FREQUENCY OF COMMON PATHOLOGIES ASSOCIATED WITH IMPACTED MANDIBULAR THIRD MOLARS TEETH

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ABSTRACT

Teeth that fail to erupt within the dental arch due to any hindrance in its path of eruption whether it be a soft tissue lesion or a bony lesion are called impacted teeth. Mandibular third molar tooth is usually the last tooth to erupt in the oral cavity. The pathological changes associated with the impacted 3rd molar are cystic changes which include Dentigerous cysts, Odontogenic keratocyst and Calcifying Odontogenic cyst. Ameloblastoma, Myxoma and Odontogenic fibroma are the commonest neoplasms. Soft tissue pathological changes are hyperplasia’s, inflammation and calcification are the common findings around the impacted 3rd molar teeth. The present study is a descriptive retrospective study conducted to evaluate the frequency of pathological changes associated with impacted 3rd molar. The most common age group amongst these patients was second and third decade of life. The male to female ratio of these patients was 1: 1.86. Age range was 17 to 50 years, mean age of 24.16 SD + 7.05. The present study will help to support the prophylactic removal of impacted 3rd molar as some of these pathological changes may be life threatening.

Key Words: Khyber College of Dentistry, Third molar, Wisdom teeth, Impaction, Odontogenic cysts and Odontogenic tumours.

INTRODUCTION

Teeth that fail to erupt in the dental arch due to any hindrance in their path of eruption whether it be a bony lesion or soft tissue are known as impacted teeth.1 The development and eruption of the 3rd molar is the last tooth in the permanent dentition in the oral cavity.2 Other hindrances such as malposed teeth, lack of space can alter their eruption and make the teeth impacted.3 The age range of the 3rd molars to erupt is between 16-24 years and the mean age is 17 years.4 Impactions are equally common in both Males and females.5

3rd molar extraction is a minor surgical procedure, a lot of research has been done on the prophylactic removal or retention of the impacted teeth. Some studies show a more conservative approach while others show a more interventional approach to the removal of 3rd molar teeth. Some studies suggest that prophylactically removing an impacted 3rd molar will reduce the chances of any pathological changes taking place around the impacted tooth, while others studies favour conservative approach and suggest to wait for the pathologies to take place and then remove the tooth accordingly.7 According to winters 1962 classification 3rd molars are categorized into mesioangular, disto angular, vertical and horizontal.8

3rd molar impactions are also classified into either soft tissue or bony impaction and depending upon the site of impaction whether it is mandible or maxilla. The pathological changes associated with the impacted 3rd molar are cystic changes which include Dentigerous cysts, Odontogenic Keratocyst and Calcifying Odontogenic cyst. Ameloblastoma, Myxoma, and Odontogenic fibroma are the commonest neoplasms. Soft tissue pathological changes are hyperplasia’s, inflammation and calcification are the common findings around the impacted 3rd molar teeth.9

The purpose of the present study was to determine the frequency of common pathologies associated with impacted mandibular 3rd molars.

METHODOLOGY

This retrospective study was conducted in the department of oral and maxillofacial surgery over a period of 2 years after taking approval from the hospital review board. The study duration was of 2 years that is from July 2015 to August 2017.
The study population was taken by convenience sampling technique in which the records of only those patients’ were included whose teeth were fully covered with bone or partially erupted but prevented from reaching the occlusal plane. Mandibular 3rd molars fully erupted to the level of the occlusal plane were not included in the study. The records of those patients who were referred for surgical removal of the impacted mandibular 3rd molars to the oral and maxillofacial department at Khyber College of dentistry Peshawar were retrieved from the department. The type of cysts and tumors associated with the mandibular third molars were confirmed from the patients biopsy report present in the record. The pathologies were diagnosed by incisional/excisional biopsy techniques under general anesthesia .All the biopsies were previously sent to a single histopathologist to avoid pathologist bias.

RESULTS

A total no of 43 patients who have pathologies associated with the impacted teeth were included in the study. The age, gender, and pathologies associated with impacted mandibular 3rd molar teeth were included in the study. Out of the total 43 patients, 28 were female and 15 were male with the male to female ratio of 1:1.86 as shown in figure 1. The age range of these patients were from 17 to 50 years with a mean age of 24.16 SD ± 7.05. The most common pathologies were Dentigerous cyst. Dentigerous cyst which was the most common pathology associated with the impacted mandibular 3rd molar 37.2%, among the cystic lesions OKC was the second most frequently occurring Pathology 30.2%, Ameloblastoma 13.9%, CEOT 6.9%, AOT 4.6%, Odontogenic myxoma 4.6%, Complex Odontome 2.3%. OKC as shown in table 1.

DISCUSSION

An impacted tooth is the one that fails to erupt within its expected time of eruption due to physical barrier which include dental crowding, supernumery teeth, retained deciduous teeth malaligned adjacent teeth, Odontogenic cysts or Tumours. The most common impacted tooth in the oral cavity is the mandibular 3rd molar then in the descending order maxillary 3rd molar, maxillary cuspids, mandibular second premolar and supernumery teeth. The complications associated with the impacted teeth are resorption of adjacent roots which can make the teeth prone to caries and premature tooth loss, soft and hard tissue pathologies like Odontogenic cysts which include Dentigerous cysts , Odontogenic Keratocysts ,Calculifying Odontogenic cyst. and the most common tumours are the Ameloblastoma , Calculifying epithelial Odontogenic tumour and Adenomatoid Odontogenic tumour.10,11

The occurrence of cysts and tumours associated with the impacted mandibular molars are mostly by chance radiographic findings in most of the cases as these lesions are often with no signs and symptoms and very rarely there is pain and swelling and disturbances in function in these cases. Most of the studies done so far on the development of cysts and tumours which are associated with mandibular impacted 3rd molars are mostly radiographic findings which are either usually cross-sectional or retrospective studies.12

The gold standard of the disease diagnosis is the histopathological findings in these cases.13

In the present study of the target populations was known patients with pathologies associated with impacted mandibular 3rd molars .Most of the decisions

<table>
<thead>
<tr>
<th>s.no</th>
<th>Common pathologies cysts/tumours</th>
<th>No of patients</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dentigerous cyst</td>
<td>16</td>
<td>37.2%</td>
</tr>
<tr>
<td>2.</td>
<td>OKC</td>
<td>13</td>
<td>30.2%</td>
</tr>
<tr>
<td>3.</td>
<td>Ameloblastoma</td>
<td>6</td>
<td>13.9%</td>
</tr>
<tr>
<td>4.</td>
<td>CEOT</td>
<td>3</td>
<td>6.9%</td>
</tr>
<tr>
<td>5.</td>
<td>AOT</td>
<td>2</td>
<td>4.6%</td>
</tr>
<tr>
<td>6.</td>
<td>odontogenic myxoma</td>
<td>2</td>
<td>4.6%</td>
</tr>
<tr>
<td>7.</td>
<td>Complex odontome</td>
<td>1</td>
<td>2.3%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td>100%</td>
</tr>
</tbody>
</table>
Pathologies associated with impacted lower third molars

The frequency of Odontogenic Myxoma in this study was 4.6% as compared to the previous study which showed 4.3% [26]. Complex Odontome was found in 2.4% of cases in this study. According Oliveriva et al Compound Odontome comprise 9%-37% of cases and complex Odontome 5%-30%.[27] Odontomes are slow growing, asymptomatic with limited growth and change into complex Odontome which are associated with permanent unerupted mandibular teeth. These lesions have radiopaque mineralized structures with a radiolucent halo.[28]

The frequency of the cysts and tumours occurring as is also shown in the previous studies mentioned. The frequency of the cysts and tumours occurring around the impacted mandibular 3rd molars is less but its risk should not be neglected that is why when the treatment is given to such patients the pros and cons should be discussed first whether to remove the tooth and thorough investigation is necessary which includes sending the tissue with the impacted tooth for biopsy to exclude any pathologies.

In the present study it has been reported that the cysts and neoplastic changes are taking place in its development and because of these neoplastic and preneoplastic (cystic) changes early curative measures should be taken to avoid any complication for the wellbeing of the patient. Morbidity and mortality has been reported with some of these pathologies so timely diagnosis is of paramount importance to avoid such consequences.

CONCLUSIONS AND RECOMMENDATIONS.

Dentigerous cysts and Ameloblastomas are the most common pathologies associated with impacted mandibular 3rd molars. OPG at the age of 17-25 years is important because some times these pathologies are chance radiographic findings.

Early diagnosis by biopsy is important as these cysts and tumours are associated with morbidities and mortalities, because malignant transformation has been reported in long standing benign pathologies.

REFERENCES

Pathologies associated with impacted lower third molars

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CONTRIBUTIONS BY AUTHORS

1 Samrina Mohammad:  
   Idea, Abstract, Introduction, Methodology, Discussion.

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   Helped in idea, Abstract, Conclusion, Research suggestions.

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   References, Literature search.