

Prevalence of missing permanent first molar in Kanpur Orthodontic Population

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Abstract

Background: Permanent first molar are often found missing in the dental arch due to various reasons. The purpose of the study was to assess the prevalence of missing permanent first molar in Kanpur Orthodontic population

Materials & Methods: The present retrospective cross sectional study included 481 panoramic radiographs. First permanent molar in each quadrant was noted down. Intra-examiner reliability was calculated. Statistical analysis was performed using statistical package for the social sciences (SPSS) version 20 (SPSS Inc., Chicago, IL, USA)

Results: A total of 481 subjects were assessed males 234 (48.6%) & females 247 (51.3%). The overall prevalence of subjects with at least one missing molar was 43.2%. Prevalence of missing teeth in mandibular arch was more than maxillary arch. Prevalence of one missing tooth in mandible was 32.7% as compared to 19.1% in the maxilla. Prevalence of missing two mandibular teeth was 6% as compared to maxilla (2.37%). The most commonly missing tooth was found to be 36. Prevalence of missing 36 in males was 17.1% & females was 29.6%. Prevalence of missing 46 was 21.3% & females was 22.7%.

Conclusion: 1.The overall prevalence of missing permanent molar was 43.2%.2.The lower molars were affected more than the upper molars.3.The most commonly missing tooth was found to be 36.

Introduction

Permanent First molars erupt at 6 years of age & play an important role in development & maintenance of the occlusion.^{1,2}Since they appear early in the oral cavity,they are prone to caries.They are also vulnerable to hypomineralization& periodontal diseases. Factors such as deep pit & fissures, child's inability brush properly & parents misconception that permanent first molars are deciduous teeth often lead to caries.^{3,4}

First permanent molars play an important role in Orthodontics as it acts as a good anchorage unit due to its large root surface area.⁵

The purpose of the present study was to assess the prevalence of missing permanent first molar in Kanpur Orthodontic population.

Materials& Methods

The present retrospective cross sectional study included 481 panoramic radiographs retrieved from the department of Orthodontics & Dentofacial Orthopedics from a period of 2021 to 2023.Ethical approval was sought before commencement.First permanent molar in each quadrant was noted down.Intraexaminer reliability was calculated.Statistical analysis was performed using statistical package for the social sciences (SPSS) version 20 (SPSS Inc.,Chicago,IL,USA)

Results

Table 1: Frequency of missing teeth with respect to gender.

Gender	One missing	Two missing	Three missing	No missing	Total
Male	55 (23.5%)	28 (11.9%)	9 (3.84%)	142 (60.6%)	234 (48.6%)
Female	62(25.1%)	42(17%)	12(4.85%)	131(53%)	247(51.3%)
Total	117(24.3)	70 (14.5%)	21(4.3%)	273(56.7%)	481

Table 2: Frequency of missing teeth with respect to arch.

	Maxilla	Mandible	
One missing	76 (19.1%)	133 (32.7%)	
Two missing	9 (2.37%)	27 (6%)	
No missing	341 (85.3%)	271(66.3%)	

Table 3: Frequency of missing teeth in four quadrants.

	Missing 16	Missing 26	Missing 36	Missing 46
Male	21 (9.7%)	25 (12.7%)	36 (17.1%)	39 (21.3%)
Female	35 (14.2%)	27 (13.6%)	66 (29.6%)	45 (22.7%)
Total	56 (11.3%)	46 (13.1%)	102 (23.7%)	84 (21.7%)

A total of 481 subjects were assessed males 234 (48.6%) & females 247 (51.3%). The overall prevalence of subjects with at least one missing molar was 43.2%.

Prevalence of missing teeth in mandibular arch was more than maxillary arch. (Table 2) Prevalence of one missing tooth in mandible

was 32.7% as compared to 19.1% in the maxilla. Prevalence of missing two mandibular teeth was 6% as compared to maxilla (2.37%).

Table(3)Prevalence of missing 16 in males was found to be 9.7% & females was 14.2%.Prevalence of missing 26 in males was 12.7% & females was 13.6%.Prevalence of missing 36 in males was 17.1% & females was 29.6%.Prevalence of missing 46 was 21.3% & females was 22.7%.

Discussion

Permanent first molars play an important role in growth & development of arches.Early loss of permanent first molars often leads to loss of arch length.Asymmetry & TMJ problems may also ensue^{6,7}.Also they play an important role in anchorage in Orthodontic treatment.

In the present study the overall prevalence of missing permanent molar was 43.2%.Previous studies have shown the prevalence range of 8-57%.In a similar study by Amugla YM⁸based on Saudi Arabia population the overall prevalence was found to be 39.2%.

In our study the lower molars were affected more than the upper molars.This finding was similar to the study ofHalicioglu et al⁹,Bhat et al¹⁰,Demirbuga et al¹¹.

The study by Halicioglu et al⁹ was based in Turkish population & the prevalence of the lower molars was found to be 66% as compared to upper molars (34%).Bhat et al¹⁰ conducted their study on Udaipur

population(Rajasthan) and found the prevalence to be 21% for the maxillary arch & 10% for the maxillary arch. Demirbuga et al¹¹ conducted their study on pediatric Turkish population & found prevalence to be 2.77% in mandibular arch & 1.17% in the maxillary arch.

In our study the most commonly missing molar was 36 in females, the prevalence was 29.6%. This finding was similar to the findings of AmuglaYM⁸, in their study 36 was the most missing tooth in females with a prevalence of 27.9%.

Conclusion

Following conclusions were drawn from the present study-

1. The overall prevalence of missing permanent molar was 43.2%.
2. The lower molars were affected more than the upper molars.
3. The most commonly missing tooth was found to be 36.

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