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The Other Side of Success: Complications in Periodontal Therapy

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Abstract

Periodontal therapy, encompassing both surgical and non-surgical approaches, is associated with a range of potential complications that can significantly influence treatment success and patient satisfaction. These complications may arise due to various factors, including inadequate sterilization, procedural trauma, technique sensitivity, and patient-specific considerations. Commonly encountered issues include bleeding, postoperative pain, swelling, root hypersensitivity, delayed wound healing, bruising, taste disturbances, and transient tooth mobility. Non-surgical modalities such as scaling and root planing, local drug delivery, and splinting may occasionally lead to allergic reactions, soft tissue irritation, or worsening of the periodontal condition. Surgical interventions—ranging from flap surgeries and bone grafting to sinus lifts, ridge augmentation, and LASER procedures—pose risks related to anesthesia, wound closure, infection, and healing disturbances. Improper sterilization further elevates the risk of postoperative infections and adverse outcomes. The effective management of these complications relies on timely diagnosis, appropriate clinical intervention, and comprehensive postoperative care. Additionally, clear communication with patients regarding potential risks and expected healing trajectories plays a pivotal role in ensuring optimal outcomes. This narrative review highlights the importance of clinician awareness, risk mitigation, and diligent follow-up in enhancing the overall efficacy of periodontal treatments and advancing clinical practice standards.

Keywords: Complications, Periodontal surgery, Management, Non-surgical therapy.

INTRODUCTION

Periodontal diseases encompass a diverse range of conditions influenced by the interplay between biofilms and the host's inflammatory reaction. Treatment options for include both non-surgical and surgical methods, depending on their intensity. While most of the time these non-surgical and surgical methods produce positive results free from unfavourable occurrences, there are a few instances in which they may cause specific complications that might change these anticipated outcomes.[1]

Any deviation from the normal postoperative course requiring some level of treatment to resolve can be referred as a complication.[2] The most common complications are postoperative dentinal hypersensitivity (5.7%) followed by considerable postoperative haemorrhage (3.5%) and excruciating pain (4.1%). Furthermore, the most common and severe consequences were associated with elevation of the lateral sinus floor. [3] Therefore, in order to obtain successful periodontal therapy, the clinician must acknowledge their aetiology and management.

Complications in periodontal therapy can be categorized as following:

- Complications due to improper sterilization.
- General complications- Bleeding, Swelling, Postoperative pain, Root hypersensitivity, Postoperative bacteremia, Increased tooth mobility, Delayed wound healing, Trismus, Taste changes, Bruising.

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- Complications associated with non- surgical therapy – scaling and root planning, local drug delivery, splinting.

- Complications associated with surgical therapy- local anesthesia**,** abscess drinage, depigmentation, frenectomy, crown lengthening, periodontal flap surgery, ridge augmentation, sinus lift, periodontal plastic surgery, bone graft, guided tissue regeneration, sutures, periodontal dressings, LASER.

Complications due to improper sterilization

Inadequate sterilisation of instruments, utilisation of non-sterile medications, inadequate asepsis of the surgical site and patient, etc., might result in infection and unsuccessful periodontal therapy.[4]

General complications

Bleeding

Some bleeding is likely to be expected after the procedure. Primary haemorrhage, or post-operative bleeding, may appear instantly or within 24 hours can be caused by extravasation of partly produced intravascular clots in severed blood arteries. Increased haemostatic pressure during the rebound phenomenon, occurs when blood flow surpasses normal flow, causing these phenomena. Consequently, steps to halt the bleeding are required if bleeding continues.[5]

Delayed bleeding (reactionary hemorrhage) can result from suture slippage, clot dislodgement, or trauma. Secondary bleeding after 7-14 days may indicate infection or vessel sloughing. Infection and blood vessel sloughing are the causes cited. Oozing, leakage, expectoration of blood, or excessive amounts of pink saliva are possible signs and symptoms. Pain may be felt in addition to bleeding.[6]

To manage bleeding effectively, identifying the source is crucial. Vasoconstrictors and pressure application are initial measures. Applying pressure compresses tissues, aiding vessel occlusion when fibrin strands contract. Minor bleeding can be controlled with wet gauze pad by finger pressure for 10-15 mins within the first 12-18 hours post-surgery.[5] If bleeding persists, haemostatic agents may be used.[7] It could be essential to use currettage or high-speed suction to remove clots or granulation tissue. Soft tissue bleeding may necessitate clamping, while bone bleeding may be managed by fracturing the bone with a proper instruments, vessel ligation, laser coagulation, or electrocautery.[6]

Swelling

Swelling after surgery is a normal response, typically appearing within 24 hours, peaking within another 24 hours, and subsiding by the fourth day. Persistent swelling may indicate ongoing inflammation or bleeding and requires addressing the underlying cause.[8] Following surgery or an injury, swelling results from increased blood flow to the injured area of the body, which brings additional nutrients to aid in recovery. Gender, weight, and body surface have an impact on postoperative oedema (Akadiri et al.). Predicting the occurrence of oedema prior to surgery is challenging since it is a complex process involving several factors. [9]

It is well recognized that corticosteroids lessen oedema, fluid transudation, and irritation. 32 mg of methylprednisolone and 400 mg of ibuprofen given 12 hours prior to and 12 hours following surgery, respectively, produced positive outcomes. Dexamethasone, a long-acting steroid that is 25–30 times more effective than cortisol, can also be used to manage postoperative oedema when administered submucosally. It's noteworthy to note that, particularly in patients receiving 4 mg of IM dexamethasone, a low laser dose (4J cm^2) delivered shortly after surgery results in good management of swelling.

Swelling is best prevented by the use of ice packs and positive effects are seen when ice is administered to a surgical site, blood flow changes, causing vasoconstriction and a decrease in metabolism, which in turn reduces the development of bacteria.[10] Once swelling develops, hot moist packs and frequent lavage with warm saline solution is preferred. [11]

Postoperative pain

Research reveals that postoperative pain is common in individuals undergoing nonsurgical periodontal treatment under local anaesthesia and those undergoing periodontal surgery. There have been reports of postoperative discomfort peaking in the first 24 hours following periodontal surgery and then subsiding. [12]

The first dose of nonsteroidal anti-inflammatory medications (NSAIDs) should be timed to ensure that the analgesic of choice reaches its peak blood levels prior to the wear-off of the local anaesthetic. For instance, oral acetaminophen (500–600 mg) or ibuprofen (800 mg) is administered prior to lidocaine injection along with a vasoconstrictor during periodontal surgery. On the day of surgery and the first two postsurgical days, every four hours, oral analgesic dosages should be repeated, since lidocaine with a 1:150,000 epinephrine/adrenaline lasts for 1.5–2 hours. For a more gradual restoration of feeling and discomfort following surgery, an alternative option for pain control are long-acting local anaesthetics, such as bupivacaine or etidocaine, which provides 6–8 hours of local anaesthesia. As part of the post-operative regimen, it is preferable to administer moderate analgesics. Narcotic drugs can be given when the prescribed non - narcotic drug is ineffective. [5]

Tooth hypersensitivity

Root sensitivity, exposed dentin and open dentinal tubules can all be unintentionally caused by instrumentation of the root surface. Dentinal tubules are exposed to external stimuli when root planning and scaling procedures remove 20–50 micrometres of cementum. Research indicates that osseous reduction flap procedures result in the highest level of discomfort due to bone exposure, which may lead to dentinal hypersensitivity.[13] The hydrodynamic theory due to the lack of a smear layer of protection is the most well recognized explanation for sensitivity.

Desensitising agents such as sodium fluoride, stannous fluoride, etc; resins, varnishes, toothpastes; iontophoresis, lasers, and gingival grafts are advised if the sensitivity doesn't reduce after about two weeks. [14]

Increased tooth mobility

A tooth may temporarily lose its gingival and periosteal support following an excisional surgery. More extensive collagen formation and regeneration of the gingival attachment to tooth and bone takes place after the first reattachment, which may be seen in the first 10–14 days following surgery and may be the reason for temporary mobility. This process may take 30–45 days or more. If mobility still exists after 30 to 45 days, the cause should be identified, adjusted via occlusal adjustment and the teeth should then be stabilized by splinting. However, extraction may be a possibility if the mobility continues to increase. [15]

Postoperative bacteremia

The risk of post-surgical bacteremia can vary depending on the degree of trauma. Extensive periodontal treatments, especially those entailing surgical trauma, may thus be linked to a high incidence of transient bacteremia. [16]

88% of cultures of blood were positive following periodontal procedures, according to research done by Rogosa et al. [17] The age

range of 30-59 years had the lowest possible prevalence of bacteremia, according to Lazansky et al. [18]

In addition, the patients' pre-operative oral hygiene protocols and scaling can significantly decrease the quantity of bacteria in the oral cavity, thereby lowering the risk of post-operative bacteremia. [16]

When used in conjunction with periodontal flap surgery, amoxicillin is very successful in lowering postoperative bacteremia. This helps to protect vulnerable individuals from developing bacterial endocarditis and other systemic diseases. Cephalexin and cefotaxime are effective against the same.[19]

Delayed wound healing

Hard and irregular injury surfaces, flap displacement, tissue tags, foreign materials embedded in wound, periodontal abscess formation, fibrous connective tissues from an infection or irregular granulation tissue development, bone being exposed and increased tooth mobility can all contribute to delayed wound healing.

Complications resulting from insufficient sutures or their incorrect deployment, suture rupture, pack movement or loss are additional risks. Where bony septa are extremely thin and labile bone sites are often observed, resorption and necrosis are particularly noticeable.[20]

Efficient debridement and irrigation, in conjunction with the administration of antibiotics and painkillers, often reduce symptoms and emphasises the wound healing. [15]

Trismus

The inability to open the mouth is known as trismus. It generally takes longer to develop than oedema, peaking in 2 to 3 days. Trismus is also inter - related with post – operative pain. The following are the causes of trismus: low-grade infection following local anaesthetic agent injection, postinjection trismus is more common after many needle penetrations, particularly with barbed needle, flap elevation beyond the external oblique ridge, reflex trismus occasionally results from the patient inflicting pain on his or her own cheek or tongue under anaesthesia.[21]

It can be reduced with heat treatment, a soft diet, and the use of muscle relaxants. Analgesics may be prescribed if the pain is severe. Diazepam (2.5–5 mg three times a day) and other benzodiazepines may be used if necessary for muscle relaxation. [15]

Taste changes

It can result from a variety of causes, including infections, nerve injuries, invasive procedures, idiopathic conditions and surgeries including the insertion of periosteal elevators, tooth sectioning, lingual flaps and chemical nerve damage brought on by the local anesthetic's neurotoxicity.

In order to improve the likelihood of recovery, these injuries should be addressed during the first 90-day period. Up to a year after the injury, surgical repair is advised for injuries that were not clinically noticed at the time of the surgery but were associated with nerve conduction abnormalities. [22]

Zinc (gluconate or sulphate) is administered for the management as it is crucial for taste bud cell renewal. Research has indicated a noteworthy correlation between taste and saliva. Low salivary flow can therefore also affect taste, necessitating the use of a sialogogue. (30 mg/day of pilocarpine). [23] Ziccardi and Steinberg conducted a review and discovered that trigeminal nerve microsurgery was a viable therapy option for those suffering from nerve damage. [24]

Bruising

A bruise is described as an injury to the bone or underlying tissues without a break in the skin; frequently accompanied by color changes and ruptured blood vessels. Additionally, mouth corners might get cracked and dry. It is best to apply petroleum jelly or ointment to prevent additional damage or discomfort.[15]

Complications associated with non – surgical therapy

Scaling and root planning (SRP)

The main goal of SRP is to eliminate all triggers for inflammation in order to restore a healthy gingiva. Calculus is often burnished rather than completely eliminating it while using dull instruments. Excessive root surface instrumentation can cause dentin exposure by removing the unaltered cementum, particularly in the cervical areas where the cementum is the weakest. This might cause sensitivity and increase the risk of root caries in the affected region. Reduced angulation (less than 45 degrees to the long axis of the root surface) may cause the calculus to burnish and impede its complete removal. Angulation more than ninety-one degrees to the long axis of the root surface might cause gingival tissue trauma and laceration. [25]

Local Drug Delivery (LDD)

Direct administration of the drugs to the periodontal pocket is known as local drug delivery. Complications such the continued growth of organisms that are inherently resistant or resistance to bacterial strains in the pocket. It is important to take into account the development of abscesses, tooth sensitivity, patient acceptance, interference with taste and other consequences linked to this procedure. Additionally, it has no discernible effect on extra pocket oral surfaces (the tongue, tonsils, and buccal mucosa) or periodontal bacteria that are present in adjacent gingival tissues, which raises the possibility of reinfection. [26]

Splinting

Splinting has been recommended to stabilize the tooth or teeth and promote the best possible healing results for the pulp and/or periodontal ligament. Research findings indicate that splinting will neither inhibit or slow down the apical advancement of plaque—in fact, it will accelerate it resulting loss of attachment. [27]

Complications associated with surgical therapy

Local anesthesia (LA)

Prolonged anesthesia/Paresthesia:

Total anaesthesia or altered feeling in the lips or tongue may last longer than the predicted time of action of a local anaesthetic. Direct trauma to the lingual or inferior alveolar nerve is thought to be the cause. Neurotoxicity and bleeding into the nerve sheath may result in an intraneural hematoma, which puts pressure on nerve fibres and prevents normal conduction. Administering a local anaesthetic from a cartridge tainted with alcohol or sterilizing solution may cause paresthesia. The majority of them are temporary and may resolve after eight weeks or become permanent.

Depending on the underlying reason, intravenous gamma globulin, immunosuppressant prednisone, anticonvulsants and antiviral medicine can all be used to mitigate patient discomfort.

Hematoma:

A hematoma can develop if a blood artery is damaged by a needle point, causing bleeding into the surrounding tissues. Excessive bleeding can cause swelling, irritating the tissues, initiating discomfort and cause

trismus. The patient may experience swelling and darkening of a bruise that will last from 7 to 14 days. It is noteworthy that the formation of a hematoma occurs regardless of the result of aspiration.

If visible shortly after injection, use direct pressure if feasible. Once the bleeding has stopped, instruct the patient to gently apply ice intermittently and avoid using heat for the first 6 hours. Administer analgesics as needed. [28]

Hypersensitivity and allergy to LA:

Drug allergy can be diagnosed only in situations when an underlying immune mechanism can be identified in the development of hypersensitivity reactions. Due to their low molecular weight, LA are weakly antigenic and allergic reactions should be considered uncommon. However, two types of allergic reactions to LA may occur: IgE-mediated type I reactions (Immediate or within 6–12 hours and no longer than 24 hours) or T-cell mediated, type IV, reactions (24 to 72 hours and most common)

Clinical manifestations of immediate allergic reactions include: urticaria, angioedema, bronchospasm, rhinitis, conjunctivitis, gastrointestinal symptoms and anaphylaxis, including anaphylactic shock.

Methylparaben and propylparaben are preservatives used in both ester and amide LA - responsible for their allergenic potential. Amides have a lower allergenic potential than esters, therefore they are preferred in clinical practice. [29]

Anti-histaminic medications (benadryl 20–40 mg IV or IM) and 0.3 mg SC or IM of epinephrine (1:1000) can be used to successfully treat allergic responses, inhaler bronchodilator and intravenous corticosteroid (100 mg) hydrocortisone hemisuccinate. [30]

Transmission of infection:

Infection can occasionally be transferred into tissues by passing the needle through infected tissue or by contaminating the needle before use. Antibiotics, such as penicillin, should be prescribed at the right dose and duration. [31]

Local anaesthetic toxicity:

Local anesthetic toxicity results from excessive systemic absorption of the drug, affecting vital organs like the heart and brain. Symptoms include loss of consciousness, talkativeness, agitation, elevated heart rate, blood pressure and respiratory rate. Ensure adequate oxygen supply, continuously monitor cardiovascular status, and seek medical assistance promptly for patients experiencing such toxicity. [32]

Syncope:

Syncope typically results from low blood pressure and inadequate oxygen supply to the brain. Symptoms include pallor, cold sweats, dizziness, nausea, loss of consciousness, and dilated pupils. Management involves placing the patient supine with legs elevated, ensuring airway maintenance, and initiating CPR if necessary. Aromatic ammonia ampoules can aid in consciousness recovery. For hypoglycemia, oral sugar lumps or intravenous 20 ml of 20-50% sterile glucose may be administered. [33]

Abscess drainage

Abscess drainage failures are characterized as a reemergence of an abscess, which results in an increase in periodontal damage. The complete removal of the abscess wall is required because any remaining tags may serve as a nidus around which subsequent abscesses may form. [4]

Depigmentation

Necrosis of bone can develop while utilising electrocautery; thus, contact between the cautery instruments and the underlying bone should be avoided. Furthermore, the usage of chemicals for depigmentation may harm the bone and underlying tissue since the extent of the impact of these chemicals is uncontrolled. Prolonged freezing in cryosurgery increases tissue destruction. It is followed by considerable swelling and increased soft tissue destruction. LASERs may cause gingival fenestration and bone exposure may occur. [34]

Frenectomy

When carrying out the procedure among patients with an elevated risk of exposing bone dehiscence, it is important that the space between the incisions is not too extensive and that they are mostly placed in the moveable mucosa to ensure good wound closure. [35]

Crown lengthening

Dentin hypersensitivity is a common complication, especially if osseous resection is involved. it is usually temporary and could be relieved by the application of desensitizing toothpaste or varnish. Other reported complications are pain and swelling, infection on the surgical site, increase the mobility of the tooth, esthetic deformities, root resorption, black triangles, transient mobility of the teeth and gingival bleeding or hemorrhage. Gingiva inflammation is also caused by violation of the biological width. [36]

Periodontal Flap Surgery

The most common causes of flap-related complications are incorrect incisions - may result in insufficient visibility and accessibility to the site of surgery or may cause excessive exposure of bone, which can lead to resorption of bone; improper debridement, which may be a critical component in the effective execution of periodontal treatment and incorrect suturing, which can affect the flap approximation and cause the disease to recur. [15]

In comparison to other treatments, the blood loss that occurs during periodontal flap surgery is quite limited, ranging from 6.0 to 145.1 mL. [37]

Ridge augmentation

The primary complication is soft tissue dehiscence causing graft exposure and contamination, leading to reduced regeneration results and frequent loss of bone grafts.

Sanz-Sánchez et al, has proposed a classification of bone block-related healing complications

Complication class 0: sufficient soft tissue healing without signs of infection, but the presence of neurological problems

These nerve deficits are the result of direct nerve injury and can cause neurological symptoms along with either short- or long-term neuronal damage. Close monitoring is vital, and management options include implant removal if near nerve canals, corticosteroids for severe damage to reduce inflammation, and B-group vitamins to support

Class 1 complications: small graft exposure (≤ 5 mm) without signs of infection

Dehiscence defects are addressed by removing the exposed graft area surgically using irrigation and local antiseptics. Soft tissue heals over 2-4 weeks, maintaining implant placement success despite potential bone-graft volume loss.

Class 2 complications: large graft exposure (≥5 mm) without signs of infection

This complication occurs when flaps are not approximated properly during healing in large augmented regions. Treatment includes decreasing the visible graft with a bur or in large regions, utilising autologous soft tissue grafts for closure of the wound. If the graft remains exposed, removal should be considered.

Class 3 complications: no graft exposure with signs of infection

These complications might be the result of bacterial colonisation during the augmentation procedure or infection following surgery. Treatment involves high-dose antibiotics, local antiseptics, and possible surgical drainage. If infection persists, consider graft removal.

Class 4 complications: small graft exposure (≤ 5 mm) with signs of infection

This complication often stems from flap infection during early healing or secondary infection causing a soft tissue fistula. For 2-4 weeks, manage by remodelling the exposed graft and using antibiotics and local antiseptics. If infection persists, remove part or all of the graft.

Class 5 complications: large graft exposure (≥5 mm) with signs of infection

This complication often occurs due to graft micro-movements or nonautogenous block grafts with poor vascularization. Remove the graft entirely and prescribe high-dose systemic antibiotics with topical antiseptics. Allow soft tissue healing for 8-12 weeks before further augmentation attempts. [38]

Risk for vertical ridge augmentation is 16.9%, rising to 23.9% with bone block use. Common complications include incision line opening, mucosa perforations, and infections leading to partial or total bone block loss, more frequent than for autogenous bone block. [39]

Autogenous bone harvesting and grafting:

Complications of ramus bone harvesting include inferior alveolar nerve damage and post-surgery trismus. Buccal nerve damage is rare. Damage to the buccal nerve, although rare, has been reported. Symphysis bone harvesting is linked to altered sensation in mandibular anterior teeth, pain, tooth vitality loss, and chin area soft tissue issues. Mental nerve paresthesia incidence post-symphysis grafts can reach 43%, with many being temporary. Mandible fractures have been reported after symphysis bone grafting. [40]

Sinus lift

Lateral Window Sinus Lift:

Intraoperative complications during sinus lift procedures often involve perforation of the sinus membrane, occurring in 6-42% of cases, particularly when dealing with maxillary sinus septa or inadequate bone height (<3.5 mm). If a perforation occurs, techniques such as elevating the membrane in the opposite direction can prevent further enlargement. Smaller perforations may be managed with tissue fibrin glue, suturing, or a resorbable barrier membrane, while larger ones may require larger barriers, bone plates, or suturing to provide a stable border for grafting material. If stability cannot be achieved, the procedure may need to be aborted, with a possibility of reattempting sinus floor elevation later.

Chronic rhinosinusitis is a common complication following sinus lift procedures, often due to infection of implant or bone graft. Treatment may involve removing of bone graft and implants, systemic antibiotics, nasal saline douching, nasal steroid sprays, and oral antihistamines. If nonsurgical therapies are ineffective, re-entry surgery can be required.

Rarely, overfilling of bone grafts during sinus lifting may block the sinus ostium, positioned apically within the inner wall of sinus. This can impede drainage and ventilation of the sinus, though it's a relatively uncommon complication due to the ostium's high cranial position.

Crestal (osteotome) sinus lift:

Sinus perforations are more common with oblique sinus floors and membrane elevations over 3 mm, ranging from 0% to 17% in reported cases. Benign paroxysmal positional vertigo (BPPV) can result from osteotome use during sinus floor elevation, causing inner ear otolith displacement. Symptoms include vertigo post-surgery. Suspected BPPV cases should be referred to otoneurologic specialists. Minimally traumatic techniques and alternative instruments like piezoelectric surgical instruments can reduce complications, especially in older patients.

Implant displacement into the maxillary sinus can transpire during prosthesis manipulation or surgery. Implant removal is recommended to prevent infection, sinusitis, or further migration into anatomical structures like the nasal cavity or orbit. [41]

Periodontal Plastic Surgery

Intraoperative hemorrhage:

Intraoperative hemorrhage can occur due to errors in flap incisions, potentially damaging larger vessels. Proper technique in incising split-thickness flaps helps avoid this complication.

Flap perforation:

In deep split-thickness flaps, flap perforation is more probably to happen if the blade is not kept parallel to the external flap surface and bone. These perforations are overcome with a careful full-thickness approach using an elevator, then proceeding with split-thickness mobilization without enlarging the perforation. Suturing is necessary for perforations larger than 2 mm or in avascular areas to prevent further soft tissue damage.

Early flap dehiscence:

Early flap dehiscence occurs when previously stitched flaps separate. To reduce risk, management of flap tension, de-epithelialization of anatomical papillae and use of effective suturing techniques is required. No intervention is suggested; clinician should wait for healing (3-6 months) before reassessment.

Graft/biomaterial exposure:

Graft or biomaterial exposure can happen prematurely (1-2 months post-surgery) or delayed (9-12 months). Securing grafts at or slightly apical to the cemento-enamel junction (cej) and positioning flap margins 1-2 mm coronal to enhances root coverage and reduces early shrinkage.

Scars/keloid-like formations:

Alveolar mucosa incisions or sutures can lead to scar formation, with increased tension potentially resulting in stronger scars due to increased collagen deposition.

Flap/graft necrosis:

Flap or graft necrosis may occur due to inadequate blood flow or adrenergic vasoconstrictors (mainly if norepinephrine is used instead of epinephrine) in anesthetics, leading to ischemic tissue damage.

Cyst-like formation:

These are more common when the connective tissue graft is harvested from the anterior palate, since rugae and epithelial invaginations extend into the lamina propria. However, they are typically self-limiting and may require gingivoplasty depending on the extent of the lesion. [42]

Bone graft

Failure of the graft may result from inadequate graft size or poor root preparation. Additionally, while rare, an allergic reaction to the grafts is possible in patients who are hypersensitive. [43]

Guided tissue regeneration

Typical postoperative complications include discomfort, swelling, dehiscence of the wound, papilla necrosis, development of an abscess and exposure of the membrane.

Prevention of postoperative infections and reduction of postsurgical problems during the early healing phase are common goals of systemic antibiotic prescriptions, whether administered perioperatively or postoperatively. [44]

Sutures

The possible complications of suturing are wicking effect (penetration of fluids from outside) -monolament sutures are made of a single strand of material and thus avoids wicking effect, stitch/suture abscess(abscess that forms due to infection of sutures), necrosis of the marginal portion of the flap and delayed healing and railroad track (caused by poor repair, excessive tension on tissue, or delay in suture removal - also referred to as 'cross hatching' or 'fishbone scars') [45]

Periodontal dressings

Complications associated with Periodontal dressings are mostly dur to eugenol based periodontal packs. Reports of such complications include erythema, edema and allergic reactions supposedly caused by various agents incorporated in periodontal dressings. [46]

LASER

The main drawback of laser treatment is the possibility of inadvertent tissue injury since lasers can quickly reach extremely high temperatures. When bone is exposed to temperatures above 47°C (116.6°F), osseous resorption and cellular damage may occur. [47]

Tissue necrosis is caused by temperatures exceeding 60°C (140°F). There have been overexposure reports of periodontal deterioration and tissue damage. New, inexperienced operators as well as more seasoned, “cutting-edge” clinicians may encounter disastrous results from their initial treatments. [48]

CONCLUSION

In conclusion, successful periodontal therapy is integral to superior dental care. The careful selection of treatment techniques and thorough evaluation of associated complications are paramount for achieving optimal outcomes and patient satisfaction. Acknowledging the potential for post-surgical complications and incorporating comprehensive management strategies into treatment planning is essential for maximizing results while minimizing patient discomfort.

Conflicts of Interest

The author reports no conflicts of interest.

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