

Complications and Risk Factor Associated with Extraction of Impacted Third Molars: A Prospective Study

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A B S T R A C T

Introduction: Extraction also referred as dental or tooth extraction is the process of removal of tooth from the socket. Extraction of third molar is one of the common procedures carried out by a dental surgeon. Extraction is often associated with various complications like post operative pain, dry socket etc. various risk factors like age, sex, degree of impaction should be considered before extraction. Purpose of this prospective study was to compare and evaluate various complications and risk factors associated with extraction of third molars.

Material and methods: 300 patients those who have undergone extraction of impacted third molar over a period of 1 year were selected prospectively. Detailed history regarding age, sex and medical status was recorded. Follow up was done at an interval of 2 days, 1 week and 4 weeks.

Result: Out of 525 teeth, no complications were recorded for 487. Complications were more in higher age group as compared to younger age; in Group 1 (17-25 years) 5 patients reported with post extraction, Group 2 (26-35 years) 9 patients and Group 3 (36-55 years) 17 patients complained of post surgical complications (Table 2). The overall complications differed in males and females.

Conclusion: Based on this study result risk factors like age and sex should be considered. Extraction performed at a younger age is more successful than in older age. Females are more prone to dry socket due to use of contraceptives.

Keywords: Extraction, Third Molar, Pain, Dry Socket, Paresthesia, Infection.

INTRODUCTION

Extraction is defined as complete, painless removal of tooth or tooth root with minimal trauma to surrounding investing structures, so that the wound heals uneventfully and there will be no post operative prosthetic problem.¹ Third molar also known as wisdom teeth is often associated with acute and chronic pericoronitis, presence of cyst or tumor, impinging 3rd molar causes caries as well as pain in adjacent tooth.² Thus extraction of impacted third molar is most commonly extracted by the dental surgeon.

Third molar never fails to surprise a surgeon post extraction; it is frequently followed by complications like postoperative pain, swelling, dry socket, infection, and trismus.³⁻⁵ Post operative pain is the most common complication.⁵ Sisk AL et al reported paresthesia of lingual nerve to be a rare complication.² These complications are associated with various risk factors like age, gender, medical status of patient and smoking habits. Most of the complications are temporary but if not treated on

time can lead to various problems. Thus identifying these complications and reducing its severity become one of the prime responsibility of oral and maxilla facial surgeon.

So the purpose of this study was to compare and evaluate various complications and risk factors associated with extraction of third molars.

MATERIAL AND METHODS

An Observational Prospective study was conducted at department of Oral maxillofacial surgery in the institute in year of 2016. 300 patients aged between 17 to 55 years with 525 impacted molars were selected for the study. Out of 300 patients 150 were males and 150 females. Age groups were further divided into three groups, Group 1- 17-25 years, Group 2- 26-35 years, Group 3- 36-55 years. Patient with one or more impacted molars were included and Patients with more than 55 years, Medically compromised patients and Histories of any psychiatric disorder were excluded.

O.P.G and intraoral periapical radiograph was obtained to locate the dept and position of third molar. Winter⁶ classification was used to study the severity of impaction. Mesio-angular: The impacted tooth is tilted toward the 2nd molar in a mesial direction, Disto-angular: The long axis of 3rd molar is angled distally or posteriorly away from 2nd molar, Horizontal: The long axis of 3rd molar is horizontal, Vertical: the long axis of 3rd molar is parallel to the 2nd molar, Buccal and lingual obliquity: in combination with the above tooth can be buccally or lingually tilted., Transverse: tooth is in effect horizontally impacted but in a cheek- tongue direction.

Patient was thoroughly explained about the procedure and the expected complications. A written informed consent was obtained from the patient before surgical procedure. All the surgical procedure was performed under local anesthesia. The technique used was oral approach by ostectomy. After extraction surgical site was cleaned and sutured with dissolving suture material (general chromic gut 4-0). Post operative antibiotic therapy was given to the patient. Patients were examined for complications, 2 days after the procedure, 1 week and 4 weeks. Complications recorded were divided into different groups. Group A- Pain, Group B- Paresthesia Group C- Dry socket, Group D- Infection Various risk factors like age, sex, medical status, habits like smoking and oral hygiene of patients were considered.

STATISTICAL ANALYSIS

Each variable was analyzed and A *p*-value <0.05 was considered statistically significant. Data was analyzed by specific statistical software (IBMSPSS V10 STATISTICS, IBM, ARMONK, USA).

RESULT

The sample size for this study was a total of 300 patients with 525 impacted teeth (Table 1). Out of 525 teeth, no complications were recorded for 487. Complications were more in higher age group as compared to younger age; in Group 1 (17-25 years) 5 patients reported with post extraction, Group 2 (26-35 years) 9 patients and Group 3 (36-55 years) 17 patients complained of post surgical complications (Table 2). The overall complications differed in males and females (Table 3).

Out of 150 males' total 200 impacted teeth were treated surgically where as total number of females were 150 with 325 impacted teeth. Post operative pain was more in females (13) than in males (4). Single case of paresthesia was reported in males; however 3 cases were recorded in females. Dry socket was also more common in females (6) than males (2). A total of 2 cases reported with infection in males and 7 in females. The most common complication in this study was post surgical pain i.e. 3.2%, second being the infection, 1.71% (Figure 1). So the overall complication rate was 7.2%.

DISCUSSION

Tooth that has failed to erupt completely or partially in the dental arch and lacks potential to erupt is called as impacted tooth. Impaction of tooth occurs due to various local like smaller size of jaw, lack of space, overretained primary tooth and systemic factors like anemia, down syndrome etc. impacted teeth is surgically removed depending on the degree of impaction. Pain, paresthesia, dry socket and infections are some of the most common complication noticed after surgery. In this study post operative pain was the most common complication recorded (table 3). Gender differentiation was observed in terms of complication. Gender is one of the most risk factor which has been neglected for long. In our study most of the complications were reported in female patients (table 2). According to various literature

Mean age	17 To 55 22.4
Males	150
Females	150
Total	n = 300

Table-1: Patient's demographic value

Age group	Complications
17-25	5
26-35	9
36-55	17

Table-2: complication in relation to different age group:

Groups	Males n = 200 teeth	Females n = 325	Total n = 525 teeth	%	p value
A	4	13	17	3.2	0.354
B	1	3	4	0.76	0.522
C	2	6	8	1.52	0.398
D	2	7	9	1.71	0.435
Total	9	29	38	7.2	0.414

p > 0.05; Not significant

Table-3: Post extraction complications based on gender

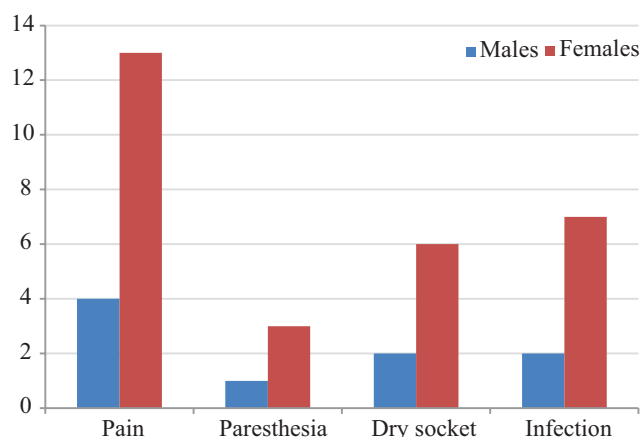


Figure-1: Graph representing various complications

females have reported more pain than males in terms of temporomandibular joint pain, toothache, facial pain etc.⁷ Nakagawa Y et al in their study explained that the thinner mandible of women might be the reason that causes more pain and other complications in women.⁸

Complications were more in elderly age group than young patients (table 2). The possible reason in increase in complications in elderly age group might be due decreased healing potential and dense bone.⁹ Increase in neurosensory problems in patients elder than 24 years was reported by Blondeau and Daniel.¹⁰

A total of 4 patients reported with paresthesia immediately after the procedure (1 male and 3 female). Overall incidence of paresthesia in this study was 0.76%, which is not significant. The rate reported in literature by Chiapasco M¹¹ is 0.4% and by Lopes V et al¹² is 8.4%. No case of permanent paresthesia was reported in our study. Cohen ME and Simecek JW in their study reported high incidence of alveolitis in females.¹³ In this study 6 cases of dry socket was reported in females and 2 in males. The overall incidence rate was 1.52%. Sisk et al have reported a range of 2 to 4% in their study.² The incidence of dry socket in association with contraceptive pills is reported by many authors¹⁴; however no such relation was observed in this current study. Second most common complication in this study is infection. Infection rate was higher in females as compared to males. Total 9 cases were reported 2 in males and 7 in females i.e. 1.71%. The reason behind could be lack of oral hygiene, immune response and health status of patients.

CONCLUSION

The success of surgical procedure depends on both doctor's experience and patient's health status. In this study higher complication was found in females with post operative pain being the most common complication Thus risk of complication due to gender difference is a very important factor and should not be ignore. If gender, age, other risk factors are considered complications can be minimized.

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