

## Original ARTICLE

### Assessment of incidence of post-extraction complications in patients undergoing third molar extraction

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#### ABSTRACT

**Background:** Tooth impaction is a pathological situation where a tooth fails to attain its normal functional position. Removal of third molars, known as wisdom teeth, is one of the most common dental surgical procedures representing more than half of all extractions among persons with insurance aged 16 to 21 years. Hence: assessment of incidence of post-extraction complications in patients undergoing third molar extraction. **Materials & methods:** A total of 250 patients who underwent extraction of impacted third molar were enrolled. Data records of all the patients were obtained from data files. A Performa was made and complete demographic and clinical data of all the patients was recorded in it. Follow-up record of all the patients was maintained for assessing the occurrence and type of postoperative complications. Recording of all the postoperative follow-up details was done and incidence and type of postoperative complications was recorded. **Results:** Postoperative complications were found to be present in 19 patients. Therefore; overall incidence of occurrence of postoperative complications was 19 percent. Postoperative swelling was found to be present in 7 patients, while postoperative pain as present in 8 patients. Dry socket was found to be present in 5 patients while nerve injury as found to be present in 3 patients. Out of 19 patients with postoperative complications, bone removal was done in 10 patients while tooth sectioning was done in 5 patients. **Conclusion:** Postoperative pain, swelling and Trismus are the most commonly encountered postoperative complications among patients undergoing third molar extractions.

**Key words:** Third molar, Complication

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#### INTRODUCTION

Tooth impaction is a pathological situation where a tooth fails to attain its normal functional position. A relationship between the presence and the role of the mandibular third molar as a physical obstacle of the eruption path of the mandibular second molar has been hypothesized, even if the most recent evidences seem to confirm the results of Kaplan, who suggested that the impaction of the mandibular second molar can be related primarily to an arch length deficiency.<sup>1-3</sup> Removal of third molars, known as wisdom teeth, is one of the most common dental surgical procedures representing more than half of all extractions among persons with insurance aged 16 to 21 years. Dentists recommend early prophylactic removal of asymptomatic third molars to prevent risk of future pathology and to minimize operative and postoperative risks. However, most third molars will erupt without symptoms. In addition, third molar removal is associated with morbidity, such as pain, swelling,

bleeding, infection, and paresthesia; the overall rate of complications varies from 4.6% to 21%.<sup>4</sup> Complications may occur intraoperatively or develop during the postoperative period. Intraoperative complications may include bleeding, damage to adjacent teeth, injury to surrounding tissues, and displacement of teeth into adjacent spaces, fracture of the root, maxillary tuberosity or the mandible. Postoperative complications may include swelling, pain, *trismus*, prolonged bleeding, dry socket, infection and sensory alterations of the inferior alveolar nerve or lingual nerve.<sup>5, 6</sup> Hence: assessment of incidence of post-extraction complications in patients undergoing third molar extraction.

#### MATERIALS & METHODS

The present study was conducted for evaluating the incidence of post-extraction complications in patients undergoing third molar extraction. A total of 100 patients who underwent extraction of

impacted third molar were enrolled. Data records of all the patients were obtained from data files. A Performa was made and complete demographic and clinical data of all the patients was recorded in it. Follow-up record of all the patients was maintained for assessing the occurrence and type of postoperative complications. Diabetic and hypertensive patients were excluded from the present study. Recording of all the postoperative follow-up details was done and incidence and type of postoperative complications was recorded. All the results were analysed by SPSS software and chi-square test was used for evaluation of level of significance.

**RESULTS**

In the present study, data of a total of 100 patients was analysed who underwent extraction of impacted third molar. Postoperative complications were found to be present in 19 patients. Therefore; overall incidence of occurrence of postoperative complications was 19 percent. Mean age of patients with postoperative complications was 25.9 years. Among these 19 patients, 12 were males and 7 were females. In the present study, postoperative swelling was found to be present in 7 patients, while postoperative pain as present in 8 patients. Dry socket was found to be present in 5 patients while nerve injury as found to be present in 3 patients. In the present study, while correlating the occurrence of postoperative complications with type of operative approach, significant results were obtained. Out of 19 patients with postoperative complications, bone removal was done in 10 patients while tooth sectioning was done in 5 patients.

**Table 1:** Incidence of postoperative complications

| Parameter                   | Number of patients | Percentage of patients |
|-----------------------------|--------------------|------------------------|
| Postoperative complications | 19                 | 19                     |

**Table 2:** Demographic data

| Parameter        | Number  |    |
|------------------|---------|----|
| Mean age (years) | 25.9    |    |
| Gender           | Males   | 12 |
|                  | Females | 7  |

**Table 3:** Type of postoperative complications

| Postoperative complications | Number of patients | Percentage of patients |
|-----------------------------|--------------------|------------------------|
| Swelling                    | 7                  | 7                      |
| Pain                        | 8                  | 8                      |
| Trismus                     | 6                  | 6                      |
| Dry socket                  | 5                  | 5                      |
| Nerve injury                | 3                  | 3                      |

**Table 4:** Correlation of postoperative complications with type of operative approach

| Type of operative approach | Postoperative complication |        | p-value            |
|----------------------------|----------------------------|--------|--------------------|
|                            | Present                    | Absent |                    |
| Simple elevation           | 4                          | 25     | 0.00 (Significant) |
| Bone removal               | 10                         | 29     |                    |
| Tooth sectioning           | 5                          | 27     |                    |

**DISCUSSION**

Third molar extraction is one of the most frequent procedures in oral surgery. The reported reasons for third molar removal include the risk of impaction associated with caries, pericoronitis, and periodontal defects in the distal surface of second molars, odontogenic cysts and dental crowding. A prospective study showed that general dentists recommend extraction of third molars in 59% of patients, mainly to prevent future problems or because a third molar had an unfavorable orientation or was unlikely to erupt. However, the power to predict third molar eruption is low, and impacted third molars that remain static, with no changes in position or angulation over time, are rare.<sup>7</sup>

Pain, trismus and swelling are common complications reported, and they are thought to arise from inflammatory response which is a direct and immediate consequence of the surgical procedure. The adverse effects of the third molar surgery on the quality of life have been reported to show a three-fold increase in patients who experience pain, swelling and trismus alone or in combination, compared to those who were asymptomatic. Many clinicians have thus emphasized the necessity for better pain, swelling and trismus control in patients who undergo third molar surgery.<sup>8-10</sup> Hence: assessment of incidence of post-extraction complications in patients undergoing third molar extraction.

In the present study, data of a total of 100 patients was analysed who underwent extraction of impacted third molar. Postoperative complications were found to be present in 19 patients. Therefore; overall incidence of occurrence of postoperative complications was 19 percent. Mean age of patients with postoperative complications was 25.9 years. Among these 19 patients, 12 were males and 7 were females. Sayed N et al investigated complications associated with the extraction of third molars at a tertiary healthcare centre. A total of 1,116 third molars (56% mandibular and 44% maxillary) were extracted and the majority (67.7%) were from female patients. The mean age at extraction was 24 ± 5 years and most patients (77.7%) were 20–29 years old. The intraoperative and postoperative complication rates were 3.7% and 8.3%, respectively. The intraoperative complications included tuberosity fracture (1.2%), root fracture (1.1%), bleeding (0.7%), soft tissue injury (0.5%) and adjacent tooth damage (0.2%). Postoperative complications were sensory nerve injuries (7.2%), swelling/pain/trismus (0.6%) and dry socket (0.5%). Nerve injury was temporary in 41 patients and permanent in four cases. A statistically significant relationship was observed between those aged 30–39 years and dry socket (P = 0.010) as well as bone removal and all postoperative complications (P = 0.001). Most complications resulting from third molar extractions were minor and within the reported ranges in the scientific literature.<sup>10</sup>

In the present study, postoperative swelling was found to be present in 7 patients, while postoperative pain as present in 8 patients. Dry socket was found to be present in 5 patients while nerve injury as found to be present in 3 patients. Sisk AL et al compared the incidence of complications associated with the removal of impacted third molars in a group of 500 patients treated by oral surgery faculty with the incidence of complications in 208 patients treated during the same period by residents of oral and maxillofacial surgery. The results showed that complications were more numerous after the removal of third molars classified as partial bony or complete bony impactions and that less-experienced surgeons had a significantly higher incidence of such complications.<sup>11</sup>

In the present study, while correlating the occurrence of postoperative complications with type of operative approach, significant results were obtained. Out of 19 patients with postoperative complications, bone removal was done in 10 patients while tooth sectioning was done in 5 patients. Osunde OD et al reviewed the different modalities of minimizing inflammatory complications in third molar surgery. A medline literature search was performed to identify articles on management of inflammatory complications in third molar surgery. Standard textbooks of Oral and Maxillofacial Surgery were also consulted and some local scientific publications on the subject were reviewed. Methods range from surgical closure techniques, use of drains, physical therapy and pharmacological means. Studies reviewed have shown that no single modality effectively minimizes postoperative pain, swelling and trismus without undesirable effects. Inflammatory complications after third molar surgery still remains an important factor in quality of life of patients at the early postoperative periods.<sup>12</sup>

### CONCLUSION

From the above results, the authors concluded postoperative pain, swelling and Trismus are the most commonly encountered postoperative complications among patients undergoing third molar extractions. However; further studies are recommended.

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