EVALUATION OF EFFICACY OF POST OPERATIVE HEALING AFTER MANDIBULAR THIRD MOLAR EXTRACTIONS USING DIFFERENT SUTURING TECHNIQUES: AN ORIGINAL RESEARCH.

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ABSTRACT

Introduction: The aim of our study is to evaluate the efficacy of post operative healing after mandibular third molars extractions using different suturing techniques.

Materials and Methods: We conducted a prospective institutional observational study. Ninety subjects were selected randomly between 18-50 years who had impacted lower third molars indicated for surgical extraction. They were divided to three groups to receive simple interrupted suturing technique, vertical mattress suturing technique, and anchoring suture techniques. All groups will be compared by clinical assessment to determine post-operative swelling.

Results: In all treatment groups. In all groups, swelling was most severe in the first post-operative day and gradually decreased, with the anchor suturing technique showing significant difference of swelling at day three.

Conclusions: Altering the method of suturing appears to have no effect on the degree of pain, swelling following surgical removal of impacted mandibular third molars.

Key words: Third Molar, Suturing, Surgical Extraction

I. INTRODUCTION

The surgical extraction of impacted third molars is a common procedure associated with a multiplicity of technique and subjective opinion. Maximum surgeons settle that surgical time, surgical trauma, and difficulty of impaction are important factors in postoperative complications.¹⁻⁵ An impacted tooth is one that fails to erupt into the dental arch within the expected time.⁶ The surgical removal of third molar teeth may result in a number of complications including pain, swelling, bleeding, alveolar osteitis (dry socket) or nerve dysfunction.⁷ The factors that usually contribute to such problems are numerous and include the patient factors, tooth-related factors and the surgeon's operative experience and skills.⁸ Different incisions and flap techniques have been proposed
in these third molar surgeries to offer a better surgical field, to prevent periodontal problems, and to minimize postoperative discomfort for the patient. (9,10)

The aim of our study is to evaluate the efficacy of post operative healing after mandibular third molar extractions using different suturing techniques.

II. MATERIALS AND METHODS

We conducted a prospective institutional observational study. Ninety subjects were selected randomly between 18-50 years. All the cases were performed by the same surgeon, under local anaesthesia. The surgical removal of the impacted teeth was performed following the standard procedure including modified flaps. Following extraction, suturing of the flap was done. The patients were randomly allocated to three treatment groups; group I included thirty patients; the flap would be closed by simple interrupted suture technique, and group II closed by vertical mattress suturing technique, and group III anchoring techniques, by using black silk suture 3:0 multifilament three knots of each type. Assessment of swelling was also subjectively assessed as:

Grade 0 = No swelling.

Grade 1 = Edema of alveolar mucosa buccally and/or lingually (intraorally).

Grade 2 = Edema of alveolar mucosa buccally and/or lingually and involve the cheek (extraorally) to the lower border of the mandible.

Grade 3 = Edema of alveolar mucosa buccally and/or lingually and involve the cheek (extraorally) below the lower border of the mandible. A highly significant difference was considered at p < 0.01.

III. RESULTS

Swelling: Concerning post-operative swelling, the anchor suturing technique was associated with overt swelling specially at day one and day three. The results are shown in Table (1).

Table (1): Complications distribution in relation to treatment groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Type of Suturing Technique</th>
<th>Swelling( mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Day 1</td>
</tr>
<tr>
<td>I</td>
<td>Simple</td>
<td>1.6</td>
</tr>
<tr>
<td>II</td>
<td>Vertical mattress</td>
<td>1.8</td>
</tr>
<tr>
<td>III</td>
<td>Anchor</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Statistical analysis showed a highly significant difference of swelling at day three, in addition to causing significant swelling at day one and as shown in Tables (2-4).

Table (2): Mann-Whitney Test Simple suturing versus Vertical suturing

<table>
<thead>
<tr>
<th></th>
<th>Swelling Grade Day 1</th>
<th>Swelling Grade Day 3</th>
<th>Swelling Grade Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>184.000</td>
<td>173.000</td>
<td>200.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>394.000</td>
<td>383.000</td>
<td>410.000</td>
</tr>
<tr>
<td>Z</td>
<td>-.500</td>
<td>-1.104</td>
<td>.000</td>
</tr>
<tr>
<td>P-value</td>
<td>.617</td>
<td>.269</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Table (3): Mann-Whitney Test Simple suturing versus Anchor suturing

<table>
<thead>
<tr>
<th></th>
<th>Swelling Grade Day 1</th>
<th>Swelling Grade Day 3</th>
<th>Swelling Grade Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>133.000</td>
<td>79.500</td>
<td>180.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>343.000</td>
<td>289.500</td>
<td>390.000</td>
</tr>
<tr>
<td>Z</td>
<td>-2.147</td>
<td>-3.688</td>
<td>-.781</td>
</tr>
<tr>
<td>P-value</td>
<td>.032</td>
<td>.000 *</td>
<td>.435</td>
</tr>
</tbody>
</table>

Table (4): Mann-Whitney Test Vertical suturing versus Anchor suturing

<table>
<thead>
<tr>
<th></th>
<th>Swelling Grade Day 1</th>
<th>Swelling Grade Day 3</th>
<th>Swelling Grade Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>150.000</td>
<td>90.000</td>
<td>180.000</td>
</tr>
</tbody>
</table>
In our study three types of suturing techniques were used to close the flaps post lower third molar removal and assessing swelling post operatively.\textsuperscript{(1,5,10)}

Simple interrupted suture is the most usual technique used in which both sides of incision require same amount of tension, anchor suturing permits the facial and lingual flaps to be positioned independently from one another, so lowering the time spent for tying knots but need time for removal.\textsuperscript{(5,6)}

We observed no significant difference among the three types of techniques but in other study shows anchor suturing after third molar removal seems to provide better periodontal healing as we disagree with that study probably due to shorter period of follow up.\textsuperscript{(2)} Other study too has same outcome disagree with us \textsuperscript{(3)}. While other study shows better results when using a sliding sutured triangular flap than when using a mucogingival flap. According to these authors, primary closure of the flap avoids suture dehiscence and improves wound healing.\textsuperscript{(28)} Nevertheless, in the opinion of other investigators, healing by second intention, where wound drainage is facilitated, causes fewer patient discomfort\textsuperscript{(5,6)}.

Other investigation presented hermetic primary closure of the surgical wound causes more postoperative pain and swelling than simple closure with approximation of the margins.\textsuperscript{(7)} Seemingly, the flap design and suture technique even with an bare area distal to the second molar did not result in a periodontal defect if properly carried out. This is an important point because in the suture-less flap technique attached gingiva is not pulled up tightly behind the second molar. On another hand results of other researches indicate that less edema and reduced pain.\textsuperscript{(8)} This study approved with our results. It seems that tight closure over a large bony socket or defect does not facilitate drainage and oral hygiene.\textsuperscript{(9)}

Pain and swelling after surgical removal of impacted third molars are related to inflammation consequence upon surgical trauma. Preceding studies show that swelling is influenced by the reflection of a mucoperiosteal flap and the method of wound closure.\textsuperscript{(10)}

V. CONCLUSIONS

Changing the method of suturing technique appear to have no effect on the post-operative complications following surgical removal of impacted mandibular third molars at day one, three and seven.

REFERENCES