Double Teeth In Primary Dentition Showing Schmuziger Type 2 Anomaly: A Case Report With One Year Follow-Up

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ABSTRACT

Abnormalities of tooth morphology arise from developmental disturbances as a result of which the dental hard tissues are normal in structure, but altered in shape. They are due to factors acting at an early stage in tooth development. The terms double teeth, double formation, conjoined teeth, geminifusion, vicinifusion and dental twinning are often used to describe fusion and gmination. Case of fusion in the deciduous dentition is presented to demonstrate the diagnostic differences but also more importantly to draw attention to the potential impact of double teeth on the developing secondary dentition and its future management. This report presents a case of primary double tooth in a 6-year-old girl involving maxillary left central incisor and a supernumerary tooth. Double teeth are associated with clinical problems such as poor esthetics, spacing problems and caries susceptibility; which should be treated as conservatively as possible.

Keywords: Dental anomalies. Double teeth. Permanent dentition. Primary teeth. Supernumerary teeth. CBCT Scan.

INTRODUCTION

Fusion and gmination are uncommon developmental disturbances that give rise to variation in crown and root morphology.1 These specific dental anomalies more frequently affect the primary dentition but can also occur in the permanent dentition.2 Fusion is defined as the union between the dentine or enamel, or both, of two or more separate developing teeth, whereas gmination is the partial development of two teeth from a single tooth bud following incomplete division.3 It is difficult, however, to distinguish between fusion and gmination, as fusion may occur between a normal tooth and a supernumerary. Gmination may also occur in a tooth germ adjacent to a congenitally absent tooth, and this would be indistinguishable clinically from fusion. The term ‘double tooth’ is therefore more commonly used as it does not imply any specific aetiology, and it includes both fusion and gmination. Tannenbaum and Alling4 described the classification of double formations shown in Fig. 1 which was also adopted by Pindborg5. Schmuziger described different types of fused or gminated teeth depending on whether the union was total or partial and where the pulp showed varying degrees of extension (Fig. 2). Supernumerary tooth formation, or hyperdontia, is not as common as hypodontia: the prevalence in the primary dentition is 0.2% to 0.8% and in the permanent dentition, 0.5% to 5.3%, with geographic variations.6 Dichotomy theory suggests that extra teeth form due to splitting of the successional dental lamina. Hyperproliferation of dental lamina or unresolved dental lamina fragments, as well as hyperinductive mesenchyme, are other possible causes of the supernumerary tooth formation.6 Double teeth are more frequently detected in primary dentition; ranging from 0.5% to 4.5% than in permanent dentition ranging from 0.1% to 0.3% with no gender predilection.7 The anomalous teeth are often asymptomatic, and may be discovered during clinical and radiographic examination of the oral cavity. The typical problems associated include poor esthetics, malocclusion, changes in the dental arch length, hyper/hypodontia of the successional tooth, anomalies in the eruption of the permanent successor, periodontal disease or dental caries.8 The purpose of this case report is to describe nonsurgical endodontic treatment and esthetic rehabilitation of a primary anterior double tooth along with a CBCT scan to assess the status of the successor tooth.
CASE REPORT

A 6 year-old girl reported to the Department of Paediatric and Preventive Dentistry with a complaint of spontaneous throbbing pain in her lower right first primary molar. Her medical history was unremarkable and there was no family history of supernumerary, congenitally missing teeth or double teeth. The clinical extra oral examination did not show any different alteration. The clinical intra oral examination revealed the presence of double teeth (crowns 61 and a supernumerary tooth which could be conical shaped) and deep lesion with 84 and multiple small carious lesions. (Fig 1a-c) The other oral structures showed normal pattern. Her mother stated that the family had never noticed that she had double teeth. Radiographic examination revealed that teeth 61 and supernumerary tooth had their pulp chambers and root canals individualized with normal size. (Fig 2a) The therapeutic conduct was restricted to the orientation of the mother about the preservation of the primary teeth by endodontic treatment and esthetic rehabilitation. A CBCT Scan was advised to detect whether any abnormality was seen in the successor tooth. However it revealed no abnormalities in regards to shape or size. (Fig 2b-c) After administration of local anesthetic agent, direct access was gained to the root apices and shaping and cleaning of the canals was performed using endodontic K-files and H-files (MANI, INC. Utsunomiya, Tochigi, Japan). Irrigation of the root canals at every step was done with 2.5% sodium hypochlorite and normal saline alternatively. The root canals were filled using Zinc oxide eugenol. Access cavity was sealed primarily with cavit (3M ESPE AG, Seefeld, Germany) and by Glass Ionomer Cement (GC Corporation) in the next appointment. Esthetic rehabilitation was done by firstly etching the teeth for 30 seconds with 37% phosphoric acid and rinsing for 10 seconds with water. After removal of the excess water by gentle air drying, dentin bonding agent (Adper™ Single bond 2, adhesive; 3M ESPE AG, Seefeld, Germany) was applied for 15 seconds with a brush and then air thinned. The bonding agent was light cured as per manufacturer’s instructions and teeth were built up with the composite resin material (Filtek Z250 Shade A1; 3M ESPE AG, Seefeld, Germany) in an incremental manner. Final finishing and polishing of the composite was done using finishing burs and composite finishing kit (SHOFU, SHANK CA, PN 0306, Shofu Dental Corporation, USA). Even though the symmetry of centrals could not be maintained due to the presence of supernumerary tooth, reasonably good esthetics were delivered to the patient. Endodontic treatment of 84 was completed followed by Stainless Steel Crown and the carious lesions involving 75, 85, 65, 55, 54 were restored. (Fig 3a-d) Further preventive treatment like topical fluoride application was provided. At the 6 month follow up patient was asymptomatic and showed no abnormalities on the intraoral periapical radiograph. At one year follow up period, fusion with 61 and supernumerary tooth showed delayed resorption whereas 51 exfoliated and 11 was erupting which can be appreciated on the intraoral periapical radiograph. (Fig 4a, b)
DISCUSSION

In this case report there was a diagnostic dilemma due to presence of double teeth between a central incisor and a supernumerary tooth. However it seems to be of little clinical significance to differentiate between fusion or gemination, the main focus should be on preservation of the involved primary teeth and the permanent successor. The correlation of primary double tooth with anomalies in the permanent successors has been widely studied. Subsequent anomalies of the permanent dentition in the corresponding regions have been reported in more than 50% of subjects with primary double tooth. However no such anomalies were detected radiographically. Double teeth are the most common type of dental anomalies in the primary dentition. Both gemination and fusion are prevalent in primary dentition, with incisors being more affected. Treatment options may include splitting, reduction in size or extraction, depending on the degree of fusion, the size of the tooth and its location. Hashim 2004 suggest the orthodontic treatment to a case of a fused and rotated central incisor followed by a complementary esthetic treatment, to preserve the health and restore esthetic. Aguiló et al. showed that double teeth were mostly unilateral, involving two adjacent teeth, and no difference was found in the proportion of double teeth in either the maxilla or mandible, or on the left or right side. The clinical interest for the appearance of double teeth in the primary dentition is the clinical problems associated with them, including caries, delayed exfoliation and anomalies in the permanent dentition such as impaction of the successors, supernumerary teeth, permanent double teeth or aplasia of teeth. Seddon et al reported that the presence of supernumerary teeth might cause delayed eruption in 26-52% of the cases and displacement or rotation of adjacent teeth in 28% to 63% of the cases. He also reported other complications such as resorption of the adjacent roots, crowding, development of dentigerous cysts, diastema, dilaceration, and ectopic eruption of permanent teeth into the nasal cavity. Therefore, early diagnosis of the anomaly has a considerable importance and it should be followed by careful clinical and radiographic observations that will allow surgical intervention at appropriate time. The presence of double primary tooth can also cause delayed resorption of root due to greater root mass and increased area of root surface relative to the size of the permanent successor crown. This may lead to delayed or ectopic
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CONCLUSION

References