Post–Operative Complications of Periodontal Surgery

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ABSTRACT

Periodontal therapy in the form of nonsurgical and surgical procedures is a common practice in dental clinics. As everything have its pros and cons so as it is with periodontal surgeries. A surgical trauma in the oral cavity always causes tissue injury. The aim of this poster is to evaluate patient reported outcome measures (PROM) involving patients' perception of bleeding, pain, root hypersensitivity, swelling, trismus, bruising, flap dehiscence, perforation after periodontal surgery. Reporting and management of such occurrences is of prime importance and should be dealt with utmost concern.

Keywords: Periodontal surgery, Complications, Bleeding, Root hypersensitivity.

INTRODUCTION

Periodontal therapy in the form of nonsurgical and surgical procedures is a common practice in dental clinics. With the increase in the patients with periodontal diseases, the demand of periodontal therapy is also on rise. From the very basics of scaling and root planning to extensive periodontal procedures like flap surgeries and periodontal plastic procedures, periodontal therapy play a vital role in the maintenance of entire dentition. As everything have its pros and cons so as it is with periodontal surgeries. The aim of this article is to focus on patients' perception of bleeding, pain, root hypersensitivity, swelling, trismus, bruising and taste changes after periodontal surgery.

Evidence showed that most of the post operative complications after periodontal therapy does not last long. It is reported in various studies that periodontal therapy whether surgical and non surgical therapy is usually accompanied with mild pain[1,2] Postoperative pain which is experienced within first 3days is considered normal and usually diminsh with healing. It can be due to extensive surgical procedure, poor handling of tissues, trauma, poor infection control, use of dull instrument for incision, improper knowledge of surgical anatomy. In particular, a flap design with osseous resection resulted in the highest degree of discomfort which may be as a result of a time-consuming procedure together with and exposure of bone. Treatment consists of reassurance, use of desensetizing agent, chair side varnish, NSAIDs etc depending on etiology of pain and discomfort.

Post operative bleeding after oral and periodontal surgery is a common complication. The surgical procedure presents a challenge to the body's hemostatic mechanism. Following surgical procedures, hemorrhage can range from a minor leakage or oozing at the site, to extensive or frank bleeding at surgical site. The likelihood of this may be attributed to many factors, like the

- tissues of mouth and jaw are highly vascular
- infection
- intrinsic trauma
- presence of foreign bodies
- Even after repeated instructions patients tend to play with the area of surgery with their tongue and dislodge the blood clot, which initiates secondary bleeding.
- The tongue may also cause suction of blood by creating small negative pressures that cause secondary bleeding.
- salivary enzymes may lyse the blood clot before it gets organized.[3]

Post operative bleeding may be present immediately (primary hemorrhage),within 24hrs or as delayed post operative bleeding (reactionary hemorrhage).It can be due to slippage of suture, dislodgement of clots, cessation of reflex vasospasm, normalization of blood pressure.

Hemorrhage occurring after 7-14days is secondary to trauma or surgery. The attributed cause is infection and sloughing of blood vessels. Signs and symptoms may include continuous flow, oozing or expectoration of blood or copious pink saliva. Bleeding may be accompanied by pain. Treatment includes reassurance, pressure pack, source of bleeding should be determined. If bleeding is due to residual granulation tissue or liver clot type then it should be removed by high speed suction or currettage. Bony bleeding can be controlled by crushing the bone with appropriate instrument. Soft tissue bleeding may be treated by clamping it with hemostat, if it still persists vessel ligation with sutures, laser coagulation or electrocautery may be necessary. Additional hemostatic agents may also be used.

Reduced mouth opening, pain, difficulty in masticatory capability and swelling usually accompanies peridontal surgery. Swelling hinders routine working life of patient usually in first 3 days after surgery.[4] Type of the incision, its extension, tissue manipulation and duration of surgery are some factors that can affect swelling. Smaller incisions usually cause less postoperative swelling and pain.[5] Extraoral swelling is common after periodontal therapy. Antibiotic as prophylaxis therapy to prevent distant site infection or to control postoperative sequalae or to treat an established infection in periodontal surgery is a well accepted indication with proved efficacy. According to some authors, to obtain results with the antibiotic treatment, they must be administered preoperatively to act when the bacterial infection starts. Corticosteroids reduces inflammation, fluid transudation and edema. Various surgical strategies like piezosurgery have

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also shown to minimise discomfort after the periodontal surgeries. Beneficial effects of ice applied on a surgical wound are due to changes of blood flow which causes vasoconstriction and reduced metabolism thus reducing bacterial growth. Trismus is an inability to open the mouth. Trismus after periodontal surgery can occur due to trauma, infection. Infection of masticatory space, inaccurate positioning of needle are known to contribute to trismus during periodontal surgeries. Treatment of trismus varies depending on the aetiological factor. The degree of discomfort and dysfunction varies, but is usually mild when it is due to incorrect positioning of needle in superior alveolar or inferior alveolar nerve block. Management should consists of heat therapy, analgesics, a soft diet and muscle relaxants. Aspirin because of its antiinflammatory properties is beneficial and given in managing the pain associated with trismus and if it is intense pain narcotic analgesic can be given. If required, diazepam (2.5–5 mg three times daily) and other benzodiazepines may be given for muscle relaxation.[6]

There is huge microbial challenge to the patient during periodontal surgery. The occurrence of post surgical bacteremia depends on amount of trauma imposed during surgery. It is documented that 88% of all blood cultures are positive after periodontal therapy. Lengthy procedures increases the chances of transient bacteremia. In postoperative bacteremia *Streptococcus viridans*[7] has been most commonly documented by various authors. Okel and Elliot considered *Staphylococcus albus* coagulase negative as contaminants. However, McEntegart and Porterfield considered *Staphylococcus albus* coagulase negative as pathogenic micro-organisms. Transient bacteremia can be effectively reduced by giving antibiotic prophylaxis before doing any surgery. Amoxicillin is highly effective in reducing post operative bacteremia in periodontal flap surgery and thus in preventing the possible sequelae (infective endocarditis and other systemic maladies) insusceptible patients.

Taste change is also one of the complication after periodontal surgery. It can be due to any infection, trauma to any nerve, invasive procedures or idiopathic. It can also be due to any surgery requiring insertion of a periosteal elevator, sectioning of tooth, lingual flaps etc.

Nerve damage has also been linked to the experience of the operator and procedures performed under various forms of sedation. It can also be associated with the use of local anesthetic. Sometimes needle directly contact the tissues and can traumatizes the nerve which can alter the sensation. Damage to smaller intraneural blood vessels can cause intraneural hematoma. Healing process can also be impede by compression of the nerve.[8] If the anesthetic is injected intrafascicularly or becomes deposited within the nerve as the needle is withdrawn it can cause chemical injury to the nerve. Local anesthetics (articaine, procaine, tetracaine, bupivacaine or lidocaine)can all be neurotoxic when injected directly into the nerve. Chemical trauma cancause axonal degeneration, inflammation of the surrounding nerve fibres within fascicles, demyelinization which can result in breach in nerve–blood barrier and endoneurial edema. Zinc (gluconate or sulfate) may be given in the treatment of idiopathic dysgeusia, as it is an important factor in gustation. Zinc plays an important role in the regeneration of taste bud cells.[9] Taste function is also affected by amount of saliva. Matsuo and Yamamoto showed a significant association between saliva and taste. Thus, low saliva flow may also alter taste, which require the use of a sialogogue. Repair of nerve damage can also be done to manage taste disturbances. In a review, Ziccardi and Steinberg found that trigeminal nerve microsurgery was one treatment modality option for patients with nerve injury. The articles reviewed suggested that injuries should be repaired within the first 90 days to increase the chances of improvement. Injuries that are not clinically observed at the time of a procedure and are accompanied by defect in nerve conduction are recommended for surgical repair up to one year from the time of the injury.

CONCLUSION

Periodontal therapy is an essential component in providing better dental care. Selection of the most suitable technique for treatment, evaluation of the complications associated with it paves the path for favorable outcomes with utmost patient satisfaction. Keeping in mind that complications may occur post surgery and managing them thoroughly by including them in treatment planning is the wise decision.

REFRENCES

1. D. C. Matthews and C. A. McCulloch. Evaluating patient perceptions as short-term outcomes of periodontal treatment:a comparison of surgical and non-surgical therapy. Journal of Periodontology. 1993;64:990–997.
2. K. Al-Hamdan. Pain perception following different periodontal procedures. Pakistan Oral and Dental Journal. 2009;29:63–68.
3. Pertson L. J. (editor). Contemporary Oral and Maxillofacial Surgery, 3rd edition. C.V. Mosby Company, St. Louis.Chapter 3 “Principles of surgery”; Hupp JR.1998;48-49. Chapter 11 “Prevention and management of surgical complications”; Peterson LJ. 1998;270-273
4. Alexander RE, Throndson RR. A review of perioperative corticosteroid use in dentoalveolar surgery. Oral Surg Oral Med Oral Pathol OralRadiolEndod. 2000;90:406-15.
5. Berne RM, Levy MN, Koeppen BM, Stanton BA. Physiology. 5th ed.New York: Elsevier Inc.; 2004.
6. Malamed SF. Handbook of Local Anesthesia, 3rd ed. St. Louis: C.V. Mosby Co., 1990; pp.248–249.26. Lazansky JP, Robinson L, Rodofsky L. Factors influencing the incidence of bacteremias following surgical procedures in the oral cavity. J Dent Res. 1949;28:533-43.
7. Okell CC, Elliot SD. Bacteremia and oral sepsis with special references to the etiology of subacute endocarditis. Lancet. 1935;28:533-43.
8. Pogrel MA, Thamby S. Permanent nerve involvement resulting from inferior alveolar nerve blocks. J Am Dent Assoc 2000;131:901–7.
9. Henkin RI, Martin BM, Agarwal RP. Efficacy of exogenous oral zinc in treatment of patients with carbonic anhydrase VI deficiency. Am J Med Sci. 1999;318:392–405.

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