



Treatment of cariously involved fused maxillary primary lateral and central incisors

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Abstract

A 3-and-a-half-year-old male child presented with fused cariously involved right maxillary primary central and lateral incisors as well as a previously traumatized non-vital left primary central incisor with a draining fistula. The child also had other restorative needs and the decision taken was to address all needs under a G.A. With respect to the fused incisors, these were split and root canals treatment was performed for all three incisors which were then restored with stainless steel crowns with esthetic facings. (Pediatr Dent 23:363-364, 2001)

Introduction

Double teeth can represent either gemination or fusion. Gemination is an attempt at division of a single tooth germ with the result being an incomplete formation of both teeth and crowns that are partially or totally separate having a single root and root canal. The clinical picture is that of a large tooth with a bifid crown.¹

Fusion, on the other hand, implies a union of enamel or dentine of separate tooth germs. The clinical picture and extent of fusion can vary considerably depending on the stage of development of the teeth at the time the union occurred. There



Fig 1. Clinical view showing the fused lateral and central incisors and the fistula related to the left primary central incisor.

is usually one tooth missing in the arch unless the fusion occurred with a supernumerary tooth.¹

The reported incidence of fusion of primary teeth varies amongst different studies with a suggestion of racial variations. It should also be noted that the literature displays a lack of conformity in distinction between fusion and gemination which

*Crowns by Cheng Laboratories

makes incidence comparisons somewhat difficult. Two representative studies include a Danish study of 4564 children in the primary dentition stage which reported a 0.90% incidence of fused teeth² and a Japanese study of 2733 children aged 3 years which reported an incidence of 4.10%.³ The latter study did not distinguish between fusion and gemination. Generally, studies on Caucasian populations display lower incidence rates.

The etiology of fusion is not fully known. A genetic or familial factor may be implicated.^{3,4} Others have reported an environmental factor such as trauma or crowding causing contact between adjacent tooth germs resulting in fusion.⁵

Case Report

A 3-and-a-half-year-old male of middle eastern origins, presented with carious involvement of several of his primary teeth including the fused right maxillary central and lateral incisors. Carious involvement of these teeth was extensive and, typically, appears to have initiated along the fusion line. A periapical radiograph revealed essentially normal bone structure and supporting tissues as well as separate roots and root canals of the two incisors. The fusion appeared to involve the crowns of the two teeth but extended only partially to the roots.

The child was healthy with normal height/weight, had normal hair and skin and no congenital conditions. Dental history was unremarkable except for an incidence of trauma at age two which is believed to have resulted in devitalization of the left maxillary central incisor. A draining fistula was evident labially adjacent to that incisor.

For management considerations, it was decided that all patient needs would be addressed under a general anaesthetic.

At the appointed day, the child presented NPO, was induced with inhalation anaesthesia and an I.V. was inserted. The patient was draped and a throat pack was placed as per standard operating room procedures. Bitewing radiographs were taken and other restorative needs addressed. Attention then shifted to the maxillary anterior region.

A thin conical diamond bur was used to split the fused maxillary right central and lateral incisor as well as prepare these two teeth and the left central incisor for anterior crowns*. A round bur in the slow speed was used to remove caries in the two fused teeth which, as anticipated, quickly involved the pulp. The root canals for all three involved incisors were then prepared and filled with a creamy zinc-oxide eugenol mix using a lentula spiral. Additionally, the fistulous tract related to the left central incisor was curetted. A suture was not deemed necessary.

Postoperative recovery was uneventful and a postoperative one month recall including a further periapical radiograph, showed healing to be satisfactory and the absence of symptoms.



Fig 2. Periapical radiograph of the fused incisors.

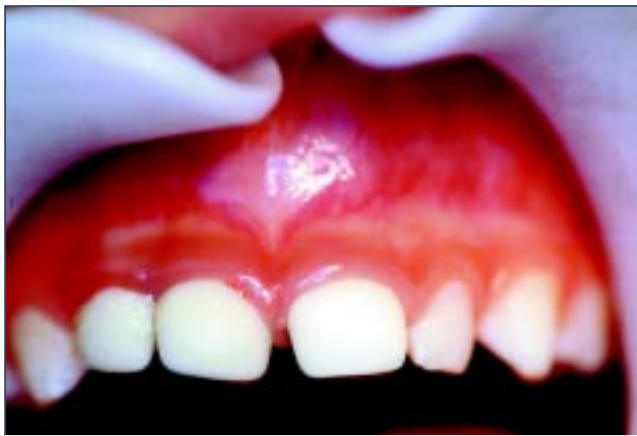


Fig 3. One month post-operative view of the treated case showing the separated right lateral and central incisors and the healed fistula with esthetic crowns on all 3 incisors.

Discussion

The etiology of the fusion in this instance is unclear. The trauma that occurred at age two and resulted in devitalization of the left central incisor is unlikely to be etiologic since tooth displacement did not occur and, at the age when the trauma occurred, the primary incisors were already fully developed.

A familial pattern could also not be demonstrated. The child has two older siblings (8 and 10 years). An examination revealed that they do not currently have any fused teeth and the parents indicate that they had no fusion of their now exfoliated primary upper and lower incisors. Further familial investigations were not undertaken.



Fig 4. One month post-operative radiographic view. Note congenitally missing right permanent lateral incisor.

The main treatment concerns in fusion is the restoration of esthetics and preventing carious breakdown which usually initiates along the vulnerable fusion line. The treatment, as performed, permitted retention of the child's incisors and restored esthetics and function. However, this report has not shed additional light on etiologic factors related to fusion of teeth.

References

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