

Variation in Anatomy and Position of Mandibular Third Molars in South Indian Population

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Abstract

Purpose: To determine the anatomy and position of mandibular third molars clinically and radiologically using Panoramic radiographs among the subjects from the age group 15 to 25.

Method: A sample of 240 cases was selected. Cases were then classified according to the age groups and the total number of erupted, impacted and missing teeth was calculated. A table was created based on the calculated data and results analysed.

Results: The results are that overall of the 240 cases examined, 57.92% of the mandibular left and 58.33% of the mandibular right was erupted, 32.5% of the mandibular left and 32.5% of mandibular right was impacted. The mandibular left molar was missing in 9.58% of the cases and in the right it was missing in 9.17% of the cases.

Conclusion: This study shows that mandibular 3rd molars had erupted in most cases.

Keywords: 3rd molar, mandibular, impaction, radiological

INTRODUCTION

Third molar teeth are called “THE WISDOM TEETH”, but they are the ones prone to many dental complications because of their most posterior location, aberrant anatomy and abnormal eruption patterns. Owing to these anatomical limitations, their extraction remains the treatment of choice for many dental practitioners. Despite being a common dental procedure, minimum intervention and retaining every functional component of the dental arch are of prime importance in contemporary dental practice [1]. The eruption and position of mandibular third molars varies from person to person. In some it is erupted, in some it is missing and in some it remains impacted. Impaction is defined as completely or partially unerupted and positioned against another tooth, bone or soft tissue so that its further eruption would be unlikely. Surgical removal of impacted mandibular third molar is one of the frequent procedures in oral surgery. Damage to Inferior alveolar nerve (IAN) is a typical complication during that procedure. So the anatomy and position of the mandibular third molars require greater consideration. In case of third molars where they have erupted, certain procedures like orthodontic, restorative and prosthetic are also done in order to retain them. These third molars also serve as an anchorage in case of orthodontics, provide root anatomy for root canal treatment in case of endodontics, and help in abutment in case of prosthodontics and so on.

AIM OF THE STUDY

To determine the anatomy and position of mandibular third molars clinically and radiologically using Panoramic radiographs among the subjects from the age group 15 to 25.

MATERIALS AND METHODS

For this study about 240 cases were selected from a Clinic. Cases selected were from the age group 15 to 25. Cases selected were those where panoramic radiographs were required for Orthodontic, Prosthodontic, Endodontic or Oral Surgical considerations. The cases were then examined clinically and position of mandibular third molar was noted. The Panoramic radiographs were then correlated with clinical findings. Informed consent was obtained from all patients that their radiographs would be used for research purposes. A proforma was then made and radiographs were classified according to the age groups. In each age group, the total number of erupted, impacted and missing teeth was calculated. A table is created based on the calculated data.

Table1: Eruption status of Mandibular 3rd molars from the age group 15 to 25.

Age	Lower left			Lower right		
	Erupt ed	Impac ted	Missi ng	Erupt ed	Impac ted	Missi ng
15	2	24	0	1	25	0
16	5	21	0	5	21	0
17	2	8	2	5	6	1
18	10	5	2	10	5	2
19	14	3	2	11	7	1
20	16	5	2	15	5	3
21	17	2	0	18	0	1
22	8	2	1	8	2	1
23	18	3	1	19	2	2
24	30	3	6	28	5	6
25	17	2	7	20	0	6
Total (teeth)	139	78	23	140	78	22
Percent age	57.92	32.5	9.58	58.33	32.5	9.17

Table2: Eruption Status Age-wise in Mandibular 3rd Molars.

Age	Lower left						Lower right					
	E	E%	I	I%	M	M%	E	E%	I	I%	M	M%
15	2	7.69	24	92.31	0	0	1	3.85	25	96.15	0	0
16	5	19.23	21	80.77	0	0	5	19.23	21	80.77	0	0
17	2	16.67	8	66.67	2	16.67	5	41.67	6	50.00	1	8.33
18	10	23.81	5	35.71	2	40.48	10	58.82	5	29.41	2	11.76
19	14	73.68	3	15.79	2	10.53	11	57.90	7	36.84	1	5.26
20	16	69.57	5	21.74	2	8.70	15	65.22	5	21.74	3	13.04
21	17	89.47	2	10.53	0	0	18	94.74	0	0	1	5.26
22	8	72.73	2	18.18	1	9.09	8	72.73	2	18.18	1	9.09
23	18	81.82	3	12.64	1	4.55	19	82.61	2	8.70	2	8.70
24	30	76.92	3	7.69	6	15.38	28	71.80	5	12.82	6	15.38
25	17	65.39	2	7.69	7	26.92	20	76.92	0	0	6	23.08

In table 2

- E represents erupted
- E% represents erupted percentage
- I represents impacted
- I% represents impact percentage
- M represents missing
- M% represents missing percentage

RESULTS

The results are that overall of the 240 cases examined, 57.92% of the mandibular left and 58.33% of the mandibular right have erupted, and 32.5% of the mandibular left and 32.5% of the mandibular right were impacted. The mandibular left molar was missing in 9.58% of the cases and in the right it was missing in 9.17% cases. The percentage breakup age-wise is shown in Table 2.

DISCUSSION

Variation in position of mandibular 3rd molars could be due to several factors: evolutionary lack of space, third molar angulation, ectopic position, obstruction of the eruption pathway, and late third molar mineralization or early physical maturity [2]. Third molar impactions are found to be with almost same frequency in maxilla and mandible, but few studies have found a higher frequency in mandible [3, 4]. Mesioangular impaction was the most common third molar impaction. This was followed by vertical impaction, distoangular impaction, and horizontal impaction [5].

The mandibular third molar tooth germ is located at the ramus of the mandible with the occlusal surface at an angle of mandibular plane. In order to assume its normal occlusal position, the tooth germ must undergo a sagittal up righting movement during eruption which is found to be under strong genetic influence [6, 7].

Consideration of mandibular third molar is important from Orthodontic perspective because of the lower anterior arch crowding, relapse in lower anterior crowding, interference in the up righting of mandibular first and second molars during anchorage preparation and molar distalization [8].

Endodontic treatment in third molar teeth, a meticulous understanding of their root and root canal anatomical

variations and their endodontic implications is of prime importance [9].

Mandibular 3rd molar when tilted mesially pose as questionable abutments. These teeth can be modified using the various prosthodontic approaches in combination with orthodontic techniques [10].

CONCLUSION

The position of mandibular 3rd molars between the age group is variable as seen from this study. Results show that it has erupted in 58% of the cases, it remains impacted in 33% and missing in 9% of the cases.

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