The Professional Medical Journal
www.theprofesional.com

DOI: 10.29309/TPMJ/2019.26.01.2587

ORIGINAL PROF-0-2587

MANDIBULAR WISDOM TEETH;

EVALUATION OF MANDIBULAR WISDOM TEETH IMPACTION PATTERN, FREQUENCY AND ASSOCIATED VARIABLES AMONG PATIENTS OF LARKANA.

Haresh Kumar Oad[1], Karshma Devi[2], Shahid Ali Mirani[3]

1. BDS
House officer
Department of Oral & Maxillofacial Surgery
Bibi Aseefa Dental College,
Shaheed Mohtarma Benazir Bhutto Medical University Larkana.
2. BDS
House Officer
Department of Oral & Maxillofacial Surgery
Bibi Aseefa Dental College,
Shaheed Mohtarma Benazir Bhutto Medical University Larkana.
3. BDS, MPhil, PhD
Assistant Professor and Head
Department of Science of Dental Materials
Bibi Aseefa Dental College,
SMBB Medical University Larkana.

Correspondence Address:
Dr. Haresh Kumar Oad
Department of Oral & Maxillofacial Surgery
Bibi Aseefa Dental College,
Shaheed Mohtarma Benazir Bhutto Medical University Larkana.
hareshoad2@gmail.com

Article received on:
14/02/2018
Accepted for publication:
15/09/2018
Received after proof reading:
04/01/2019

ABSTRACT… Objectives: This study evaluated mandibular wisdom teeth impaction frequency, angulation and associated variables among patients visiting OPD at Bibi Aseefa Dental College Larkana. **Study Design:** Descriptive cross sectional study involving patients of 18 to 40 years of age. **Setting:** Radiology Department at Bibi Aseefa Dental College for Orthopantomogram (OPG) Radiograph. **Period:** 1 month from 01-03-2016 to 31-03-2016. **Materials and Methods:** The prevalence of impacted mandibular third molars, type of angulation, level of impaction (according to Winters classification) and relationship with ramus (according to Pell & Gregory classification) and inferior alveolar nerve canal were evaluated on the OPG radiograph as well as clinically. **Results:** A total of 162 patients participated in this study including 68 males (42.06%) and 94 Females (57.94%). The mean age of study participants was found to be 23.09 years. The total prevalence of mandibular third molar impaction in current study was 28.57%. The highest number of patients were with Mesioangular impactions **(**13.49**%)**, followed by Vertical (9.52%) and Horizontal (5.56%) no any Distoangular impaction was found in present study. The level B (15.9%) was more common followed by level C (8.7%). Moreover, Class I ramus relationship was frequently found among study participants followed by Class II and Class III respectively. **Conclusion:** The female patients with mandibular wisdom teeth impaction outnumbered males. The most common was the mesioangular impaction with level B depth and class I ramus relationship.

Key words: Mandibular Third Molar, Impaction, Classification, Patients, Larkana.

Article Citation: Oad HK, Devi K, Mirani SA. Mandibular wisdom teeth; evaluation of mandibular wisdom teeth impaction pattern, frequency and associated variables among patients of Larkana. Professional Med J 2019; 26(1):155-159. **DOI:** 10.29309/TPMJ/2019.26.01.2587

INTRODUCTION

Mandibular third molar impaction is one of the most important clinical condition leading to Pericoronitis as well as caries and resorption of mandibular second molar.[1,2] Literature indicates that most frequently occurring impaction is Mandibular and Maxillary third molars, followed by maxillary canines, mandibular premolars, maxillary premolars and second molars. Incisors and first molar are rarely impacted in both jaws.[3]

The major reasons reported in literature for permanent teeth impaction include systemic or local factors. It has been observed that impaction of permanent teeth is frequent in systemic conditions of cleidocranial dysplasia, endocrine hormonal deficiencies (hypothyroidism and hypopituitarism) febrile diseases and down syndrome. In addition, the local factors have also been very widely reported to be cause of impacted teeth; The tooth may become impacted because of adjacent teeth, density of overlying bone or soft tissue, limited place in the jaw, abnormal positioning of tooth bud and direction of eruption.[4,5]

The prevalence of third molar impaction up to 73% of adult population of Europe has been reported. It has been observed that third molar impaction is more in lower jaw with significantly higher tendency in females than males.[2,4,6-8-10] The age at which third molars develop and erupt or remain impacted is clinically very important for all disciplines of dentistry to avoid complications including Pericoronitis and pain, dental decay and root resorption as well as malocclusion.[11] This requires to explore mandibular third molar impaction and associated variables. Therefore,

this study investigated the frequency, angulation and associated variables of only mandibular third molar impaction because of increased number of complications associated with impacted mandibular third molars in comparison to third molar impaction in upper jaw among patients of Larkana.

MATERIALS AND METHODS

This was a descriptive cross sectional study involving patients of 18 to 40 years of age who were referred to the Radiology department at Bibi Aseefa Dental College for Orthopantomogram (OPG) Radiograph. The Patients suffering from maxillofacial trauma, Down syndrome, cleiodo-cranialdysostosis were excluded because these conditions could interfere in eruption of third molar. The patients with absent mandibular second molar were also excluded. The written informed consent was obtained from the study participants before clinical examination and data collection.

The angulation of impacted mandibular third molars, depth and its relationship with ramus were evaluated on the OPG radiograph as well as clinically. The impaction relationship with ramus was assessed as per Pell & Gregory classification. However, depth of impaction was evaluated according to winter's classification.

The collected data were analysed using SPSS software version 17. The level of significance was set at ≤ 0.5. The Chi square test was used to test the association between gender and mandibular third molar impaction.

RESULTS

A total of 162 patients participated in this study including 68 males (42.06%) and 94 Females (57.94%). The mean age of study participants was 23 years. The total prevalence of mandibular third molar impaction in current study was 28.57%. The results of the current study revealed that female participants had more impacted mandibular third molar and the most common angulation pattern was Mesioangular and the most common impaction depths were level C and Class III ramus relationship. However, in male patients mandibular impactions vertical angulation was predominantly found. There was statistically non-significant association between gender and impaction in this study (Table-I). The highest number of patients were with Mesioangular impactions (13.49%), followed by Vertical (9.52%) and Horizontal (5.56%) no any Distoangular impaction was found in present study.

In context of mandibular third molar impaction relation to adjacent molar, level B (15.9%) was more common followed by level C (8.7%). Moreover, Class I ramus relationship was frequently found among study participants followed by Class II and Class III respectively. It was observed that right-sided third molars impaction was more common. It was found that 8.9% impaction were near to inferior alveolar nerve (IAN) canal, 27% impactions were far from IAN canal and 1.6% were superimposed (Table-II).

Type of impaction	Gender of patient		Total (Percentage)	P-Value
	Male	Female		
Mesioangular	05	12	17 (13.49)	.556
Vertical	06	06	12 (9.52)	
Horizontal	04	03	07 (5.52)	
Distoangular	00	00	00 (00)	
No impaction	53	73	126 (71.43)	
	68	94	162	

Table-I. Type of mandibular third molar Impaction

Factor	Frequency	Percentage
Relation with Ramus		
Class I	26	20.6
Class II	09	2.1
Class III	01	0.8
Normal	76	58.7
No	16	12.7
Relation to Adjacent Molar		
Class A	5	4.0
Class B	20	15.9
Class C	11	8.7
Normal	76	58.7
No	16	12.7
Relation to IAN Canal		
Near	10	8.9
Far	34	27.0
Superimposed	02	1.6
Distorted	03	2.4
No	16	11.7
Missing	61	48.4

Table-II. Mandibular third molar impaction associated variables

DISCUSSION

In global population most frequently found impaction is mandibular third molar impactions. The wisdom teeth erupt between 17 to 21 years of age.[7] In males the average eruption age of mandibular third molars is approximately 3 to 6 months ahead of females.[12] The results of the current study revealed that female participants had more impacted mandibular third molar and the most common angulation pattern was Mesioangular and the most common impaction depths were level C and Class III ramus relationship. In agreement with the current study, Hashemipour et al; Quek et al, and Hugoson and Kugelberg also reported more impactions in women compared to men.[9,13-14] The higher incidence in women could be attributed to the fact that the physical growth in women usually stops earlier than men leading to a smaller jaw size.

In this study mesioangular impactions of mandibular third molar was most common. This finding confirmed the previous studies.[15,16] However, Almendros-Marques et al, Bataineh et al, and Hugoson and Kugelberg showed a high prevalence rate of third molar impaction in the vertical position.[14,17-18] In present study level B impaction was most common, this finding is in agreement with the results of previous researchers.[10,13,19] However, in contrast to findings of this study, level A impaction has been reported most common by Monaco et al, and Obiechina et al. [20,21] The inconsistency in findings of various studies with respect to angulation can be explained due to use of variable classification methods. The two classifications of impaction level has been used by researchers one according to the position of cemento enamel junction (CEM) of third molar in relation to alveolar bone level and other classification according to relationship of occlusal surfaces of the third molar and the adjacent second molar. [20-22]

In present study, Class I ramus relationship was frequently found among study participants followed by Class II and Class III respectively. Which is in contrast to the findings of Monaco et al, Obiechina et al and Blondeau et al.[20-22] The modern human lifestyle and diet has been linked to smaller size jaws. Therefore, available space for wisdom teeth, which erupt in the end has decreased.[23] Moreover, delayed mineralization of wisdom teeth and early physical maturation is a possible reason of increased rate of mandibular third molar impaction.[9] Furthermore, ethnic variations could affect the maturation and eruption time as well as size of the jaw. This may be one explanation of variable prevalence of mandibular third molar impaction reported across the countries.[20-22]

The differences in findings of researchers across the globe with respect to mandibular third molar angulation, level of impaction and relation to ramus could be explained due to the variable race of study participants, patient selection criteria and study design.

This research study was executed prospectively as patients who were advised for OPG were included, while in contrast to this study, majority of previous investigations on third molar impaction pattern determination have been carried out retrospectively by evaluation of OPG records. One of the major strength of present study design was that patients who had got their mandibular third molars impactions extracted were excluded. This increased the accuracy of calculation of the incidence and pattern of impaction and avoided underestimation of incidence of impaction which could take place in retrospective studies. The limitation of this study was that it was cross-sectional study and did not involve randomization. In addition, it covered only a limited geographic area of Larkana. It is recommended for future investigators to evaluate further burden of third molar impaction in the Pakistani population from different regions and its associated complications.

CONCLUSION

The mandibular third molar impaction pattern in present study population was characterized by increased prevalence in females. The most common was the mesioangular impaction with level B depth and class I ramus relationship

ACKNOWLEDGEMENTS

We are thankful to Dr Mohammad Ilyas Shaikh

Associate Professor Oral and Maxillofacial Surgery for his help in this study. We are grateful to Dr. Gul Sana, Dr. Naila and Dr. Bushra for their assistance in data collection.

REFERENCE

1. Nazir A, Asif S, Akram MA. **Surgical removal of trans-alveolar mandibular 2nd premolar impactions by lingual approach.** Pakistan Oral & Dent J 2013; 33: 35-7.

2. Hupp JR, Ellis III E, Tucker MR. **Contemporary oral and maxillofacial surgery. Principles of management of impacted teeth.** 6th Ed. Philadelphia: Elsevier Publishers; 2014: 143-67.

3. Agarwal KN, Gupta R, Faridi MM, Kalra N. **Permanent dentition in Delhi boys of age 5-14 years.** Indian Pediatr. 2004 Oct; 41(10):1031-5.

4. Ishihara Y, Kamioka H, Yamamoto TT, Yamashiro T. **Patient with nonsyndromic bilateral and multiple impacted teeth and dentigerous cysts.** Am J Orthod Dentofacial Orthop 2012; 141: 228-41.

5. Fu PS, Wang JC, Wu YM, Huang TK, Chen WC, Tseng YC, et al. **Impacted mandibular second molar- a retrospective study of prevalence and treatment outcome.** Angle Orthod 2012; 82: 670-5.

6. Khan NB, Chohan AN, AlMograbi B, AlDeyab S, Zahid T, AlMoutairi M. **Eruption time of permanent first molars and incisors among a sample of saudi male schoolchildren.** Saudi Dent J. 2006 Jan-Apr; 18(1):18-24.

7. Elsey MJ, Rock WP. **Influence of orthodontic treatment on development of third molars.** Br J Oral Maxillofac Surg. 2000 Aug; 38(4):350-3.

8. Pahkala R, Pahkala A, Laine T. **Eruption pattern of permanent teeth in a rural community in northeastern Finland.** Acta Odontol Scand. 1991 Dec; 49(6):341-9.

9. Hashemipour MA, Arashlow MT, Hnzaei FF: **Incidence of impacted mandibular and maxillary third molars: A radiographic study in a Southern Iran population.** Med Oral Patol Oral Cir Bucal 2013; 18: 40-5.

10. Hassan AH. **Pattern of third molar impactions in a Saudi population.** Clin Cosmet Investig Dent 2010; 2: 109-13.

11. Amin K, Vasavi K, Vahanwala S, Nayak CD, Pagare SS, Ramdev SS. **Co- relation of variables as determined from panoramic radiograph and evaluating their significance in eruption of permanent mandibular third molar.** JIAOMR 2008; 20(1):14-7.

12. Hattab FN, Alhaija ES. **Radiographic evaluation of mandibular third molar eruption space.** Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1999; 88(3):285-91.

13. Quek SL, Tay CK, Tay KH, Toh SL, Lim KC. **Pattern of third molar impaction in a Singapore Chinese population: A retrospective radiographic survey.** Int J Oral Maxillofac Surg 2003; 32:548–52.

14. Hugoson A, Kugelberg CF: **The prevalence of third molars in a Swedish population. An epidemiological study.** Community Dent Health 1988; 5: 121–138.

15. Meisami T, Sojat A, Sandor GK, et al: **Impacted third molars and risk of angle fracture.** Int J Oral Maxillofac Surg 2002; 31: 140–144.

16. Chaparro-Avendano AV, Perez-Garcia S, Valmaseda-Castellon E, et al: **Morbidity of third molar extraction in patients between 12 and 18 years of age.** Med Oral Patol Oral Cir Bucal 2005; 10:422–431.

17. Almendros-Marques N, Berini-Aytes L, Gay-Escoda C: **Influence of lower third molar position on the incidence of preoperative complications.** Oral Surg Oral Med Oral Pathol Oral Radiol 2006; 102:725–732.

18. Bataineh AB, Albashaireh ZS, Hazza'a AM: **The surgical removal of mandibular third molars: A study in decision making.** Quintessence Int 2002; 33: 613–617.

19. Sandhu S, Kaur T. **Radiographic evaluation of the status of third molars in the Asian-Indian students.** J Oral Maxillofac Surg 2005; 63:640–5.

20. Monaco G, Montevecchi M, Bonetti GA, Gatto MR, Checchi L. **Reliability of panoramic radiography in evaluating the topographic relationship between the mandibular canal and impacted third molars.** J Am Dent Assoc 2004; 135:312-8.

21. Obiechina AE, Arotiba JT, Fasola AO. **Third molar impaction: Evaluation of the symptoms and pattern of impaction of mandibular third molar teeth in Nigerians.** Odontostomatol Trop 2001; 24:22-5.

22. Blondeau F, Daniel NG. **Extraction of impacted mandibular third molars: Postoperative complications and their risk factors.** J Can Dent Assoc 2007; 73:325.

23. Eshghpour M, Mortazavi H, Mohammadzadeh Rezaei N, Nejat A. **Effectiveness of green tea mouthwash in postoperative pain control following surgical removal of impacted third molars: Double blind randomized clinical trial.** Daru 2013; 21:59.

LEADERS DON'T CREATE FOLLOWERS,
THEY CREATE MORE **LEADERS**.

"Unknown"

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Haresh Kumar Oad	Concept of paper and data collection.	
2	Karshma Devi	Data collection, Write up	
3	Shahid Ali Mirani	Critical review of whole manuscript.	