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Original Research

Comprehensive Assessment of Etiology, Complications and Quality of Life as Related Following Impacted Third Molar Surgery: A Questionnaire Based Original Study

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ABSTRACT:

Aim: As we know that the mandibular impacted third molar surgery is the most common surgical modus operandi performed intra-orally. Here authors aimed to evaluate the related etiology, complications and quality of life as we see after mandibular impacted third molar surgery. **Materials & Methods:** Authors used a cross sectional model of study wherein they used questionnaire-based survey on 100 patients. Questionnaire contained questions about etiology, complications and quality of life as related to mandibular impacted third molar surgery. This study comprised of records of patients and other available data. Response was recorded and data was processed statistically to estimate outcomes. **Results:** Statistical analysis using statistical software Statistical Package for the Social Sciences (SPSS). The obtained data was subjected to relevant statistical tests to obtain p values, mean, standard deviation, standard error and 95% CI. Pain (65%) and inflammation (30%) was most common etiologies as reported by the studied patients. Edema (69%) and Hemorrhage (20%) was frequently observed complications. A clear cut downfall in patients quality of life was also recognized. **Conclusion:** Within the limitations of the study, authors concluded that pain and inflammation was most common reasons as expressed by the participating patients. Edema and Hemorrhage was normally seen complications. Downfall in patient's quality of life was identified.

Key words: Impacted third molar, Oral surgery, Etiology, Hemorrhage.

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INTRODUCTION

Since past time mandibular third molars are of clinical significance. They had attracted many of studies and researches about interconnected symptoms, complications in surgeries and after care. Third molars are usually accountable for approximately 96% of all reported impactions, because they are the last teeth of permanent dentition to erupt in oral cavity.¹ Literature have well evidenced and shown that mandibular third molar impactions are more common in male (89%) as compared to the female (11%).² Nevertheless, the precise explanation for high incidence in male is still indistinguishable. Few of the researchers state that it could be interconnected with our ever changing culture where males are usually dominant. As per the results and conclusions of few renowned workers, indications and contraindication for extraction of painless third molar can't be realistically

outlined. But in general opinion, the most common indication for extraction of impacted third molar is pericoronitis.³ By definition, Pericoronitis is infection and inflammation of the soft tissue that typically wraps the erupting third molars. Majority of clinicians think that the permanent resolution of pericoronitis is surgical removal of impacted third molar. The perpendicularly impacted third molar appears the most liable to develop this dilemma typically in third to fourth decade. As and when clinician notices a very slow eruption of third molar, he/she must suspect for a cyst related to that particular tooth. Such cyst can expand to a large size and can involve the crown of the tooth as dentigerous. Many of the researchers in literature has very well shown the occurrence of cyst formation in the ranges between 0.0012% and 13% and of odontogenic tumor is between 0.001-4%.⁴ The most frequently seen problems in third molar extraction are edema, trismus,

infection, bleeding and paresthesia. While evaluating quality of life, we should consider that it has numerous aspects, and in the last 16 years the quantification techniques for quality of life have been drastically improved. Literature has also shown that there are numerous assessments about estimation of quality of life associated to the post surgical implant surgeries. Such kind of studies is tremendously imperative as it gives information about the effects of the surgical procedure on the life quality of the patients, and about the significance of dental health. The most crucial point in the foundation of any survey is comprehensibility without which it's completely worthless. Considering all these factors, this study aimed to estimate the etiology, complications and quality of life as related to mandibular impacted third molar surgery. Here authors have processed the gathered data and their responses generated through pre-framed questionnaire.

MATERIALS & METHODS

A cross sectional, questionnaire-based survey consists of 100 patients. The particulars of the patients were gathered from institute digital record. At first we had selected 224 cases but after methodical examination the number were reduced to 202. To avoid any discrepancy in selection procedure one in every two was selected through systemic random sampling. Resultant sample size was 101. Among these 101, 1 of them not responded correctly to our questionnaire, thus final sample including in the study was total 100 patients. A self prepared, close ended questionnaire containing 8 items were given to the patients. Patients were requested to fulfill the questionnaire in their post surgical visits. Questions of etiologies and complications were also asked in patient's post surgical recall appointments. Written Informed consent was taken from the respondents those were willingly ready for

participation. The significance of this study was explained to all patients. All 100 responded to it and the results 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 observational findings were compiled and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The obtained data was subjected to suitable statistical tests to calculate p values, mean, standard deviation, standard error and 95% CI. Frequencies of responses were also recorded along with their percentage values. Table I shows that age groups 20-30 years had 26 males and 12 females, 31-40 years had 15 males and 11 females, 41-50 years had 14 males and 14 females and >50 years had 5 males and 3 females. 65 patients experience pain while other 30 reported inflammation as underlying etiology for third molar extraction surgeries (Table II). 2 patients complain of caries following third molar surgery. When evaluating postoperative complications associated to third molar surgery, total 69 patients experienced edema while only 20 patients noticed hemorrhage. Soft tissue infection was noticed only in 10 patients. Petechiae were observed only by 8 patients (Table III). Mandibular fracture was reported by only 3 cases. In general, observational statistical inferences regarding quality of life of patients in the postoperative period were fair. Table IV shows questionnaire responses with observational statistical inferences regarding quality of life of patients in the postoperative period. Level of significance estimation using Pearson chi-square test revealed some attractive findings. It showed significance differences [$*p < 0.05$ significant] (Table V).

Table I: AGE & GENDER WISE DISTRIBUTION OF PATIENTS

Age Group (Yrs)	Male	Female	Total
20-30	26	12	38 [38 %]
31-40	15	11	26 [26 %]
41-50	14	14	28 [28 %]
>50	5	3	8 [8 %]
Total	60	40	100

Table II: THE ALLOCATION OF THE MANDIBULAR THIRD MOLAR TEETH IMPACTION SURGERIES ACCORDING TO THE UNDERLYING ETIOLOGIES

S. No	Presenting Complaint	No of patients	Percentage
1	Pain	65	65%
2	Inflammation	30	30%
3	Caries	2	2%
4	Orthodontic	2	2%
5	Prophylactic	1	1%
		Total = 100	Total = 100 %

Graph I: ETIOLOGICAL DISTRIBUTION OF THE PATIENTS

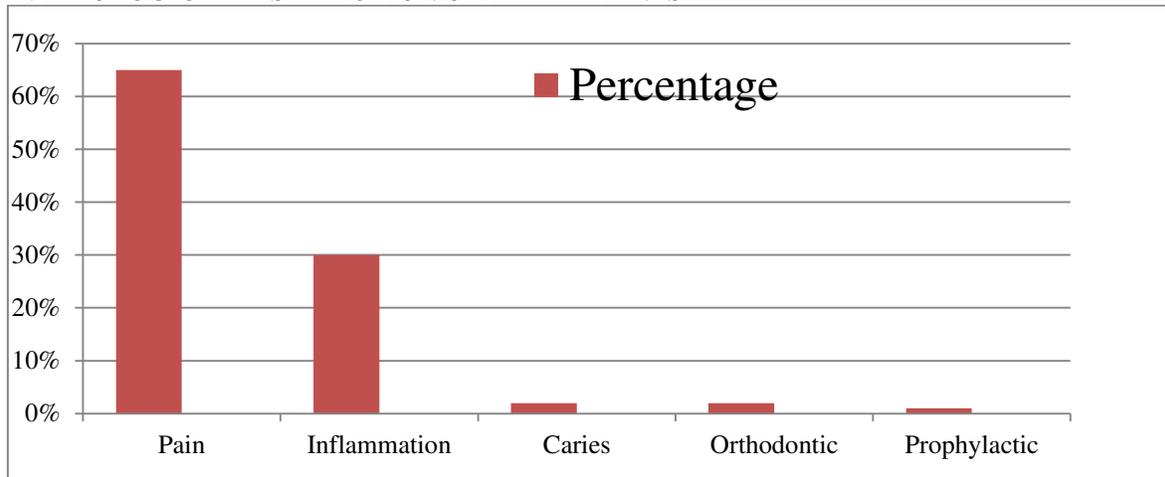


Table III: THE DISTRIBUTION OF THE MANDIBULAR THIRD MOLAR TEETH EXTRACTIONS ACCORDING TO THE TYPE OF POSTOPERATIVE COMPLICATIONS

Complication	Responses	No. of patients	Value in %
Edema	Yes	69	69 %
	No	31	31 %
Hemorrhage	Yes	20	20 %
	No	80	80 %
Infection (soft tissue)	Yes	10	10 %
	No	90	90 %
Petechiae, Echymosis	Yes	8	8 %
	No	92	92 %
Trismus	Yes	8	8 %
	No	92	92 %
Paresthesia	Yes	7	7 %
	No	93	93 %
Alveolitis	Yes	4	4 %
	No	96	96 %
Mandibular Fracture	Yes	3	3 %
	No	97	97 %

Table IV: QUESTIONNAIRE RESPONSES WITH OBSERVATIONAL STATISTICAL INFERENCES REGARDING QUALITY OF LIFE OF PATIENTS IN THE POSTOPERATIVE PERIOD

Questionnaire	Response [Value in %]	Mean	Std. Deviation	Std. Error	95% CI
1. Feeling good after the surgery	Yes- 69 [69 %]	1.323	0.767	0.072	1.43
	No- 31 [31 %]				
2. Pain at the extraction area	Yes- 75 [75 %]	2.66	0.754	0.034	2.651
	No- 25 [25 %]				
3. Analgesics effectiveness in controlling pain	Yes- 55 [55 %]	2.32	2.220	0.076	1.54
	No- 45 [45 %]				
4. Any other analgesics used Apart from prescription	Yes- 80 [80 %]	2.34	1.762	0.223	1.34
	No- 20 [20 %]				
5. Headache after the surgery	Yes- 38 [38 %]	2.54	0.543	0.076	1.96
	No- 62 [62 %]				
6. Any throat ache after the surgery	Yes- 29 [29 %]	2.23	1.23	0.012	1.96
	No- 71 [71 %]				
7. Weakness after surgery	Yes- 55 [55 %]	2.32	0.032	0.058	1.96
	No- 45 [45 %]				
8. Sound sleep at the first night after the surgery	Yes- 32 [32 %]	2.5	0.832	0.347	1.96
	No- 68 [68 %]				

Table V: LEVEL OF SIGNIFICANCE ESTIMATION USING PEARSON CHI-SQUARE TEST

Questionnaire No.	Pearson Chi-Square Value	df	Level of Significance (P value)
1.	0.433	1.32	0.332
2.	2.432	2.54	0.544
3.	0.587	2.0	0.578
4.	2.232	2.0	0.020*
5.	3.598	3.0	0.002*
6.	6.232	3.0	0.003*
7.	2.455	1.0	0.003*
8.	1.265	4.0	0.443

*p<0.05 significant

DISCUSSION

The location of an impacted tooth can cause food lodgment, which further enhance caries succession in the adjoining tooth.^{5,6} Results in the literature showed that 73.7% of patients consulted for elimination of third molars only because of pain.⁷ Laskin et al reported caries as a general finding in partly erupted third molars.⁸ The second most common complaint was recurring pericoronitis. Leone in their study on pericoronitis concluded that incompletely erupted third molar is most vulnerable for pericoronitis.⁹ This is due to bacterial adhesion, obscuring, wetness under the mucosa and predominantly complexity in maintenance of optimal oral hygiene. As we all know that age is a risk factor for post surgical complications happening soon after the surgical procedures. There is a typical relationship existing between age and reported post surgical complications. Such relations usually result from the truth that the interference in geriatric patients lasts longer due to increased bone density. Some pioneer workers claim that there is no association between age and the complications like pain, edema and Trismus. However, in our study the results was somewhat contrasting. Few researchers like Bruce et al, Chiapasco et al and Fisher et al disagree that older patients have more pain, edema and trismus as postoperative complications.¹⁰⁻¹² Charparro-Avendano and co workers confirmed that pain, edema and Trismus are seen more in younger patients.¹³ However in our study, we found no significant relationship between age and said complications. This could possibly be explained on the basis of differences in race of studied population. Yuasa and associates said that the amount of post surgical edema depends on the gender.¹⁴ Monaco et al confirmed that the prevalence of post surgical edema in female patients is considerably superior than in male patients.¹⁵ Moreover, Capuzzi et al described that male patients usually have more pain sensation compared to female patients.¹⁶ However in contrast with their study, our study results were not in agreement. Here we noticed no significant findings that could authenticate the relation between gender and edema. Third molar surgery is the most frequently performed oral surgical procedure. It is well known establish fact that the mandibular third molar is the most

commonly impacted of the third molars.¹⁷⁻²⁵ Hence it's management typically requires a surgical involvement. The most frequently seen complications soon after an impacted mandibular third molar surgery are pain, edema, trismus, hemorrhage, paresthesia and alveolitis. Infection, iatrogenic damage of the second molar.²⁶⁻³³ Such complications after an impacted mandibular third molar surgery may result into longer post treatment healing and prolonged pain.

CONCLUSION

Within the limitations of the study, authors concluded that pain and inflammation was most common reasons as expressed by the participating patients. Edema and Hemorrhage was normally seen complications. Downfall in patient's quality of life was identified. Furthermore, our study outcomes could be treated as suggestive for predicting clinical inferences of such situations. Nevertheless we expect other genuine studies to be conducted that could further establish certain concrete guidelines in this field.

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