

ORIGINAL RESEARCH

Wisdom Tooth—Complications in Extraction

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ABSTRACT

The purpose of this study is to analyze the incidence of complications in a group of 171 patients in whom extractions of impacted mandibular third molar have been performed by two oral surgeons between the period April 2010 and March 2012. This retrospective study comprises evaluation of 270 impacted mandibular third molars which were classified into two groups A and B on the basis of procedure of osteotomy only and osteotomy and odontotomy both respectively. Total no of complications reported were 40 (14.81%). Maximum no of cases reported alveolar osteitis (AO) (11.11%) while other complications reported root tip fractures (2.22%), lingual nerve parasthesia and TMJ problems (each 0.74%) in descending frequency. Conclusion drawn is that the risk of complications in extractions of impacted mandibular third molars always exists, and extractions associated with both osteotomy and odontotomy are associated with higher risk of complications.

Keywords: Impacted mandibular third molar, Extraction, Complications.

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INTRODUCTION

Teeth extractions that too mandibular wisdom tooth are one of the most frequent dental surgical procedure performed in Oral Surgery Specialty of Dental Clinic.^{1,2} As with any other surgery this surgical procedure is also associated with some percentage of morbidity and perioperative and postoperative complications.³⁻⁵ These complications are most frequently

associated with extraction of third molars.⁶⁻⁸ Baniwala et al reported 59 and 41% complications perioperatively and post-operatively respectfully.⁷ Common complications following third molar surgeries are infection, sensory nerve injury, alveolar osteitis, hemorrhage and alveolgia. Less frequent complications are trismus, damage to adjacent tooth structure and soft tissue and iatrogenic mandibular angle fractures and coronoid fractures due to unfavorable split.^{1,2,9,10}

Importance of preoperative assessment and planning for third molar extraction and following of standard sterilization protocol and principles of surgery are must as it is with any other surgical procedure for decreasing the incidence of complications.¹¹ Informed consent from the patients should be taken prior to surgical procedure of extraction and possible complications and temporary morbidity and limitation of functions can be explained to the patient so that the patient can reach to a decision.⁹

MATERIALS AND METHODS

This study comprised of retrospective analysis of 171 patients having 270 mandibular third molars impacted or partially impacted, extracted on day care basis in department of Oral and Maxillofacial Surgery of Purvanchal Institute of Dental Sciences, Gorakhpur, Uttaranchal Dental and Medical Research Institute Dehradun, and Department of Dentistry, Era's Lucknow Medical College and Hospital, Lucknow during the period between April 2010 and March 2012. The cases selected to be included in study were irrespective of age, sex, caste and creed. Exclusion criteria include patients having recorded history of any debilitating disease, uncontrolled Diabetes Mellitus, Acute pericoronitis, and extractions that were performed due to extensive periapical pathological lesions. Those cases which have incomplete follow-up or in whom the follow-up were not recorded on case files and the cases in which concomitant extraction of opposing third molar was done were also excluded.

All selected cases were operated/extracted using standard sterilization and surgical extraction protocol. Full thickness mucoperiosteal flaps were raised to expose the site and 3-0 black silk sutures placed in every case which were removed after 5 days. All selected cases were divided into to subgroups. Group A—cases that required only osteotomy, group B—cases that required both osteotomy and odontotomy. All cases of both groups were kept on antimicrobial therapy amoxicillin 500 mg, metronidazole 400 mg and ibuprofen 200 mg

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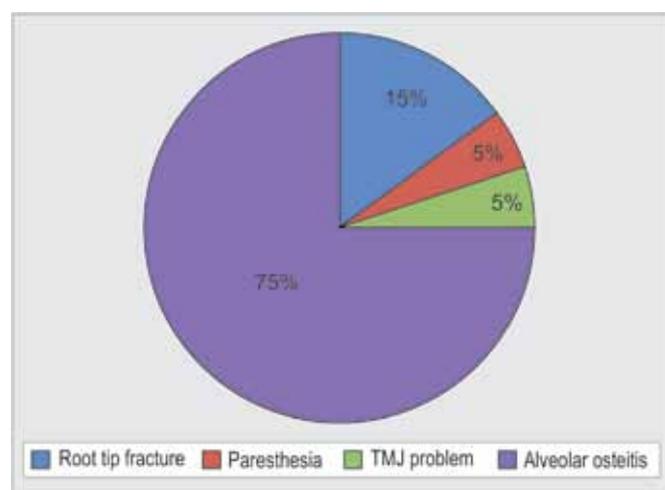
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each 8 hourly for 5 days and omeprazole 20 mg 12 hourly for 5 days and chlorhexidine mouth rinses to be used every 8 hourly, beginning the next day following the operation. Any complication aroused was managed promptly and efficiently adopting standard protocol. Data analyzed using SPSS 10.0 version.

RESULTS

Total no. of 270 impacted or partially impacted mandibular third molars (wisdom tooth) were extracted from 171 (107 males and 64 females). Most of the cases, i.e. 64% (173), were of group A which required only osteotomy for extraction. Total no. of complications in both groups were 14.81 (40 out of 270 cases) in which alveolar osteitis (AO) occupying the maximum (25%) proportion of total complications, where as root tip fracture occupying the second highest proportion of 15% and rest other complications. TMJ problems and paresthesia sharing equal proportion of 5% each (Graph 1). Group B shows higher complication rates as compared to group A (Table 1). Among complications (14.81%) most common was alveolar osteitis (11.11%) associated with severe pain and shows positive association with surgical difficulty and long operating time in group B. All cases were treated with regular dressing of zinc oxide eugenol with an anesthetic gel and analgesics. Root tip fracture is the second most common complication (2.22%). In all cases, root tips were left in the socket and radiological follow-up was done. TMJ discomfort was reported by one each case of both groups, both were treated by anti-inflammatory and analgesics and advised blenderized soft diet. None of the cases reported with inferior alveolar nerve paresthesia, however two cases (0.74%) reported with lingual nerve paresthesia, patient was counseled and assured for the same. One resolved in 2 weeks but other took 3 months to resolve completely, both were prescribed neurotonics.



Graph 1: Complications associated with wisdom tooth extraction

DISCUSSION

Retention of impacted third molars is associated with periodontal problems, root caries, acute and chronic infections and problems associated with healing in late extraction cases in old age.¹² The most common complication of wisdom tooth extraction reported in the literature is alveolar osteitis.^{9,11,13} No cases of Jaw fracture and permanent nerve injury reported. AO is a clinical entity characterized by the development of severe alveolgia commencing 3 to 4 days after the extraction of tooth and is frequently associated with halitosis.^{11,13} In our study, AO was reported by 11.11% of the cases and the similar frequency is reported in literature 4.1 to 32%. Sisk et al⁹ in corroboration to our study mentioned that the reported incidence of AO tend to be lower in cases operated by single surgeon and private practice studies than in multiple-surgeon and institutional studies that explains the similar frequency of AO in our study. AO has an increased incidence with mandibular third molar extraction sockets and in more difficult and traumatic surgeries.¹⁴ Higher frequency of AO is reported in group B (12.37%) as compared to group A (10.40%) as the former required longer time for osteotomy as well as odontotomy. Iatrogenic damage to the lingual nerve and to the inferior alveolar nerve (IAN) is certainly one of the least desired side effects of mandibular third molar extractions² because of its effect on speech, gustation, mastication and swallowing.¹⁵ The incidence of IAN and lingual nerve injuries reported ranges from 0.43 to 22.0% and fortunately, most of these injuries undergo spontaneous recovery.¹⁵ Risk factors related to injury of the inferior alveolar nerve are the depth of impaction and dental roots proximity to the alveolar canal,^{15,16} and of the lingual nerve is the detachment of the prepared flap from the lingual side also, for extraction of impacted mandibular third molar.¹⁷ Root tips fractures are relatively common during impacted mandibular third molar extractions due to the severe root curvatures. In cases where preoperative imaging indicates an intimate relationship between the root of the tooth and the inferior alveolar nerve in the mandibular canal, deliberate leaving out of the apical portion of the roots in the extraction sockets might be appropriate in order to prevent IAN damage.¹⁸ Regular follow-up, in our study, showed the evidence of bone formation over the retained root tips. Association between mandibular third molar extraction and TMJ problems has been reported in some sporadic studies¹¹ and this may be due to mouth remaining open for extended period of time and exertion of various noncoherent forces on the mandible in an attempt of extraction that transmits to TMJ region and cause injury. In our study, both groups reported one case in each group. This can be avoided with the help of assistant by providing jaw support during judicious force application and use of bite blocks during the procedure of elevating the tooth in question.

Table 1: Number of impacted mandibular third molars extracted and their associated complications

Groups	No. of teeth extracted (N) N _A and N _B	Alveolar osteitis	Root tip fracture	Paresthesia		TMJ problems (preauricular pain)	Total complications
				Lingual nerve	Inferior alveolar nerve		
A	173 (64.07%)	18 (10.40%)	02 (1.15%)	–	–	1 (0.57%)	21 (12.13%)
B	97 (35.92%)	12 (12.37%)	04 (4.10%)	02 (2.06%)	–	1 (1.03%)	19 (19.58%)
Total (N)	270 (N _A + N _B)	30 (11.11%)	06 (2.22%)	02 (0.74%)	–	2 (0.74%)	40 (14.81%)

CONCLUSION

As always said ‘every surgical procedure is associated with some risk of morbidity and mortality’ the risk of complications associated with extraction of impacted mandibular third molar always exist and this increase is proportional to increase in surgical difficulty. The mandibular third molar surgeries requiring both osteotomy and odontotomy have higher risk of complications as evident in our study (*see* Table 1). Apart from expertise, adequate preoperative evaluation with strict adherence to surgical principles and protocols and the wisdom to deviate and adapt alternative techniques preoperatively if situation demands it the complications can be minimized during wisdom tooth removal.

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