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Original Research

Comparative Analysis of post operative outcome in Impacted Mandibular Third Molar Extraction by Using Standard Ward's Incision and Comma Shaped Incision

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ABSTRACT:
Objective: To compare the postoperative results of the Ward's incision with the typical Comma Shaped incision in the surgical removal of an impacted mandibular third tooth. **Materials and Techniques**: 100 individuals with an impacted third molar in the mandible were chosen for the research. Two groups of patients were created. There are fifty patients in each group. Following the usual procedures for extracting impacted third molars, a regular Ward's incision was performed on one set, and a Comma incision was created on another group to represent the mucoperiosteal flap. On the first, third, and seventh postoperative days, the postoperative parameters were promptly recorded. Student t test and Chi square were employed for bivariate analysis. The 5% threshold of significance was used. **Results:** On days 1, 3, and 7, the surgical region with Comma incisions was shown to have considerably lower pain and edoema scores than the area where normal Ward's incisions were created. On the first postoperative day, there was a sufficiently noticeable difference in mouth opening between the two incisions, but on days 3 and 7, there was no statistical significance. **Conclusion:** Considering the lower level of postoperative problems, the Comma Shaped incision design was preferred to the traditional Ward's incision.
Key words: Third Molar, Oral Surgery, Impacted Tooth, Postoperative Complications

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INTRODUCTION

In 33% of the population, at least one third molar will be impacted, necessitating surgical removal; as a result, disimpaction is one of the most frequently performed procedures [1]. Impaction is defined as the cessation of a tooth's eruption caused by a physically detectable physical barrier in the eruption path or by the tooth's ectopic position. The majority of teeth that are impacted in the oral cavity are lower third molars [2]. The excision of an impacted lower third molar will result in a long list of adverse reactions, including as discomfort, edoema, inflammation, and trismus [3]. Occasionally, impacted mandibular third molar teeth don't create any symptoms, and the oral surgeon can only tell if they are affected by looking at the regular dental x-ray. However, when a person gets older, they might trigger a variety of issues, including discomfort on the afflicted side of the jaw (unilaterally or bilaterally), edoema, pericoronitis, trouble opening the mouth, etc. [4,5]. For clear vision, access to the impacted tooth, and healing of the surgically created defect, flap design is crucial. The flap has been raised using a variety of incisions, including the Ward's incision, a modified Ward's incision, an envelope, a "S"-shaped incision (Bould Henry), and more [6].

Flap design is crucial for repairing the medically

caused defect after the surgery as well as for providing the best view and access to the impacted tooth. With so many goals, the actual flap design occasionally necessitates a compromise between pre- and post-operative factors [7]. A suture placed between the buccal and lingual soft tissues can be used to seal a Ward's or modified Ward's incision, which is more often utilised and has been found to give excellent visual and mechanical access [8]. The suture is frequently put on a bone defect rather than on healthy bone, which may cause extra discomfort. Delayed healing is also sometimes observed [9]. However, when a releasing incision is performed, a tiny buccal artery is occasionally detected.

The purpose of this study was to examine the postoperative problems of two distinct flap designs used in the extraction of impacted mandibular third molars. In this study, the factors for comparing the two flap designs were discomfort, swelling, and mouth opening.

STUDY DESIGN, MATERIALS AND METHODS, AND SAMPLE

This experimental investigation, which had a cross-sectional design and was conducted in a hospital, involved 100 patients. The study comprised patients with healthy dental hygiene, impacted mandibular third molars or partly erupted third molars, without any signs of discomfort or edoema. Patients with severe pericoronitis, those using any drugs, pregnant women, those with poor health, and those without their mandibular second molars were all eliminated.

DATA GATHERING

A subjective rating of the patient's nociceptive experience using a visual analogue scale from 0 to 10 was utilised to measure discomfort in the comparison of two flap designs [10]. The Tragus notch and reproducible soft tissue pogonion along the skin surface, the angel of the mouth, the ala base, the Tragus notch to the outer surface on the lateral wall of the eye, and the Angel of the mandible to the outer surface on the lateral wall of the eye were used to measure the extent of the swelling. Mouth opening was examined by measuring the greatest inter incisal distance with the use of centimetre scale. Calculations were made to determine the percentage difference between postoperative and preoperative readings.

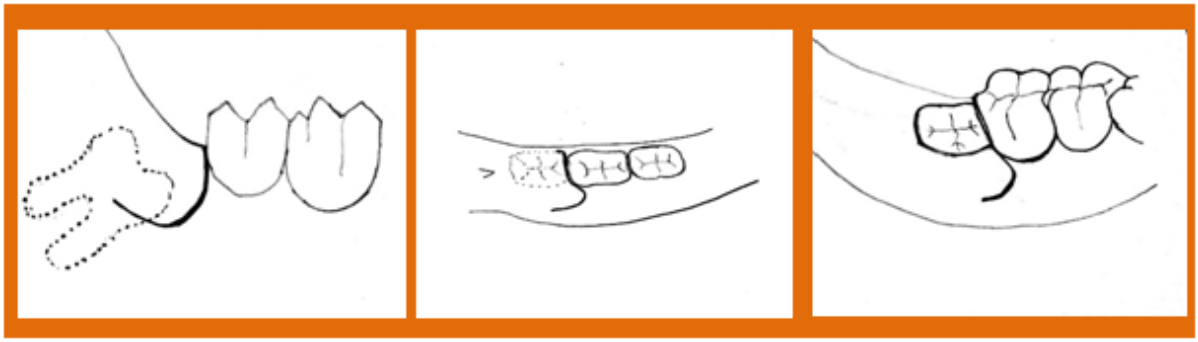
Using an orthopantomogram, the location, class, and depth of the impacted teeth were evaluated. measures of mouth opening, discomfort, and edoema taken before to surgery. Under local anaesthetic, the affected third molar on one side of the mandible was surgically removed. On Group A patients (N = 50), a standard Ward's incision was performed, while on Group B patients (N = 50), a comma-shaped incision was created. For the incision, patients were picked at random. On days 1, 3, and 7, respectively, postoperative measures of discomfort, swelling, and mouth openness were taken. For the parameters that were examined, the surgical complications and follow-up of patients on days 1, 3, and 7 were noted.

Flap Patterns • Common Ward's Incision: Anterior incision begins at the distobuccal corner of the lower second molar's crown and curves forward until it reaches the tooth's mesiobuccal cusp. The incision is then carried distally to the external oblique ridge, level with the buccal side of the tooth. One of the blades from a pair of scissors can be put onto the surfaces of the bone if the anterior portion of the flap is lifted from the bone, and the blades can be closed to seal the incision. Given that the ascending ramus is located on the lateral side of the mandibular body, the posterior portion of the incision must slope outward as well as backward (Figure 1).

Figure1: Standard Ward's Incision different view

• Comma Incision: Starting from a place posterior to the distal portion of the preceding second molar and at the depth of extended vestibular reflection, the incision is made in an anterior direction. The gingival crest is met at the second molar's distobuccal line angle after the incision is performed to a position below the second molar. The second molar's distal side is circled by a crevicular incision that continues the first incision (a distolingually based flap). Following reflection of the flap, the buccal and lingual mucosa are retracted, which is a standard procedure for removing impacted third mandibular molars. The Rugieme end of Howarth's elevator protects both the lingual nerve and the lingual mucoperiosteum. Using a surgical bur with a straight shank (703) and enough saline irrigation, the tooth's surrounding bone is first exposed. 3/0 Braided silk sutures were used to stitch up the flap (Figure 2).

Figure2: Comma Incision in different view



Patients received postoperative instructions in addition to a standard antibiotic regimen that included the following: 1) Capsule Cefixim 200mg BD x 7 days; 2) Tablet Metronidazole 400mg TDS x 7 days; 3) Tablet Ketorolac 10mg TDS if pain occurred after meals; 4) Capsule Omeprazole 20mg BD if pain occurred prior to meals; and 5) Mouthwash Viodin 1% Gargle 4-5

ANALYSIS OF DATA

Version 20 of IBM SPSS Statistics for Windows software was used to analyse the data (IBM Corp., Armonk, NY, USA). The absolute and relative frequencies were calculated using descriptive statistics. Student t test and Chi square were employed for bivariate analysis. The 5% threshold of significance was used.

RESULTS

Out of 50 instances in Group A, 22 did not erupt and 28 did so just partly. Out of 50 instances in Group B, 19 did not erupt and 31 did so partly. 42% of patients with surgical extractions using normal Ward's incisions were reported to be in significant pain on day 1, compared to just 14% of subjects with extractions utilising comma incisions. On assessing the discomfort on day 1, it was discovered that there was a very statistically significant difference between the two types of incisions (p = 0.001). Similar to this, 6% of patients who had their teeth extracted using normal incisions experienced significant pain, while no patient who had their teeth out using comma incisions did (p = 0.001).

Table1: Subjective evaluation of discomfort in relation to comma and standard incision.

Pain	Standard Wards N	%	Comma shaped N	%	p-value
Preoperative					
Absent	50	100.0	50	100.0	1.000
Mild	-	-	-	-	
Moderate	-	-	-	-	
Severe	-	-	-	-	
Day1					
Absent	-	-	-	-	0.00
Mild	2	7.0	20	36.0	
Moderate	27	53.0	23	44.0	
Severe	21	42.0	7	14.0	
Day3					
Absent	-	-	-	-	0.00
Mild	13	26.0	11	27.0	
Moderate	25	48.0	29	54.0	
Severe	12	24.0	12	21.0	
Day7					
Absent	9	18.0	30	60.0	0.00
Mild	26	52.0	20	40.0	
Moderate	11	22.0	-	-	
Severe	4	8.0	-	-	

When comparing the swelling on day 1 between the two types of incisions, it was discovered that there was no statistically significant difference between them (p = 0.527). On the third day, only 12% of patients who had extractions utilising comma incisions showed significant edoema compared to 26% of patients who had extractions using normal incisions (p=0.025). Day 7 revealed a statistically significant difference between the two groups (p = 0.046).

Table2: Comparison of standard incision with comma incision in relation to swelling.

Pain	Standard Ward's		Comma Shaped		p-value
	N	%	N	%	
Preoperative					
Absent	50	100.0	50	100.0	1.000
Mild	-	-	-	-	
Moderate	-	-	-	-	
Severe	-	-	-	-	
Day 1					
Absent	-	-	-	-	0.456
Mild	6	12.0	4	8.0	
Moderate	22	44.0	34	68.0	
Severe	21	42.0	11	24.0	
Day 3					
Absent	-	-	4	8.0	0.011
Mild	11	22.0	18	34.0	
Moderate	24	54.0	22	44.0	
Severe	12	24.0	8	10.0	
Day 7					
Absent	16	32.0	31	63.0	0.03
Mild	25	50.0	15	30.0	
Moderate	9	18.0	4	6.0	
Severe	-	-	-	-	

On day 1, the mouth openness was 22% on the side with the standard incision, but only 4% of the patient's interincisal distance measurement was within this range on the side with the comma incision. On comparing the mouth opening on day 1, it was discovered that there was a very statistically significant difference between the two incisions ($p = 0.000$). On days 3 and 7, there was a clinical difference between the two incisions, but no statistically significant difference was found.

Table3: Comparison of the two incisions with respect to mouth opening.

Mouth Opening (mm)	Standard Ward's		Comma Shaped		p-value
	N	%	N	%	
Preoperative					
55 - 50	13	26.0	12	24.0	1.00
49 - 45	22	44.0	24	48.0	
44 - 40	15	30.0	14	28.0	
39 - 35	-	-	-	-	
34 - 30	-	-	-	-	
29 - 25	-	-	-	-	
Day 1					
55 - 50	-	-	-	-	0.000
49 - 45	-	-	-	-	
44 - 40	4	8.0	8	16.0	
39 - 35	11	22.0	24	48.0	
34 - 30	24	48.0	16	32.0	
29 - 25	11	22.0	2	4.0	
Day 3					
55 - 50	-	-	2	4.0	0.096
49 - 45	6	12.0	8	16.0	
44 - 40	21	42.0	26	52.0	
39 - 35	23	45.0	14	28.0	
34 - 30	-	-	-	-	
29 - 25	-	-	-	-	
Day 7					
55 - 50	5	10.0	15	30.0	0.052
49 - 45	23	46.0	28	56.0	
44 - 40	17	34.0	7	14.0	
39 - 35	5	10.0	-	-	

34 - 30	-	-	-	-	
29 - 25	-	-	-	-	

DISCUSSION

Triangular and envelope-shaped incisions can be utilised to reveal third molars that have become impacted. All incisions extend posteriorly from the distal side of the previous second molar, towards the ascending ramus, regardless of changes in the anterior end of the incisions. Several surgeons have altered the typical incisions. Nageshwar created the comma-shaped incision, which has outperformed the traditional incision [1].

After third molar surgery, postoperative discomfort manifests as a localised inflammation with variable degrees of pain. Histamine, bradykinin, and prostaglandins are three biochemical mediators implicated in the pain process that are released and produced as a result of the removal of the impacted third molar and the ensuing tissue and cellular death [11].

When a traditional local anaesthetic is applied, moderate to severe pain often appears during the first 12 hours, with the peak severity appearing after about 6 hours. If the wound heals normally, the discomfort then gradually goes away within a few days [12]. Similar to earlier findings [1], comma incision sides were associated with lower pain levels as compared to regular incision sides.

In this study, 42% of participants who underwent surgical extractions using regular Ward's incisions experienced severe pain on day 1, but only 14% of those who had extractions utilising comma incisions experienced severe pain on day 1. Similar to how 6% of patients who had their teeth extracted using regular Ward's incisions experienced significant pain, no patient who had their teeth extracted using comma-shaped incisions experienced severe pain on day seven.

Trauma and infection are the two primary causes that contribute to the development of postoperative edoema. The early postoperative edoema is often caused by the soft and hard tissues that are damaged during oral surgical procedures. After 19 to 24 hours, it is most noticeable, and after around 7 days, it starts to fade [13].

The ability of the surgeon, the severity of the surgical trauma, suturing, age, sex, medication, time of day, and the design of the local flap are some of the variables that determine the occurrence of pain and swelling [3,14,15]. When compared to the area where the standard Ward's incision was made, the swelling in the area with the comma incision was less. These findings added to those of an earlier research [1]. In our investigation, swelling was a significant problem that was more prominent in regular Ward's incisions than in comma-shaped incisions in the first and seventh postoperative days.

Comparing the comma-shaped incision to the usual Ward's incision, it was discovered that fewer participants with restricted mouth opening had to deal with it, which was consistent with earlier findings [1]. Numerous research have reported on how trismus and pain are related. An electromyographic investigation that indicated that reduced mouth opening was a purposeful movement to avoid discomfort [16] supported this theory. Coma-shaped incisions are smaller than typical Ward's incisions and require less tissue manipulation, which may have reduced inflammation and postoperative discomfort [17].

In this study's postoperative mouth opening evaluation, comma-shaped incisions were associated with the greatest mouth opening. In 1 and 7 postoperative days, the mouth opening was the smallest when using the standard Ward's incision.

CONCLUSION

With no postoperative problems, the novel incision design proved superior to the traditional Ward's incision.

REFERENCES

1. Nageshwar. Comma incision for impacted mandibular third molars. J Oral Maxillofac Surg 2002;60(12):1506-9.https://doi.org/10.1053/joms.2002.36152
2. MacGregorAJ. Theimpactedlowerwisdomtooth.OxfordandNewYork:OxfordUniversityPress,1985. 206pp.
3. Sisk AL, Hammer WB, Shelton DW, Joy ED Jr. Complications following removal of impacted thirdmolars:Theroleoftheexperienceofthesurgeons.J OralMaxillofacSurg1986;44(11):855-9.https://doi.org/10.1016/0278-2391(86)90221-1
4. Pasha Z, Naqvi ZA, Shaikh S, Khan N. A comparative evaluation of coma Shaped incision with standard incision in mandibular third molar surgery: A clinical Surgy.JOrofacRes2015;5:12-17.
5. Wikipedia.Wili/Toothimpaction.Availableat:https://en.wikipedia.org/wili/tooth_impaction.[AccessedonMarch,162019].
6. Suarez-CunqueiroMM, GutwaldR, ReichmanJ, Otero-CepedaXL, SchmelzeisenR. Marginal flap versus Paramarginal flap in impacted third molar surgery: A prospective study. Oral Surg Oral MedOral PatholOralRadiolEndod2003;95(4):403-8.
7. García García A1, Gude Sampedro F, Gallas Torrella M, Gándara Vila P, Madriñán-Graña P, Gándara-Rey JM. Trismus and pain after removal of a lower third molar. Effects of raising a mucoperiosteal flap.MedOral 2001;6(5):391-6.
8. HoweGL.MinorOralSurgery.3rd.ed.Oxford:Wright,1997.
9. PetersonLJ, EllisE, HuppJR, Tucker MR. Comtemporary Oral and Maxillofacial Surgery.4th.ed.StLouis: CVMosby, 2003. 800pp.
10. BergeTI. The use of a visual an aloguescale in

observer assessment of post operative swelling subsequent to third mola rsurgery. Acta OdontolScand1989;47(3):167-74.
11. SeymourRA, WaltonJG. Pain control after third molar surgery.IntJOralSurg1984;13(6):457-85.
12. ChapmanPJ. Post operative pain control for out patient oral surgery. IntJ Oral Maxill of acSurg1987;16(3):319-24.
13. HanzF, AndersH, BjornJ, LeonardK. Effect of application of cold dressing on the post operative course in oral surgery. Int J Oral MaxillofacSurg1985;14(3):223-8. https://doi.org/10.1016/S0300-9785(85)80032-6
14. Arta SA, Kheyradin RP, Mesgarzadeh AH, Hassanbaglu B. Comparison of the influence of two flap designs on periodontal healing after surgical extraction of impacted third molars. JDentResDentClinDentProspect2011;5(1):1-4.https://doi.org/10.5681/joddd.2011.001
15. Briguglio F, Zenobio EG, Isola G, Briguglio R, Briguglio E, Farronato D, Shibli JA. Complications insurgical removal of impacted mandibular third molars in relation to flap design: Clinical and statistical evaluations. Quintessence Int 2011;42(6):445-53.
16. PedersenA. Inter relation of complaints after removal of impacted mandibular third molars.IntJOralSurg1985; 14(3):241-4.
17. Agarwal S, Kukreja P, Gupta D.S, Kharc G, Satish K, Khan M. Comma shaped incision – An alternativeprocedureforremovalofimpactedlower3rd molar.TMUJDent2018;5(1):8-12.