



## ASSESSMENT OF SWELLING IN PATIENTS AFTER EXTRACTION OF IMPACTED THIRD MOLARS.

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**Article received on:**  
14/02/2018  
**Accepted for publication:**  
06/05/2019  
**Received after proof reading:**  
25/06/2019

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**ABSTRACT...** To assess swelling after surgical extraction of impacted mandibular third molar using two different techniques i.e. comma incision and standard Wards incision. **Study Design:** Cross sectional study. **Setting:** Dental OPD of Isra Dental College, Isra University. **Period:** February to August 2017. **Materials and Methods:** A sample of 70 patients with impacted third molar was selected by non-probability purposive sampling. Patients were distributed in either conventional technique or by coma shaped incision groups. All procedure was carried out at the Department of Oral surgery, Isra Dental College Hospital. Post-operative measurement of swelling was measured on 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> day respectively. **Results:** Mean  $\pm$  SD was noted as 28.70  $\pm$  3.89 years respectively. Age distribution was from 20 – 35 years. Gender distribution in group A was 11 (31.4%) males and 24 (68.6%) females while in group B was 17 (48.5%) males and 18 (51.5%) females respectively with  $X^2 = 2.14$  and  $p = 0.22$ . Swelling was measured after surgical extraction at day 1, day 3 and day 7. **Conclusion:** The results of this study showed that the swelling was to some extent reduced in the Coma incision in comparison to the standard Ward`s incision. Further research with newer flap designs like the comma design, which might lessen the post-operative problems, ought to be measured in the extraction of impacted third molar surgery.

**Key words:** Coma Incision, Extraction, Impacted Third Mandibular Molar, Standard Ward`s Incision, Swelling.

**Article Citation:** Shaikh AA, Shahid H, Hassan S. Assessment of swelling in patients after extraction of impacted third molars. Professional Med J 2019; 26(7):1079-1083. DOI: 10.29309/TPMJ/2019.26.07.3771

### INTRODUCTION

The most common and traumatic practice done in the dental setting and in oral maxillofacial field is the extraction of third molars. Consequently this leads to several post-operative complications' including swelling as this area is primarily structured by loose connective tissue.<sup>1-10</sup> Later, a sequence of structural and functional variations is anticipated between the discharge of exudate and consequent swelling. For that purpose a less invasive procedure is very necessary to control the related indications and the postoperative swelling.<sup>1,11,12</sup> The post-operative symptoms also rest on different aspects for example the surgeon's experience, bad oral hygiene, the extent of ostectomy, how difficult and invasive the surgery was, impaction type, position of inferior alveolar nerve, the medications used pre op and the entire length of the surgery.<sup>13-15</sup>

Appropriate planning post operatively as well as the principles and technique of surgery is of extreme significance for reducing the frequency of complication in the surgical removal of mandibular third molar.<sup>16,17</sup> In todays practice several different kinds of conventional flaps are used however they are most commonly linked by post-operative complications which includes swelling.<sup>18</sup> Flap designs define removal of tooth, access, optimal visibility and consequently the healing. Conversely, Comma incision is known to have a reduced frequency of swelling and pain.<sup>18</sup>

The purpose of this study is to relate standard ward incision with coma incision and subsequently assess the swelling following removal of mandibular third molar.<sup>18</sup>

### OBJECTIVES

To assess swelling using standard Wards incision

and comma incision in surgical removal of impacted mandibular third molar.

## MATERIALS AND METHODS

Seventy patients were selected in this cross sectional study of the general population, out of which 35 were males and 35 were females respectively. Patients visiting the Dental OPD of Isra dental college, Isra University from February to August 2017 were enlisted. In our non-probability purposive sampling study, we included all patients with impacted mandibular third molars of either side, 20 – 35 years old patients were also included. Patients excluded were patients having severe pericoronitis, patients having vertical, horizontal and disto-angular impactions, pregnant women, systemic disorders and patients having restricted mouth opening. SPSS version 22 was used to analyze the data. The purpose was to use comma incision and standard Wards incision and subsequently assess swelling in surgical removal of impacted mandibular third molar. Two groups were made i.e. standard ward incision and comma incision and patients were equally distributed in it. Prior to the study, the ethical approval for this study was obtained from the ethical review board of the institute and written consent form was obtained from the patients. Swelling was determined by tape measurements between the tragus and soft tissue pogonion. Swelling was calculated by formula as under

$$\frac{(\text{Postoperative measurement}) - (\text{preoperative measurement}) \times 100}{\text{Preoperative measurement}}$$

Post-operative measurement of swelling was measured on 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> day respectively.

## RESULTS

The present study was conducted at the Department of oral surgery, Isra Dental College. The study was done to compare the standard Ward (Group A, n=35) and comma incision (Group B, n=35) for the assessment of swelling after extraction of impacted mandibular third molar tooth.

Mean  $\pm$  SD age was noted as 28.70  $\pm$  3.89. Age

distribution was from 20 – 35 years of age and is shown in Table-I. Gender distribution in group A was 11 (31.4%) males and 24 (68.6%) females while in group B was 17 (48.5%) males and 18 (51.5%) females respectively with  $X^2 = 2.14$  and  $p = 0.22$  as shown in Table-II.

Frequency of swelling (pre-operative) was determined by tape measurements between the tragus and soft tissue pogonion. Pre-operatively there was no swelling.

Frequency of Post-operative swelling on Day 1 is shown in Table-III. Mean  $\pm$  SD swelling in Group A (Ward`s incision) and Group B (Coma incision) was noted as (11.13  $\pm$  6.08 and 7.21  $\pm$  2.42 mm) respectively. Comma incision patients showed less swelling on day 1. Statistically significant difference between groups was seen (t value =12.94 and  $p=0.001$ ).

Frequency of Post-operative swelling on Day 3 is shown in Table-III. Mean  $\pm$  SD swelling in Group A (Ward`s incision) and Group B (Coma incision) was noted as (8.95  $\pm$  6.09 and 7.11  $\pm$  3.07 mm) respectively. Statistically there was no significant difference between groups (t value =1.29 and  $p=0.20$ ).

Frequency of Post-operative swelling on Day 7 is shown in Table-III. Mean  $\pm$  SD swelling in Group A (Ward`s incision) and Group B (Coma incision) was noted as (2.41  $\pm$  3.21 and 2.18  $\pm$  2.23 mm) respectively. Statistically there were no significant difference between groups (t value =0.29 and  $p=0.70$ ).

## DISCUSSION

Commonest condition seen in the clinic is patients with impacted third molar. Consequently this leads to the extraction of the tooth and is easily the most common surgical treatment been carried out.<sup>16,19,21</sup> Impaction of the tooth is defined as “defective eruption of a tooth caused by clinically or radio logically evident anatomical barrier in its eruption pathway or due to its ectopic position”.<sup>22</sup> 33% of the population is reported to have an impacted third molar.<sup>23</sup> Of all the impacted teeth, lower jaw third molars covers majority of impactions.<sup>24</sup>

Age	Incision Design		Total
	Standard Ward	Comma	
20	0	1	1
21	1	0	1
22	4	1	5
23	1	1	2
24	2	1	3
25	2	2	4
26	2	3	5
27	1	2	3
28	4	3	7
29	1	5	6
30	3	3	6
31	3	4	7
32	2	3	5
33	5	5	10
34	2	1	3
35	2	0	2
Total	35	35	70
Mean	28.70 ± 3.89		

Table-I. Age distribution of study population (n=70)

	Male	Female	X <sup>2</sup>	P-value
Group A. Standard Ward's incision	11 (31.4%)	24 (68.6%)	2.14	0.22
Group B. Coma incision	17 (48.5%)	18 (51.5%)		

Table-II. Gender distribution of study population (n=70)

Impacted third molars surgical extraction is quite perilous as its leads to different post-operative complications which can include fracture of the mandible, TMJ joint injury, adjacent tooth injury, tooth displacement, dentoalveolar fracture, bleeding, ulceration, nerve damage, alveolar osteitis (dry socket), trismus, infection, pain and swelling.<sup>17,20,25</sup>

For surgical impaction of impacted tooth flap design is of paramount importance consequently followed by healing of the wound. For surgical flap formation various incisions have been

practiced, among them are Bould Henry 'S'-shaped incision, envelope (Koener's) incision, Modified Ward's incision and Standard Ward's incision etc.<sup>26-31</sup> In surgical practice, Ward's and Modified Ward's incision is commonly been done. Perfection of Ward's and Modified Ward's incision rests in their mechanical ease, easy closure and exceptional perceptibility by closing in the middle of the lingual and buccal soft tissues.<sup>32-34</sup>

Our study showed more females (60%) as compared to males (40%) which is in contrast to a study done by Pasha et al who reported less females as compared to males<sup>32</sup> and by Kumar et al who also reported less females as compared to males.<sup>34</sup> Post-operative swelling on day 1, 3 and 7 showed better swelling grading in Comma incision compared to standard Ward's incision. These findings are consistent to studies done by Juodzbalys et al, Nageshwar and Kumar, S.<sup>18,32,34</sup>

Trauma and infection are the main etiological factor for post-operative swelling. The damage to tissue which is associated with oral surgical procedure is the usual causes of initial post-operative swelling. It is most marked after 19 to 24 hrs. and then decline after about seven days.<sup>32</sup> The results of present study are inconsistent Hashemi et al as regards the swelling on days 3 and 7.<sup>35</sup> Arta et al and Yazdani had reported no statistically difference between the two types of incision. These findings are in contradiction to present study. Although flap design is not similar to the present study but the results showed that the flap design does not influence the post-operative swellings.<sup>36,37</sup>

## CONCLUSION

The results of this study showed that the swelling was somewhat reduced in the Coma incision in comparison to the standard Ward's incision.

N = 70	Swelling				
		Group A Standard Ward Incision	Group B Comma Incision	t- Value	P-Value
Pre-Operative	Mean ± SD	00	00	--	--
Day 1	Mean ± SD	11.13 ± 6.08	7.21 ± 2.42	12.94	0.001
Day 3	Mean ± SD	8.95 ± 6.09	7.11 ± 3.70	1.29	0.20
Day 7	Mean ± SD	2.41 ± 3.21	2.18 ± 2.23	0.29	0.70

Table-III. Assessment of swelling (mm) in study population (n=70)

Further research with newer flap designs like the comma design, which might lessen the post-operative problems, ought to be measured in the extraction of impacted third molar surgery.


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2	Hassan Shahid	Write up, Data analysis, References, Formatting / Proof reading.	
3	Sadia Hassan	Data collection, Literature search / review.	