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PREVALENCE OF IMPACTED MANDIBULAR AND MAXILLARY THIRD MOLARS: A RADIOGRAPHIC STUDY IN PATIENTS REPORTING MADINA TEACHING HOSPITAL, FAISALABAD

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ABSTRACT

Objective:

To assess the prevalence and position of impacted third molars in population of Faisalabad.

Methodology:

A retrospective study based on *orthopantomograms* of patients, aged 18-50 years, reported in dental clinics of Madina Teaching Hospital, Faisalabad during the month of January and February 2013 was conducted. Data including age, gender, number of impacted teeth, angulation type, width and depth of impactions was statistically analyzed by Chi-squared test. Teeth positions were analyzed by classifications of Pell & Gregory and Winter. This classification is based on level of impaction, angulations of the impacted third molars and its relationship to the anterior border of the ramus of the mandible. Impactions were analyzed among genders and age groups: group I (18-25 Years) group II (26-35 Years) and group III (36-50 Years)

Results:

In this study sample; 31%, 30%, 39% subjects were in age groups I, II, and III respectively and 44.1% were males. It was observed that impactions were more prevalent in age group of 18-25 years. Regarding angulations of impacted teeth, maxillary impactions were mostly vertical as compared to mandibular impactions which were mesial and were more prevalent in the age group 18-25 years. Mandibular impactions were more prevalent as compared to maxillary. Impactions were more prevalent in females as compared to males. Maxillary vertical and mandibular mesial were more prevalent in males. Statistical difference between age-groups and among genders was not significant. (p=0.170)

Conclusion:

This study reports that impacted teeth were more prevalent in females as compared to males in patients reporting to Madina teaching hospital. The age group 18-25 had more impactions as compared to the other two groups and maxillary vertical and mandibular mesial angulations were more prevalent in this study sample

INTRODUCTION:

Tooth impaction is a pathological situation in which a tooth is failed to attain its normal functional position. It cannot perform its normal function because of malposition and also create disturbances for the patient¹. In humans the most prevalent teeth which are found to be impacted are mandibular third

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molars which usually fail to erupt to their normal functional position due to short mandible or wrong angulation of eruption².

These impacted teeth may stay asymptomatic for a long time without creating disturbance for patient ³or they may present with various pathologies like caries, pericoronitis, cysts, neoplasms and also cause root resorption of adjacent tooth⁴.

Previous studies reported greater prevalence of third molar impactions in females as compared to males^{5, 6} but some authors did not agree with those findings. They reported no gender predilection in third molar impactions^{7, 8}.

Management of impacted teeth is always based on their assessment in terms of angulation of impacted tooth, level of impaction and relation of impacted tooth with anterior border of ramus⁹. Currently the most reliable systems of classification in use are Pell and Gregory and Winter classification systems which use relation of impacted tooth with occlusal surface of adjacent tooth¹⁰.

RATIONAL OF THE STUDY:

Main reported complications of the impacted third molars are caries of impacted tooth, root resorption and periodontal bone loss of adjacent tooth, repeated problem of pericoronitis, cystic lesions and carcinoma at angle of mandible. Out of these, caries and root resorption are most commom complications.

The aim of the study was to investigate the prevalence and pattern of impacted teeth in population of Faisalabad.

METHODS AND MATERIALS:

STUDY DESIGN AND SETTINGS

Cross sectional descriptive study based on Orthopantograms (OPG) of patients, enrolled from Dental Clinics of Madina Teaching Hospital (MTH) Faisalabad. The study was conducted during Jan - Feb 2013

STUDY PARTICIPANTS:

197 OPGs of patients reporting dental clinics of Madina Teaching Hospital, Faisalabad were examined. The eligibility criteria for enrollment was i) age of the patient must be 18-50 years. ii) Patients should not be edentulous. Patient who had some craniofacial abnormality or poor quality OPG were excluded from the study. (Fig 1)

DATA COLLECTION:

Demographic data including age and gender was extracted from their hospital record and number of total teeth, number of impacted teeth, angulation type of tooth, width and depth of impactions were noted from their OPG on a structured proforma. Teeth positions were assessed by classifications of Pell & Gregory and Winter. This classification is based on many factors which are the level of impaction, the angulations and the relationship to the anterior border of the ramus of the mandible. A tooth is labeled as impacted if its roots are fully formed and yet it did not achieve functional position in occlusion.

PELL AND GREGORY CLASSIFICATION:

According to Pell and Gregory classification ¹¹ Class I, II or III is used in reference to the anterior border of mandible and Class A, B or C is used in reference to occlusal surface of adjacent teeth. Class I is labeled to a tooth which is present anterior to the anterior border of mandible. Class II is labeled when tooth is half covered by the anterior border of mandible. When the crown is fully covered by the anterior border of mandible, it is labeled as Class III. When occlusal level is considered, Class A is given to the tooth which is at the occlusal level of its adjacent tooth. Class B is given to a tooth which is at occlusal level between cervical level and occlusal level of adjacent tooth. When the tooth is completely buried in bone or the occlusal level of impacted tooth is below the cementoenamel junction of adjacent tooth then it is called Class C⁹.

WINTER'S CLASSIFICATION:

The angle of impacted tooth is assessed by winter's classification ¹². It is based on the angle between longitudinal axes of third and second molars. According to this angle the

impaction is labeled as vertical, horizontal, mesioangular, distoangular and buccolingual impaction ¹⁰.

DATA ANALYSIS:

The data was statistically analyzed by Chisquared test using SPSS (version 18.0, SPSS Inc, Chicago). The age, gender, classification of impactions and levels of impacted teeth were presented in frequencies and percentages. The level of significance was set at 95 % (p<0.05).

RESULTS:

It was observed that third molar impactions were more prevalent in age group of 18-25 years (Fig 3)

Regarding angulations of teeth, maxillary impactions were mostly vertical as compared to mandibular impactions which were mesial and were more prevalent in age group 18-25 years (Fig 4).

Fig 5 and 6 show levels of maxillary and mandibular impactions. Mandibular impactions were more prevalent as compared to maxilla.

Impactions were more prevalent in females as compared to males (Fig 7).

Figures 8-10 show angulations and levels of maxillary and mandibular impactions among genders. Maxillary vertical and mandibular mesial were more prevalent in males.

DISCUSSION:

This study showed the pattern of third molar impactions in the patients reporting in a tertiary care hospital. In current sample of patients, the prevalence of impactions was 30 %. Which is in agreement with some studies^{3, 13-15} and less than reported by some other studies^{5, 16}

Our study revealed that females showed greater prevalence of impactions as compared to males. This is in agreement with the studies^{5,} 6 previous showing aender distribution. Researchers correlated the greater prevalence of impactions in females with growth. At the age of third molar eruption, growth in females stops whereas in male it continues and provides room for third molar to erupt¹. Mandibular impactions were

more prevalent as compared to maxillary impactions¹⁷.

Regarding the angulation of impactions, this study showed that in the maxilla, vertical impactions were greater in number as compared to mesioangular or distoangular. Our findings are in accordance with a study conducted in Singapore ⁵ but these are in disagreement with a study ⁸ which reported that mesioangular impactions were more common in maxilla. Regarding mandible, our study reported that mesioangular as compared to vertical or distoangular directions. Studies from China, Spain and Malaysia are in agreement with our study¹⁸⁻²⁰

Regarding the age of study participants, age group 18-25 years had greater prevalence of impacted third molars as compared to two other groups. This age group had more vertical maxillary impactions and mesioangular mandibular impactions. These findings are in agreement with a Chinese study where age group 20-27 years had more impacted teeth as compared to other age groups¹⁷.

In some studies, level of impacted teeth was assessed by level of cemento- enamel junction in comparison with alveolar bone height. This method excludes the normally erupting teeth from sample of impacted teeth³. In this study, we assessed the level of impaction by comparison of occlusal surface of third molar and 2nd molar. We found that IIB is the most common level of mandibular impaction followed by IIA and IA. These findings are in accordance with some studies ^{10, 14} while some other studies reported different results²¹. Monaco et al.²² reported in a Canadian study that the most common level of impacted teeth was Class A and Class II. Objechina et al.²¹ found in his study that IIA was the most common level of impactions in mandible.

There are many contributing factors to impaction of teeth and some of them are delayed eruption of third molars and lack of space on distal side on second molars²³. However several other factors need to be studied. This study was based on OPGs from hospital record and only represents small number of patients. Further longitudinal

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studies in this regard are required to assess the prevalence in randomized samples.

CONCLUSION:

In patients reporting Madina teaching hospital, impacted teeth were more prevalent

in females as compared to males. Age group of 18-25 had more impactions as compared to other two groups which were (26-35) and (36-50). Maxillary vertical and mandibular mesial angulations were more prevalent in this study sample.



Fig:2 .Pell & Gregory Classification













Fig 7: Gender Wise Distribution of Impactions









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LEAD SUCH A LIFE, THAT, WHEN YOU DIE, THE PEOPLE MAY MOURN YOU, AND WHILE YOU ARE ALIVE THEY LONG FOR YOUR COMPANY.

Hazrat Ali (Karmulha Wajhay)