

# Intraoperative Accidents Related to Transalveolar Removal of Wisdom Teeth

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## ABSTRACT

**Background:** Removal of wisdom teeth is a regularly performed dental treatment by non-specialist and specialist dentists. Damage to the inferior alveolar nerve after the removal of wisdom molars occurred in 0.4 to 8.4% of subjects, lesser than 1% of cases it is permanent. The present study was conducted with the aim to assess the intraoperative complications occurring during third molar removal.

**Materials and Methods:** The residents of the department performed all the dental surgical procedures. Classification of the impaction was done according to Pell and Gregory and Winter's classification. The methods of osteotomy or tooth sectioning, duration of surgery and any complications that was encountered during the surgery like hemorrhage, displacement of teeth, damage to adjacent teeth or injury to soft tissues was recorded in a tabulated version.

Student t test was used for analysis. Probability value of less than 0.05 was regarded as significant.

**Results:** Fracture of tuberosity was seen in 2.3% cases, there were 1% (n = 3) cases of hemorrhage, there were 0.6% (n = 2)

cases each of apex fracture. There were two cases of mesioangular impaction and 1 case of distoangular impaction.

**Conclusion:** The most commonly associated intraoperative accident in the present study was tuberosity fracture.

**Keywords:** Accidental, Impaction, Intraoperative, Mesioangular.

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## INTRODUCTION

Removal of wisdom teeth is a regularly performed dental treatment by non-specialist and specialist dentists. There are surgical complications associated with it like hemorrhage, Damage to nerve, adjacent teeth, fracture of the tuberosity, displacement of the tooth to different anatomical locations and fracture of the dental apex.<sup>1</sup> Bleeding is observed in 0.2% to 5.8% of wisdom tooth extractions, that could be intraoperative or postoperative, locally or systemically. It's four times more frequent in mandibular third molars surgeries than maxillary third molars. The uppermost frequency is in the impacted distoangular teeth and amongst elder subjects.<sup>2</sup> Damage to the inferior alveolar nerve after the removal of wisdom molars occurred in 0.4 to 8.4% of subjects, lesser than 1% of cases it is permanent. Lingual nerve damage varies between 0 to 23%.<sup>3</sup> Injury to the second molars is observed in 0.3% to 0.4% of the surgeries. The position of molars that is related to the greatest risk for this complication in maxilla are Class B Pell and Gregory<sup>4</sup>, in the mandible, the position vertical is related to majority complications.<sup>2</sup> In case of maxillary molars at the end of dentoalveolar arch, the fracture of maxillary tuberosity, is

more often with erupted third molars and excessive usage of force.<sup>5</sup> Thus, a extraction can cause an accidental sinus opening or displacement in the sinus, chiefly due to inadequate usage of elevators.<sup>6</sup> Movement of the tooth into other adjacent tissues may be seen occasionally, like in the infratemporal fossa.<sup>7</sup> Another frequent complication is the fractured root apex, may be seen primarily in root lacerations like hypercementosis and ankylosis, which increase resistance to avulsion.<sup>8</sup> As per Araujo, 2011<sup>9</sup>, some factors are associated with accidents and complications that are seen during surgery of teeth like age, position, operator's experience and time of surgery. The present study was conducted with the aim to assess the intraoperative complications occurring during third molar removal.

## MATERIALS AND METHODS

The present study was conducted in the department of Dentistry for a period of 1 year. The subjects were informed about the study and a written consent was obtained from them in their vernacular language. The residents of the department performed all the

dental surgical procedures. All the subjects were prescribed injectable betamethasone an hour before the treatment. Postoperatively all the patients were prescribed analgesics and antibiotics if needed. All the patients more than 18 years of age or older, having radiographic records were included in the study. Patients with any systemic illness like hypertension, anemia, diabetes were not included in the study. The demographic details of all the subjects was recorded and the preoperative records were maintained. Classification of the impaction was done according to Pell and Gregory and Winter's classification. The

methods of osteotomy or tooth sectioning, duration of surgery and any complications that was encountered during the surgery like hemorrhage, displacement of teeth, damage to adjacent teeth or injury to soft tissues was recorded in a tabulated version. Any bleeding that was unable to cease after 5 minutes with pressure gauze was considered as hemorrhage.

All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Student t test was used for analysis. Probability value of less than 0.05 was regarded as significant.

**Table 1: Prevalence of intraoperative accidents**

Complication	Frequency	Percentage
Tuberosity fracture	7	2.3
Hemorrhage	3	1
Apex fracture	2	0.6
Soft tissue injury	2	0.6
Facial nerve injury	1	0.3
Damage to 2 <sup>nd</sup> molar	1	0.3
OAF	1	0.3
Other	1	0.3

**Table 2: Radiographic tooth position that lead to hemorrhage**

Winter classification	Pell and Gregory classification	Osteotomy	Tooth section
Mesioangular	Class A-II	Yes	Yes
Mesioangular	Class B-III	Yes	Yes
Distoangular	Class B-II	Yes	Yes

**RESULTS**

The present study enrolled 300 subjects with the mean age of 28.65+/-3.76 years. There were 170 males and rest females in the study.

Table 1 illustrates the prevalence of intraoperative accidents. Fracture of tuberosity was seen in 2.3% cases, there were 1% (n=3) cases of hemorrhage, there were 0.6% (n=2) cases each of apex fracture and soft tissue injury respectively. There was 1 case each of facial nerve damage, injury to 2<sup>nd</sup> molar, oroantral fistula etc.

Table 2 shows the radiographic position of mandibular molars that lead to hemorrhage. There were two cases of mesioangular impaction and 1 case of distoangular impaction. Tooth sectioning and osteotomy was performed in all the patients.

**DISCUSSION**

Third molar impaction is a developmental pathological Deformity that is widespread amongst modern civilization, And accounts for 98% of all impacted teeth.<sup>10</sup> Intraoperative accidents while extraction of third molar are not rare and the specialists who does this treatment must be able to resolve these operative complications. In the researches the associated complications have been related to the experience of the operating personnel. In a study by Berge and Gilhuurs comparing the complications after surgical extraction of third molar in two categories of subjects. Surgery was initially done in the first group by

general dentists and in the second category by oral surgeons, who showed fewer complications and shorter duration of surgeries.<sup>11</sup> In a study conducted by Bui et al. (2003)<sup>12</sup> they found the incidence of operative complications to be 2.2%. In another similar study by Chiapasco (2006)<sup>13</sup>, the incidence of intraoperative complications was 1.1% and side effects of lower third molar removal was 4% of upper third molar removal. In the present study, Fracture of tuberosity was seen in 2.3% cases, there were 1% (n=3) cases of hemorrhage, there were 0.6% (n=2) cases each of apex fracture and soft tissue injury respectively. There was 1 case each of facial nerve damage, injury to 2<sup>nd</sup> molar, oroantral fistula etc. There were two cases of mesioangular impaction and 1 case of distoangular impaction. Tooth sectioning and osteotomy was performed in all the patients. The retrospective study fail to show the exact prevalence as there might be some of errors while recording the observations. As per Chuang (2007)<sup>14</sup> in a prospective cohort study, the intraoperative accident rate was observed to be 3.9%, however, it did not give any mention of the maxillary tuberosity fracture, that was the most common intraoperative accident in the present study, neither it was seen in the above cited studies.<sup>11-13</sup> As per a study by Kato et al. (2010)<sup>15</sup>, while exploring accident rates And incidence of complications in third molar removal, a higher rate of accidents and complications was seen amongst female subjects (73.91%) than amongst

male subjects (27.28%). The present study showed no statistical association between gender, ethics and complication rate. The elder the subject, the more is the frequency of complications related with the procedure. A prospective cohort research amongst a sample of patient having atleast one third molar extracted showed that those above 25 years old had an elevated risk of accidents.<sup>13</sup>

As per a study of Benediktsdóttir et al. (2004)<sup>16</sup>, elder groups had twice the risk of a lengthy operating time than the younger group.

## CONCLUSION

Surgical removal of third molars is a commonly performed minor surgery by the general dentists as well as the specialists. The most commonly associated intraoperative accident in the present study was tuberosity fracture. The occurrence of complication with any surgical procedure is inevitable but there are ways in which they can be minimized.

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