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IS SUTURING NECESSARY AFTER IMPACTED 3RD MOLAR: TOOTH REMOVAL?

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ABSTRACT: It is a common practice for oral surgeons to place sutures after removal of impacted mandibular 3rd molar tooth. But evidence after a review of literature suggests that suturing is unnecessary and actually may delay healing and cause infection.

KEYWORDS: Hemorrhage, Mucosa, Wounds.

INTRODUCTION: Suturing is done routinely after removal of every impacted tooth by dental surgeons. An impacted tooth poses many post-operative complications including infection, swelling, pain and trismus which are probably avoidable or at least minimized by avoiding sutures post operatively. To this effect past literature was reviewed to see whether suturing is mandatory post operatively after removal of impacted tooth.

DISCUSSION: One reason for placing sutures after impacted tooth removal is to go for primary closure for better and faster healing. Healing by 1st intention will not occur if the suture lines are placed over blood clot which is a culture medium for bacteria which cause breakdown of wound. Every suture is a foreign body and should be inserted only when there is a possible indication.¹ According to the votaries of suture placement the purpose of suture is to promote healing by 1st intention, arrest hemorrhage and to minimize wound contamination by food debris. Accepted practice is to keep sutures in situ for up to seven days.

All oral surgeons have a routine practice of stopping primary bleeding after surgery before dismissing the patient. So question of arresting hemorrhage does not arise. And the above mentioned goals are applicable to routine tooth extractions as well. It is well known that sutures are not placed after routine tooth extractions.

Sutures reduce the extent of wound exposure to oral cavity but at the same time they introduce a bacteria contaminated foreign body i.e. the sutures into an area of wound healing causing pain and swelling. The placement of sutures may result in ischemic regions in the wound margins or in regions next to the sutures, which may lead to tissue necrosis and infection. Furthermore, sutures significantly increase post-operative pain. Several investigators have concluded that complete closure of mandibular third molar sockets results in more pain than when the sockets are left open with a gauze dressing impregnated with an antibacterial.² The advocates of suturing say it promotes faster healing but in as early as 1960 Simpson et al observed that sutures had little effect on socket healing in Macacus Rhesus monkeys.³

Even post minor surgeries sutures seem to increase inflammation. In a study of 30 cases of mandibular alveoplasties to compare healing of intra oral wounds closed using no.3-0 silk sutures and isoamyl 2 cyanoacrylate gum it was found that on the seventh postoperative day both clinical and histological indications of inflammation were higher on the sutured side.⁴

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The advocates of suturing agree that intra oral lacerations which do not gape open heal well without intervention. Only larger gaping oral lacerations benefit from wound closure to reduce bleeding and infection according to them.⁵

The commonest suture material used is silk in oral cavity, the reason being cost effectiveness. Silk elicits more intense tissue inflammatory response and delayed wound healing as compared to even other suture materials. Selvig et al observed that bacterial invasion is common in suture materials and more so in braided silk sutures. Tissue reaction is reflected through an inflammatory response which develops during the first two to seven days after suturing the tissue.^{6,7}

An important complication of suturing is a stitch abscess. An abscess around a stitch or suture is called a stitch abscess. Though the wound is closed the suture entry site into the skin may provide a conduit for transmitting structures from the external environment. By not using dressings there is increased exposure of these potential entry sites which may lead to increased colonization and stitch abscess. A stitch abscess may lead to superficial cellulitis and even deeper seated infection. From a patient's perspective it may be seen as a significant complication. Therefore postoperative dressing is necessary which cannot be done easily in oral cavity. If suturing is too tight it may cause sloughing or trismus.

Manoj choudhary et al in a comparative study of primary closure versus secondary closure technique following removal of impacted mandibular third molar suggested that secondary closure technique is better than primary closure technique with regard to post-operative pain and swelling. They removed a wedge of mucosa 5-6 mm width near 2nd molar after suturing. The results obtained in this study determined secondary healing to be more comfortable to the patient. Complete closure resulted in more pain and swelling post operatively in a significant number of patients.⁸ Hollande CS et al studied the influence of closure or dressing of third molar sockets on post-operative swelling and pain. This study compared the influence of complete closure as opposed to partial closure and dressing of lower third molar sockets on post-operative pain and swelling and on healing. These techniques were used on opposite sides of mouth. Complete closure resulted in more pain and swelling post operatively in a significant number of patients. The dressing delayed satisfactory healing in a few patients.⁹

One mistake commonly done by surgeons is to treat an oral extraction wound like a skin wound.

Skin healing v/s oral mucosal healing: Mucosal wounds demonstrate accelerated healing compared to cutaneous wounds. Mucosal wounds also generally heal with minimal scar formation and hypertrophic scars are rare in the oral cavity. Another factor to consider is elasticity of oral mucosa which is lacking in the skin. The mandatory suturing done in skin seems to be unnecessary in oral mucosa.

Early wound healing in oral mucosa is due to moisture filled environment in the oral cavity. There is a much higher energy metabolism in the oral mucosa than skin. Within the oral cavity saliva provides many growth factors making macrophage function less critical. Saliva is the primary factor for rapid wound healing.

The rapid healing and absence of scars in oral mucosa are most directly related to intrinsic characteristics of the tissue and not to environmental factors. Mucosal healing occurs in a fully

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hydrated environment preventing water loss. Excessive scarring such as hypertrophic scars and keloid scars have not been reported in oral mucosa. Scalds to the oral mucosa do not result in contracture unlike scalding to the skin. Secretory Leucocyte Protease inhibitor (SLP) found in saliva may have a role in mediating scar less healing in the oral mucosa. When healing can be scar less it seems unnecessary to place sutures.

Bacteria in the oral cavity and the moist environment and growth factors present in saliva¹⁰ stimulate wound healing. This causes rapid healing of intraoral wounds.

There is a marked difference in renewal rate in between oral epithelium and skin. The oral epithelium undergoes continuous renewal. Its thickness is maintained by a balance between new cell formation in the basal and spinous layers and the shedding of old cells at the surface. The turnover time for cells in gingiva is 5 to 6 days. Rapid shedding of cells effectively removes bacteria adhering to the epithelial cells and therefore is an important part of the antimicrobial defense mechanisms at the dentogingival junction.¹¹ Thus post extraction gingiva is able to heal fast.

On the other hand turnover rate for skin cells may be as high as 50 days depending on the age of the patient.¹² Thus placement of sutures in a skin wound is justified but not intraorally.

CONCLUSION: It is unnecessary to place sutures after removal of every impacted tooth. By avoiding sutures post impacted tooth removal a great degree of patient discomfort can be minimized.

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