Original Research

Comprehensive Questionnaire Based Assessment of Various Clinical Parameters Pertaining To Mandibular Impacted Third Molar Surgery: An Original Research Study

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Abstract

Background and Aim: Mild to severe complication are typically expected and seen in the post-operative phase of mandibular third molar surgeries. However, timely identifications and precise management of these dilemmas can minimize patient problems and discomfort. Therefore this study was designed and conducted assess various clinical parameters pertaining to mandibular impacted third molar surgery.

Materials & Methods: Total 50 patients were selected by simple random sampling procedure wherein both male and female patients were included in the study in the age range of 25 years to 40 years. Different clinical parameters were asked in post-operative phase like pain, swelling, inflammation, discharge, trismus, weakness. A questionnaire containing 6 questions were given to the patients in their one week follow-up period of mandibular impacted third molar surgery. Written and signed informed consent was obtained from all participating patients individually. P value less than 0.05 was considered as significant.

Statistical Analysis and Results: Statistical analysis was completed by SPSS software. Total 30 male and 20 female patients were studied in detail for their responses. 18 patients agreed that they had sense of pain after the surgery (1 week). Total 38 patients complaint of swelling in the operated area (1 week). 30 patients showed the signs of inflammation in the nearby areas 1 week). P value was highly significant for question number 4, 5 and 6. They were 0.010, 0.001 and 0.002 respectively for last three questions. ANOVA analysis for between questions, within questions and cumulative revealed highly significant p value (0.002).

Conclusion: Authors concluded that some complications have been extensively reported by most of the patients like swelling of surgical site, difficulty in mouth opening/trismus and general body weakness. Hence, post-operative recall follow-up is of greatest importance in mandibular third molar impaction surgeries. Authors also expect other long term future studies with larger sample and comprehensive analysis.

Keywords: Impacted Third Molar, Oral surgery, Questionnaire, Survey, Swelling, Pain

Introduction

Third molar impaction is highly common and troublesome in young age group. Many evidence based studies in the literature have shown that the relative prevalence of third molar impaction ranges in between 17%-69% in different populations.[1-4] Oral surgeons usually do not encounter difficulty during impaction surgery. However, they frequently face post operative complications in the post operative phases. There are several complications are reported by patients ranging

from mild to severe.[5-9] Some of the common complications are bleeding, pain, pus discharge, general body weakness, difficulty in opening mouth dry sockets, infection and trauma to inferior alveolar nerve, fracture of root, fracture of body of mandible, trauma to adjacent soft tissue, trauma to adjacent tooth, inflammations.[10-14] These events must be identified at early stage and addressed precisely. Therefore this study was designed and conducted assess various clinical parameters pertaining to mandibular impacted third molar surgery. Authors utilized questionnaire survey modality to collect the relevant data and formulate results.

Materials & Methods

This study was abstracted and executed in the department of dentistry of the college wherein predetermined factors were evaluated from studied patients. For the selection of efficient samples, simple random sampling procedure was employed. Initially patients undergoing impacted third molar surgery were screened and identified. However, after applying inclusion and exclusion criteria, the final sample size was reduced to 50 patients only. Inclusion criteria included patients devoid of any underlying medication, patients with no follow up issue, patients without any ongoing critical systemic disorder, patients representing typical mesioangular third molar impaction in mandibular arch without any unusual associated symptoms. Both male and female patients were included in the study in the age range of 25 years to 40 years. Authors ensured to include the patients those treated by single operatory team with identical surgical methodology. The study proceedings were explained to all participating patients. Patients were selected well before their third molar surgery. Various clinical parameters were asked from all studied patients in their post operative phase. Responses like pain, swelling, inflammation, discharge, trismus, weakness were evaluated. Data related to all these clinical factors were compiled through a preset Questionnaire. Thus Questionnaire contains 6 formulated questions about pain, swelling, inflammation, discharge, trismus, weakness. Patients were recalled after one week of surgery to evaluate the current status of wound healing and associated host responses. The Questionnaire was given to all 50 patients in their one week post operative phase and asked to respond honestly. Written and signed informed consent was obtained from all participating patients individually. Primary data were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered as significant.

Statistical Analysis and Results

All the relevant data and observations were compiled and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 22.0 (IBM Inc., Armonk, New York, USA). The processed data was sent for suitable statistical tests to estimate p values, mean, standard deviation, standard error an 95% CI. Table 1 and graph 1 expressed about the Age & Gender Wise Distribution of selected Patients. Maximum 17 patients were reported in the age range of 25-29 years. Minimum 6 patients were seen in the age range of 38-40 years. Total 30 male and 20 female patients were studied in detail for their responses. Table 2 is about the details of questionnaire based assessments with observational statistical outcomes regarding third molar surgery in the postoperative period. 18 patients agreed that they had sense of pain after the surgery (1 week). 38 patients complaint of swelling in the operated area (1 week). 30 patients showed the signs of inflammation in the nearby areas 1 week). 15 patients confirmed for problems like discharge from the operated area. 42 patients complain for trismus/difficulty of mouth opening even after 1 week. 35 patients confirmed of general body effects like body weakness and lethargy. Table 3 is about the Level of significance estimation using pearson chi-square test. This test was applied on all 6 studied questions successfully. P value was highly significant for question number 4, 5 and 6. They were 0.010, 0.001 and 0.002 respectively for last three questions. Table 4 depicts about the basic statistical interpretations of; between questions responses, within questions responses and cumulative responses [ANOVA Analysis]. The analysis revealed highly significant p value (0.002). ANOVA was attempted and completed for between questions, within questions and cumulative.

Table 1: Age & Gender Wise Distribution of selected Patients

Age Group (Yrs)	Male	Female	Total
25–29	12	5	17[34 %]
30-33	8	7	15[30 %]
34-37	6	6	12[24 %]
38-40	4	2	06[12 %]
Total	30	20	100 %

Table 2: Questionnaire based assessments with observational statistical outcomes regarding third molar surgery in the postoperative period

Questionnaire	Response [*Value in %*]	Mean	Std. Deviation	Std. Error	95% CI
1. Sense Of Pain After The Surgery (1 Week)	Yes- 18 [36 %]	2.504	0.838	0.958	1.85
	No- 32[64 %]				
2. Complaint Of Swelling In The Operated Area (1 Week)	Yes- 38 [76 %]	2.12	0.960	0.069	2.12
	No- 12 [24 %]				
3. Signs Of Inflammation In The Nearby Areas 1 Week)	Yes- 30 [60 %]	2.51	2.357	0.012	1.06
	No- 20 [40 %]				
4. Any Problems Like Discharge From The Operated Area	Yes- 15 [30 %]	1.94	1.224	0.295	1.12
	No- 35 [70 %]				
5. Complains Of Trismus/Difficulty Of Mouth Opening Even After 1 Week	Yes- 42 [84 %]	1.41	0.469	0.230	1.34
	No- 08 [16 %]				
6. General Body Effects Like Body Weakness And Lethargy	Yes- 35 [70 %]	2.04	1.56	0.120	1.10
	No- 15 [30 %]				

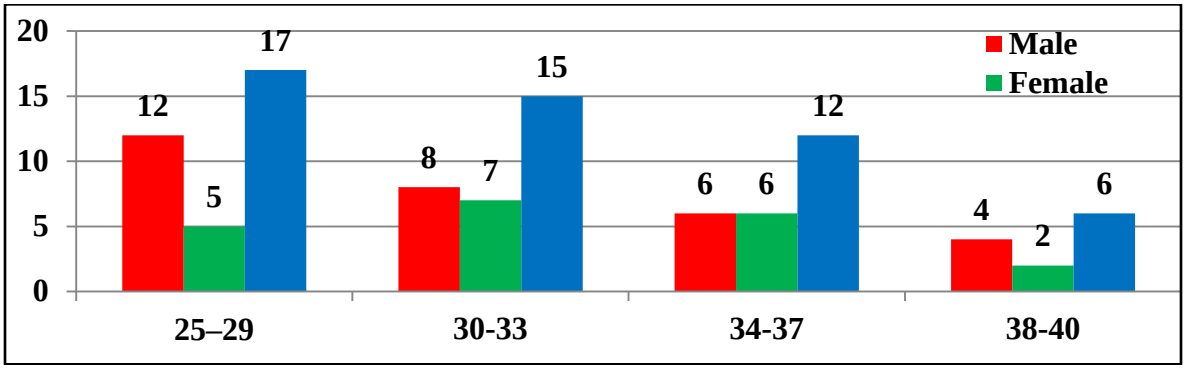
Table 3: Level of significance estimation using Pearson Chi-Square Test

Ques. No.	Pearson Chi-Square Value	df	Level of Significance(P value)
1.	0.859	1.0	0.234
2.	2.839	2.0	0.128
3.	0.309	1.0	0.206
4.	1.480	2.0	0.010*****
5.	2.052	2.0	0.001*****
6.	2.065	1.0	0.002*****
***p<0.05 significant**			

Table 4: Basic statistical interpretations of; between questions responses, within questions responses and cumulative responses [ANOVA Analysis]

ANOVA					
Parameters	**Degree of Freedom**	**Sum of Squares ∑**	**Mean Sum of Squares m∑**	**F**	**Level of Significance**
Between questions	2	1.056	1.507	1.2	0.002*****
Within questions	11	1.203	0.342	-	
Cumulative	194.10	2.303	***p<0.05 significant**		

Graph 1: Patient's demographic allocation and related details



Discussion

Mandibular third molar impaction surgery is one of the most common oral surgical procedures wherein we usually notice mild to severe post-operative complications.[15-18] Mostly all these problems are manageable however they could be life threatening if handled carelessly. Many researchers in the literature have worked on the evaluation of the complications related to third molar surgeries.[19-24] Approximately 75% studied have been conducted on lower third molar in these regards.[25-33]Brown and associates studied in detail about the frequency and distribution of impacted teeth in the targeted population. Their study was based on radiographic evidences and they also agreed about potential complication in the lower third molar surgeries. Their inferences were highly comparable with our results.[34]Fanning and colleagues compared the permanent mandibular molar complication after surgery in Australian Aborigines and Caucasoids. They also found swelling in most of their studied cases.[35] Middlehurst and other researchers had compared two methodologies about the postoperative morbidity for mandibular third molar surgery. Their results were highly comparable and significant from clinical viewpoint.[36] Kiesselbach and other clinicians discussed and analyzed about the clinical and anatomic observations on the relationship of the lingual nerve to the mandibular third molar region.[37]Carmichael and other coworkers have experimented about the incidence of nerve damage following third molar impaction surgeries. Rood and other researchers had evaluated about the permanent damage to inferior alveolar and lingual nerves while surgery of impacted mandibular third molars. They also highlighted the potential complication in post operative healing phase.[39]Similarly other pioneer workers including Brann et al had pointed out the complications and their possible management during third molar impaction surgery in lower arch.[40]

Conclusion

Within the limitations of the study authors outlined highly significant and clinically relevant presumptions. They stated that minute complications do occur in almost all mandibular third molar impaction surgeries. However, few complications have been extensively reported by most of the patients. These include swelling of surgical site, difficulty in mouth opening/trismus and general body weakness. Therefore, post operative recall follow-up is of utmost importance in impaction surgeries. This also enables the surgeon to manage and minimize these issues in best possible ways. Any carelessness form patients/doctor side can lead to serious life threatening circumstances. All findings and recommendations of this study must be reviewed carefully before utilizing in similar conditions.

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