



Microdontia Involving Mandibular Central Incisor - A Rare Finding with a Review of Literature

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Abstract

Tooth is a specialized part of the human body and understanding its development is quite enigmatic and challenging. Development of a tooth is a complex reciprocal interaction between dental epithelium and underlying ectomesenchyme. Abnormalities of morphodifferentiation causes abnormalities in the number, size and form of the teeth. One such abnormality affecting the size of teeth/tooth is condition called microdontia where teeth are smaller than normal usually affecting maxillary lateral incisor or third molar and mostly associated with syndromes. Here we present a case of localized microdontia involving mandibular central incisor which is a rare finding along with a brief review of literature.

Keywords: Mandibular central incisor, Microdontia, Nonsyndromic

Introduction

Esthetics has gained a lot of concern in today's era due to which there is an increased demand for beneficial smile and overall appearance of an individual.

Teeth play an important role in esthetics of an individual, which has gained a lot of importance to possess a perfect set of teeth providing beneficial smile and improving overall appearance of an individual.¹ However in some cases developmental disturbance associated with alterations in shape, size, position, colour and texture have shown to affect the child psychologically.² Though the dimensions, position and number of teeth are said to be influenced by both prenatal and postnatal periods, however literature suggests prenatal period has the most influence on these defects.³

Microdontia is one such developmental defect associated with size of the teeth when the teeth/tooth

are smaller than normal. This can be localized or generalized. The incidence of occurrence of single tooth microdontia is commonly seen affecting upper lateral incisors and third molars. However, found to be very rare to see affecting mandibular central incisors, often seen in children with certain syndromes.⁴

Here we present a case of an 8 year old boy having non-syndromic microdontia of mandibular central incisor with a brief review of literature.

Case Report

A 7 year old girl reported to a private clinic with the chief complaint of several decayed teeth. There was no associated pain. The dental, medical, family, personal history were non contributory. There was no history of trauma or extraction. There was no extraoral finding. Intraoral examination showed

normal soft tissue finding. Hard tissue examination revealed mixed dentition stage with decayed 55,54,64,75,74,85. Also noted was a peg shaped tooth in the mandibular anterior region. On careful examination it was concluded that the peg shaped tooth was a part of normal permanent dentition that is 31. This tooth was neither pulpally or periodontally compromised. History revealed that the primary dentition was of normal morphology and was not subjected to any trauma. OPG confirmed the presence of 31 which was peg shaped with incomplete root formation. To further confirm the diagnosis and check for any other anomaly like supernumerary tooth CBCT was done which ruled out any other anomaly. The treatment for the presenting complaint was initiated. Patient was informed about the treatment options for esthetic correction but due to incomplete root formation the treatment had to be delayed. The patient is under evaluation for a phased treatment.

Discussion

The developmental disturbances or anomalies of tooth may affect tooth number, structure or morphology which is said to be secondary to genetic or epigenetic influence and Brook said any alteration or mismatch between the molecular and cellular components during development of the teeth manifests as a distinct dental anomaly.⁵

According to Koch.et.al, developmental disturbance associated with size of the teeth is consider abnormal. When dimensions of teeth deviate two standard deviations from average. It is manifested as either Microdontia or Macrodontia. Microdontia in scientific literature refers to teeth that are smaller than normal size and are outside the normal limits of variation.⁶ Prevalence of microdontia varies from 0.8% to 8.4% of total population seen mostly in mongoloid population and affecting more commonly females than males, though seen bilaterally left side of the arch is more commonly affected than right side.^{7,8}

Most commonly involved teeth are maxillary lateral incisor followed by third molars. The prevalence of unilateral peg shaped mandibular incisor has been reported to be 1% of the total population making it a rare occurrence.^{9,10}

These teeth are also referred as "peg laterals" which has shown a noticeable fall in diameter from cervical region to the incisal edge. Etiology may be related to early tooth positioning inturn strongly having a genetic influence, mostly associated with syndrome like Gorlin-Chaudhry-moss syndrome, Ullrich-Turner syndrome, William's syndrome, Hallermann-Streiff, orofacioidigital syndrome(Type3), Branchiooculo-facial syndrome etc. Primary teeth appear to be affected more by maternal or intrauterine influences where as permanent teeth seen to be more affected by environmental influences.^{11,12}

According to Sharfers there are 3 types of Microdontia,¹³

1. True generalized microdontia
2. Relative generalized microdontia
3. Microdontia involving single tooth

Bargate.et.al, categorized Microdontia of single tooth as;¹⁴

1. Microdontia of whole tooth
2. Microdontia of the crown of the tooth and
3. Microdontia of root alone

Treatment approach needs to be case specific ranging from no treatment. When esthetics is not a major concern for the child however esthetic corrections using either direct or indirect composites or using bonded crowns or extraction and implant placement are considered as treatment option which are case specific and with patient and parent consent.¹⁵

The present case report highlights on alternation in the shape of mandibular central incisor which has affected psychological well being of the patient. If not treated at an early stage may in turn affect the overall quality of life.

Hence it is important to provide a multidisciplinary approach and is adopted in the treatment of patient with tooth deformity.

Documentation and dicrepancies helps in assessing the evolutionary structural and morphological changes in human dentition.

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Legends for the figure

Figure 1: Intraloral photograph showing microdontia irt 31

Figure 2: Orthopantomogram showing delayed root formation irt 31

Figure 3: CBCT showing microdontia 31 deviated path of eruption of 32



Figure 1

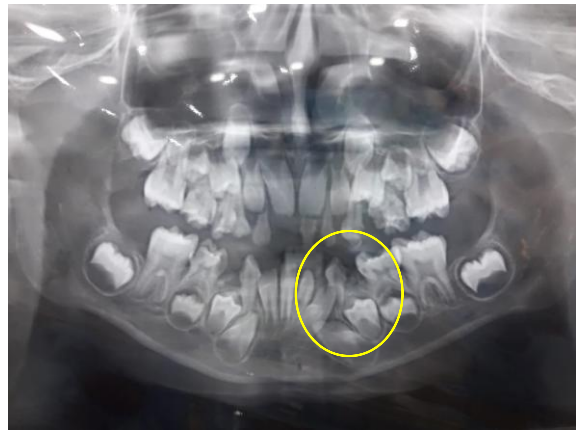


Figure 2

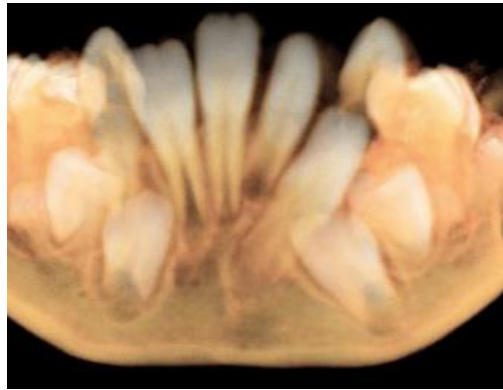


Figure 3