

# A RANDOMIZED CLINICAL STUDY TO EVALUATE THE EFFECT OF SUTURE TECHNIQUES ON POSTOPERATIVE PAIN, SWELLING AND TRISMUS AFTER REMOVAL OF THIRD MOLAR: ORIGINAL RESEARCH

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## ABSTRACT

**Back ground:**Surgical extraction of impacted tooth specially lower third molars is one of the most commonly used routine procedure in oral surgery. Surgical extraction are often associated with pain, swelling. However few authors believe suture technique can help to reduce the complications.

**Aim:**To study and evaluate the intensity of pain and swelling after the removal of impacted lower third molars comparing two different suture techniques of the triangular flap.

**Method:**60 patients were selected for the study. Patients were divided into two groups based on type of suture placed. Group 1 consisted of 30 patients treated with hermetical closure and group 2 consisted of 30 patients treated with and partial closure of the wound.

**Result:**No statistically significant differences were found to be related to pain, swelling and trismus at 48 hours and 7 days between the different suture techniques. However pain, swelling and trismus score was higher in control group as compared to test group.

**Conclusion:** Partial closure of the flap without suturing the relieving incision after surgical extraction of lower third molars can be successfully used.

**Key Words:** Suture Technique, wisdom tooth, pain, flap.

## INTRODUCTION:

Impaction of tooth especially third molars is a common condition. Extraction of an impacted tooth is often related with different degrees of difficulty in their surgical extractions.<sup>1</sup> Impacted teeth are often associated with complications like pain, swelling, pericoronitis and trismus.<sup>1,2,3</sup> However complications also exist postoperatively. A surgeon post operatively may have to deal with immediate postoperative tissue reactions, complications which are often associated with the time duration to complete the

surgical intervention and trauma occurred during surgery.<sup>4</sup>

Common postoperative complications observed are bleeding or hemorrhage, dry socket nerve injury, delayed healing and periodontal pocket formation in the distal aspect of the adjacent second molar.<sup>2,3,5</sup> various authors in the past have mentioned regarding different surgical techniques to minimize the post-operative complications. Osunde OD et al studied the effect of single suture and multiple suture techniques on inflammatory complications following third molar

surgery.<sup>6</sup>Danda AK et al compared the influence of primary and secondary closure of the surgical wound on postoperative pain and swelling after removal of impacted mandibular third molars.<sup>7</sup>

**Aim:**To study and evaluate the intensity of pain and swelling after the removal of impacted lower third molars comparing two different suture techniques of the triangular flap.

### **MATERIALS AND METHODS:**

This randomized controlled crossover clinical study was carried out in the department oral surgery. Ethical committee approval was obtained from the Institutional Ethics Committee. A written informed consent was obtained from the parents/guardian. The patients visiting the Dental OPD of ECHS Polyclinic, Danapur Cantt, Patna, in need of impaction correction were screened and 60 patients with following inclusion criteria were included for the present study.

#### **INCLUSION CRITERIA:**

- 1) Impacted lower third molar,
- 2) Those willing to participate

#### **EXCLUSION CRITERIA:**

- Patients suffering from any systemic diseases.
- Physically and mentally challenged children

Pretreatment and post treatment radiograph was obtained. Surgical extraction was done under local anesthesia, using a 4% articaine (1:100,000 epinephrine) anesthetic

solution (Septodont, France). The selected 60 patients were divided in two groups based on time type of treatment.

Group 1: with hermetical closure (n=30)

Group 2: partial closure of the wound (n=30)

Standardized discriminate score was calculated for all the 60 patients.

**Statistical Analysis:**The values obtained during each session was assessed, tabulated and subjected to appropriate statistical analysis. Paired t-tests were performed to test the null hypothesis. The levels of significance tested were  $P < .05$  and  $P < .01$ .

### **RESULT:**

A total of 60 patients in need of surgical extraction of lower third molar were selected for the current study. 60 patients were divided in different group based on the type of treatment used. Group 1 was test group consisted of 30 patients and group 2 was control group consisted of 30 patients (graph 1). Of the 60 patients included in the study 28 were males i.e. 46.6% and 32 were females i.e. 53.3%. Majority of the patients in current study were females (table 1).

Graph 2 represents that no statistically significant differences were found to be related to pain ( $p < 0.051$ ) at 48 hours and 7 days between the different suture techniques. However pain score was higher in control group as compared to test group. Graph 3 represents trismus observed in 2<sup>nd</sup> and 7<sup>th</sup> day the result showed that no significant differences for trismus was observed between the two groups. Graph 4 represents the post

operative swelling observed result showed that no significant differences for horizontal, vertical and oblique facial measurements was observed in present study.

## **DISCUSSION:**

Impacted third molars are very commonly seen.<sup>7</sup> generally patients report to oral surgeons with complaint of Swelling, trismus and pain and thus this three are considered to be the most important indicators following surgical extraction of impacted lower third molars.<sup>8,9</sup> Studies have reported that the envelope flap with sulcular incision from the first to the second molar followed by a distal relieving incision to the ramus of the mandible has been more commonly employed for the removal of the impacted third molars.<sup>10,11</sup> However every technique comes with its advantage as well as disadvantage. In present study we aimed to evaluate the intensity of pain and swelling after the removal of impacted lower third molars comparing two different suture techniques of the triangular flap.

In present study 60 patients were divided in different group based on the type of treatment used. Group 1 was test group consisted of 30 patients and group 2 was control group consisted of 30 patients. Of the 60 patients included in the study 28 were males i.e. 46.6% and 32 were females i.e. 53.3%. In our study there was no statistically significant differences were found to be related to pain, swelling and

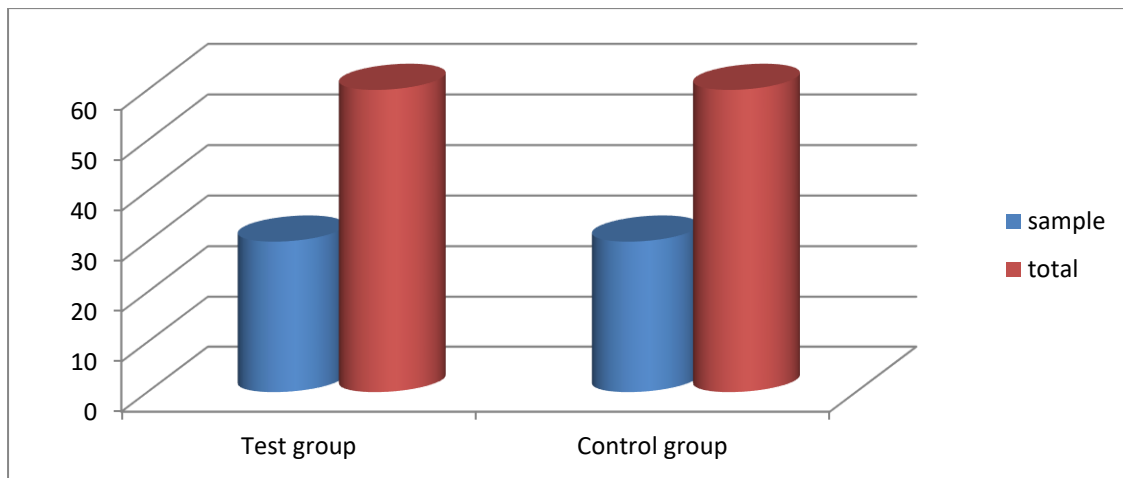
trismus at 48 hours and 7 days between the different suture techniques. However pain score was higher in control group as compared to test group. Cosme Gay-Escoda et al in their study reported that no statistically significant differences were observed for pain ( $p < 0.06$ ), trismus ( $p < 0.71$ ) and swelling ( $p < 0.05$ ) between the test and the control group. However, the values of the three parameters related to the test group were lower than those for the control group.<sup>12</sup> Osunde et al studied the role of the suture technique in relation to postoperative complications and concluded that there were no significant differences between the complete closure and a one-knot in the corner of the flap, although the group with partial closure presented a reduction in postoperative variables. Similar result was reported in our study.<sup>6</sup> whereas Maria et al in their study found a lower level of postoperative variables in the group with a secondary closure, as well as greater level of edema and the presence of hematoma in the group with a complete closure.<sup>13</sup>

## **CONCLUSION:**

Within the limits of our study we conclude that no statistically significant differences were found to be related to pain at 48 hours and 7 days between the different suture techniques. Trismus and swelling observed in 2<sup>nd</sup> and 7<sup>th</sup> day the result showed that no significant differences for trismus was observed between the two groups. However further studies with greater sample size is warranted.

**TABLE AND GRAPH:**

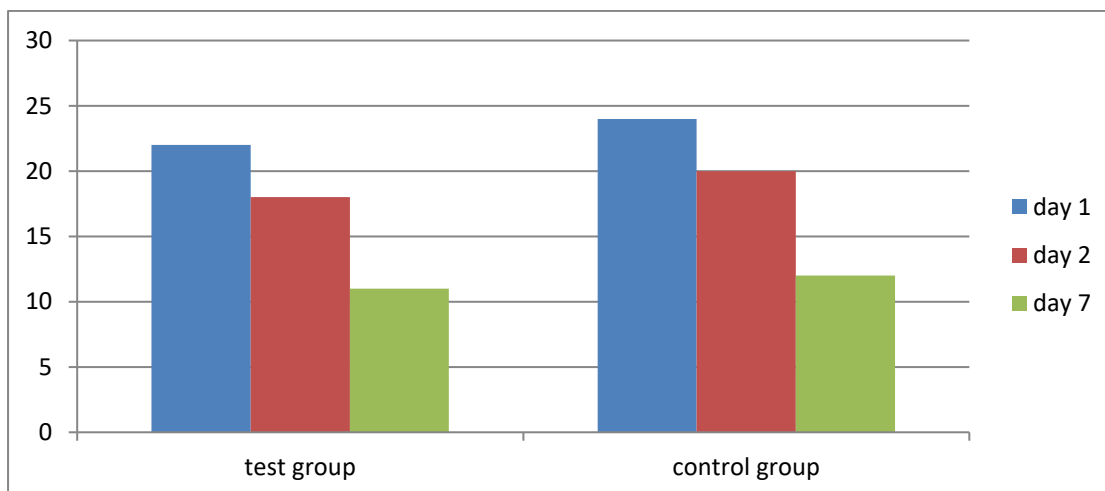
**GRAPH 1: DISTRIBUTION OF GROUP**



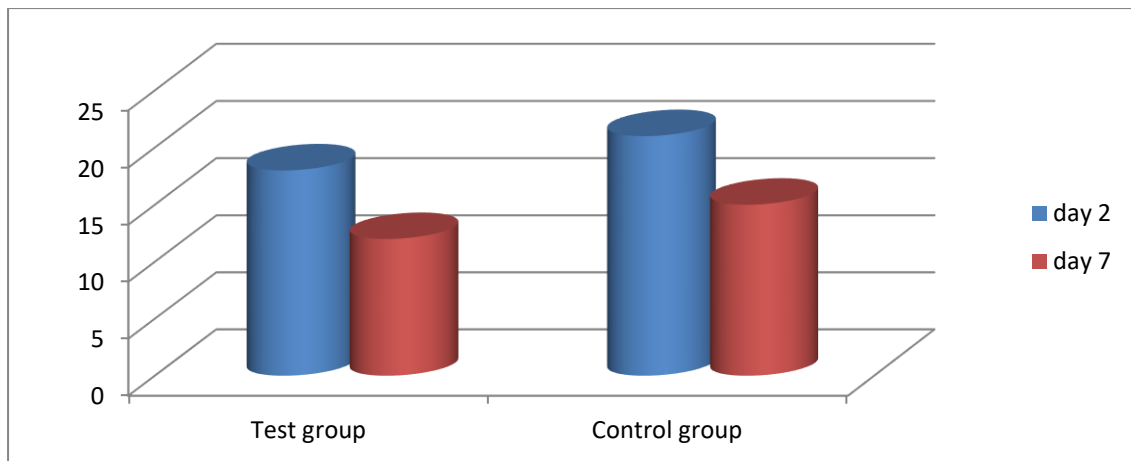
**TABLE 1: GENDER DISTRIBUTION**

Gender	Sample	Percent %
Male	28	46.6%
Female	32	53.3%
Total	60	100%

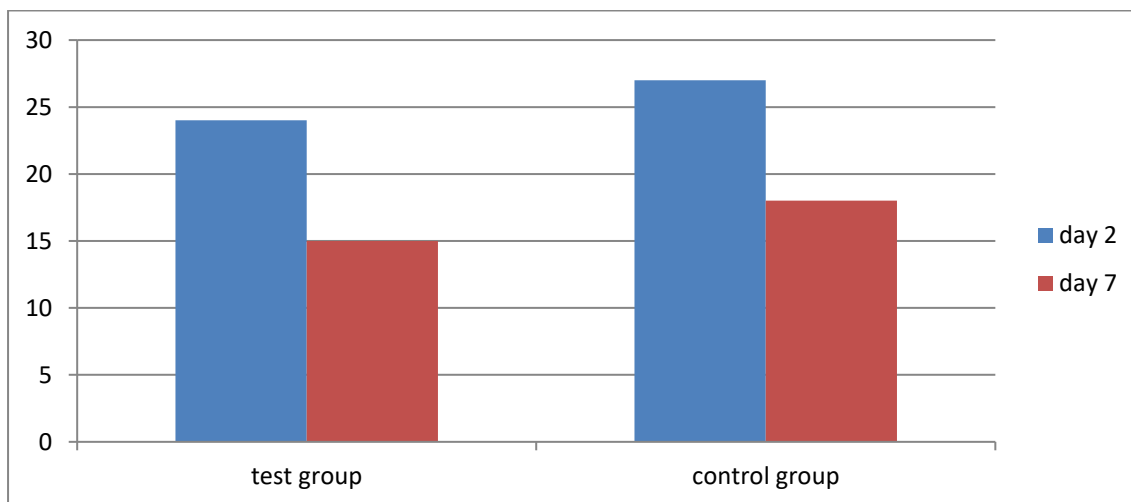
**Graph 2: pain complications observed**



Graph 3: trismus observed



Graph 4: post op swelling observed



## REFERENCES:

1. Chaparro-Avendaño AV, Pérez-García S, Valmaseda-Castellón E, Berini-Aytés L, Gay-Escoda C. Morbidity of third molar extraction in patients between 12 and 18 years of age. *Med Oral Patol Oral Cir Bucal* 2005;10:422-31.
2. Bello SA, Olaitan AA, Ladeinde AL. A randomized comparison of the effect of partial and total wound closure techniques on postoperative morbidity after mandibular third molar surgery. *J Oral Maxillofac Surg.* 2011;69:24–30. [PubMed] [Google Scholar]
3. Baqain ZH, Al-Shafii A, Hamdan AA, Sawair FA. Flap design and mandibular third molar surgery: A split mouth randomized clinical study. *Int J Oral Maxillofac Surg.* 2012;41:1020–4.
4. Dolanmaz D, Esen A, Isik K, Candirli C. Effect of 2 flap designs on postoperative pain and swelling after impacted third molar surgery. *Oral Surg Oral Med Oral*

- Pathol Oral Radiol. 2013;116:244–6.
5. Carrasco-Labra A, Brignardello-Petersen R, Yanine N, Araya I, Guyatt G. Secondary versus primary closure techniques for the prevention of postoperative complications following removal of impacted mandibular third molars: A systematic review and meta-analysis of randomized controlled trials. *J Oral Maxillofac Surg.* 2012;70:441–57.
  6. Osunde OD, Adebola RA, Saheeb BD. A comparative study of the effect of single suture and multiple suture techniques on inflammatory complications following third molar surgery. *Int J Oral Maxillofac Surg.* 2010;69:971–6.
  7. Krausz AA, Machtei EE, Peled M. Effects of lower third molar extraction on attachment level and alveolar bone height of the adjacent second molar. *Int J Oral Maxillofac Surg* 2005;34:756-60
  8. Pasqualini D, Cocero N, Castella A, Mela L, Bracco P. Primary and secondary closure of the surgical wound after removal of impacted mandibular third molars: A comparative study. *Int J Oral Maxillofac Surg.* 2005;34:52–7.
  9. Rakprasitkul S, Pairuchvej V. Mandibular third molar surgery with primary closure and tube drain. *Int J Oral Maxillofac Surg.* 1997;26:187–90.
  10. Stephens RJ, App GR, Foreman DW. Periodontal evaluation of two mucoperiosteal flaps used in removing impacted mandibular third molars. *J Oral Maxillofac Surg* 1983;41:719-24
  11. Quee TA, Gosselin D, Millar EP, Stamm JW. Surgical removal of the fully impacted mandibular third molar. the influence of flap design and alveolar bone height on the periodontal status of the second molar. *J Periodontol*1985;56:625-30.
  12. Cosme Gay-Escoda, et al Effect of the suture technique on postoperative pain, swelling and trismus after removal of lower third molars: A randomized clinical trial. *Med Oral Patol Oral Cir Bucal.* 2015 May; 20(3): e372–e377.
  13. Maria A, Malik M, Virang P. Comparison of primary and secondary closure of the surgical wound after removal of impacted mandibular third molars. *J Maxillofac Oral Surg.* 2012;11:276–83