HYPERDONTIA AND SCHIZODONTISM IN PRIMARY DENTITION: REVIEW OF LITERATURE AND REPORT OF A CASE WITH CONCURRENT CONDITION

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ABSTRACT

Supernumerary teeth and gemination are extremely rare conditions in the primary dentition. An exhaustive review of literature regarding these conditions and their effects on permanent dentition is discussed. A unique and hitherto unreported case of concurrent supplemental primary canine and gemination of primary central incisor is presented here. Due to the lack of baseline data regarding their prevalence, need for such studies and hence forth increasing dental awareness to the common man is stressed upon.

KEYWORDS:

Hyperdontia, schizodontism, primary dentition, supplemental teeth, gemination.

INTRODUCTION:

Variation of teeth has been an enduring interest to the clinical practitioner and laboratory scientist. No two teeth are alike. The day-to-day variation that we see is the norm, it is the odd, peculiar, and strange group of teeth, which are called as anomalies; draw everybody's attention.

Hyperdontia (polydontia or supernumerary teeth) are extra teeth, which occur commonly in the permanent dentition[1] their presence in deciduous dentition is extremely rare [1,2,3,4,5] .The most common type of supernumerary teeth is mesiodens present between maxillary central incisors, and fourth molars also called 'Para-molars or distomolars'. Most supernumerary teeth are conical in shape and rarely take up the form of incisors, canine and molars, then they are called as incisiform, caniniform, and molariform respectively, such teeth are also called as supplemental teeth[1,3]. These teeth are mostly impacted or when they erupt; very rarely are they aligned within the arch.[1]

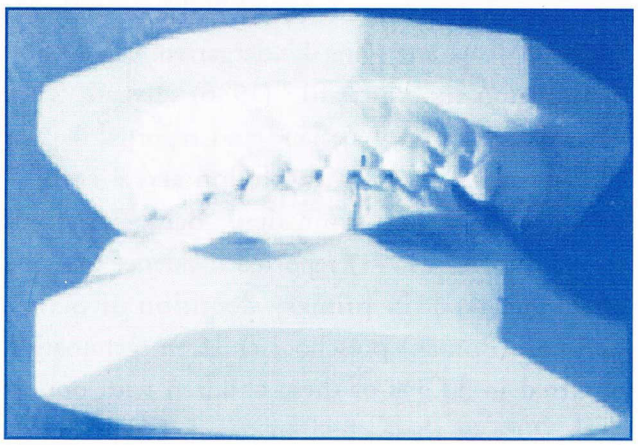
Schizodontism and double teeth describe fusion, gemination, and concrescence of teeth. Fusion is the union of two teeth by dentin and enamel. The pulp chamber is often shared; however they can be separate. Gemination is the development of two crowns from single tooth germ. It is an incomplete twinning of tooth germ where they share the pulp and root. Concrescence is the joining of tooth roots by cementun, which is of little clinical significance[1]. Gemination occurs when single tooth bud attempts to divide completely or incompletely, sometime producing identical structure of normal teeth and supernumerary teeth in arch. Its cause is unknown, but familial tendency does occur [2, 6]. Although commonly seen in primary incisor region, the teeth appear as bifid on single root with a wider crown having a shallow groove extending from incisal edge to cervical region. Radiographically, the cleft in the crown appears radiopaque and the large pulp chamber is usually single[2].

CASE REPORT:

An apparently healthy 7-year-old male child accompanied by his father reported to the Department of Pedodontics and Preventive Dentistry of Peoples Dental College and Hospital. The child's father complained of double row of teeth

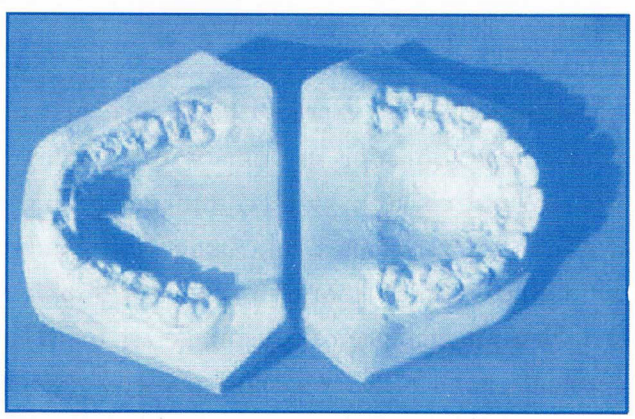
in the lower front region. On examination the child was moderately built and nourished with no significant medical/dental history. It was child's first visit to dentist. Intraoral examination revealed a complete complement of primary teeth and erupting first permanent molar of all sides.

The mandibular permanent central incisors were erupting lingually to their predecessors having grade II exfoliative mobility; Occlusion was mesial step. There was midline shift with maxillary teeth (**see photograph-1**) maxillary right primary canine was

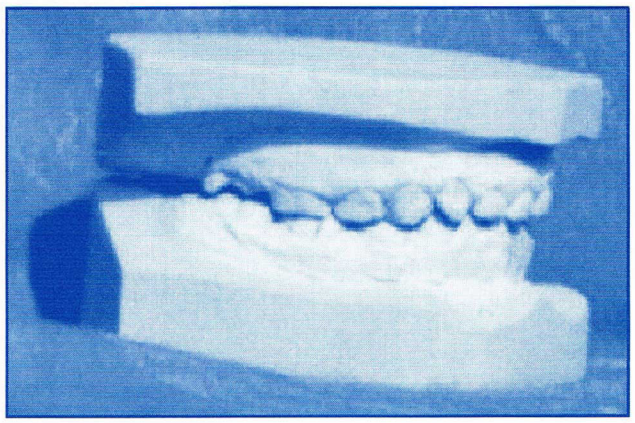


Photograph 1:
Frontal view of dental casts showing midline shift with maxillary teeth and gemination of left primary maxillary central incisor.

photograph-2). Maxillary left and right primary central incisors had the following dimensions : 9 mm mesio-distally, and 5 mm in cervico-incisal length and 6.5mm mesiodistally, and 4mm in cervico-incisal length respectively. Maxillary left



Photograph 2: Occlusal view of the dental casts showing right supplemental canine distal to rotated primary canine.



Photograph 3: View of the right side of the dental casts showing right supplemental canine distal to primary canine.

primary central incisor had cervico-insical groove extending from the incisal surface to the middle-third of the labial surface. A supplemental canine tooth was distal to maxillary right primary canine and aligned within the arch (**see photograph-2 & 3**). The supplemental tooth was 7 mm in cerivo-incisal length and 7.5 mm in mesio-distal width.

Photograph 4: Intraoral periapical radiograph in relation to right maxillary anterior region showing supplemental primary canine.

Photograph 5: Intraoral periapical radiograph in relation to left maxillary anterior region showing a large bulbous crown, root and pulp chamber in relation to geminated primary central incisor.

The left and right maxillary primary canines were 7 mm in mesio-distal width and 6.5 mm in cervico-incisal length. Intraoral periapical radiograph in relation to maxillary anterior region revealed a supplemental canine tooth with bulbous crown and root with large pulp chamber (**see photograph-4**). Maxillary left primary central incisor had radiopaque cleft in the incisal region and showed large bulbous crown, root and pulp chamber (**see photograph-5**). There was no evidence of root resorption in relation to these two teeth. The permanent tooth buds of both central and lateral incisors showed crown completion and root formation up to cervical third. The permanent canines showed crown completion.

The father of the child was unwilling for panoramic radiograph and other investigations and wanted extraction of the over retained primary lower central incisors; which were extracted under topical anesthesia. The father and child were counselled for oral hygiene and need for further regular dental check up.

LITERATURE REVIEW:

The prevalence of double teeth amongst Japanese children is 4.88% in boys and 3.26% in girls and these are common in mandibular anterior region as described by Yonezu, Hayashu, Sasaki and Machida[7] (1997).

Carvalho, Vinker and Declerck[8] (1998) reported five cases of double teeth out of 750 boys and girls aged 3-5 years attending kindergarten at Belgium. Whittington and Durward [9] (1996) surveyed 5year old children in New Zealand and reported 6 cases (4 boys and 2 girls) having fusion and 8 cases (5 boys and 3 girls) as gemination. Barac-Furtinovic and Skrinjaric[10] (1991) reported incidence of 0.5% of double teeth in primary dentition of Serbo-Croatian (Roman) preschool children, gemination occurred in 33.3% of these children with double teeth, 20% of these children revealed hyperdontia of permanent teeth, whereas 70% of children who had fusion showed hypodontia of permanent teeth.

Razak and Nik Hussein[11] (1996) studied 20 subjects with evidence of double teeth in permanent dentition. They reported that this condition occurred more frequently in males and fusion was more prevalent than gemination. 50% of these children showed hypodontia of permanent lateral incisors.

Magnusson[12] (1984) reported 0.7% incidence of double teeth formation in primary teeth amongst 927 Iceland children with completed primary dentition. Shanmugha Devi, Arangannal, Muthu and Nirmal[4] (2002) reported a rare isolated case of simultaneous presence of supernumerary tooth in permanent and primary maxillary lateral incisor region. Munshi, Rebecca and Prabhu[5] (1998) recommended radiographic examination of

preschool children to determine the frequency of supernumerary teeth and to assess normal development of occlusion. They recommended early removal of such teeth, if they impede eruption of adjacent permanent teeth, appear inverted or rudimentary, associated with certain pathological condition or symptomatic. Carvalho, Vinker and Declerck[8] (1997) reported 0.07% of prevalence of supernumerary tooth in 3-year Japanese children. Barac-Furtinovic and Skrinjaric[13] (1991) reported hyperdontia of primary teeth only in boys and always related to maxillary lateral incisors. They reported an incidence of 0.10% amongst 3-6 years aged Serbo-Croatian children, 85.7% these children displayed anomalies of permanent teeth. Nik-Hussein and Abdul Majid[14] (1996) reported that 50% of Malaysian children having primary supernumerary tooth are associated with anomalies of permanent dentition. Whittington and Durward [9] (1996) reported three children (2 boys and 1 girl) aged 5 years from New Zealand who had supernumerary teeth. They confirmed that this condition has an increased likelihood of anomalies of succedaneous teeth and recommended early identification and planned intervention at appropriate time. Humerfelt, Hurlen and Humerfelt[15] (1985) reported 45 supernumerary teeth in pre-maxillary region with 80% incidence in lateral incisor region and 73% of these supernumerary teeth had erupted in to the arch. They concluded that children with primary hyperdontia had greater tendency towards permanent tooth hyperdontia, than do others. Mangnusson[12] (1984) reported 0.5% prevalence of hyperdontia in 927 children from Iceland.

DISCUSSION

Our review of literature in Pubmed (medline) revealed that hyperdontia of primary teeth is rare. Its occurrence is common in males and mostly maxillary lateral incisor region. The case reported here is unusual because the supplemental primary canine is present in the right canine-first molar region and present within the arch but having radiographic findings of large bulbous pulp chamber and roots. Gemination is rare and double teeth are usually associated with mandibular anterior region especially, lateral and canines. This is the first reported case of concurrent gemination and hyperdontia of the primary maxillary dentition. Both of these conditions are always related to anomalies of permanent dentition. Maxillary left central incisor in this case is gemination as described classically by Shafer [16]. Jensen and Kreiborg[18] (1990) hypothesized that the dental lamina for both primary and permanent dentition is normal, but may not resolve completely and therefore they may form supernumerary teeth. Abnormalities of tooth morphology are related to inadequate space and arrested eruption leading to many orthodontic, esthetic and functional problems. We agree with the above authors regarding the future development of dentition in this child, which warrant regular and thorough examination.

SUMMARY AND CONCLUSION

We have presented a unique case of hitherto unreported concurrent hyperdontia and schizodontism in primary dentition. Due to lack of baseline data amongst the Indian sub-continental population, we recommend conducting large-scale epidemiological studies. The dental fraternity should work towards increasing dental awareness and motivation amongst the general public regarding various dental anomalies and conditions, so that future generation of our nation grow up with the healthy dental status.

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