ORIGINAL RESEARCH

# ASSESSMENT OF FREQUENCY ESTIMATE AND ASSESSMENT OF RISK FACTORS IN THIRD MOLAR REMOVAL

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**ABSTRACT**

**Background:** Surgical removal of the third molar is one of the most common surgical procedures performed as a day case or as an inpatient. The present study was conducted to assess frequency estimate and assessment of risk factors in third molar removal.

**Materials & Methods:** 78 patients undergoing third molar extraction of both genders were recruited. Level of impaction (soft tissue, partial bony, or total bony), angulation, and the presence or absence of an inflammatory condition associated with the impaction, type of anesthesia (local anesthesia alone or local anesthesia and sedation), type of flap (envelop or triangular), bone removal and postoperative complications were recorded.

**Results:** Out of 78 patients, males were 42 and females were 36. Alveolar osteitis was present in 5, trismus in 8, infection in 4 and paresthesia LN in 7 cases. The difference was significant (P< 0.05). Maximum cases of alveolar osteitis had mesio- angular impaction (2), anesthesia used was LA+ sedation (3), triangular flap (4) and partial bony (3) level of impaction. Maximum cases of trismus had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (5) and partial bony (5) level of impaction. Maximum cases of infection had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (5) and partial bony (5) level of impaction. Maximum cases of paresthesia LN had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (4) and partial bony (4) level of impaction.

**Conclusion:** Common complication found were alveolar osteitis, trismus, infection and paresthesia LN. Most commonly mesio- angular impaction, LA+sedation, triangular flap and partial bony level of impaction was the leading cause.

**Key words:** alveolar osteitis, trismus, infection

## INTRODUCTION

Surgical removal of the third molar (M3) is one of the most common surgical procedures performed as a day case or as an inpatient, and continues to be the most frequent surgical procedure performed in the specialty of oral and maxillofacial surgery.[1] The cost of this procedure to health care providers is substantial. Third molars are removed for a variety of reasons, but pericoronitis is the main reason for extraction in most cases.[2] Postoperative complications after surgical removal of the M3 have been reported in different frequencies and extents, ranging from mild discomfort after the operation to major complications that require further treatment, hospitalization, and may result in permanent damage.[3]

Damage to the inferior alveolar nerve (IAN) or the lingual nerve during third-molar removal has long been the subject of debate, and the ideal method of nerve protection is yet to be determined.[4]Factors reported to be associated with M3 complications include age; gender; medications such as antibiotics, corticosteroids, or oral contraceptives; smoking; previous infection; periodontitis; poor oral hygiene; surgeon experience; difficulty of extraction; length of extraction; inadequate irrigation; number of teeth extracted; and anesthetic technique. Few studies to date, however, evaluate the multivariate relationships among risk factors and complications.[5]The present study was conducted to assess frequency estimate and assessment of risk factors in third molar removal.

## MATERIALS & METHODS

The present study comprised of 78 patients undergoing third molar extraction of both genders. All were enrolled in the study with their written consent.

Data such as name, age, gender etc. was recorded. Level of impaction (soft tissue, partial bony, or total bony), angulation, and the presence or absence of an inflammatory condition associated with the impaction, type of anesthesia (local anesthesia alone or local anesthesia and sedation), type of flap (envelop or triangular), bone removaland postoperative complications were recorded. All patients were reviewed 7 days postoperatively to have their sutures removed and the surgical site inspected. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

| Total- 78 | | |
|---|---|---|
| Gender | Males | Females |
| Number | 42 | 36 |

Table I shows that out of 78 patients, males were 42 and females were 36.

**Table II Assessment of postoperative complications**

| Parameters | Variables | Number | P value |
|---|---|---|---|
| Alveolar osteitis | Yes | 5 | 0.04 |
| | No | 73 | |
| Trismus | Yes | 8 | 0.03 |
| | No | 70 | |

| Infection | Yes | 4 | 0.05 |
|---|---|---|---|
| | No | 74 | |
| Paresthesia LN | Yes | 7 | 0.01 |
| | No | 71 | |

Table II, graph I shows that alveolar osteitis was present in 5, trismus in 8, infection in 4 and paresthesia LN in 7 cases. The difference was significant (P< 0.05).
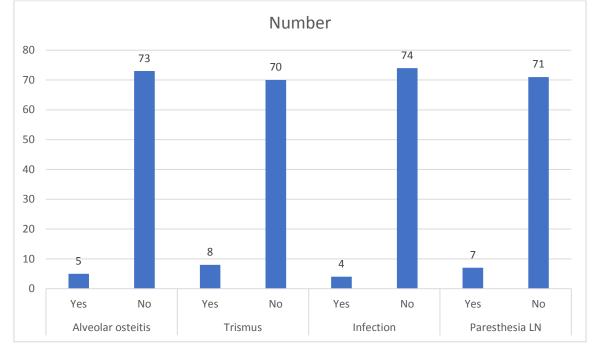
**Graph I Assessment of postoperative complications**



**Table III Association between the various variables and postoperative complications**

| Parameters | Variables | Alveolar osteitis | Trismus | Infection | Paresthesia LN |
|---|---|---|---|---|---|
| Angulation | Mesio- angular | 2 | 4 | 2 | 4 |
| | Disto- angular | 1 | 2 | 1 | 1 |
| | horizontal | 1 | 1 | 1 | 1 |
| | vertical | 1 | 1 | 0 | 1 |
| Anesthesia | LA | 2 | 3 | 1 | 2 |
| | LA+ sedation | 3 | 5 | 3 | 5 |
| Type of flap | Envelop | 1 | 3 | 2 | 3 |
| | Triangular | 4 | 5 | 2 | 4 |
| Level of impaction | Soft tissue | 1 | 1 | 1 | 1 |
| | Partial bony | 3 | 5 | 2 | 4 |
| | Total bony | 1 | 2 | 1 | 2 |

Table III shows that maximum cases of alveolar osteitis had mesio- angular impaction (2), anesthesia used was LA+ sedation (3), triangular flap (4) and partial bony (3) level of impaction. Maximum cases of trismus had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (5) and partial bony (5) level of impaction. Maximum cases of infection had mesio- angular impaction (4), anesthesia used was LA+ sedation (5),

triangular flap (5) and partial bony (5) level of impaction. Maximum cases of paresthesia LN had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (4) and partial bony (4) level of impaction.

## DISCUSSION

The literature reports several factors that havea significant effect on the occurrence of complicationsafter the surgical procedure.[6] There are patientrelatedfactors, including age, gender, smoking, andthe use of oral contraceptives. Anatomic-relatedfactors included the level of impaction, angulation,and pre-existing inflammatory condition.[7,8] In addition,there are operation-related factors including reflectionof flap, bone removal, operation time, andseniority of the operator.[9,10] The present study was conducted to assess frequency estimate and assessment of risk factors in third molar removal.

We found that out of 78 patients, males were 42 and females were 36. Baqain et al[11]estimated the frequency of postoperative complications aftermandibular third molar (M3) surgery and identify the risk indicators.The study sample was comprised of 149 patients who had 245 extractions. The mean age was21.6 years; 64.9% were females. In the multivariate logistic regression model, age, M3 side in relation to the handedness of the operator andlingual retraction were the variables found as independent predictors foralveolar osteitis. The level of impaction had a significant association with trismus, and operation timeacted as an independent predictor for pain.

We observed that alveolar osteitis was present in 5, trismus in 8, infection in 4 and paresthesia LN in 7 cases. Janakiraman et al[12]determined the incidence of injury to the inferior alveolar and lingualnerves following surgical removal of impacted mandibular thirdmolars and to evaluate the various factors contributing to the same.A total of 119 patients underwent mandibular third-molar removalduring the period of 11 months. Of 119, 3 inferior alveolar nerveand 5 lingual nerve injuries were encountered. Various factors suchas lingual retraction, surgical time, operator experience, radiologicfindings contributing to the injury were correlated and analyzed.

We found that maximum cases of alveolar osteitis had mesio- angular impaction (2), anesthesia used was LA+ sedation (3), triangular flap (4) and partial bony (3) level of impaction. Maximum cases of trismus had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (5) and partial bony (5) level of impaction. Maximum cases of infection had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (5) and partial bony (5) level of impaction. Maximum cases of paresthesia LN had mesio- angular impaction (4), anesthesia used was LA+ sedation (5), triangular flap (4) and partial bony (4) level of impaction.Alveolar osteitis, a well-known and a common complicationof surgical extraction of mandibular M3, hasa significant morbidity including loss of working days,loss of productivity, and multiple postoperative visitsto the clinic. There is a great variation in its reportedincidence: 1% to 45%. This variation is attributedto the differences in diagnostic criteria and the methodsof assessment.[13]

Peterson et al[14] statedthat mesio-angular impactions are the most common (43%) and havethe highest incidence of lingual paresthesia (30.6%), followed bydisto-angular impactions (19.6%), producing only 6% incidence.Carmichael and McGowan[15] found that dysesthesia of IAN occurredmore often if the tooth was horizontally impacted and less oftenin teeth that

were vertically impacted. In our study, of the 5 lingualnerve injuries, 3 were disto-angular impactions, 1 mesio-angularimpaction, and 1 horizontally impacted.

The limitation the study is small sample size.

## CONCLUSION

Authors found that common complication found were alveolar osteitis, trismus, infection and paresthesia LN. Most commonly mesio- angular impaction, LA+sedation, triangular flap and partial bony level of impaction was the leading cause.

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