COMMA SHAPED INCISION AND ITS INFLUENCE ON POST-OPERATIVE HEALING (PAIN AND TRISMUS) IN COMPARISON WITH STANDARD WARD'S INCISION

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ABSTRACT

INTRODUCTION: The most frequent procedure performed in the oral and maxillofacial surgical department is the surgical extraction of an impacted third molar. A minor surgical intervention with appropriate flap is frequently necessary to remove an impacted third molar.

OBJECTIVE: To determine the efficacy of comma shaped incision in comparison with standard ward's incision among patients with mesioangular mandibular third molar impaction.

MATERIAL AND METHODS: This randomized control trial was conducted at Foundation University College of Dentistry Islamabad from 9th October 2015 to 22nd November 2016. Total 116 adult volunteer subjects, 58 in each group within the age range of 18-50 years were assessed. Preoperative radiographs were obtained. Based on the lottery method, the patients were allocated arbitrarily into two equal groups. Ward's incision was given to Group A, and a comma-shaped incision was given to Group B.

RESULTS: The patients' mean age (years) was 33.81+5.03. Patients included 97 (83.6%) women and 19 (16.4) men. The effectiveness of the comma-shaped incision compared to the standard ward's incision among patients with mesioangular mandibular third molar impaction in terms of post-operative pain score at 7th day was 35 (60.3) and 21 (36.2), respectively, which was highly significant (p-value 0.009), whereas trismus at 7th post-operative day was 41mm (70.7) and 48mm (82.8), respectively, which was not significant (p-value 0.124) statistically.

CONCLUSION: We have concluded from our study that comma-shaped incisions were superior to ward's incisions in terms to lessen discomfort following mandibular third molar surgery, however, trismus in both groups was not effective.

KEYWORDS: Comma shaped incision; Post-operative healing; Standard ward's incision.

INTRODUCTION

The most frequent procedure performed in the oral and maxillofacial surgical department is the surgical extraction of an impacted third molar.[1-4]

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Third molar is often recommended to be surgically removed since it might result in discomfort, infection, persistent or acute pericoronitis, evidence of cystic lesions or tumors, extensive tooth decay, fracture, pulpal engagement, and periodontal issues.[5-9] A minor surgical intervention with appropriate flap is frequently necessary to remove an impacted third molar.[10] Due to its post-inflammatory healing response, which includes pain and trismus, its removal can be rather uncomfortable for patients.[11,12] Flap design is one of important step towards reducing post-operative complications (pain and trismus).[13] Various flaps have been devised to mitigate issues following surgery. These include the Koener's incision (envelope flap), the Ward's incision (triangular flap) and its modification, the L-shaped incision, the bayonet-shaped incision, the comma-shaped incision, and the S-shaped incision.[14] Comma shaped incision

has proved to be an efficient means to alleviate post-operative discomfort and trismus in patient undergoing surgical removal of third molar.[15] Nageshwar compared Ward's incision (a traditional triangular flap) with the comma-shaped incision and found that patients who had the comma-shaped incision experienced considerably less pain and trismus.[16] Saravana and colleges also observed that pain was absent in 60% patients with comma shaped incision on 7th day as compared with standard ward's incision in which pain was absent only in 15% patients. Similarly, mouth opening or trismus in 0% patients ≤ 35mm with comma shaped incision on 7th day as compared with standard ward's incision in which 10% patients with mouth opening ≤35.[17]

By conducting this study, we will be able to evaluate the effectiveness of comma shaped incision in preventing the post-operative complications (pain and trismus) in comparison with Standard ward's incision in Pakistani population for better treatment option which will help in patient's morbidity.

OBJECTIVE

To determine the efficacy of comma shaped incision in comparison with standard ward's incision among patients with mesioangular mandibular third molar impaction.

MATERAILS AND METHODS

Operational definitions:

Trismus: A patient will be considered to have a trismus when interincisal distance during maximum mouth opening is less than 35mm.

Efficacy: It will be considered effective when pain score on Visual analogue scale is 4 or less.

An approval from the ethical committee of Foundation university medical college and hospital Islamabad was obtained [No. FF/FUMC/17-Phy/15]. This study was conducted at outpatient department of oral and maxillofacial surgery Foundation University College of Dentistry Islamabad from Ist Oct 2015 to 30th Sep 2017. Total 116 adult volunteer subjects, 58 in each group within the age range of 18-50 years presenting to our unit's outpatient department were assessed for eligibility to participate in this clinical trial. Non-probability consecutive sampling technique was used for selection of patients. Each subject provided written informed consent. Preoperative radiographs were obtained.

The study's inclusion criteria were patients with mesioangular mandibular third molar impaction who were between the ages of 18 and 50 and of either gender. Pregnant or nursing females or patient with medically compromised condition which affect the wound repair, such as Diabetes, Anemia, patients receiving steroid medication, and patients who were unable to give informed consent were excluded. Ward's incision is described as an anterior incision that turns forward from lower second molar's dsitobuccal corner and ends next to its mesiobuccal cusp.[18] It is then prolonged distally to the external oblique ridge on buccal side. Comma Incision was defined as starting from point which is at depth of stretched vestibular reflection which is posterior to the distal aspect of proceeding second molar, the incision is made just below the second molar from which point it is smoothly bent up until it meets the gingival crest at the distobuccal line angle of the second molar.[19] The visual analogue scale was utilized to gauge post-operative discomfort before and seven days after surgery and will be effective (No Pain) when VAS is ≤ 2. The scale has been divided into 4 categories: No pain=0-2, Mild pain but no medication requires=3-4, Moderate pain that requires a mild analgesic=5-7, Severe pain that requires narcotic =8-10. Trismus was measured in millimeters preoperatively and on 7th day after surgery and will be effective when mouth opening is ≥35mm. Mouth opening was measures with sterile scale in millimeters the distance between the incisal edges of upper and lower central incisor during maximum wide opening of mouth. All the procedures were carried out by the trainee researcher himself. Based on the Lottery Method, all patients were allocated randomly into two equal groups. Ward's incision was given to Group A, while a comma-shaped incision was given to Group B. Preoperative pain assessment was done by using Visual Analogue Scale and was used preoperatively and 7th day after surgery. Trismus was calculated in millimeters preoperatively and 7th day after surgery.

The Statistical Package for Social Sciences (SPSS version 21) was used to enter and analyze the data. Means and Standard Deviations were calculated for age of patients. Frequency and percentages were calculated for pain and trismus (efficacy) in two groups. Chi–square test was applied for comparison of pain and trismus (efficacy) in two groups. P-value less than or equal to 0.05 was considered as significant.

RESULTS:

Data was entered and analyzed in SPSS version 21.0. Total 116 patients were included in this study. Likewise mean and standard deviation were used to produce descriptive statistics for the patient's age (years). Patients included 97 (83.6%) women and 19 (16.4) men, with a mean age (years) of 33.81+5.03, as shown in Table. No. 01

Table. No. 01 Descriptive statistics of patients

	Mean±SD
Age (years)	33.81+5.03

		n (%)
Gender	Male	19(16.4)
	Female	97 (83.6)

Efficacy (post-operative pain at 7th day after surgery) in both the groups was 35 (60.3) and 21 (36.2) which was highly significant (p-value 0.009), whereas trismus in both the groups was 41 (70.7) and 48 (82.8) which was not significant statistically (p-value 0.124), as shown in Table. No. 02.

Table. No. 02 Comparison of Post-Operative Pain & Trismus (7th Day after surgery) in both the groups

Clinical parameters		Two groups		Total	P-value*
		Coma Incision	Ward's Incision		
Efficacy	**Yes**	35 (60.3)	21 (26.2)	56 (48.3)	0.009
	No	23 (39.7)	37 (63.8)	60 (51.7)	
Trismus	**Yes**	41 (70.7)	48 (82.8)	89 (76.7)	0.124
	No	17 (29.3)	10 (17.2)	27 (23.30	

*P≤0.05 was taken as level of significance

DISCUSSION

In recent past it has been observed that frequency of impacted 3rd molar is increasing due to which problems associated with it have been increased. Due to increase in frequency of 3rd molar impaction problems associated with impacted teeth has also increased. 90% of individuals have third molars, and 33% of those third molars are impacted in some way. Therefore, the most typical treatment is surgical extraction of an affected tooth. Discomfort, swelling, and trismus are a few of the side effects that result from extracting an impacted lower third molar. Flap pattern is an essential component that impacts how severe these issues are. It is crucial for restoring the surgically induced defect as well as for best possible viewing and accessibility to the impacted tooth. Due to so many goals, peri- and post-operative parameters are occasionally jeopardized in the actual flap design.[20]

Triangular and envelope-shaped incisions are the two major categories utilized to expose impacted third molars. These conventional incisions have been revised by numerous practitioners but Nageshwar's (a comma-shaped incision) technique has surpassed all of them.[16] Post-operative discomfort appears as a regional swelling with variable degrees of pain. Histamine, bradykinin, and prostaglandins are among the biochemical mediators, generated as an outcome of the third molar extraction and the subsequent tissue and cellular loss, which are all implicated in the pain-processing mechanism. After administering a local anesthetic, mild to severe pain frequently appears over the initial 12 hours, reaching its peak around 6 hours. Pain will subside after a

few days if the incision heals appropriately.[20] Comparable to what was observed in Nageshwar's study, comma incision yielded lower pain than typical incision sides.[21]

Trauma and contamination are the primary contributors to the development of post-operative edema. The common cause of the early post-operative swelling is the soft and hard tissue damage brought on by oral surgeries. It appears obvious by 19 to 24 hours, then after 7 days, it begins to disappear. The degree of operational trauma, suturing, gender, level of activity, drugs, hour of the day, and flap pattern constitute a few of the elements that affect how pain and edema manifest.[20] the swelling around the comma incision was minimal comparatively.

With ages ranging from 18 to 40, the mean age (years) in our investigation was 33.81+5.03. In contrast, the mean age in years in an investigation by Shahzad et al.[22] was 23.46±3.34. Male and female patients made up (69) 0.69% and (31) 0.31% correspondingly of the overall total of patients, according to a research carried out in 2013.[2]

In our study, the comma-shaped incision group's efficacy in terms of post-operative discomfort at the 7th day after surgery was 60.3% and 36.2% in the standard ward's incision group. Similar findings were made by Saravana et al[20], who found that the efficacy of pain was only 40% on the 7th day after a comma-shaped incision as opposed to 85% after a conventional ward's incision.

In a 2013 study, trismus was not noticed in the comma-shaped incision group on day 7, but it was 10% more prevalent in the conventional ward's incision group with mouth opening ≤35mm. Similar to this, in the current study, Trismus (post-operative pain after 7 days following surgery) was 70.7% and 82.8% in the two groups, respectively.

CONCLUSION

The results of this investigation suggest that comma-shaped incisions were superior to ward's incisions in terms of their ability to lessen discomfort following mandibular third molar surgery, making them a better option for addressing patients' morbidity. However, trismus in both the groups was not effective.

AUTHORS CONTRIBUTION:

1. Khurram Waqar Khan—Conception of study, data collection
2. Aasiya Javed------ Data collection, acquisition
3. Muhammad Masood Khan----- Literature review, conception and critical review
4. Mehmoona Rehman-------- Conception, data entry, analysis
5. Saima Rahat-------- Literature review, data analysis, formatting
6. Tahir Ullah Khan------ Critical analysis, statistical analysis, formatting, submission

CONFLICT OF INTERST

All authors declare no conflict of interest.

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