

A unique case of mesiodens associated with anterior tooth trauma

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Abstract

Supernumerary teeth are considered to be one of the most significant dental anomalies affecting the primary and early mixed dentition and may cause a variety of pathological disturbances to the developing permanent dentition resulting in poor dental and facial aesthetics. Complications reported were delayed or prevented eruption of succedaneous teeth, displacement or rotation, crowding of the affected region, abnormal diastema, dilacerations, cystic formation, and sometime eruption into the nasal cavity. These teeth may remain embedded in the alveolar bone or can erupt into the oral cavity. Mesiodens are erupted or unerupted extra tooth in the midline of maxilla (between central incisors). The aim of this case report is to share knowledge about early diagnosis and management of mesiodens which might assist the clinician in treatment planning.

Keywords: Supernumerary teeth, Mesiodens

Introduction

Dentists, in their routine practice are often confronted with developmental anomalies of teeth. The presence of supernumerary teeth is one of the most widely reported and significant anomaly in patients, affecting the primary and early mixed dentition. This may be visible in the oral cavity, or may be revealed as a chance finding on the radiograph or as a cause of an impacted permanent tooth.

Supernumerary teeth denotes as teeth formed in excess of the normal dental formula^[1] It can be single or multiple, unilateral or bilateral, malformed morphologically or normal in size and shape, and erupted or impacted^[2-4]. In the primary dentition, the incidence is said to be 0.3% to 0.8% and in the permanent dentition 1.5% to 3.5%^[5]. Various studies have described the prevalence and gender predilection of these teeth in different populations. Ersin *et al.*^[6] described the prevalence with a frequency of about 0.10% to 6% in permanent dentition and 0.02-

1.9% in the primary dentition. Shah *et al.*^[7] reported that prevalence ranges between 0.3% and 0.8% in the primary dentition and 0.1-3.8% in the permanent dentition and that males are affected approximately twice as often as females. There appeared to be an increased frequency for males of nearly 2 : 1,^[2] and more than 90% of all supernumeraries occur in the maxilla with a strong predilection for the premaxilla^[2]. Maxillary anterior supernumerary may erupt into the oral cavity or remain unerupted. It is found that approximately 25% are erupted, while rests are unerupted.

Generally, supernumerary teeth can be classified as either supplemental or rudimentary. Supplemental teeth have morphology similar to a tooth of the normal dentition, while rudimentary teeth are small, conical, or tuberculate. The term mesiodens denotes a supernumerary tooth located between the maxillary central incisors

The aetiology of the supernumerary teeth still remains unclear. "Phylogenetic process of atavism,"^[8] the "dichotomies of the tooth bud,"^[9] hereditary, and a combination of genetic and environmental factors-unified etiologic explanation^[10] have been suggested. A hyperactive dental lamina is where the localized and independent hyperactivity of dental lamina is the most accepted cause for the development of the supernumerary teeth.

This case report describes a mesiodens that was present labially between the two central incisors causing displacement of two central incisors and also describes about early diagnosis with treatment planning.

Case report

A 12-year-old boy reported to the Department of Pedodontics and Preventive Dentistry, of Bharati Vidyapeeth Dental college and hospital, Pune with a chief complaint of a malformed tooth in between two upper front teeth causing an unesthetic appearance (Figure 1).

Medical, dental, and family histories were not significant. Patient had experienced trauma with tooth 11 six years back. Intraoral examination revealed the presence of a mesiodens that was present labially between the two central incisors causing displacement of two central incisors. Ellis class II fracture was found with 11, cross bite was seen with 12 (Figure 2a,2b). Radiographic examination showed presence of conical supernumerary tooth wedged between upper two central incisors (Figure 3). Treatment involved extraction of mesiodens. The mesiodens was of a conical type with full formed roots (Figure 4). A midline diastema resulted after extraction of mesiodens. Later IOPA was taken to confirm the extracted mesiodens (Figure 5). The wound healing was uneventful and the patient presented with no post-operative complications (Figure 6). Composite restoration was done with 11 (Figure 7). Fixed orthodontics will be planned for this patient in future to correct the midline diastema and crossbite.

Figure 1



Figure 2a



Figure 4



Figure 2b



Figure 5



Figure 3



Figure 6



Figure 7



Discussion

Mesiodens is considered as an extra tooth along with normal teeth with a prevalence 0.15 to 1.9%. One mesiodens occurred in 78.1% of the cases and in two in 21.9% of the cases. Most of the mesiodens (55.2%) were found to be in vertical position (55.2%) followed by inverted position (37.6%) and horizontal position (7%)^[11]. Most of the mesiodens remain unerupted, and if they are erupting, it will be an ectopic eruption^[11,12]. Rajab and Hamdan and Liu *et al* stated that supernumerary teeth are frequently normally orientated. Yusof, in a literature review of multiple supernumerary teeth occurring in the absence of a syndrome, found the anterior maxilla to be an unusual site for this occurrence as found. Similar findings were reported in our case where supernumerary teeth conical in type were found in upper anterior region that resulted in delayed eruption and displacement of 12,11 and 21, respectively. The vast majority (80%) are reported to be positioned palatally with the remaining 14% located between the roots of the permanent central incisors (Nazif *et al.* 1983). Contrasting results were found in our case where mesiodens was placed labially. According to Garvey *et al*, supernumerary teeth are more frequent in boys and a conical shape is the most frequent which is in agreement with our case report.

As maxillary permanent central incisors erupt 7 and 9 years of age, most of the mesiodens are reported at this

age. Presence of mesiodens is mainly found during the radiological examination of nonerupted or axial rotated of upper central incisors or diastema^[12]. Treatment of impacted mesiodens centers on several factors which include the age of the child, clinical manifestation, capacity of the child to tolerate the surgical procedure, root development stage of the adjacent permanent teeth etc^[13]. If the mesiodens are asymptomatic then they are left in place and extraction is delayed until the adjacent teeth root completion^[14,15]. Gomes *et al.* verified that the most common treatment of choice was surgery followed by orthodontic therapy, i.e., in 62.0% of cases. Several advocate early, preschool-age removal of a mesiodens in order to prevent future orthodontic problems and the need for more difficult surgical procedures (Primosch 1981; Nazif *et al.* 1983; Rotberg and Kopel 19). Mesiodens are always under keen observational follow up. Their extraction is always discouraged due to the fear of iatrogenic damage to the permanent teeth or its vitality during extraction time^[16]. Early surgical intervention in a young child requires treatment under general anaesthesia. The associated complication risks and related psychological dental anxiety opposes the use of general anaesthesia^[2]. Even if the supernumerary teeth remain in the jaw for years without any complications periodic recall check-ups are needed due to its cystic complications (in about 4-9% cases) and a possibility of development of a carcinoma. As long as the coronal part of the follicle of the supernumerary teeth remains intact, migration of the supernumerary teeth is possible which may cause any disturbance in eruption or alignment of permanent dentition directs the extraction during mixed dentition^[7]. However, in this present case, the mesiodens had already erupted into the oral cavity labially causing varying degrees of orthodontic problems, i.e., rotation, crowding,

displacement of teeth. Due to these ongoing and future complications, the mesiodens was indicated for extraction. Nevertheless, extraction that has been done at the right time in this case, can prevent the future migration of the supernumerary teeth and associated complications. Fortunately, post-surgical phase was uneventful.

Early intervention and surgical removal of the unerupted supernumerary tooth as soon as it is detected helps to prevent the future complications such as retarded eruption of the permanent incisors or the need for any additional surgical procedure (Rotberg and Kopel 1984; Hogstrom and Andersson 1987). This intervention gives an advantage to the spontaneous eruptive potential of the permanent incisor, to avoid eruption delay or failure of their eruption, crowding, space loss and midline shift which may require extensive orthodontic therapy.

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