
MANAGEMENT OF THREE FUSED PRIMARY TEETH

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ABSTRACT:

Fusion is a dental anomaly in which two dental germs have developed separately and then become united. It is often confused with germination, unless until carefully evaluated clinically and radiographically. This paper describes a case of a six year old boy who presented with pain and swelling in right lower back tooth region. Intra oral examination revealed three fused primary teeth, which were confirmed radiographically. Radiographs also revealed missing permanent tooth buds associated with them. Since all the fused teeth were pulpally involved they were managed by pulpectomy. The incidence, prevalence, complications and treatment modalities are also discussed in this case report.

KEY-WORDS: Fusion, primary teeth, pulpectomy.

INTRODUCTION

Dental anomalies of number and forms may occur in the primary and permanent dentition, fusion is one among them.¹ Fusion is an embryonic union of normally discrete structures. If it occurs early, two developing teeth will unite to form a single tooth of almost normal size and if it occurs very late, one tooth almost twice the normal size will develop.² However, if the contact of the teeth occurs later, when a portion of the tooth crown has completed its formation, there may be union of roots only³ and these fused teeth present two root canals, and one or two roots may be evident radiographically. Fusion leads to one less tooth than normal in the affected arch. In cases where it is found as union of a normal tooth bud to a supernumerary tooth germ, the number of teeth is also normal and differentiation from gemination may be very difficult.¹

CASE REPORT

A 6-year-old boy was referred to the department of Pediatric dentistry, for dental treatment. The child had presented with a swelling on the left side of the face (Fig 1). Intra-oral examination revealed a deep carious lesion i.r.t 75. Also noticed were double teeth i.r.t mandibular right primary lateral incisor and canine, mandibular left primary lateral incisor and canine, as well as maxillary left primary central and

lateral incisors (Fig 2). The double teeth had labial and lingual grooves and were affected by deep carious lesions. When the total number of teeth was counted it was two less in the mandibular arch and one less in the maxillary arch. Moderate carious lesions were present i.r.t 55, 65, 84, 85.

Periapical radiographs of 61, 62 and 72, 73 revealed union of crowns and roots of the affected teeth; the teeth shared a single pulp chamber with separate root canals. Also seen on the radiograph is a large radiolucency extending into the pulp chamber of the teeth. Periapical radiograph of 82, 83 revealed union of crowns and roots and the effected teeth shared a single pulp chamber and a root canal, also noticed in this radiograph is a radiolucency extending into the pulp chamber. Periapical radiograph of 75 also revealed a radiolucency extending into the pulp chamber. Based on the clinical and radiographic examination, it was diagnosed as partial fusion between 61, 62; 72, 73 and total fusion between 82, 83. As studies have stated that fusion in primary dentition will lead to complications in permanent dentition, an OPG was advised to evaluate the permanent dentition. OPG revealed, missing mandibular left and right permanent lateral incisors and also missing maxillary permanent left lateral incisor crypts (Fig 3). This case was managed as follows. Emergency access opening of 75 was done in the first visit, under antibiotic coverage to relive pain. In the

successive visits the fused teeth were endodontically treated (Fig 4) and were restored with composite resin (Fig 5). Restoration of these fused teeth with crowns was not preferred because; since the teeth were of abnormal size they would not look aesthetic. 75 was restored with a stainless steel crown after pulpectomy (FIG: 6) and 55, 65, 84 and 85 were restored with glass ionomer cement.

DISCUSSION

A fused tooth is clinically broad and shows either a bifid crown, a groove delineating two crowns or an incisal notch. The groove may continue onto the root if they are also conjoined, but maxillary fused teeth often show two roots,⁴ as noticed in the present case. Fusion may be partial (incomplete) including only the crowns, or total (complete) involving tooth crowns and roots⁵. Fused teeth may involve pulp chambers, dividing into two root canals or two independent endodontic systems⁶. In the present case a groove was noticed between the crowns of 61, 62 and 72, 73 and their roots were separate, 82 and 83 shared a single root though a groove was noticed between the crowns. Partial fusion is seen between 61, 62 and 72, 73 whereas total fusion is seen between 82 and 83. There is being numerous reasons that can be attributed to the occurrence of fused teeth as sited in the scientific literature. Some of them include: Genetics, pressing of tooth buds or physical strength which can produce the contact between the teeth¹, familial, and syndromic². In the present case the patient was suffering from JOB syndrome/ Hyper IgE syndrome⁷, occurring due to elevated levels of IgE, but the association of fused teeth with JOB has not been reported in the literature.

Fused primary teeth and bilateral cases occur more frequently in Japanese than in Caucasians. Fused primary teeth occur more frequently in the mandibular incisor region than in the maxilla, supporting this is the study conducted by Trujino, he investigated 182 fused primary teeth and found 18.7% to be in the maxilla and 81.3% were in the mandible. The bilateral type of fusion in the primary dentition occurs less frequently than unilateral type so bilateral maxillary fusion in the primary dentition is very rare.⁸ In the present case bilateral fusion was seen in the mandibular arch where as fusion was unilateral in the maxilla. Teeth involved in double teeth differed according to each jaw. Double teeth involving lateral incisor and canine appeared exclusively in the mandible and those involving central incisor appeared only in the maxilla⁸, similar to what was seen in the present case.

Complications and the effect of fusion on permanent teeth:

When a patient has a fused primary tooth, possibilities that may be predicted in the permanent dentition include:

- Normality, presence of supernumeraries and repetition of fusion in permanent teeth⁹.
- Delayed eruption or ectopic eruption of permanent teeth due to delayed physiologic resorption of fused teeth¹⁰.
- Esthetic problems, misalignment and malocclusion¹¹.
- Caries, delayed exfoliation and anomalies in the permanent dentition such as impaction of successors, supernumerary teeth, permanent double teeth or aplasia of teeth¹.

Brook and Winter, 1970 reported that half of the deciduous double teeth have been followed by an anomaly in the permanent dentition.¹¹ Similarly in the present case Orthopantomograph revealed congenitally absent, mandibular left and right permanent lateral incisors and maxillary permanent left lateral incisor (Fig 3) so follow up of this case is important to prevent potential malposition of teeth in the permanent dentition.

TREATMENT

The choice of treatment for a fused tooth should be determined by the patient's orthodontic, periodontal, esthetic and functional requirements. Usually a multi disciplinary approach is needed due to the

- 1) abnormal crown shape,
- 2) root formation,
- 3) endodontic considerations,
- 4) malalignment,
- 5) esthetics. The most common alternatives are,
 - i) Extraction of fused teeth,
 - ii) Separation of conjoined tooth into two single teeth,
 - iii) Hemisection and
 - iv) Reshaping of the crown.⁶ When fused primary teeth are found in the clinic the application of fissure sealants is recommended to prevent dental decay.¹² If caries already exists, a restoration should be performed¹³ and if there is pulpal involvement, endodontic treatment should be carried out in the same way as for a multi rooted tooth,⁹ as performed in the present case.



Fig.1 6-year-old male patient showing swelling on the left side of the face.



Fig. 2 Maxillary and mandibular arches showing fused teeth i.r.t 61, 62; 72, 73; 82, 83.

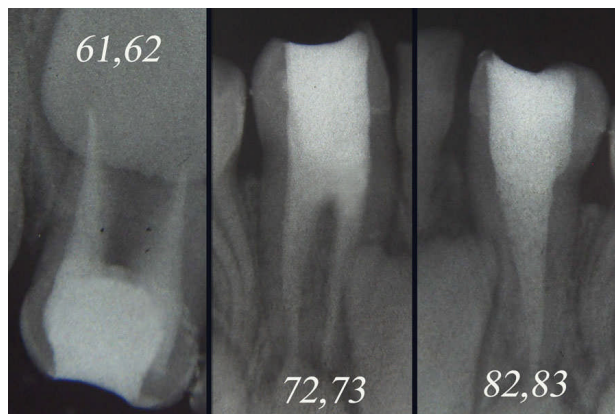


Fig. 4 IOPA radiographs showing Endodontically treated fused teeth



Fig. 5 Fused teeth restored with composite resin.

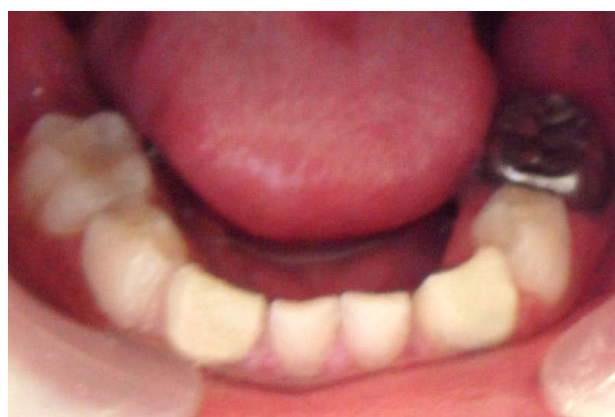


Fig. 6 – restored 75 with stainless steel crown



Fig. 3 Orthopantamograph showing, missing permanent mandibular right and left lateral incisors and permanent maxillary left lateral incisor crypts.

CONCLUSION:

Maintenance of primary teeth in the dental arch until their exfoliation and guidance of permanent teeth into occlusion is assumed to be an important role of Pediatric dentist. When encountered with dental anomalies like fusion in the primary dentition it is essential to assess the developing permanent dentition too and to treat the tooth with anomaly. Also important is the appropriate treatment planning and periodic review of the success of our treatment till the successor erupts into the oral cavity.

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