



Clinical Presentation of Mandibular Impacted Teeth and Associated Pathologies in the Unaizah, Al Qaseem; Saudi Arabia

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Authors' contributions

This work was carried out in collaboration among all authors. This work of research was a combine effort author KRS collect All data for this study, author KAC performed the statistical analysis, author IAS wrote the protocol, author ABM and wrote the first draft of the manuscript. Authors AHS, BM, RP, MM managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study was to evaluate the clinical presentation of mandibular impacted teeth and associated pathologies in Unaizah, Al Qaseem; Saudi Arabia.

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Study Design: Descriptive cross sectional study.
Place and Duration of Study: Department of Oral and Maxillofacial Surgery (OMFS), King Saud Hospital Unaizah Saudi Arabia from March 2019 and December 2020.
Methodology: The record of patients attending dental section was reviewed from hospital record. Demographic data of patients were recorded through medical record Number by Medicapluse software. Orthopantamograms (OPGs) xrays were reviewed by maxillofacial surgeons on Dell LCD using software IMPEX 6.3.1.2794 enterprise unlimited Agfa. The variables like presence of impacted tooth, type of angulations, reason for extraction, caries on distal surface of 2nd molar tooth, and occlusal or mesial surface of 3rd molar were examined on OPGs. Data was analyzed using SPSS version-21.
Results: Males and females were 49% and 51% respectively. The most common type of impaction was vertical 45%, followed by horizontal 27% and mesio angular 22%. The impacted tooth on right side was observed as 51% and on left side as 49%. The relationship of gender with type of impaction was statistically insignificant (p value-0.157). The relationship was reasons and type of impaction was statistically insignificant (p value-0.317)
Conclusion: the both genders were almost equally affected. Vertical Impactions were more frequent and the pericoronitis was common reason for extraction of mandibular third molar. The relationship of gender and type of impaction was not significantly associated with type of impaction.

Keywords: Impaction; third molar; pericoronitis; caries.

ABBREVIATION

OMFS : Oral and Maxillo Facial Surgery
OPG : Orthopentamogram

1. INTRODUCTION

Tooth that fails to erupt within the specific time in jaw is called impacted tooth. Reasons for impaction could be as close proximity of other teeth, overlying bone texture, bulky soft tissue or a genetic predisposition. Mainly, the reason of impaction is insufficient arch length either in mandible or maxilla. Third molars are commonly impacted since they are the last teeth to erupt in jaws [1].

The prevalence of third molar impaction worldwide ranges from 16.7% to 68.6% [2]. Eighteen percent cases were reported in a study conducted in Saudi Arabia in 1986 while in other study it was reported as 60% in 2017 [3,4]. In china it was reported as 68.8% [5]. The most commonly impacted tooth in the oral cavity is indisputably the mandibular third molar [6]. As a general rule, all impacted teeth must be removed unless and otherwise contraindicated [1].

Most frequently classification used with respect to treatment planning is on angulations of the teeth, like mesio-angular, horizontal, and vertical, disto-angular, and ectopic position. The other classification is based on relationship with ramus which is classified as classes 1, 2 and 3. Depth

of the impacted tooth compared with the adjacent second molar is also valuable information to find out difficulty index for impaction removal and categorized as A, B and C classification [7].

The tooth impaction is a frequent phenomenon though; there is considerable dissimilarity in the presentation seen in different regions. Multiple problems can develop if not removed after diagnosis. Reported reasons for removal of third molars are considered as pericoronitis for multiple times, food impaction, proximal caries in adjacent molar, root resorption, and pathologic changes like dentigerous cyst or ameloblastoma [8].

Patients with third and fourth decade more often requires extraction due to caries than young individuals. Caries to 2nd molar is routinely missed on examination especially in impacted teeth. Mesioangular and horizontal mandibular third molar impactions have been found to have a high risk of caries development and periodontal tissue damage at the second molar [9]. Prophylactic removal of mesioangular and horizontal mandibular third molars have been suggested, especially for molars with an impaction lies below the cervical line of 2nd molar [9]. Pain, limited mouth opening, bleeding are common post operative complication in third molar surgery so the patients refuse for removal and this delay may lead to worst outcome [10-13]. There are currently no available data in literature for presentation of third molar in the Qaseem province. The aim of this study was to

evaluate the clinical presentation and associated pathologies of impacted teeth.

2. MATERIALS AND METHODS

The record of patients attending Department of OMFS was reviewed from March 2019 to December 2020. The convenient sampling technique was used to recruit the patients. The inclusion criteria were age ranges from 18-48 years; patients having mandibular impacted tooth of either gender came for extraction. The exclusion criteria were history of extraction of mandibular 2nd molar, or patients having any syndrome and presence of incomplete records.

2.1 Data Collection Procedure

Demographic data of patients were recorded through medical record Number by Medicapulse software. Orthopantomograms (OPGs) xrays were reviewed by maxillofacial surgeons on Dell LCD using software IMPEX 6.3.1.2794 enterprise unlimited Agfa. The variables like presence of impacted tooth, type of angulations, reason for extraction, caries on distal surface of 2nd molar tooth, and occlusal or mesial surface of 3rd molar were examined on OPGs. Long axis of 2nd molar was used to assess angulations of third molar, classified as mesioangular, horizontal, distoangular, vertical and inverted/ectopic.

All assessment was done by two examiners at same time; to avoid any error in data collection. Data was analyzed using SPSS version-21. The descriptive statistics was used to calculate the frequency and percentage for qualitative variables. The mean and standard deviation was calculated for quantitative variables. The chi square test was applied for qualitative variables to check the statistical difference. The p value ≤ 0.05 was set as significant.

3. RESULTS

Males and females were 49% and 51% respectively. The male to female ratio was 1:1 (Fig. 1). The mean age was 25.91 ± 6.34 years. The most common type of impaction was vertical 45%, followed by horizontal 27% and mesio angular 22% (Fig. 2). The impacted

tooth on right side was observed as 51% and on left side as 49% (Table 1).

The mesioangular 29% and vertical 37% type of impactions were observed in males where as 16% and 54% were observed in females. The relationship of gender with type of impaction was statistically insignificant (p value-0.157) as shown in Table 2.

Pericoronitis was the common reason of extraction of third molar observed as 37% in vertical 31% in mesioangular where as orthodontic reason was observed in mesioangular 23%, in horizontal 17%. The relationship was statistically insignificant (p value-0.317) as shown in Table 2.

4. DISCUSSION

Clinical presentation of impacted teeth varies in different part of world. The fate of un-erupted or partially erupted tooth is questionable can lead to pathologic [12]. Any permanent tooth in the dental arch can be impacted, but mandibular and maxillary third molar are more involved, followed by maxillary canines, mandibular and maxillary premolar, and maxillary central incisors [13].

According to Othman R et al. third molar extraction is the common surgical procedure performed at every dental clinic [14]. The etiology of impaction is multifactorial, tooth and jaw discrepancy is widely accepted theory [15]. The impacted tooth in the jaw may leads to serial problems like pain because of soft tissue infection, periodontal disease, dental caries on the occlusal surface of third molar or proximal surface of 2nd molar, root resorption of 2nd molar and deeply impacted teeth may leads to fracture mandible after minor trauma. It may also be associated with odontogenic cyst or tumors, pain of unexplained origin [16].

In this study Males and females were almost equally affected with the ratio of 1:1, is in agreement with study conducted in Saudi Arabia by Haider et al. [3] and in Pakistan by Kumar S et al. [16] in Greek by Ioannis G et al. [17]. As it is considered as genetic disorder that could be possible reason for effecting both genders equally where as our results are in not in agreement with the study conducted by sheikh AH et al. [18].

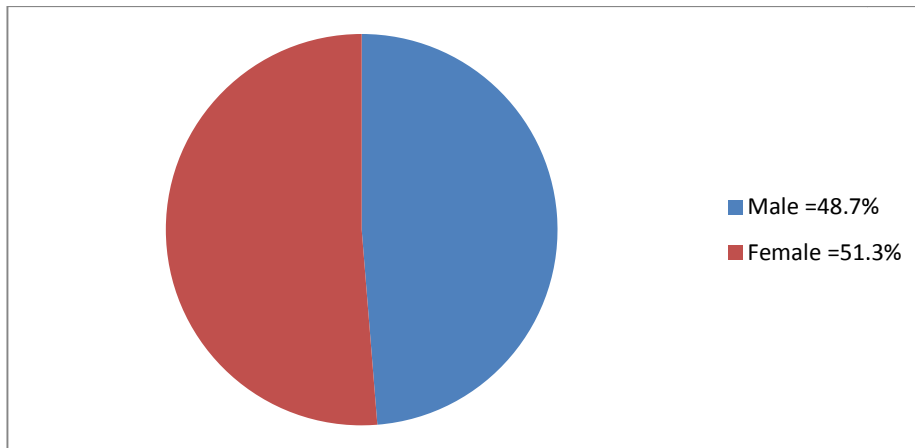


Fig. 1. Gender distribution

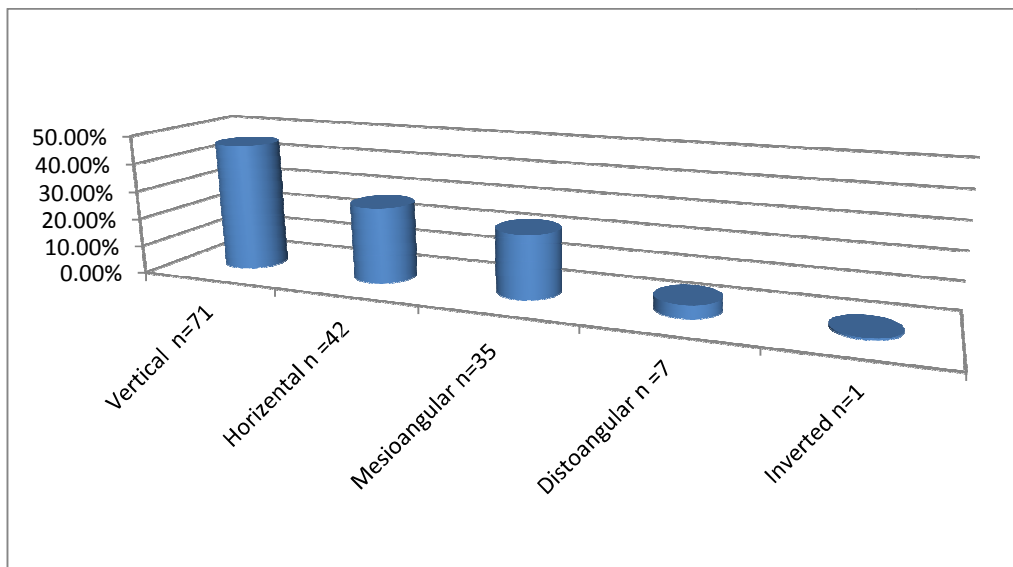


Fig. 2. Presentation of impaction according to angulation

Table1. Site of impaction

Site	Frequency	Percentage
Right	80	51.3%
Left	76	48.7%
Total	156	100%

Table 2. Relationship of gender with type of impaction

Gender	Impaction					Total	P value
	Mesioangular	Vertical	Horizontal	Distoangular	Inverted		
	%	%	%	%	%		
Male	22	28	22	3	1	76	0.157
	28.9	36.8	28.9	3.9	1.3	-	
Female	13	43	20	4	0	80	
	16.2	53.8	25.0	5.0	.0	-	
Total	35	71	42	7	1	156	
	22.4%	45.5%	26.9%	4.5%	0.6%	100.0%	

Table 3. Relationship of reasons of third molar extraction with angulations

Impaction	Reasons of extraction						Total N	P value
	Decade wisdom tooth	Decade/ resorption of 2 nd molar	Decade 3 rd Molar and 2 nd molar	Orthodontic reasons	Periapical pathology	Pericoronitis		
Mesioangular	3 8.6	5 14.3	5 14.3	8 22.9	3 8.6	11 31.4	35 100.0	0.317
Vertical	9 12.7	10 14.1	17 23.9	5 7.0	4 5.6	26 36.6	71 100.0	
Horizontal	6 14.3	6 14.3	5 11.9	7 16.7	6 14.3	12 28.6	42 100.0	
Distoangular	-	3 42.9	1 14.3%	0	0	3 42.9	7 100.0	
Inverted	-	1 100.0	-	-	-0	0	1 100.0	
	-	-	-	-	-	-	100.0	
Total N	18 11.5%	25 16.0%	28 17.9%	20 12.8%	13 8.3%	52 33.3%	156 100.0%	

In this study the most common type of impaction was vertically placed impacted tooth. Our results are in agreement with the study conducted by Punjabi SK et al. and Ryalat et al. [16,19] However our results are not in agreement with other studied conducted by Sheikh AH and Lina A [18,20].

In this study it is observed that majority of patients were affected with pericoronitis, followed by caries to 3rd molar and 2nd molar is in agreement with the finding of Ryalat S et al. [19], and Punjabi SK et al. [16]. Pain because of soft tissue infection seen in many cases was due to partial soft tissue cover in vertical placed impacted teeth and food impaction. Caries is 2nd common factor which permit the extraction of third molar was observed in this study, which is in agreement with the findings reported by Marques J et al. [21].

5. CONCLUSION

Within the light of limitations it is concluded that male and females are equally affected in this region. Third decade was found as commonly affected age group. Considering the type and reasons of impaction, vertical Impactions seen more frequent, while the pericoronitis was common reason for extraction of mandibular third molar. The relationship was not significantly associated. It is recommended that screening of oral cavity may be assessed for third molar evaluation at an early stage to diagnose properly and for avoidance of complications in surgery. Further multicenter studies are required to find out accurate presentation and reasons for extraction of impacted 3rd molar.

CONSENT

Consent from patient were already taken in their medical file for procedure of surgery and to use their data for any research purpose.

ETHICAL APPROVAL

The ethical permission was sought from the Ethical Review Committee (ERC) of the King Saud Hospital In addition, departmental permission was also sought from Department of Oral and Maxillofacial Surgery.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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