

Modified Anterior Releasing Incision Modification To Modified Ward's Incision For Impacted Mandibular Third Molars

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Abstract

This study's goal is to compare the frequency and severity of postoperative problems after mandibular third molar surgery using the modified Ward's incision to the modified anterior releasing incision. Design for the anterior releasing incision's curvature to alter the modified ward's incision. Materials and Methods: A total of 80 patients underwent surgical extraction of impacted mandibular third molars. Group 1 encompassed individuals scheduled for surgical removal of impacted mandibular third molars through a modified wards incision, whereas group 2 consisted of subjects scheduled for surgery utilizing the modified anterior releasing incision. Results: Higher degree of swelling in group 1, yielding a highly significant outcome ($P < 0.0001$). Furthermore, group 2 patients exhibited superior healing of soft tissue in comparison to group 1, with a highly significant result ($P < 0.0001$). none of the patient show alveolar ostitis

Keywords: anterior releasing incision, modified Ward's incision

Introduction

The removal of fully impacted third molars is often advocated for a variety of reasons. Lytle suggests that the extraction of third molars may be necessary in a variety of situations. If these molars are unlikely to erupt, it is recommended to remove them before the roots are fully developed. Alternatively, if the roots have already formed, it is advisable to extract them at a younger age, as the risk of complications tends to increase with age. Another reason for removal may be to aid in orthodontic treatment. Additionally, extraction may be needed to prevent damage to the adjacent second molar. If the third molars are linked to odontogenic tumors or cysts of the jaw, extraction is recommended. It is also recommended to remove these molars before irradiation of the jaws and surrounding tissues. Lastly, in some cases, extraction of third molars may be considered as a treatment option for unexplained pain [1].

Several authors have put forward alternative methods for elevating a mucoperiosteal flap in order to reveal

an impacted lower third molar. The modified triangle flap and the envelope flap are two of the most popular designs suggested [2,3]. The evaluation conducted by Jakse et al. focused on the effect of these two flap designs on primary wound healing, leading them to ascertain that the flap design held considerable sway over the process of primary wound healing [4].

The objective of this research is to evaluate the frequency and intensity of postoperative complications following mandibular third molar surgery through the utilization of the modified Ward's incision in comparison to the modified anterior releasing incision to the modified Ward's incision.

Design for the modification of the modified ward's incision by curvature at anterior releasing incision

The buccal vestibule's reflection beneath the second molar is extended downwards using the index finger or thumb of the non-dominant hand, allowing the buccinator muscle to be stretched beyond its

attachment on the jawbone. From the deepest point of this stretched vestibular reflection behind the second molar, the incision is then made towards the front (Figure 1). The incision is made to a point below second molar just anterior to the buccal groove runs downward and forward along the attached gingiva

toward the vestibule then the little curvature approximately 45 degree is taken and ends with a curvature toward the interdental papilla of 1st and 2nd molar keeping 7-8mm distance from attached gingiva (Figure 2).

Figure 1: Modification of Anterior releasing incision to modified ward's incision

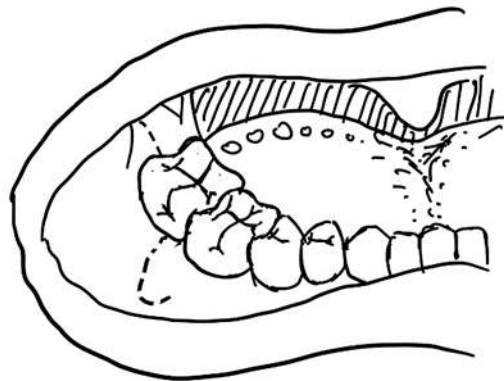
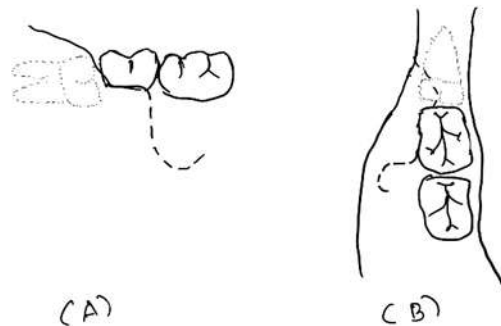


Figure 2: A) Buccal view, B) Occlusal View



This specific anterior releasing adjustment allows for the exposure of the complete third molar while safeguarding the interdental papilla between the 2nd and 3rd molars if present. Posterior releasing incision extend posteriorly from the distal aspect of the preceding second molar toward the ascending ramus. The length and angulation of this extension depend on the position of the third molar and the proximity and lateral flare of the ramus. The resulting surgical site

enables the surgeon to employ the traditional buccal bone removal technique. Once the impacted tooth removal process is finished, the flap can be easily repositioned and sutured at the anterior releasing curvature and distal to the 2nd molar. The incision and flap design seems best suited to cases in which the third molar is partially or completely covered with soft tissues.

Materials and methods

In the department of oral and maxillofacial surgery at Government Dental College and Hospital in Chhatrapati Sambhajinagar, Maharashtra, India, a total of 80 patients underwent surgical extraction of impacted mandibular third molars. The difficulty of these procedures was assessed using Peterson's Difficulty Index, with scores ranging between 6 and 7 [5]. The inclusion criteria for this study involved patients who exhibited a satisfactory medical condition and expressed their willingness to grant consent. Variables such as age, gender, race, and socioeconomic status were not given consideration. The participants were randomly divided into two groups, each comprising 40 subjects. Group 1 encompassed individuals scheduled for surgical removal of impacted mandibular third molars through a modified wards incision, whereas group 2 consisted of subjects scheduled for surgery utilizing the modified anterior releasing incision. All subjects underwent surgery performed by a single surgeon, who utilized local anesthesia and conventional methods for bone removal and tooth sectioning as deemed necessary. Analgesics and antibiotics were prescribed based on individual needs. Follow-up appointments were scheduled for patients three days post-surgery, with suture removal occurring on the seventh day.

The following clinical parameters were noted and analyzed statistically: postoperative pain, facial edema and swelling, and soft tissue healing. Pain was estimated subjectively by asking the patient to rate the nociceptive experience on a visual analog scale of 0 to 10 [6]. Assessment of facial edema and swelling was done based on the modification of three-line measurement using five fixed points on surgical side of the face. Assessment of soft tissue healing was done based on the criteria given by Landry et al [7]. All the clinical recorded were subjected to the following statistical analysis A) Student t tests (two tailed, unpaired) were used to find the significance of study parameters on continuous scale between two groups (Intergroup analysis). B) Repeated measures Analysis of variance (RM-ANOVA) was used to find the significance of study parameters within the group (Intragroup analysis) at different time intervals.

Results

60 patients out of 80 patients completed the study. Prior to the commencement of the procedure, the

assignment of surgical side and flap design was randomized. Out of the total 60 patients, 30 were subjected to the modified ward incision, while the remaining 30 underwent the modified anterior releasing incision to modified ward incision. Consistent results were obtained regarding the pain severity and trend for the studied flap designs, as indicated by the pain scores derived from the Visual Analog Scale (VAS). No notable disparity was observed between the two groups on the third and seventh day. No patients reported any sensory impairment in the regions supplied by the lingual or inferior alveolar nerves. The comparison of facial edema and swelling on the third day between the two groups demonstrated a significantly higher degree of swelling in group 1, yielding a highly significant outcome ($P < 0.0001$). Furthermore, group 2 patients exhibited superior healing of soft tissue in comparison to group 1, with a highly significant result ($P < 0.0001$). None of the patients show alveolar osteitis. The mean surgical time for the group 1 was 13.25 minutes, while the modified triangular flap group had a mean surgical time of 14.57 minutes, showing no significant difference ($P > .05$). The results were not affected by the side of surgery or the order of surgery ($P > .05$).

Discussion

Pain, facial edema and swelling after the surgical removal of a third molar tooth are routine sequelae due to inflammation as a result of surgery. A major cause of third molar surgical trauma occurs when raising a mucoperiosteal flap to adequately visualize and gain access to the tooth. There have been numerous studies conducted to evaluate various flap designs and the influence of primary and secondary healing after surgery [8-11].

Wards incision and modified ward incision has been modified by several surgeons to minimize postoperative complications [12]. Guralnick [13] used a horizontal incision only to achieve good exposure and ease of closure, and Donlan and Trinta [14] reaffirmed this technique. Groves and Moore began the vertical incision from a point distal to the distobuccal gingival line angle of the second molar to conserve the distal periodontal tissues of the second molar [15]. In case of wards incision, it allows good exposure of the surgical site but Potential problems include damage to the periodontal ligament when creating a sulcular incision around a tooth, increased

osteoclastic activity when raising a mucoperiosteal flap with potential local bone loss, and a higher risk of wound dehiscence in the postoperative period compared with the modified ward incision [16]. In modified ward incision it will be difficult to close the anterior releasing incision result in chances of foreign substance involvement or more chances of acute bleeding.

There is no difference in the periodontal status of the adjacent second molar.

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