Original Research

Assessment of pattern of mandibular third molar impaction among Indian population

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ABSTRACT:
Background: Tooth impaction is one of the most common abnormalities of tooth position. The present study was conducted to assess pattern of mandibular third molar impaction among Indian population. **Materials & Methods:** 86 cases of mandibular third molar impaction of both genders were included. Parameters such as angulation, position, and level of the impacted tooth were recorded. The angulation was assessed using Quek's adaptation of the Winter's classification. The position and level of the impacted teeth were assessed using the Pell and Gregory classification. **Results:** Out of 86 patients, males were 32 and females were 54. Type of impaction was vertical in 20, horizontal in 14, mesio- angular in 34, disto-angular in 12 and transverse in 6 cases. Level/ depth of impaction was level A in 34%, level B in 62% and level C in 4%. Ramus relationship was class I in 30%, class II in 50% and class III in 20%. The difference was significant (P< 0.05). **Conclusion:** Maximum cases of impaction was seen among females and type of impaction was mesio- angular.
Key words: Mesio- angular, Impaction, third molar

INTRODUCTION

Tooth impaction is one of the most common abnormalities of tooth position.[1] An impacted tooth (dens retens) is a tooth with a fully formed root, with complete development, which is partially or completely covered by hard and/or soft tissues, being outside the physiological period of eruption. The procedure for surgical removal of impacted wisdom teeth is routinely performed in a dental surgery.[2] Numerous studies have reported prevalence of impacted teeth that have ranged from 6.9 to 76.6%. The most common of all teeth to be impacted are third molars, especially in the mandible. Farman wrote that impacted teeth are those teeth that are prevented from eruption due to a physical barrier within the path of eruption.[3]

Some of the common causes of impaction are inadequate space in the dental arch, insufficient development of the retromolar space, Mandibular ramus growth resorption at its anterior surface, deposition at its posterior surface, in case of imbalance, the mandibular third molar impacted. Proper history has to be taken while performing these minor surgical procedures.[4] Patients under

Antiplatelet monotherapy or even antiplatelet dual therapy need not be altered or stopped before minor oral surgical procedures. Impacted teeth can lead to impaction of food, pericoronitis, caries, pain, and development of pathology. Therefore, impacted third molar prophylactic removal is becoming a common practice nowadays.[5] The present study was conducted to assess pattern of mandibular third molar impaction among Indian population.

MATERIALS & METHODS

The present study comprised of 86 cases of mandibular third molar impaction of both genders. All were enrolled with the consent of patients. Ethical clearance as obtained before starting the study.

Data such as name, age, gender etc. was recorded. A thorough clinical examination was carried out. Parameters such as location of the impacted third molar (left/right), angulation, position, and level of the impacted tooth were recorded. The angulation was assessed using Quek's adaptation of the Winter's classification. The position and level of the impacted teeth were assessed using the Pell and Gregory classification. Results thus obtained were subjected to

statistical analysis. P value less than 0.05 was considered significant.

RESULTS
Table I Distribution of patients

| Total- 86		
Gender	**Male**	**Female**
Number	32	54

Table I shows that out of 86 patients, males were 32 and females were 54.

Table II Type of impaction

Type	Number	P value
Vertical	20	0.05
Horizontal	14	
Mesio- angular	34	
Disto- angular	12	
Transverse	6	

Table II, graph I shows that type of impaction was vertical in 20, horizontal in 14, mesio- angular in 34, disto-angular in 12 and transverse in 6 cases. The difference was significant (P< 0.05).

Graph I Type of impaction
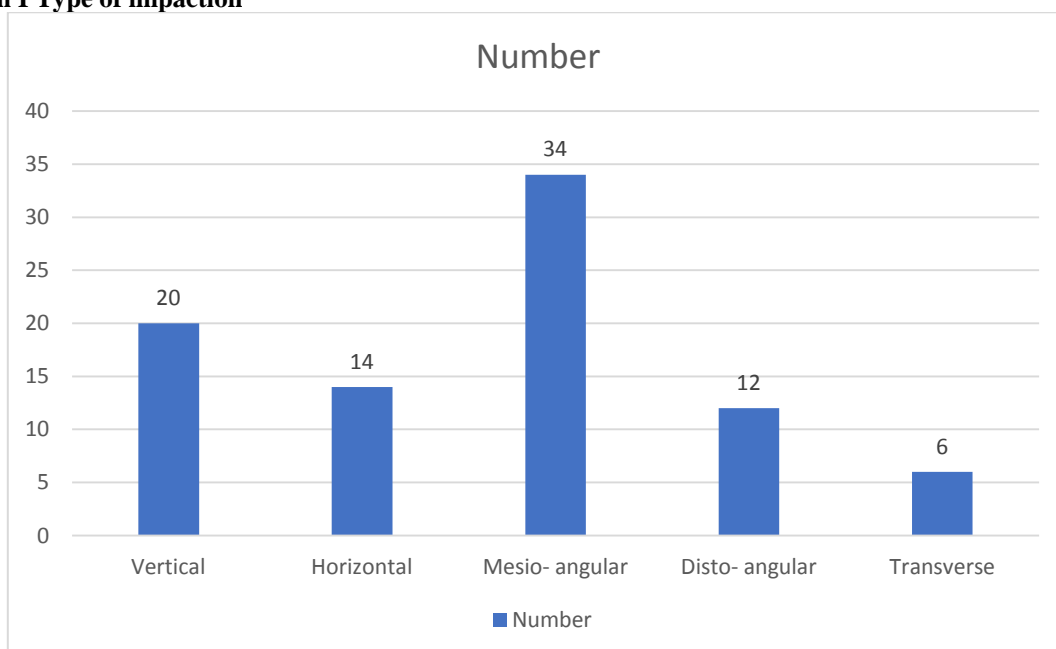
Table III Distributions of the different level and class of impacted teeth

Parameters	Variables	Percentage	P value
Level/ depth of impaction	Level A	34%	0.02
	B	62%	
	C	4%	
Ramus relationship	Class I	30%	0.05
	Class II	50%	
	Class III	20%	

Table III, graph II shows that level/ depth of impaction was level A in 34%, level B in 62% and level C in 4%. Ramus relationship was class I in 30%, class II in 50% and class III in 20%. The difference was significant (P< 0.05).

Graph II Distributions of the different level and class of impacted teeth
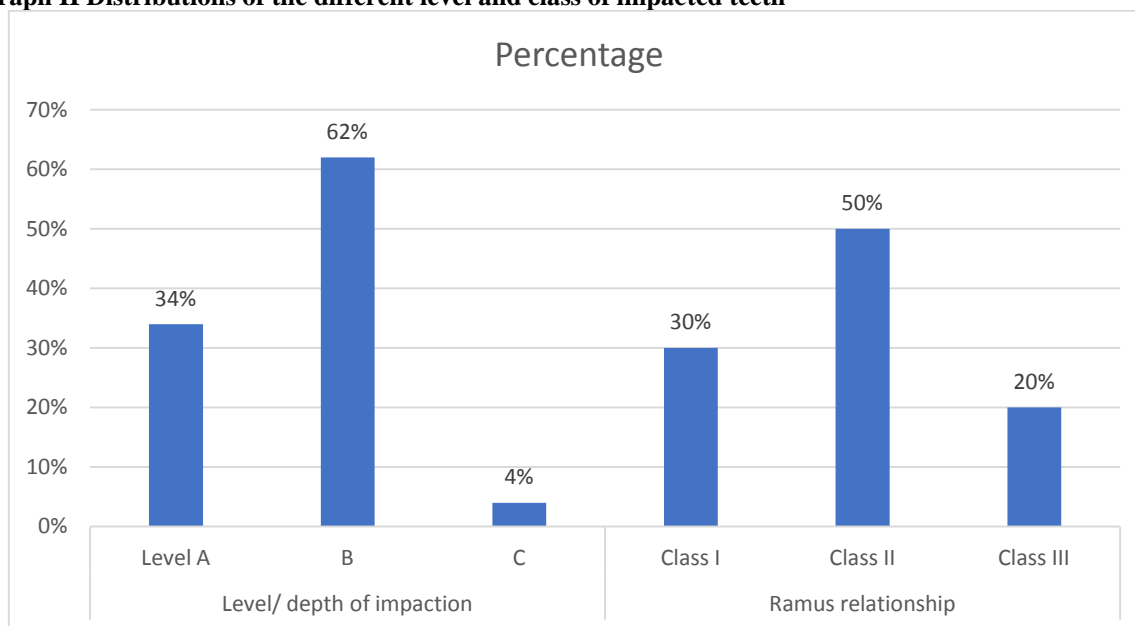
DISCUSSION

The third molars are the last teeth to erupt in the oral cavity. Since they erupt at about the time when the youth goes off into the world to become wise, they are referred to as wisdom teeth16. Impacted 3rd molars are very troublesome.[6] Retained, unerupted mandibular third molars are often associated with varied pathologies which are Pericoronitis, Dental caries , cysts and tumours associated with the tooth , Periodontitis, root resorption. Untreated mandibular third molar can sometimes even cause fracture of the mandible, unfortunately not much data is available on the etiology and fracture patterns seen.[7] The location and arrangement of impacted third molar, surrounding bone, mandibular canal and adjacent tooth are significant in imaging diagnosis for the proper surgical treatment planning. The most efficient radiographic technique for the assessment of 3rd molar impaction is the panaromic radiographic technique.[8] The present study was conducted to assess pattern of mandibular third molar impaction among Indian population.

In present study, out of 86 patients, males were 32 and females were 54. Jaron et al[9] in their study a total of 50.16% (n = 794) were left and 49.84% (n = 789) were right lower wisdom teeth. Complete impaction was diagnosed in 56.79% (n = 899) of cases, asymptomatic partial impaction in 30.45% (n = 482), and symptomatic impaction in 12.76% (n = 202). In most of the surgical removal procedures of the impacted teeth, the anticipated difficulty of the procedure was rated as very difficult (39.54%). In Winter's impaction classification, the most numerous group was third wisdom teeth in the mesial-angular position (n = 832), and a slightly less numerous group was third molars in the distal-angular position (n = 618). Inverted impaction (n = 7) and impaction described as other (n = 1) were the least frequent. The

most common position of impacted mandibular third molars according to the amount of space between the anterior margin of the mandibular ramus and the second lower molar (1, 2, 3) was distance 2 (70.44%), and the least common was position 3 (10.68%). In the evaluation of the impaction depth (A, B, C), as many as 50.6% of cases showed depth A and only 9.67% showed depth C. Grade 2A was the most abundant impaction grade according to Pell and Gregory (36.26%), with 1C (2.21%) and 3C (1.83%) being the least abundant.

We observed that type of impaction was vertical in 20, horizontal in 14, mesio- angular in 34, disto-angular in 12 and transverse in 6 cases. Passi et al[10] in their study the prevalence and pattern of mandibular impacted third molar was determined. Out of 960 patients with the third molar investigated, a total of 250 patients having impacted mandibular third molar (152 [60.8%] males and 98 [39.2%]) females between June 2014 and June 2016 were included in the study. The age ranged from 20 to 55 years, with a mean age of 27.6 years and the standard deviation was 5.8 years. The prevalence of impacted mandibular third molars for this study was 26.04%. This study demonstrated that males (60.8%) were more likely to present with impacted mandibular third molars than females (39.2%). The prevalence of third molar impactions was almost the same on both the left (45.8%) and right (54.2%) sides. This study also noted that mesio-angular impactions (49.2%) were the most common type of impaction. The least common form of impactions was the transverse types (2%). The prevalence of impacted mandibular third molars for this study was 26.04%.

We observed that Level/ depth of impaction was level A in 34%, level B in 62% and level C in 4%. Ramus relationship was class I in 30%, class II in 50% and class III in 20%. Kramer and Williams[11] reported that

mesio-angular impaction was the most prevalent type of impaction in the mandibular third molars of African American.

CONCLUSION

Authors found that maximum cases of impaction was seen among females and type of impaction was mesio- angular.

REFERENCES

1. Chu, F.; Li, T.; Lui, V.; Newsome, P.; Chow, R.; Cheung, L. Prevalence of impacted teeth and associated pathologies—A radiographic study of the Hong Kong Chinese population. Hong Kong Med. J. 2003;9:158–163.
2. Rahman, A. Radiological Assessment of Surgery Difficulty of Impacted Mandibular Third Molar. Int. Med. J. 1994;21, 110–112.
3. Abu-Hussein, M.; Watted, N. Prevalence of Impacted Mandibular Third Molars in Population of Arab Israeli: A Retrospective Study. IOSR-JDMS 2016, 15, 1–10.
4. Blondeau, F.; Daniel, N.G. Extraction of impacted mandibular third molars: Postoperative complications and their risk factors. J. Can. Dent. Assoc. 2007, 73, 325.
5. Sigron, G.R.; Pourmand, P.P.; Mache, B.; Stadlinger, B.; Locher, M.C. The most common complications after wisdom-tooth removal: Part 1: A retrospective study of 1199 cases in the mandible. Swiss Dent. J. 2014, 124, 1042–1046.
6. Hugoson A, Kugelberg CF. The prevalence of third molars in a Swedish population. An epidemiological study. Community Dent Health 1988;5:121-38.
7. Kim JC, Choi SS, Wang SJ, Kim SG. Minor complications after mandibular third molar surgery: Type, incidence, and possible prevention. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2006;102:e4-11.
8. Blondeau F, Daniel NG. Extraction of impacted mandibular third molars: Postoperative complications and their risk factors. J Can Dent Assoc 2007;73:325.
9. Jaroń A, Trybek G. The Pattern of Mandibular Third Molar Impaction and Assessment of Surgery Difficulty: A Retrospective Study of Radiographs in East Baltic Population. International Journal of Environmental Research and Public Health. 2021 Jan;18(11):6016.
10. Passi D, Singh G, Dutta S, Srivastava D, Chandra L, Mishra S, Srivastava A, Dubey M. Study of pattern and prevalence of mandibular impacted third molar among Delhi-National Capital Region population with newer proposed classification of mandibular impacted third molar: A retrospective study. Natl J Maxillofac Surg 2019;10:59-67.
11. Kramer RM, Williams AC. The incidence of impacted teeth. A survey at Harlem hospital. Oral Surg Oral Med Oral Pathol 1970;29:237-41.