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Research Article

PREVALENCE OF COMMONLY FOUND PATHOSIS IN MANDIBULAR POSTERIOR TOOTH REGION IN YOUNG FEMALE PATIENTS BASED ON PANORAMIC RADIOGRAPHS

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ABSTRACT

There has been discussion in literature regarding prevalence of various pathologies in mandibular posterior teeth especially in relation with mandibular third molars. Most common pathology seen in this region in younger individuals is impacted mandibular third molars. The purpose of this study was to find most commonly occurring pathologies in posterior mandibular tooth region in young female patients. Thus, identify the pathologies at an earlier stage and treat them or take measures to prevent the diseases and its related complications

Objective: This study was aimed to investigate prevalence of various pathologies seen in mandibular posterior tooth region in young females.

Study design: Collection of data was from the outpatient department of the College of Dentistry, King Khalid University, Abha, Kingdom of Saudi Arabia. This is a retrospective study which included orthopantomograms of female subjects of age group 17 - 30 yrs. Mandibular posterior teeth were evaluated radiographically for presence of various pathologies like dental caries, impactions and its related pathologies, periodontal status and other conditions like cysts, tumours and granulomas. Data obtained was analysed and displayed as frequency graphs and tables.

Results: Radiographs of 200 young female patients were assessed. More than 50% of the study subjects had third molar impactions. Increased incidence of caries was seen in this age group almost with equal incidence in the first and second molars. Periodontal status was much better in our study group. Large cystic lesions like Dentigerous cysts, Odontogenic keratocyst or odontogenic tumours were not encountered in our study.

Significance: This study will help to assess the prevalence of various pathologies in posterior mandible in females of younger age group.

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INTRODUCTION

In the recent years, we have witnessed a reduction in the severity and prevalence of various oral diseases. Dental care has organized to educate, create awareness and improve dental health attitudes among individuals.

Oral health care problems are more commonly seen in 2nd decade of life and are more related with erupting 3rd molars. Most pathology seen in this age are impaction of third molars or other symptoms related with the impacted teeth. Teeth become impacted when they fail to erupt in their normal functional position. Erupting teeth could be malposed causing pathologies in the adjacent neighbouring second molar tooth like caries, root resorption or periodontal pathologies¹. Most of

the odontogenic lesions like cyst and tumours are also more common in mandibular posterior tooth region. Studies have shown third molar site a reservoir for periodontal disease as it harbours pathogenic bacteria².

Dental caries is the most common dental disease seen in humans. The morphology, time of eruption, positioning of the tooth in the oral cavity and various oral hygiene methods used in the control of plaque are the various factors that contribute to dental caries. First molars are more likely to be affected by dental caries as they erupt at an earlier age of 6-7 yrs and morphologically presents with deep occlusal pits and fissures³. Periodontal diseases are a group of lesions affecting the tissues surrounding and supporting the teeth³. Epidemiologic surveys on periodontal diseases in young individuals performed in

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many parts of the world indicated that loss of periodontal attachment and supporting bone is relatively uncommon in the young, but incidence increases in adolescents. Several studies have shown increased incidence of periodontitis in female patients⁴

This retrospective study was aimed at assessing the various pathologies that may be seen in mandibular posterior tooth region in females of younger age group. Careful evaluation of a patient will help the clinician to identify the various pathologies expected and encourage their early identification, prevention or prophylactic treatment.

METHODOLOGY

Study was a non-clinical retrospective study were in orthopantomograms of female patients of age group 17-30 yrs who attended the diagnostic department of College of Dentistry, King Khalid University, Abha, Saudi Arabia during the time period from Jan2016-Dec 2016 were selected. Data was collected retrospectively from the medical records and OPG's from archives of diagnostic department. All the study samples were selected based on inclusion and exclusion criteria. OPG's of 200 female patients of age group 17-30yrs were only included in the study. Radiographs of patients with missing mandibular molars, trauma to jaws, medically compromised as well as patients with congenital diseases were excluded from our study. Ethical approval was obtained from the College of Dentistry, King Khalid University Scientific Research & Ethics Committee. All data, including patient identification and X-rays, were kept confidential. Data was retrieved from the computer software used in the college to take OPGs and were viewed by two examiners. The patients age, number of impacted 3rd molars, type of impactions, cysts and tumors, dental caries, and periodontal status of the molars quadrant wise were entered in an excel sheet and displayed by frequency and percentage. These findings were recorded by both the examiners.

Type of impaction in third molars was in accordance to Winter's⁵ classification, with reference to angle formed between the intersected longitudinal axis of second and third molars. Impacted mandibular third molars were classified as mesioangular, distoangular, horizontal, vertical, inverted, buccoangular and linguoangular.

Statistical analysis

Descriptive analysis of the data was done. The data was cross-checked and subsequently analyzed to avoid any discrepancies. Results were displayed as prevalence of impactions, type of impactions, dental caries, alveolar bone loss and restorations on 1st 2nd and 3rd molar teeth of right and left quadrant. The results obtained were displayed as frequency graphs.

RESULTS

A total of 200 OPG's in a twelve month time period were assessed. Of the total 200 patients included in the study 56% had impacted third molars. Of which 36 % had impactions in both the right and left quadrants of the lower jaw [Graph/ Fig1,2]. Most commonly found type of impaction was mesioangular which was 62(27%) and the least common was buccoangular which was only 2(1%) of the total 101 patients with impactions. [Table 1]

72 % of the patients had radiographically diagnosable caries. 32% of the patients had caries on 1st molars and 31% had caries on 2nd molars. [Graph/ Fig 3]. 73 of the total 200 patients had caries in both the right and left lower quadrants.

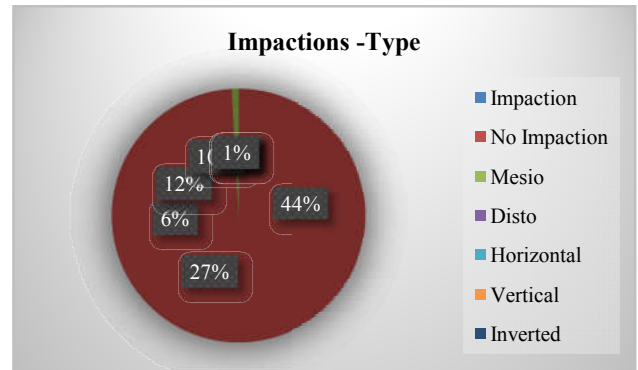


Figure 1 Percentage of impacted mandibular third molars in terms of pattern of angulation

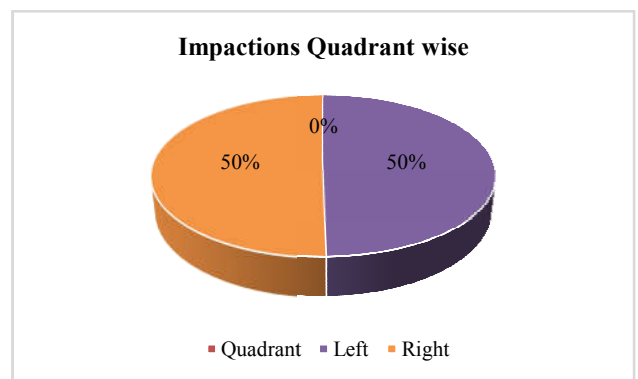


Figure2 Prevalence of impaction quadrant wise in the lower third molars in young females in a study done in Aseer region of Saudi Arabia

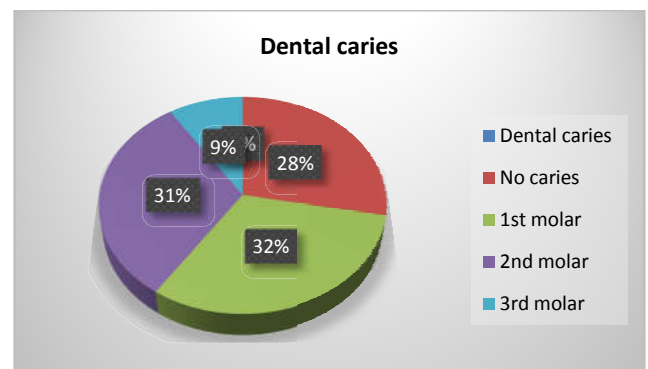


Figure 3 Prevalence of dental caries in the lower molars in young females in a study in Aseer region of Saudi Arabia

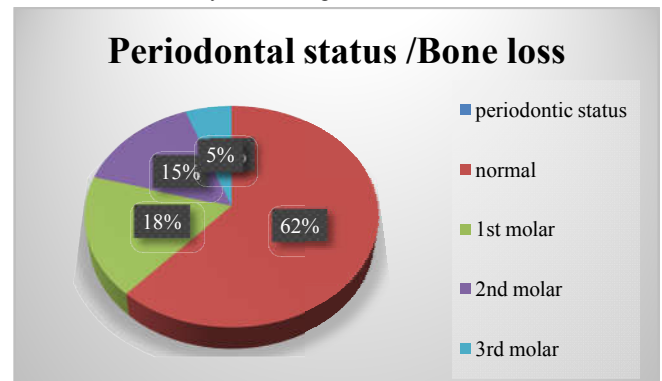


Figure 4 Prevalence of alveolar bone loss in posterior mandibular teeth in young females

In our study periodontal status was good in 62% of the patients studied. 18% cases had bone loss in relation to 1st molars. 15% had bone loss in relation to 2nd molars [Graph/Fig 4]. The prevalence of periodontal disease in the molar teeth were comparatively lower. Around 37% 1st (first) molars, 30% second molars and 6% third molar teeth were restored. [Graph/Fig 5]

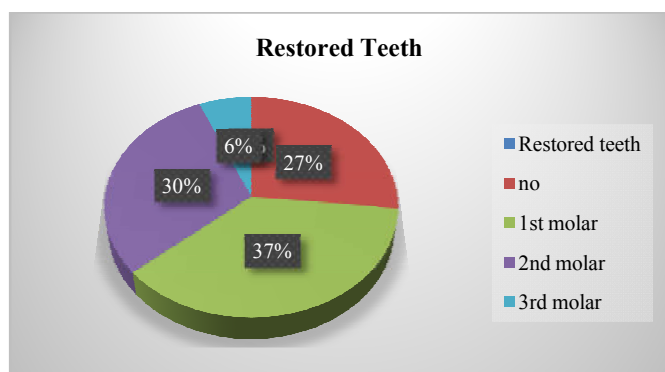


Figure 5 Distribution of restorations on mandibular posterior teeth in young females.

Table 1 Distribution of angulation of impaction in lower 3rd molars

Pattern of impaction	Frequency
No Impaction	99
Mesioangular	62
Distoangular	14
Horizontal	27
Vertical	22
Inverted	0
Linguoangular	0
Buccoangular	2

DISCUSSION

This retrospective study utilised panoramic radiographs and clinical records to estimate the prevalence of pathologies in posterior mandibular tooth region in young female patients. Panoramic radiographs are routinely taken for all adult patients for screening purposes⁵.

The frequency of the patients with at least one impacted third molar in the current study was 56%, which is consistent with the findings of Patil S⁷, M. Al-Anqudi SM et al⁸. 36% had impactions in both the right and left lower quadrants. Among the type of impactions we found 27% cases with mesioangular type of impaction. Second most common was horizontal which comprised 12% of our study population. The least type of impaction what we encountered was buccoangular, which was only 1% of the study sample. Quadrant wise we found equal frequency of occurrence in both the right and left lower quadrants. In individuals who had bilateral mandibular impactions we found about 38.8% showed different types of impactions in the right and left quadrants. No root resorption, cystic lesions or tumours were seen in relation to impacted 3rd molars.

Impaction in 3rd molars account for 98% of all impacted teeth. Third molars are the teeth that erupt last in human dentition. In an average they erupt above 17 yrs of age. Factors that influence eruption of third molars are skeletal growth pattern, gender and race, direction of eruption, earlier dental extractions as well as root configuration and maturation of the third molar¹. An equal prevalence of impactions in both jaws was reported by Mead⁷. Whereas, few authors have reported more

impactions in maxillary 3rd molars than mandibular. Study done by Patil S⁷ showed 62.1% impacted molars in the mandible while 37.9% in the maxilla. They did not observe any cystic pathology or tumours and root resorption associated with impaction. Approximately 50% of impacted third molars were positioned either mesioangularly or horizontally which is in accordance with our study. Supporting our study a similar study was done earlier in the same population but involving both the genders they found increased incidence of impaction in younger age group of 20-25 yrs and 60% of their study group had mesioangular type of impaction⁹.

A radiographic study done by Chu FC *et al*¹⁰ in Chinese population in young patients also showed 28.3% with at least one impaction. They found more impactions in mandibular molars. Arabion H *et al*¹¹ found 44% of their study population with impactions and no gender differences was seen in the incidence of impaction in a study done in central part of Iran. 49% of their study population had mesioangular type of impaction. A retrospective radiographic study in young females in another region of Saudi Arabia showed 33.7% incidence of impactions both in upper and lower jaws⁵.

Dental caries and periodontitis are the most common dental diseases. 28% cases in our study were free of radiographically diagnosable caries, which shows increasing awareness among youngsters towards dental care. 32% cases showed caries on 1st molar tooth. 31% had caries on 2nd molar and only 9% had caries on 3rd molars. Occlusal fissures of posterior molars contribute most significantly for caries frequency. A study on prevalence of caries on individual tooth surface done by Demirci *et al*¹² have shown females with higher incidence of caries than males and incidence was more in younger age group of 17 -25 yrs. According to various studies^{3,12,13} oldest tooth may be at a disadvantage because they are more readily affected by caries progression up to radiographically visible stages. The reasons for the high caries prevalence in the first permanent molar could be due to various reasons such as the deep pits and fissures on the occlusal surface, the large-sized crown which leads to accumulation of acid produced by bacteria, and the early eruption of the tooth. Thus complicated surface morphology and difficult to access, affects oral hygiene making these teeth more prone to periodontal diseases and dental decay.

In our study periodontal status was good in 62% of the samples studied. Periodontal status of the teeth were determined by assessing the presence or absence of bone loss radiographically. 18% cases had bone loss in relation to 1st molars. 15% cases had bone loss in relation to 2nd molars. Alveolar bone loss is a valuable diagnostic tool for early detection of periodontal bone loss. Lack of symptoms and lack of awareness could be a reason for the increased bone loss seen in this region.

A multinational study on bone loss in young adults showed increased bone loss on mesial followed by distal aspect of 1st molars¹⁴. A similar type of study⁶ done on young women showed 17% study subjects with generalised alveolar bone loss, 5.5% had bone loss in relation to posterior teeth. Pathologic alveolar bone loss can be considered as a predictor for many pathologies in young female patients⁴.

37 % of our study subjects had restorations in relation to 1st molars,30% in second and 6% in third molars. This shows that knowledge and attitude towards dental care is improving in the recent years. Dental awareness has led these subjects for routine dental check-ups so the carious lesions would have been diagnosed and treated. Further study involving a larger sample size with different age groups over a longer period of time would be more appropriate to asses pathologies in mandibular teeth in young female patients.

With the outcome of such study, health education can target the pathologies that could probably occur in the mandibular posterior region, its complications, and possible treatment.

Careful evaluation during routine dental examination can help the clinician to identify the pathologies in the mandibular posterior teeth. Thus encourage early identification, preventive or prophylactic treatment and referral if required. Pathologies could be eliminated before symptoms develop.

CONCLUSION

The prevalence of pathologic radiographic findings in posterior mandibular tooth region were detected in a sample of young female patients in Aseer region of Saudi Arabia. Impaction, Caries and alveolar bone loss were the most common pathologies seen in this region. Risk factors contributing to these findings should be analysed and measures should be taken to prevent these disease. More oral health awareness is to be created among women thus improving their oral and general systemic health.

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