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Original Research

Complications of Third Molar Extraction

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ABSTRACT:

Background: To study the complications of third molar extraction. **Materials & methods:** A total of 200 subjects were enrolled. The mean age of the subjects was 23± 3 years (range: 20–60 years). Clinically significant intra operative bleeding was managed by applying pressure, packing with Surgical and suturing the sockets. The data was collected. The results were analyzed using SPSS software. **Results:** A total of 200 subjects were enrolled. The mean age of the subjects was 23± 5 years (range: 20–60 years). Most intra operative complications were minor with soft tissue injury (0.5%) being the most common, followed by fractures of the apical third of the root (4%) and bleeding (2%). **Conclusion:** Most complications resulting from third molar extractions were minor.

Keywords: complications, dry socket, third molar, extraction.

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INTRODUCTION

Tooth impaction is the condition in which a tooth fails to fully erupt from the gums within the expected time. [1]The surgical procedure of removing the impacted tooth is known as odontectomy, and it is very common among mandibular third molars since the highest percentage of the impacted teeth is seen among mandibular third molars (M3). [2]However, odontectomy is considered the most common procedure in whole oral and maxillofacial surgery (OMFS). [3]The surgical extraction of impacted third molars is a common oral surgical procedure. [4]Common complications following third molar surgery include sensory nerve damage, dry socket, pain, swelling, trismus, infection and hemorrhage. [4,5]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.[6]

Generally, age has been reported to affect the postoperative morbidity following third molar surgery. It is believed that with increasing age, bone become harder and brittle; ostectomy is more difficult and prolonged resulting in more pain, trismus and swelling. [6,7]Other factors that may affect post-operative complications in impacted third molar surgery are gender, type and depth of impaction, level of difficulty, experience of the surgeon, patient medical condition, as well as smoking and use of oral contraceptive pills. [8,9]The latter, especially in relation to the development of alveolar osteitis has generated lots of controversy. While some authors believed that the use of oral contraceptive pills increases the risk of post extraction alveolar osteitis, [8,10] other authors have a contrary opinion.[11]Postoperative complications rate of impacted mandibular third molar extraction varies between 2.6% and 30.9% including bleeding, swelling (edema), persistent pain, trismus, and nerve injury. Recent studies have considered patient characteristics such as age and sex, impacted tooth level, surgical techniques, and operator skills as risk factors of postoperative complications. [12] Hence, this study was conducted to study the complications of third molar extraction.

MATERIALS & METHODS

A total of 200 subjects were enrolled. All consecutive patients who underwent removal of one or more impacted third molars under general anaesthesia (GA) were included. The mean age of the subjects was 23± 3 years (range: 20–60 years). The extraction of third molar was done. Routine follow-up was done after three weeks and, in case of complications, extended

follow-up was arranged. Clinically significant intra operative bleeding was managed by applying pressure, packing with Surgical and suturing the sockets. The data was collected. The results were analyzed using SPSS software.

RESULTS

A total of 200 subjects were enrolled. The mean age of the subjects was 23± 5 years (range: 20–60 years). Most intra operative complications were minor with soft tissue injury (0.5%) being the most common, followed by fractures of the apical third of the root (4%) and bleeding (2%). Postoperative complications were either inflammatory in nature (1.5%)—included swelling, pain, trismus and dry socket (2%)—or related to nerve injuries as IAN (4%) and LN injury (10%).

Table 1: Type and frequency of complications following extraction of third molars

Complication	Frequency	Percentage by patient (n= 100)
Intra operative complications		
Bleeding	4	2
Root fracture	8	4
Soft tissue injury	1	0.5
Post operative complications		
Pain/ swelling	3	1.5
Dry socket	4	2
IAN injury	20	10
LN injury	8	4

LN = lingual nerve; IAN = inferior alveolar nerve.

DISCUSSION

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.[13]The majority of reported complications were minor and transient in terms of overall patient health. These complication rates were within the ranges reported in the literature. Most studies mainly reported postoperative rather than intra operative complication rates. Azenha et al. demonstrated an overall complication rate of 10.4%, while Bui et al. and Muhonen et al. reported postoperative complication rates of 9.8% and 9.1%, respectively. [14,15,16] Hence, this study was conducted to study the complications of third molar extraction.

In the present study, a total of 200 subjects were enrolled. The mean age of the subjects was 23± 5 years (range: 20–60 years). Most intra operative complications were minor with soft tissue injury (0.5%) being the most common, followed by fractures of the apical third of the root (4%) and bleeding (2%). A study by Sayed N et al, investigated complications associated with the extraction of third molars at a tertiary healthcare centre in Oman. 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 intra operative and postoperative complication rates were 3.7% and 8.3%, respectively. The intra operative 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).[17]

In the present study, postoperative complications were either inflammatory in nature (1.5%)—included swelling, pain, trismus and dry socket (2%)—or related to nerve injuries as IAN (4%) and LN injury (10%). Another study by Contar CM et al, studied and analyzed the incidence of complications and their relationship with the surgical difficulty in a group of 588 patients treated by the same oral and maxillofacial surgeon. The teeth were grouped into a 6-class scale of surgical difficulty rated according to the surgical procedure description in the patient's file: I: upper M3 requiring forceps only; II: upper M3 requiring osteotomy; III: upper M3 requiring osteotomy and tooth section; IV: lower M3 requiring forceps only; V: lower M3 requiring osteotomy; VI: lower M3 requiring osteotomy and tooth section. The complications were grouped into each surgical difficulty class and their incidence and management were also described. 59 complications (3.47%), including pain, root tip fracture, paresthesia, alveolar osteitis, temporomandibular joint discomfort, and oroantral fistula were reported. Surgical difficulty class VI presented the higher incidence of complications (n=38).[18]Based on the surgical difficulty level, the first-day assessment showed that trismus was associated with the complex cases group. Major factors in terms of a deeper impacted tooth, a higher number of overlaying bones, and a greater angulation can increase the extraction difficulty which eventually causes more trauma. [19] However, masticatory myositis may appear as a secondary

complication of this trauma. [20] Since high surgical difficulty level can be associated with a masticatory musculature-prolonged extreme stretching during the surgery. There is a strong correlation between postoperative pain and trismus, indicating that pain may be one of the principal reasons for the limitation of opening after the removal of impacted third molars. [12]

Prophylactic extraction was expectedly low in this study, and this differs sharply from most studies in the western world where extraction for prophylactic reasons still account for a considerable proportions of third molar surgeries. [21] One possible reason for the differences is that over 68% of surgical extractions of the impacted third molar are done under GA by surgeons in the western world.[22,23] To avoid repeated exposure to GA, prophylactic extractions of all the impacted third molars, where one of multiple impacted teeth is indicated for surgery under GA is a common practice. The factors guiding the choice of anesthesia are the patient's preference, the number of teeth to be extracted, the depth of impaction and the patient's level of anxiety.[24]

CONCLUSION

Most complications resulting from third molar extractions were minor.

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