A Study on the Prevalence and Characteristics of Distomolars among 1000 Panoramic Radiographs

Sherin Ann Thomas, Eugenia Sherubin, Karthigakannan Subramanian Pillai

ABSTRACT

Objectives: To evaluate the prevalence and characteristics of distomolars.

Materials and methods: The study consisted of 1000 panoramic radiographs of subjects whose age ranged from 16 to 46 years. The characteristics of distomolars, its distribution, location, morphology, clinical eruptive status and associated pathologies were obtained from the radiographs.

Results: The presence of distomolars was observed in 21 radiographs (12 males and 9 females) giving a total prevalence of 2.1% within this 1000 panoramic radiographs. Out of these 21 radiographs, there were a total number of 29 distomolars. Within these 29 distomolars, 14 were observed in maxillary right quadrant, nine in the maxillary left quadrant and three each in the mandibular right and left quadrants. Most of them were molariform in morphology (n = 22). Sixteen were erupted and one was supra erupted. Complications were reported in seven distomolars. Of that four interrupted the eruption of third molar, two were fused with the third molar and one caused dilaceration of the third molar.

Conclusion: The prevalence of distomolars in our study was 2.1%. Distomolars was predominantly seen in males in the third decade of life. The most frequent location was the maxillary right quadrant. The common morphology observed was molariform. Majority of the distomolars were erupted. Interruption to the eruption of third molar was the most common complication.

Keywords: Prevalence, Complications, Characteristics, Distomolar.


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INTRODUCTION

A supernumerary tooth (ST) or hyperdontia is defined as the existence of an excessive number of teeth in relation to the normal dental formula (20 in the deciduous dentition and 32 in the permanent dentition).1 ST may occur in both dentitions, but are more frequently seen in the permanent dentition.2 The reported prevalence of ST may vary between 1.5 to 3.5% in the permanent dentition and 0.3 to 0.6% in the deciduous dentition.3 Supernumeraries can be found in any location in the arch and can be classified according to their site of occurrence. Mesiodens is the ST between or posterior to the maxillary central incisors, distomolars or fourth molars, is the ST distal to the third molar, paramolar, is ST buccal or lingual to the molars.4 The most common ST listed in order of frequency are the mesiodens, maxillary distomolars, maxillary paramolars, mandibular premolars, maxillary lateral incisors, mandibular distomolars and maxillary premolars. ST may occur as single or multiple, unilateral or bilateral and can occur in mandible or maxilla or even both.5 Regarding their morphology ST are classified as supplementary teeth (Tooth that duplicates the anatomy of anterior or posterior teeth) or rudimentary (dysmorphic, molariform or conoid). However, most supernumerary tooth has a morphology that deviates from the normal appearance of the teeth.6

Although the etiology of supernumerary teeth is uncertain, there are few proposed postulates. The most accepted postulates includes, the phylogenetic theory as a regression to the anthropoids whose dental formula had more teeth, an abnormal reaction to a local traumatic episode, the autonomic recessive inheritance or linked to the X-chromosome, environmental factors, dichotomy of the tooth germ and the theory of hyperactivity of the dental lamina.7 Clinically, the presence of ST is associated with numerous abnormalities in neighboring teeth such as over retained or delayed eruption of tooth, ectopic eruption, tooth malposition, tooth displacement, cysts derived from the follicle of ST, root resorption due to compression on adjacent roots and other anomalies.8 Radiographs are the most reliable and definite method for the diagnosis of unerupted ST. The most commonly used radiographs are panoramic radiographs, periapical and occlusal radiographs.9

Owing to the scarcity of data on distomolars, the present study was conducted with an objective to estimate the prevalence and the characteristics of distomolars.

MATERIALS AND METHODS

The study was conducted on randomly selected 1000 panoramic radiographs from subjects in the age range of 16 to 46 years who sought stomatological attention in the Department of Oral Medicine and Radiology, Mar Baselios Dental College, Kothamangalam, Kerala between the year 2008 and 2013. The radiographs were thoroughly scrutinized for the presence of distomolars. After recording the age and sex, the parameters such as location (maxilla or mandible), position within the arch, morphology (conoid, molariform and supplemental), eruptive status (erupted and unerupted, supra erupted) and complications or associated
pathologies (malformation, periapical infections, dentigerous cysts, resorption, impaction and dilacerations of adjacent teeth) were explored from the radiographs.

RESULTS

Of the 1000 orthopantamograms in the study, 21 radiographs were found to present with distomolars (Fig. 1) giving a prevalence 2.1% of the population. In the 21 radiographs, 12 cases (57.14%) were males and 9 (42.85%) were females. The mean age of the patients with distomolars was 30.2 years (range 16 to 46 years). Majority of the distomolars manifested in the third decade 42.85% (n = 9) followed by fourth decade 28.57% (n = 6) (Graph 1).

A total of 29 distomolars were observed in the 21 radiographs. Among the 29 distomolars, 23 (79.31%) were located in the maxilla and 6 (17.24%) were located in the mandible. Out of the 23 distomolars in the maxilla, 14 (48.27%) were in the right quadrant and nine (31.03%) in the left quadrant. In mandible distomolars were equally distributed with three each (10.34%) in both quadrants (Graph 2). The frequency of radiograph with one distomolar was 66.67% and two distomolars was 28.57% and more than two distomolars was seen in 4.76%.

Regarding the morphology, out of the 29 distomolars, 22 (75.86%) were molariform (tuberculated) in morphology and seven (24.13%) were conoid in shape (Graph 3).

The eruptive status of the distomolars was observed. Out of the 29 distomolars, 16 (55.17%) were erupted, 12 (41.37%) unerupted and one (3.44%) was supra erupted. There were complications associated with seven distomolars (24.13%). Out of the seven cases, four (66.66%) interfered with the eruption of third molar, followed by two (22.22%) showed fusion with third molar and one (11.12%) caused dilacerations of adjacent third molar (Graph 4).

DISCUSSION

Developmental dental anomalies reflect conditions like change in number of teeth, eruption rate, location (ectopic), size, shape or structural anomalies. Alterations in the normal number of teeth can be referred to ST, hyperdontia, multiple teeth, etc. ST is an uncommon developmental anomaly most frequently associated to syndromes but can be found in

![Fig. 1: Panoramic radiograph with mandibular distomolar in the right quadrant](image)

![Graph 1: Distribution of distomolars according to patient age](image)

![Graph 2: Distribution of distomolars according to the location](image)

![Graph 3: Distribution of distomolars according to the morphology](image)
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In this study, we aimed to evaluate the prevalence and characteristics of distomolars with an analysis of associated complications.

Literature reports that the prevalence of distomolars varies according to the population studied by various authors ranging from 1% reported by Stafne to 2% reported by Luten. However, the prevalence of distomolars in our series was 2.1% of the population.

According to Salcido-Garcia et al, the prevalence of ST is more frequent in the first three decades of life than in older age groups. In coincidence to the findings reported by these authors, the mean patient age in our series was 30.5 years, i.e., presentation corresponded to the third decade of life. This observation may be due to the fact that a large percentage of such teeth tend to be a casual finding in the course of molar extractions conducted in patients in this particular age range.

Regarding gender distribution, we coincide with most authors, with males more commonly affected than females. Several researchers like Timocić et al. have observed a sexual dimorphism of this pathology with higher incidence in males than in females in their study. Goaz and White said that it occurred twice as often in males. Also Yousuf in his study stated a male-female ratio of 9:2 and Liu claims it to be 3:1 in the occurrence of ST. In accordance with these observations, we too observed a ratio of 5:4 in this series.

Grimanis report states that, distomolars are found more frequently in the maxilla than in the mandible as larger percentage (79%) of distomolars in his study were found in the maxilla. In our series, the results were similar to those described above with higher incidence of distomolars in the maxilla. Interestingly, we even observed a higher incidence of distomolars toward the right quadrant of the maxilla an observation which is not been reported in the literature so far.

Distomolars are either eumorphic or dysmorphic (i.e., conoid or tubercular or mixed). Stafne states that most of the distomolars in his study were blunt, multicuspied and are much smaller than the third molars. Casseta reported majority of distomolars in his study were tuberculated (molariform). Similar to the results published by Casseta, our study also observed a major percentage (75.8%) of distomolars were molariform (tuberculated) in shape.

It has been reported that the rate of bilateral distribution of supernumerary teeth in general is 17 to 44%. Although no such information has been mentioned regarding distomolars, we observed a rate 33% exhibiting bilateral distribution in the present study.

The pathologies associated with distomolars may range from periapical or pericoronal infection of the distomolars to delayed eruption, noneruption or malformation of adjacent teeth. Nazif in his study observed 30% incidence of pathologies. Our observatory incidence of complications in this series was 24.13% (n = 7) with majority 66.66% (n = 4) of them interrupting the eruption of adjacent third molars. However, we observed a higher incidence of distomolars interrupting the eruption of adjacent third molars when compared to Menardia et al who reported only 40% of third molars being affected in their study.

Lastly, regarding major pathologies such as cysts formation or follicular enlargements, Asaumi et al observed cystic formation of supernumerary tooth at a rate of 11% and suggested that the prevalence would increase with age. However, contrary to these results and various other authors like Ries-cento and Stafne who also observed a higher incidence of follicular cyst 14.66 and 6% respectively in our series, we did not observe cysts formation or follicular enlargements despite the mean age being 30.5 years.

CONCLUSION

The scarcity of radiographic survey on distomolars urged us to perform a study on evaluation of prevalence and characteristics of distomolars. The prevalence of distomolars in this series was 2.1%. It was predominantly seen among males. The mean age of incidence was 30.2 years. The most frequent location was the right quadrant of maxilla. Higher percentages of the radiographs were observed to have one distomolar. The common morphology observed was molariform. Majority of the distomolars were clinically erupted. The rate of pathology observed was 24.13%. The interruption of eruption of third molar was the most common pathology. No major pathologies such as cysts formation or follicular enlargements distomolars.
REFERENCES


ABOUT THE AUTHORS

Sherin Ann Thomas (Corresponding Author)
Postgraduate Student, Department of Oral Medicine and Radiology Mar Baselios Dental College, Kothamangalam, Kerala, India, Phone: 04712558795, e-mail: sherann@rediffmail.com

Eugenia Sherubin
Reader, Department of Oral Medicine and Radiology, Sri Mookambika Institute of Dental Sciences, Kanyakumari, Tamil Nadu, India

Karthigakannan Subramanian Pillai
Professor, Department of Oral Medicine and Radiology, Mar Baselios Dental College, Kothamangalam, Kerala, India