week or more. Swelling usually peaks 48–72 h after surgery and should begin to go away about the third day following surgery.

To reduce the discomfort, it is recommended to apply ice packs to the site: 15 min on and 15 min off for the first 8 h following surgery. Using ice as a treatment for surgical wounds is known as cryotherapy [12]. The cold reduces pain by reducing inflammation and swelling, which lets more oxygen flow to cells. At the same time, it slows down the metabolism so that less oxygen is needed. It also makes the nerve endings less sensitive to the pain and reduces bleeding [12, 13].

Beginning the third day after surgery, moist heat can be applied four to six times per day to help with remaining swelling.

On the 1-week postoperative recall visit, swelling should have decreased or disappeared. In case of initial decrease for 2–3 days with a return associated with pain, examine possible necrotic areas or infection.

11.4.1.3 Mouth Pain

Pain will vary from patient to patient and will peak within the first 24–78 h after surgery. For minor pain, nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin-like drugs interfere with blood clotting and must be avoided. Non-aspirin pain medication such as nonsteroidal cyclooxygenase-2 inhibitors, ibuprofen, or acetaminophen can be prescribed [14–16].

Some patients are more sensitive to pain, and if the pain complain occurs within the first 3 days postoperatively, reassure the patient that pain is normal within that time frame [6]. However, if the pain intensifies after an initial decrease or after more than 3 days postoperatively, check the wound, and look for signs of necrotic areas, infection, or even sutures that may be causing discomfort or hurting the mucosa or tongue.

11.4.1.4 Infection

To prevent infection, it is important to help the patient to keep the oral hygiene and the mouth clean. After 24 h of the surgical procedure, patients can resume brushing on a normal schedule but must use a gentle brushing technique and avoid touching the surgical area. Although rinsing the mouth after eating helps to prevent food debris from settling into the wound, ask patients to do not swish vigorously.

11.4.1.5 Pulpitis and Nerve Injury

These postsurgical occurrences are less common, but patients must be advised of the possibility that the surgery may trigger asymptomatic endodontic pathology present before the surgery and cause delayed complications related to nerve injury. Since there are important anatomic structures to be concerned with when harvesting the graft or preparing the surgical site, the greater palatine foramen and mentonian foramen can be injured from complications of dental injection, poor tissue handling, or very large flaps. Prednisone (50 mg q.d. for 7 days) can be prescribed as soon as nerve injury is suspected and then monitor the evolution [5].

11.4.2 Minimizing the Risk

Proper treatment planning and management are essential to minimize postoperative pain.

Always provide verbal postoperative instructions immediately after periodontal surgery, and provide detailed written postoperative instructions with emergency contact information.

A patient's experience with postoperative pain is difficult to predict, and therefore analgesics should be routinely used for consistent pain prevention and management. For longer or more extensive periodontal surgeries, NSAIDs and a narcotic combined with a nonnarcotic agent are routinely prescribed and will, in most cases, provide acceptable pain management.

11.4.2.1 Palatal Stent

A plastic palatal stent can be indicated as a protective measure to cover the wound from the donor site on the palate. The palatal stent will protect the wound during the initial stages of healing and minimize the risk of bleeding. It should not be removed during the first 24 h to avoid disrupting the blood clot. After that time, it can be removed regularly to be cleaned with the prescribed mouthwash and placed back for protection of the wound. The stent is usually worn for 1 week [1].

Dentures or partial dentures may be worn after the surgery. However, it must be worn with caution, as pressure and movement can negatively affect the surgical site.

Hemostasis at the palatal donor sites can be improved with the aid of hemostatic agents such as oxidized regenerated cellulose and absorbable gelatin sponge applied directly to the wound [1].

11.4.2.2 Medications

The majority of the discomfort is typically within the first 24–72 h following surgery. The most common prescribed drugs are anti-inflammatory and antibiotics. For some patients a prescription for a stronger pain reliever may be necessary to relieve discomfort. Antibiotic are prescribed to prevent or minimize risk of infection.

The local anesthetic will wear off within 1/2–4 h following surgery. Patients must be advised it is important to take pain medication prior to onset of discomfort. Also, it is recommended to eat prior to taking pain medications and antibiotics. For sensitive people, these drugs can cause nausea and vomiting.

Ask patients to observe any signal of collateral effect of medications such as rash, itching, difficulty breathing, wheezing, nasal congestion, or swelling around the eyes not related to the surgery. All medications must be stopped immediately.

Synthetic corticosteroids with powerful anti-inflammatory effect, usually indicated for third molar surgery [4], have been prescribed preoperatively to diminish postsurgical pain and swelling after periodontal plastic surgery [14, 17].

Table of Medicines

Drugs	Prescription
Ibuprofen 600 mg	Every 4–6 h for the 3–5 days
Acetaminophen 500 mg	Every 4–6 h for the next 3–5 days
Dexamethasone 4–8 mg	1 h before surgery
Amoxicillin 500 mg	2 tabs stat and then 1 tab t.i.d. for 7 days
Azithromycin 250 mg ^a	2 tabs stat and then 1 tab q.d. for 4 days
Clindamycin 150 mg ^a	2 tabs stat and then 1 tab q.i.d. for 7 days
Doxycycline 100 mg ^a	2 tabs stat and then 1 tab b.i.d. for 7 days
Chlorhexidine gluconate 0.12%	b.i.d. for 30 s for 14 days

^aAllergic to penicillins

11.4.2.3 Smoking

All smoking should be stopped until sutures are removed to ensure the best healing and success of your surgical procedure [9]. Smoking delays the healing process, increases discomfort, and may favor necrosis of the graft [7]. The longer patients refrain from smoking, the less chance of having postoperative problems [7].

11.5 Postsurgical Recommendations

Specific instructions regarding postoperative care involve recommendations that may interfere with daily routine, such as diet, physical activity, and medications.

It is mandatory to not floss or brush the area that was grafted until the area has healed. During the initial healing period, the local oral hygiene is maintained by rinsing the mouth with chlorhexidine to help control plaque accumulation [11, 18]. Sometimes, an antibiotic may be necessary to reduce the risk of infection.

The amount of expected pain after surgery depends on the type of gingival graft performed. If no tissue is removed from the palate, mild to no discomfort is common. However, if tissue is removed from the palate, patients must be advised the area will remain uncomfortable for a few days following the procedure [5, 6]. Therefore, it is recommended to eat soft, cool foods and ice cream.

Unless the patient job requires talking activities, there is no need of more than 1 day of resting to resume normal activity.

11.5.1 Postoperative Care at Home

11.5.1.1 Eating on the Unaffected Side of Your Mouth

Usually a dressing is placed at the stitched-closed wound at the palate to protect the area and avoid the discomfort of the suture. To help this area heal faster, the dressing should not be displaced. Explain to the patient to try keeping the food (and tongue) on the other side of the mouth. If eating soft food, ask patients to cut it into very small pieces. This will reduce the amount of chewing, and it will reduce the risk of dressing dislocation and bleeding.

Patient must consume room temperature food and drinks and avoid sticky, hard (such as ice cubes, nuts, popcorn, chips), brittle, spicy, highly seasoned, or acidic foods. Foods high in protein, minerals, and vitamins such as soups, pasta, scrambled eggs, mashed potatoes, macaroni and cheese, fish, bananas, applesauce, and protein shakes are best. In general, regular nutrition and hydration are also important for adequate healing.

11.5.1.2 Do Not Brush the Affected Area

Patients must avoid any brushing in the first day to minimize the risk of unintended displacement of the dressing, graft, or trauma to the wound. The other areas of the

mouth can be cleaned, brush and floss. After 2 days, gentle toothbrushing can be resumed, but patient should be instructed to exercise caution when cleaning the area close to the incisions [18].

Mouth rinse starts on the day after the surgery to avoid disturbance of blood clot [11, 18]. In areas covered by periodontal dressing, ask the patient to brush only the chewing surfaces of teeth and avoid dental flossing during the first week following surgery. Auxiliary oral hygiene methods such as electric devices and irrigators should be stopped until reevaluation of the operated area.

When you resume brushing, explain to the patient that it is normal the surgical site presents small amount of bleeding or discomfort.

11.5.1.3 Avoid Exercise

During the first days, rigorous exercise can worsen swelling and increase the risk of bleeding and bruising, and the first 24 h is the most crucial period.

Patients should consider relaxing or at least limit their activity as much as possible for the remainder of the day. Strenuous activity and all aerobic exercise may cause graft dislocation and increase the risk of failure. Ask patients to rest with head elevated and sleep with an extra pillow for 1–2 days.

11.5.2 Detailed Instructions to the Patients

Home care recommendations must be explained to the patients, and a written recommendation letter should be given for later consultation. Below is an example of a letter with the main points that need to be addressed when instructing patients.

Dear Patient,

In the first days

- Do not eat anything until the anesthesia wears off, as you might bite your lips, cheek, or tongue and cause tissue injuries.
- Pay attention not to play with the surgery area with your fingers or tongue.
- Avoid hot foods. Cold foods such as ice cream or shake are better.
- Drinking with straw may dislodge the blood clot due to suction and cause bleeding.
- If you are wearing a protective acrylic stent or an upper denture that covers up the donor site of the palate, do not remove it for 24 h. Use the stent as much as you can especially while eating for comfort.
- Try to relax and practice the instructed oral hygiene.
- You will probably have some discomfort when the anesthesia wears off; take the non-aspirin pain medication(s) as directed.
- Apply ice packs to the region with a towel between the gel pack and bare skin, 15 min on and 15 min off for the first 8 h following surgery.

Starting tomorrow

- Maintain normal oral hygiene measures in the areas not affected by the surgical procedure.
- In areas protected by dressing, lightly brush only the biting surfaces of the teeth.
- If the dressing fall off after 4 days, replacement of the dressing is unnecessary.
- After having food or snacks, please use lukewarm salt water rinse 4–6× a day for 30 s of swooshing. Vigorous rinsing should be avoided; tilt the head instead.
- Please use approximately 15 mL of chlorhexidine mouth rinse 2× (morning and night) a day for 30 s of swooshing with each use.

If you have any questions or concerns, please call the office: 999-doctor.

11.6 Plan Ahead to Minimize Risks

As a general rule, answer as many questions as possible, and get the patient instructed and prepared for the surgical procedure in advance. The answers can help patients to get prepared ahead of time and minimize the risk of complications. Depending on the type of surgery, there are many potential complications that can arise.

After the operation, reinforce the instruction stressing the importance of the compliance mainly in the first days of healing.

Establish a routine patient-discharging protocol to have all the recommendations and prescription very well understood. Immediately after the procedure, patients may not follow the instructions properly, so it is important to provide a written version of the recommendation letter with the most common worries and things to do.

Conclusion

In summary, an appropriate postoperative care including a comprehensive planning and proactive measurements will help reduce risk of complications after surgery and support the recovery process.

Although this guideline cannot avoid all complications, it was elaborated to provide concise advice on the care of postsurgical situations aiming to contribute for the successful esthetic and functional periodontal reconstruction following an uneventful healing period.

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