



CASE REPORT

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Non-syndromic occurrence of true generalized microdontia with mandibular mesiodens - a rare case

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Abstract

Abnormalities in size of teeth and number of teeth are occasionally recorded in clinical cases. True generalized microdontia is rare case in which all the teeth are smaller than normal. Mesiodens is commonly located in maxillary central incisor region and uncommon in the mandible. In the present case a 12 year-old boy was healthy; normal in appearance and the medical history was noncontributory. The patient was examined and found to have permanent teeth that were smaller than those of the average adult teeth. The true generalized microdontia was accompanied by mandibular mesiodens. This is a unique case report of non-syndromic association of mandibular hyperdontia with true generalized microdontia.

Keywords: Generalised microdontia, Hyperdontia, Permanent dentition, Mandibular supernumerary tooth

Introduction

Microdontia is a rare phenomenon. The term microdontia (microdentism, microdontism) is defined as the condition of having abnormally small teeth [1]. According to Boyle, "in general microdontia, the teeth are small, the crowns short, and normal contact areas between the teeth are frequently missing" [2] Shafer, Hine, and Levy [3] divided microdontia into three types: (1) Microdontia involving only a single tooth; (2) relative generalized microdontia due to relatively small teeth in large jaws and (3) true generalized microdontia, in which all the teeth are smaller than normal. According to these authors, aside from its occurrence in some cases of pituitary dwarfism, true generalized microdontia is exceedingly rare. Microdontia of a single tooth can be further classified into (1) microdontia of the whole tooth, (2) microdontia of the crown of the tooth, and (3) microdontia of the root alone [4].

Involvement of the entire dentition is rare and been reported in radiation or chemotherapeutic treatment during the developmental stage of the teeth [5], pituitary dwarfism [3] and Fanconi's anemia [6]. The syndromes associated with microdontia are Gorlin-Chaudhry-Moss syndrome, Williams's syndrome, Chromosome d/u, 45X

[Ullrich-Turner syndrome], Chromosome 13[trisomy 13], Rothmund-Thomson syndrome, Hallermann-Streiff, Orofaciodigital syndrome (type 3), Oculo-mandibulo-facial syndrome, Tricho-Rhino-Phalangeal, type1 Branchio-oculo-facial syndrome.

Supernumerary teeth are defined as any supplementary tooth or tooth substance in addition to usual configuration of twenty deciduous and thirty two permanent teeth [7]. Classification of supernumerary teeth may be based on position or morphology. Positional variations include anterior mesiodens, para-premolars, para-molars and distomolars. Variations in morphology consist of supplemental and rudimentary types [8].

Supernumerary teeth are common in the maxillary anterior region although supernumerary teeth have been reported in the incisor region of the mandible are very rare. Although supernumerary teeth have been reported in the incisor region of the mandible, they are very rare [9-14].

Conditions, in which supernumery teeth found, are cleidocranial dysplasia, cleft lip and cleft palate [15]. Syndromes associated with supernumery teeth are Familial adenomatous polyposis [Gardner's], Apert, Klippel-Trenaunay-Weber, Craniometaphyseal dysplasia, Trisomy 21 [Down's], Nance-Horan, Orofaciodigital syndrome (type 3), Sturge-weber and Tricho-Rhino-Phalangeal, type1.

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In the case described here is a bizarre generalized microdontia involving the entire dentition along with mandibular mesiodens without any other apparent systemic conditions.

Case Report

The patient was a 12 year old boy, only child of consanguineous parents, reported to the department of pedodontics and preventive dentistry with the complaint of small teeth. Parents noted small teeth ever since the eruption of permanent teeth. No abnormalities were reported, however, in their extended family.

Physical examination

Physical growth was within normal limits. The patient was of normal in stature, appearance, height, and weight for his age. Upon examination of the limbs, hands, skin, hair, nails and eyes were all appeared normal. No abnormality was noted in neck, back, muscles, cranium and joints as well. Intellectual and scholastic performance was also normal. His medical history was unremarkable; no other abnormalities were noted in the history apart from the difficult delivery. The child was examined and found to be free of any gross abnormalities.

His blood profile was normal. Serum calcium, phosphorous and alkaline phosphatase levels were also normal. Endocrinological investigation was carried out to rule in or out the possibility of hormonal disorder, and the results were within normal limits.

Intraoral examination

The intraoral soft tissues were healthy, but the teeth were abnormal in size and shape (Figure 1 and 2). Diagnostic casts were obtained to aid in diagnosis (Figure 3). Patient was in permanent dentition, teeth present were small in size. The patient had normal occlusion with excessive spacing between the teeth. Fully erupted mandibular mesiodens was present between the central incisors.

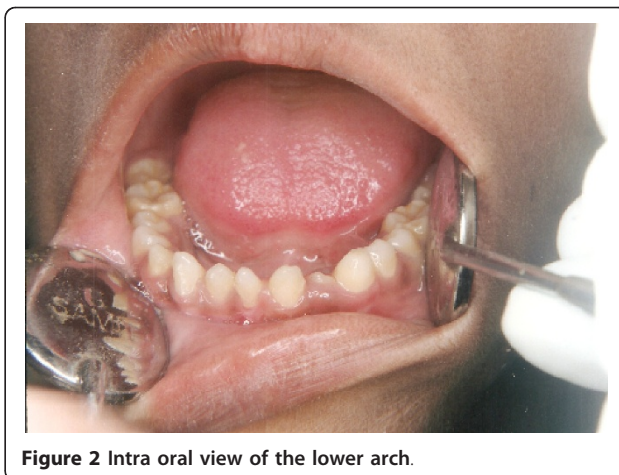


Figure 2 Intra oral view of the lower arch.

The anterior teeth lacked normal size in all dimensions. Most of the anterior teeth were “peg-shaped” without the typical variation in mesiodistal and labiolingual dimensions. Almost all the maxillary anterior teeth did not have lingual pits whereas mandibular central and lateral incisors had prominent pits on the lingual surfaces. The posterior teeth were also small and exhibited a short occlusogingival dimension. Overall, the dentition was smaller than that of the average adult (Table 1 and 2). Orthopantomogram or the Intra oral periapical radiograph could not be taken because the patient was not able to afford.

The simultaneous presence of microdontia and supernumerary teeth is been reported in the Cleidocranial dysplasia, Craniometadiaphyseal dysplasia, Dermodontodysplasia, Hypodontia and nail dysgenesis, Orofaciodigital syndrome type 3 and Tricho-rhino-phalangeal syndrome type 1. However in this case, except for the dental abnormality in the form of generalized microdontia and the presence of fully erupted mandibular mesiodens between the central incisors were found and no other clinical features observed, therefore all the syndrome associated with the simultaneous presence of microdontia and supernumerary teeth were ruled out along with Taurodontism, microdontia, and dens invaginatus as well as Distal symphalangism,

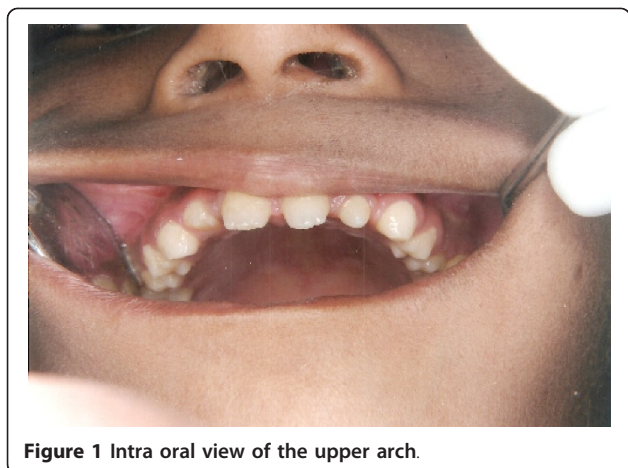


Figure 1 Intra oral view of the upper arch.

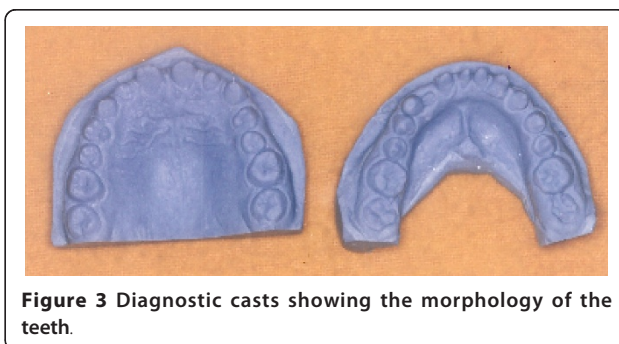


Figure 3 Diagnostic casts showing the morphology of the teeth.

Table 1 Comparison of buccolingual/labiolingual and mesiodistal crown dimensions with an anatomic average* of the right side maxillary and mandibular teeth

Right side	Central incisor	Lateral incisor	Canine	First premolar	Second premolar	First molar	Second molar	Total
Maxillary	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{LL/BL}$
Average	$\frac{8.5}{7.0}$	$\frac{6.5}{6.0}$	$\frac{7.5}{8.0}$	$\frac{7.0}{9.0}$	$\frac{7.0}{9.0}$	$\frac{10.0}{11.0}$	$\frac{9.0}{11.0}$	$\frac{55.5}{61.0}$
Patient	$\frac{7.5}{6.1}$	$\frac{4.7}{5.6}$	$\frac{6.9}{7.4}$	$\frac{6.4}{7.8}$	$\frac{6.5}{7.7}$	$\frac{9.5}{10.4}$	$\frac{8.7}{10.9}$	$\frac{50.2}{55.9}$
Mandible	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{LL/BL}$
Average	$\frac{5.0}{6.0}$	$\frac{5.5}{6.5}$	$\frac{7.0}{7.5}$	$\frac{7.0}{7.5}$	$\frac{7.0}{8.0}$	$\frac{11.0}{10.5}$	$\frac{10.5}{10.0}$	$\frac{53.0}{56.0}$
Patient	$\frac{4.4}{5.6}$	$\frac{5.2}{5.8}$	$\frac{6.6}{7.1}$	$\frac{6.7}{7.3}$	$\frac{6.8}{7.7}$	$\frac{10.7}{10.3}$	$\frac{9.9}{9.4}$	$\frac{50.3}{53.2}$

Measurements in millimeters were taken at widest portion of clinical crown on diagnostic casts. *Anatomic average taken from Wheeler, R. C.: *Textbook of Dental Anatomy and Physiology*, ed. 7, Philadelphia, 1993, W. B. Saunders Company, pp. 25.

hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch (Table 3).

A diagnosis of non-syndromic occurrence of true generalized microdontia with mandibular mesiodens was made as no systemic condition was observed. The fully erupted mandibular mesiodens was extracted under local anesthesia in order to correct midline and to facilitate the orthodontic treatment.

Discussion

The initiating factor or factors responsible for microdontia remain obscure. Mutation in developmental regularity genes are known to cause variety of dental defects [16]. Both genetic and environmental factors are involved in the complex etiology of microdontia. Genetic factors probably play a role in the formation of microdontia. Although the proband was the only child, the presence of consanguinity in the form of both parents being maternal first cousins could suggest recessive or polygenic inheritance.

The development of a tooth has been shown to have ectodermal, mesodermal, and neural crest contributions. The variation in size of a particular tooth arises during the period when the form of the tooth is being determined by the enamel organ and the sheath of Hertwig at the bell stage of enamel organ. The determination of the form of the crown is thought to be related to different regions of the oral epithelium or to the ectomesenchyme. Studies have shown that different regions of the oral epithelium rather than the underlying ectomesenchyme are initially responsible for the shape of the crown [17]. Bones dating from the Middle Ages which were excavated at Alborg, Denmark proved evidence for generalized microdontia resulting from intrauterine growth retardation [18].

On the basis of visual documentation, the patient in the current case seems to have been more severely affected in all his teeth which exhibited aberrant morphology and all were smaller than normal. MEDLINE search in the English dental literature for true generalized microdontia revealed zero search results. Although child's mother had

Table 2 Comparison of buccolingual/labiolingual and mesiodistal crown dimensions with an anatomic average* of the left side maxillary and mandibular teeth

Left side	Central incisor	Lateral incisor	Canine	First premolar	Second premolar	First molar	Second molar	Total
Maxillary	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{LL/BL}$
Average	$\frac{8.5}{7.0}$	$\frac{6.5}{6.0}$	$\frac{7.5}{8.0}$	$\frac{7.0}{9.0}$	$\frac{7.0}{9.0}$	$\frac{10.0}{11.0}$	$\frac{9.0}{11.0}$	$\frac{55.5}{61.0}$
Patient	$\frac{7.2}{5.8}$	$\frac{4.5}{5.4}$	$\frac{7.1}{7.5}$	$\frac{6.2}{7.6}$	$\frac{6.3}{7.7}$	$\frac{9.3}{10.2}$	$\frac{8.7}{10.9}$	$\frac{49.3}{52.1}$
Mandible	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{LL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{BL}$	$\frac{MD}{LL/BL}$
Average	$\frac{5.0}{6.0}$	$\frac{5.5}{6.5}$	$\frac{7.0}{7.5}$	$\frac{7.0}{7.5}$	$\frac{7.0}{8.0}$	$\frac{11.0}{10.5}$	$\frac{10.5}{10.0}$	$\frac{53.0}{56.0}$
Patient	$\frac{4.2}{5.7}$	$\frac{5.3}{6.1}$	$\frac{6.7}{7.3}$	$\frac{6.7}{7.2}$	$\frac{6.8}{7.7}$	$\frac{10.7}{10.2}$	$\frac{9.6}{8.9}$	$\frac{50.0}{53.1}$

Measurements in millimeters were taken at widest portion of clinical crown on diagnostic casts. *Anatomic average taken from Wheeler, R. C.: *Textbook of Dental Anatomy and Physiology*, ed. 7, Philadelphia, 1993, W. B. Saunders Company, pp. 25.

Table 3 Comparison of conditions associated with the simultaneous presence of microdontia and supernumerary teeth along with taurodontism, microdontia, and dens invaginatus as well as distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch.

Taurodontism, microdontia, and dens invaginatus	Cleidocranial dysplasia	Craniometadiaphyseal dysplasia	Dermodontodysplasia	Hypodontia and nail dysgenesis	Orofaciodigital syndrome type 3	Tricho-rhino-phalangeal syndrome type 1	Distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch
Generalized microdontia	Autosomal dominant	Autosomal recessive	Autosomal dominant	Autosomal dominant	Autosomal recessive	Autosomal dominant	Autosomal dominant
Taurodontism of first permanent molars	Chromosome 6	Macrocephaly	Dry skin	Chromosome 4	Thin/hyperconvex/hypoplastic nails	Autosomal recessive	Absent/small nails
Multiple teeth with one or more dens invaginatus	Arm p	Frontal bossing	Ichthyosis	Arm p	Prominent occiput	Chromosome 8	Microdontia
X-linked recessive inheritance	Normal height (with skeletal dysplasia)	Large fontanelle	Thin skin	Dry skin	Frontal bossing	Arm q	Other dental abnormality
	Short stature - postnatal	Prominent eyes	Pigmented naevi	Fine hair	Round face	Normal height (with skeletal dysplasia)	Abnormal clinical features of the limbs
	Absent/small nails	Mandibular hyperostosis/sclerosis	Abnormal hair texture	Brittle hair/trichorrhexis nodosa/pili torti	Hypertelorism	Short stature - postnatal	Brachydactyly
	Macrocephaly	Optic nerve abnormality/atrophy	Sparse/absent scalp hair - localised	Sparse/absent scalp hair - generalised	Down-slanting palpebral fissures	Decreased body hair/hypotrichosis	Irregularities of length/shape of fingers
	Flat occiput (brachycephaly)	Microdontia	Abnormal nails	Absent/small nails	Other orbital abnormality	Decreased hair pigmentation - general	Syndactyly of fingers
	Frontal bossing	Abnormal tooth position/malocclusion/open bite	Midface hypoplasia/flat/short midface	Thin/hyperconvex/hypoplastic nails	Paresis of ocular muscles/squint	Decreased hair pigmentation - patchy	Short foot (including brachydactyly)
	Wide sutures/delayed fusion of sutures	Missing permanent teeth/retained deciduous teeth	Micrognathia/agnathia/retrognathia	Dysplastic/grooved/thick/discooured nails	Other eye movement disorder	Fine hair	Syndactyly (other than minimal 2nd and 3rd toes)
	Large fontanelle	Anodontia/oligodontia	Microdontia	Depressed premaxillary region	Broad/bulbous nasal tip	Brittle hair/trichorrhexis nodosa/pili torti	Irregular length or shape of toes
	Facies significantly abnormal	Natal/neonatal teeth	Anodontia/oligodontia	Midface hypoplasia/flat/short midface	Cleft soft palate/bifid uvula/submucous cleft	Sparse/absent scalp hair - generalised	Other skull abnormality
	Small face	Supernumerary teeth	Supernumerary teeth	Micrognathia/agnathia/retrognathia	Microdontia	High hairline - front	Absent/small/hypoplastic carpal
	Hypertelorism	Dental caries	Other dental abnormality	Absent/decreased eyebrows/lateral thinning	Abnormal tooth position/malocclusion/open bite	Thin/hyperconvex/hypoplastic nails	Symphalangism

Table 3 Comparison of conditions associated with the simultaneous presence of microdontia and supernumerary teeth along with taurodontism, microdontia, and dens invaginatus as well as distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch. (Continued)

Prominent supraorbital ridges	Low set ears	Simian creases	Absent/decreased lashes	Supernumerary teeth	Dysplastic/grooved/thick/discoloured nails	Cone shaped epiphyses
Depressed premaxillary region	Scoliosis	Dislocated hip	Everted/protruding lips	Cleft/notched tongue	Broad/bifid nails	Symphalangism
Midface hypoplasia/flat/short midface	Bowed limbs		Tooth crown shape abnormality	Hamartoma/other tumours of the mouth	Frontal bossing	Cone-shaped epiphyses of middle phalanges
Prognathism	Mental retardation of any degree		Microdontia	Other abnormality of tongue/gingivae/mucosa	High forehead	
Depressed nasal bridge	Bony sclerosis of any type		Abnormal tooth position/malocclusion/open bite	Low set ears	Facies significantly abnormal	
Paramedian/lateral cleft lip (uni/bilateral)	Multiple fractures/increased bony fragility		Delayed eruption of teeth	Tragus abnormal	Long face	
Cleft soft palate/bifid uvula/submucous cleft	Enchondroma/radiolucencies - localized		Anodontia/oligodontia	Pectus excavatum (funnel chest)	Grooved/dimpled chin	
High vaulted and narrow palate	Lytic/lucent lesions of bone		Supernumerary teeth	Abnormally placed nipples	Micrognathia/agnathia/retrognathia	
<u>Microdontia</u>	Fibrous dysplasia of bone			Thoracolumbar general kyphosis	Medial flare of eyebrows	
Developmental defect of enamel	Wide diaphyses (undertubulation)			Irregularities of length/shape of fingers	Absent/decreased eyebrows/lateral thinning	
Tooth discolouration	Submetaphyseal undermodelling/expansion			Syndactyly of fingers	Absent/decreased lashes	
Delayed eruption of teeth	Thin cortex of diaphyses			Polydactyly - postaxial (ulnar)/type unspecified	Long/large nose	
Missing permanent teeth/retained deciduous teeth	Bowing of long bones			Abnormal palmar dermatoglyphics/skin creases	Broad nasal bridge (see telecanthus)	
Supernumerary teeth	Cartilage tongues of metaphyses - localized			Polydactyly of feet - postaxial/type unspecified	High nasal bridge	
Dental cysts/tumours	Hyperostosis/thickened/sclerotic calvarium			Syndactyly (other than minimal 2nd and 3rd toes)	Broad/bulbous nasal tip	

Table 3 Comparison of conditions associated with the simultaneous presence of microdontia and supernumery teeth along with taurodontism, microdontia, and dens invaginatus as well as distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch. (Continued)

Deafness - conductive	Absent/abnormal sinuses	Cranial nerve/ nuclei	Hypoplastic/small nostrils
Other hearing abnormality	Wormian bones	Mental retardation - moderate/severe	Abnormal columella
Narrow/sloping shoulder/ hypermobile shoulders	Sclerotic/hyperostotic facial bones	Hypotonia	Thin lips
Pectus excavatum (funnel chest)	Other skull abnormality	Movement disorder - dystonia/chorea/ tremor/spasm	Long philtrum
Bell-shaped chest	Hyperostotic/wide clavicle	EEG abnormality	Deeply grooved philtrum
Thoracolumbar general kyphosis	Abnormal rib structure including fusion	Short sternum	Microdontia
Gibbus/localised kyphosis	Widened ribs		Abnormal tooth position/ malocclusion/ open bite
Scoliosis	Irregular shape of pubic and ischial bones		Supernumerary teeth
Hyperextensible/ hypermobile joints	Absent/hypoplastic/ short femur		Anteverted/ prominent/bat ears
Small hand	Femora short/ deformed/bowed		Long/large ear
Brachydactyly	Other abnormal femur		Pectus carinatum (pigeon chest)
Seizures of any type	Bow legs - genu varum		Thoracolumbar general kyphosis
Hypotonia			Scoliosis
Imperforate anus/ anal stenosis			Hyperextensible/ hypermobile joints
Horseshoe/fused/ ectopic kidneys			Small hand
Hypospadias/ epispadias			Brachydactyly
Undescended/ ectopic testes			Clinodactyly of 5th finger
Wilms tumour			Terminal hypoplasia fingers

Table 3 Comparison of conditions associated with the simultaneous presence of microdontia and supernumerary teeth along with taurodontism, microdontia, and dens invaginatus as well as distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch. (Continued)

Delayed skeletal maturation	Spindle shaped/ tapered fingers
Poorly ossified calvarium/Soft skull	Ulnar deviation of fingers
Absent/abnormal sinuses	Other hand abnormality
Wormian bones	Mental retardation of any degree
Platybasia/basilar impression	Abnormal cardiovascular structure/function
Enlarged foramen magnum	Winged/other abnormal scapula (See Shoulder)
Small/absent scapula	Coxa vara
Winged/other abnormal scapula (See Shoulder)	Cone shaped epiphyses
Absent/hypoplastic clavicles	Small femoral head epiphyses
Pseudarthrosis of clavicle	Flat femoral head epiphyses
Short ribs (circumferential)	Deformed/irregular femoral head epiphyses
Under-/unossified sternum	Broad femoral neck
Hypoplastic/absent ribs	Cone-shaped epiphyses of proximal phalanges
Dorsal wedging of vertebral bodies	Some phalanges short and deformed
Narrow/trapezoid iliac wings (lack of flare)	Cone-shaped epiphyses of middle phalanges
Horizontal/flat acetabular roof	Cone-shaped epiphyses of distal phalanges

Table 3 Comparison of conditions associated with the simultaneous presence of microdontia and supernumery teeth along with taurodontism, microdontia, and dens invaginatus as well as distal symphalangism, hypoplastic carpal bones, microdontia, dental pulp stones, narrowed zygomatic arch. (Continued)

Delayed
ossification of
pubic and ischial
bones

Open pubic
symphysis in
adults

Coxa valga

Coxa vara

Dislocated hip

Cone shaped
epiphyses

Fibulae a-/
hypoplastic/
under-/unossified

Cone-shaped
epiphyses of
proximal
phalanges

Cone-shaped
epiphyses of
middle phalanges

All middle
phalanges short/
deformed

Cone-shaped
epiphyses of distal
phalanges

All distal
phalanges short/
deformed

difficult delivery, it was insignificant and neither microdontia nor mesiodens has been reported in the literature.

The prevalence of mesiodens varies between 0.09 and 2.05% in different studies. In permanent dentition, a 0.15 to 3.8% incidence of mesiodens has been reported [19]. Erupted supernumerary teeth in the mandible are rare, is about 0.01% which indicated marked low value [20]. Supernumerary teeth in the mandible anterior region in this case is fully erupted which is unusual.

Sexual dimorphism is reported by most authors with males being more commonly affected. Hogstrum and Andersson [21] reported a 2:1 ratio of sex distribution. A study of supernumerary teeth in Asian school children found a greater male to female distribution of 6.5:1 for Hong Kong children [22] which indicates that supernumerary teeth is more common in males than females which is consistent in our case.

Non-syndromic multiple supernumerary teeth occur most frequently in the mandible region especially premolar region followed by molar and anterior region [9]. Few cases of non-syndrome multiple supernumerary teeth have been reported [23,24] however in the present case non-syndromic single supernumerary tooth was observed in the mandibular anterior region.

Evidence regarding etiology of mesiodens indicates that genetic susceptibility together with environmental factors might increase the activity of dental lamina leading to formation of the extra tooth/teeth [19]. A number of theories have been proposed as regards the causes of the occurrence of supernumerary teeth: 1] Atavism theory [8,24,25] 2] Independent hyperactivity of the dental lamina [24,25] and 3] Dichotomy of the tooth bud are also suggested as a possible etiological factors [8,25]. However, none of these theories alone offers a sufficient explanation for this phenomenon.

Since mesiodens may interfere with normal occlusal development, in the present case an early diagnosis could have prevented the lower diastema formation. Early diagnosis and treatment of patients with supernumerary teeth are important to prevent or minimize complications.

As the patient did not show any abnormal systemic manifestations, all the syndrome associated with the dental anomalies were ruled out. The simultaneous presence of supernumerary teeth and the generalized microdontia is very rare. To our knowledge, this is the first such case of non-syndromic occurrence of true generalized microdontia in association with mandibular mesiodens. Such unusual nature of dental anomaly has not been reported so far in the literature.

Conclusion

The dental finding seen in this case is certainly rare. The case is also sporadic, with no positive family history. The wide variation in clinical manifestations in cases of non-

syndromic occurrence of dental anomalies is challenging and is an area for further research. Mesiodens are familiar to pediatric dentists and orthodontists as one of the more common anomalies to affect the developing dentition and it demands a multidisciplinary assessment.

Consent

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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The authors also wish to thank the patient and their family for their contribution to this article. Written consent for publication was obtained from the patient's parent.

Authors' contributions

SB and SK drafted the manuscript paper, analysed the patient's history and contributed to the writing of the final version as well as extracted the mesiodens. Each author reviewed the paper for content and contributed to the writing of the manuscript. All authors approved the final report.

Competing interests

The authors declare that they have no competing interests.

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References

1. Laundau S: *International dictionary of medicine and biology*. New York: John Wiley & Sons; 1986, 1717.
2. Boyle PE: *Kronfeld's Histopathology of the Teeth and their Surrounding Structures*. Philadelphia: Lea & Febiger; 3 1955, 14.
3. Shafer WG, Hine MK, Levy BM: *A Textbook of Oral Pathology*. Philadelphia: W. B. Saunders Co.; 1958, 26.
4. Ufomata D: *Microdontia of a mandibular second premolar*. *Oral Surg Oral Med Oral Pathol* 1988, **65**:637-8.
5. Van der waal I, Van der kwast WAM: *Developmental anomalies and eruption disturbances and some acquired disorders of the teeth*. *Oral pathology* Chicago: Quintessence Publishing Co. Inc; 1988, 114.
6. Opinya GN, Kaimenyi JT, Meme JS: *Oral findings in Fanconi's anemia: a case report*. *J Periodontol* 1988, **59**:461-463.
7. Schulze C: *Developmental abnormalities of the teeth and jaws*. In *Thoma's Oral Pathology*. Edited by: Gorlin RJ, Goldman HM. St Louis: Mosby; 1970:112-22.
8. Rajab LD, Hamdan MA: *Supernumerary teeth: review of the literature and a survey of 152 cases*. *Int J Paediatr Dent* 2002, **12**:244-54.
9. Bhat M: *Supplemental mandibular central incisor*. *J Indian Soc Pedod Prev Dent* 2006, **24**(Suppl 2):s20-s23.
10. Tanaka S, Murakami Y, Fukami M, Nakano K, Fujisawa S, Miyoshi S: *A rare case of bilateral supernumerary teeth in the mandibular incisors*. *Br Dent J* 1998, **185**:386-8.
11. Fukuta Y, Totsuka M, Takeda Y, Yamamoto H: *Supernumerary teeth with eumorphism in the lower incisor region: a report of five cases and review of the literature*. *J Oral Sci* 1999, **41**:199-202.
12. Alencar M, Duarte D, Cury P, Bonecker M: *Lower mesiodens: report of an unusual case*. *J Clin Pediatr Dent* 2005, **29**:353-356.
13. Yokose T, Sakamoto T, Sueishi K, Yatabe K, Tsujino K, Kubo S, Yakushiji M, Yamaguchi H: *Two cases with supernumerary teeth in lower incisor region*. *Bull Tokyo Dent Coll* 2006, **47**:19-23.
14. Grga D, Dzeletovic B: *Supernumerary Tooth in Lower Incisor Region: A Case Report*. *Serbian Dental Journal* 2010, **57**:220-222.
15. Zhu JF, Marcushamer M, King DL, Henry RJ: *Supernumerary and Congenitally absent teeth: a literature review*. *J Clin Pediatr Dent* 1996, **20**:87-95.

16. Thesleff I: **Genetic basis of development of dental defects.** *Acta Odontol Scand* 2000, **58**:191-4.
17. Osborn JW, Ten Cate AR: **Advanced dental histology: dental practitioner. Handbook no. 6.** Bristol: John Wright & Sons; 3 1976, 24-51.
18. Alexandersen V, Nielsen OV: **Generalized microdontia probably associated with intrauterine growth retardation in a medieval skeleton.** *American Journal of Physical Anthropology* 1970, **33**:389-401.
19. Meighani G, Pakdaman A: **Diagnosis and Management of Supernumerary (Mesiodens): A Review of the Literature.** *Journal of Dentistry* 2010, **7**:41-49.
20. Stafne EC: **Supernumerary teeth.** *Dental Cosmos* 1932, **74**:653-659.
21. Hogstrom A, Andersson L: **Complications related to surgical removal of anterior supernumerary teeth in children.** *ASDC J Dent Child* 1987, **54**:341-3.
22. Davis PJ: **Hypodontia and hyperodontia of permanent teeth in Hong Kong school children.** *Community Dentistry and Oral Epidemiology* 1987, **15**:218-20.
23. Srivatsan P, Aravindha Babu N: **Mesiodens with an unusual morphology and multiple impacted supernumerary teeth in a non-syndromic patient.** *Indian J Dent Res* 2007, **18**:138-40.
24. Sivapathasundharam B, Einstein A: **Non-syndromic multiple supernumerary teeth: Report of a case with 14 supplemental teeth.** *Indian J Dent Res* 2007, **18**:144.
25. Stellzig A, Basdra EK, Komposch G: **Mesiodentes: incidence, morphology, etiology.** *J Orofac Orthopaedic* 1997, **58**:144-153.

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