

## Original Research

### Complications of Third Molar Extraction

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#### ABSTRACT:

**Background:** The current study was conducted to assess the complications of third molar extraction. **Material and methods:** As part of the extraction procedure, third molars were extracted with or without the elevation of the mucoperiosteal flap and the retraction of the lingual flap. Additionally, bone was removed and tooth sectioning was performed with the assistance of surgical drills, elevators, and/or forceps. Following the removal of the tooth, the sockets were rinsed with chlorhexidine, bone abnormalities were addressed, and absorbable sutures were used to close the surgical incisions. Following the treatment, the patients were provided with comprehensive postoperative instructions, and appropriate antibiotics and analgesics were prescribed to them according to their needs. Following a period of three weeks, a routine follow-up was performed, and in the event that difficulties arose, an extended follow-up was planned. **Results:** 33 out of 100 subjects showed complications. The most common complication was lingual nerve injury (36.36%) followed by root fracture (21.21%). Other complications included tuberosity fracture, bleeding, soft tissue injury, damaged adjacent tooth, trismus, dry socket and inferior alveolar nerve injury. **Conclusion:** The majority of problems arising from the extraction of third molars were mild and fell within the documented ranges in scientific literature. Nevertheless, advancing age and the extraction of bone were correlated with an elevated likelihood of experiencing problems.

**Keywords:** third molar, extraction, complications

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#### INTRODUCTION

Mandibular third molars are the most frequently extracted teeth, accounting for 18% of dental extractions.[1][2] Third molars typically develop around the age of 8 to 15[3] and erupt between the ages of 17 to 22.[4] As a result of this delayed eruption, mandibular third molars are often impacted, with 17 to 69% presenting with some degree of impaction.[5]

Extraction of third molars is further complicated by its anatomical proximity to the inferior alveolar nerve (IAN), the third branch of the fifth cranial nerve, which supplies sensory function to the lower cheek, chin, lip, tongue, gingivae, and teeth.[6]

Complications associated with third molar removal are not uncommon in dental and maxillofacial surgical procedures. Complications vary from minor inflammatory reactions such as pain and swelling to nerve damage, mandibular fracture and severe life-threatening infections.[7]

Hence, the current study was conducted to assess the complications of third molar extraction.

#### MATERIAL AND METHODS

All of the individuals who had undergone the extraction of one or multiple impacted third molars while under general anesthesia (GA) were enrolled in this study.

Consultant oral as well as maxillofacial surgeons, along with their designated subordinates who had been previously trained to extract third molars, were responsible for carrying out all of the procedures. The normal surgical procedure was performed on each and every patient.

Patients who were known to have a bleeding diathesis or who were taking medications that extended bleeding were prepared and optimized prior to the surgery, and the appropriate local haemostatic measures were utilized in each and every one of these cases. It should be noted that bleeding was not considered an intraoperative complication in the patients that were examined.

As part of the extraction procedure, third molars were extracted with or without the elevation of the mucoperiosteal flap and the retraction of the lingual

flap. Additionally, bone was removed and tooth sectioning was performed with the assistance of surgical drills, elevators, and/or forceps. Following the removal of the tooth, the sockets were rinsed with chlorhexidine, bone abnormalities were addressed, and absorbable sutures were used to close the surgical incisions. Following the treatment, the patients were

provided with comprehensive postoperative instructions, and appropriate antibiotics and analgesics were prescribed to them according to their needs. Following a period of three weeks, a routine follow-up was performed, and in the event that difficulties arose, an extended follow-up was planned.

## RESULTS

**Table 1: Gender-wise distribution of subjects.**

Gender	Number of subjects	Percentage
Males	40	40%
Females	60	60%
Total	100	100%

**Table 2: Age-wise distribution of subjects.**

Age	Number of subjects	Percentage
<20	21	21%
20-39	63	63%
40-49	13	13%
>40	03	03%

Under general anesthesia, at least one third molar was removed from each of the one hundred patients. There were a total of 54 third molars taken from those individuals, with the majority of extractions coming from female patients (54%). 63% of the subjects were in the age range of twenty to thirty-nine years old.

**Table 3: Complications of third molar extraction.**

Complications	Number of subjects	Percentage
Lingual nerve injury	12	36.36%
Root fracture	07	21.21%
Tuberosity fracture	04	12.12%
Bleeding	03	9.09%
Soft tissue injury	02	6.06%
Damaged adjacent tooth	02	6.06%
Trismus	01	3.03%
Dry socket	01	3.03%
Inferior alveolar nerve injury	01	3.03%

33 out of 100 subjects showed complications. The most common complication was lingual nerve injury (36.36%) followed by root fracture (21.21%). Other complications included tuberosity fracture, bleeding, soft tissue injury, damaged adjacent tooth, trismus, dry socket and inferior alveolar nerve injury.

## DISCUSSION

The surgical extraction of impacted third molars is a common oral surgical procedure.[8] Common complications following third molar surgery include sensory nerve damage, dry socket, pain, swelling, trismus, infection and hemorrhage. [8,9] Other complications include oro-antral fistula, buccal fat herniations, and iatrogenic damage to the adjacent second molar and iatrogenic mandibular fracture. Pain, trismus and swelling are almost universal after this procedure, and the incidence of both inferior alveolar and lingual nerve damage is high and may be permanent.[10] Jerjes et al. [10] found incidence of 0.7% and 1.0% for inferior alveolar and lingual nerves respectively after 2 years post operation. In another study, conducted by Blondeau and Daniel, 3 (0.5%) cases of permanent nerve damage were observed out of the 6 (1.1%) cases of nerve injuries seen in 327

patients who had surgical extraction of their impacted third molar teeth.[11]

Hence, the current study was conducted to assess the complications of third molar extraction.

In this study, 33 out of 100 subjects showed complications. The most common complication was lingual nerve injury (36.36%) followed by root fracture (21.21%). Other complications included tuberosity fracture, bleeding, soft tissue injury, damaged adjacent tooth, trismus, dry socket and inferior alveolar nerve injury.

The study conducted by Rizqiawan A et al [12] aimed to identify the correlation of postoperative complications with patient's age, sex, and surgical difficulty level. This study was a cross-sectional retrospective and single-center research conducted on patients with a history of mandibular third molar surgical extraction in the period between 2017 and 2019 at Dental and Oral Hospital Universitas

Airlangga, Surabaya, Indonesia. The researchers assessed the factors of age, sex, and surgical difficulty level regarding postoperative complications on the first day of the surgery and after one week on the 7th day of it. Among 916 respondents, the majority of the sample was females (59%) and the dominant age group (60.9%) was the age group of 21–30 years while the dominant surgical difficulty level was shown by the advanced cases group (77%). The statistical analysis showed that there was a significant correlation between surgical difficulty level and postoperative complications including pain, trismus, and paresthesia on the first-day assessment. On the other hand, age was significantly related to complications like pain, swelling, and trismus on the first-week assessment. Age and surgical difficulty level were the most common risk factors of the mandibular third molar extraction postoperative complications.

The aim of the study conducted by Osunde O et al [13] was to determine the surgical indications and risk factors for complications of third molar surgery at a Nigerian teaching hospital. Medical records of patients referred to the Oral Surgery Clinic of our institution for surgical extraction of their impacted mandibular third molars from January 2008 to December 2010 were retrospectively examined. Information on patients' demography, types of impaction, operative parameters and complications were obtained and analyzed using Statistical Package for Social Sciences (SPSS Version 13), Chicago, IL, USA. A  $P < 0.05$  was considered significant. A total of 330 impacted teeth were extracted from 250 patients. Male comprised (104/250 [41.6%]) and female (146/250 [58.4%]). The mesioangular (176/330 [53.4%]) and distoangular (73/330 [22.1%]) impactions were the commonest types. Recurrent pericoronitis (154/330 [46.7%]) was the most common indication for extraction. The complications were delayed healing (19/330 [5.8%]), alveolar osteitis (9/330 [2.7%]) and injury to alveolar nerve (2/330 [0.6%]). Cigarette smoking ( $P < 0.001$ ), Oral contraceptives use ( $P = 0.01$ ), age of the patient ( $P = 0.03$ ) and the surgeon's experience ( $P = 0.04$ ) were found to be significantly associated with the development of alveolar osteitis; nerves injuries were significantly associated with the raising of a lingual flap ( $P < 0.001$ ) and the technique of surgery ( $P \leq 0.001$ ). It was concluded that the age of the patient, cigarette smoking and oral contraceptive use at the time of surgery are some of the factors affecting outcome in third molar surgery.

## CONCLUSION

The majority of problems arising from the extraction of third molars were mild and fell within the documented ranges in scientific literature. Nevertheless, advancing age and the extraction of bone were correlated with an elevated likelihood of experiencing problems.

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