Unilateral fusion of primary molars with the presence of a succedaneous supernumerary tooth: case report

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Fusion of either primary or permanent molars is rare.[1] Fusion can be either partial or complete, depending on the developmental stage of the teeth when the fusion began.[2] This paper reports a case of unilateral fusion of maxillary primary molars associated with an adjacent succedaneous supernumerary permanent tooth.

Three studies have reported primary double molars associated with syndromes. Two of these studies reported "globodontia" in the primary posterior dentition of otodental syndrome,[3,4] whereas the other was reported in a child with Russell-Silver syndrome.[5] In these studies the authors suggest that the enlarged molars were the result of a partial duplication of growth centers, fusion of the molars with supernumerary elements,[3,4] and/or associated with developmental changes in the dental lamina.[5]

Only two cases of fused primary molars have been reported in normal, healthy patients. The first one was reported by Yuen, et al.,[6] in a retrospective radiographic study of 376 patients; however, neither radiographs nor photographs of the fused molars were published. More recently Acs, et al.,[7] have reported the first documented case of "bilateral double teeth" involving maxillary primary molars in a 5-year-old African-American with an unremarkable medical history. They described two separate pulp chambers and several roots.

Two reports have described fused lower permanent molars associated with enlarged pulp chambers and supernumerary roots.[8,9] These were normal healthy patients.

Case report

A 6-year-old African-American male was seen at the Dental Clinic of The Children's Hospital of Alabama for routine dental care. The patient's medical history was unremarkable and no history of facial trauma was reported. The patient's mother stated that she was not aware of similar dental problems among other members of her family. Clinical examination revealed the patient was in the early mixed dentition. Several carious teeth were noted with pulpal involvement of #T.

The clinical crown of tooth #A and/or tooth #B was larger than the contralateral tooth. No history of previous extraction was reported and only minimal space was noted between the fused tooth and the primary cuspid. The total number of teeth in the maxilla was 11; of these, five were primary teeth (A-B, C, H, I, J) and six were permanent teeth (3, 7, 8, 9, 10, 14). The clinical features of this macrotooth included a total of six cusps—three buccal and three lingual—which were separated by occlusogingival grooves (Figs 1a and 1b). Carious lesions were noted on the occlusal, buccal, and lingual grooves.

Radiographic examination of the macrotooth revealed an enlarged primary molar crown with a single pulpal chamber (Fig 2). Four distinct roots and alveolar resorption involving two-thirds of the mesial root also were noted. Two permanent bicuspids (4 and 5) as well as a supernumerary tooth with the characteristics of a permanent bicuspid were visible radiographically (Fig 3). None of the permanent teeth was absent.

After one year the patient returned for a recall appointment and presented with an asymptomatic abscess in the buccal of the attached gingiva above the fused tooth. A periapical radiograph was exposed and revealed almost complete resorption of all roots. The fused tooth was extracted without complication and a transpalatal arch wire with omega loops was placed to maintain the space for the eruption of the first and second premolars.

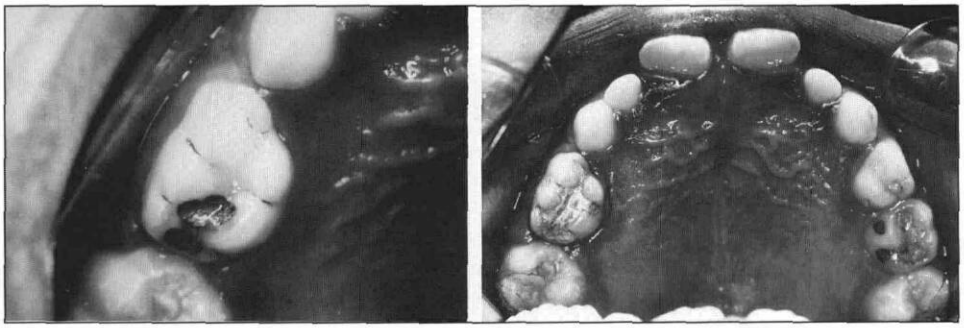

Fig 1a and 1b. Clinical picture of fused teeth before and after operative treatment. Note comparison with contralateral tooth.

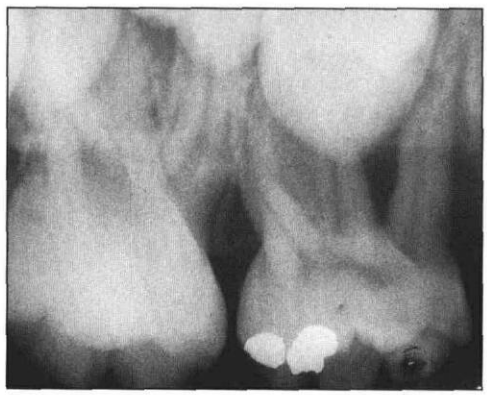

Fig 2. Periapical radiograph of fused teeth depicting single pulp chamber, four roots, and bony resorption of the mesial root.

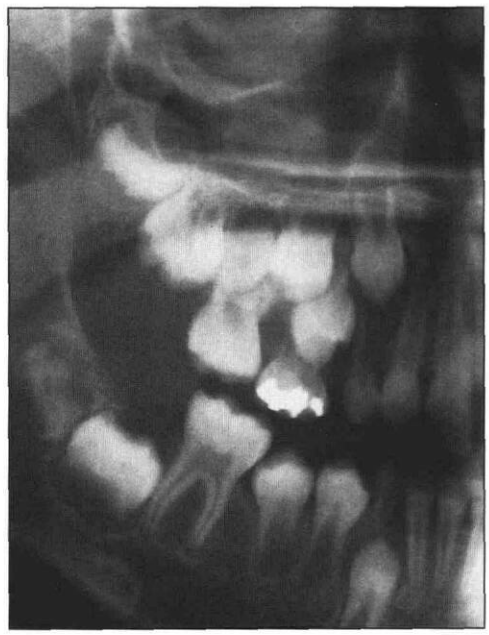

Fig 3. Supernumerary tooth distal to first and second bicuspids and apical to first permanent molar. Note root resorption of fused tooth.

Discussion

This report presents a rare case of primary molar fusion. The nature of the tooth morphology, the number of teeth present in the arch, and the radiographic findings all seem to coincide with previous definitions of fusion as proposed by Levitas,[10] and Mader.[11] Though one of the two previous reports of fused primary molars did not include any specific description (Yuen et al.),[6] the other report does allow for comparisons that emphasize the potential range of characteristics in this dental anomaly (Acs et al.).[7]

Clinically, the present case exhibited an enlarged clinical crown without any evidence of separation or morphological distinct portions representing the first and second primary molars. In contrast, the case reported by Acs et al.,[7] shows clear buccal and lingual grooving of the crown indicating where the primary molars were joined. The occlusal morphology of that case also revealed the anatomies of the first and second molars. Radiographically, the case of Acs et al.,[7] exhibited two seemingly distinct pulp chambers, incomplete fusion of the dentin, and possibly five or six roots of the macrodont. The present case demonstrates a single large pulp chamber with complete fusion of the dentin. The previous report probably demonstrates a partial fusion whereas the present case exhibits a complete fusion of the maxillary primary molars.

Another difference in the present case is the presence of a supernumerary tooth. The literature indicates a tendency for missing permanent successors in cases of primary tooth fusion rather than extra teeth.[12] Whether the primary molars' fusion and supernumerary tooth are related in etiology can only be speculation at this point.

In the present case, there was no significant medical condition, history of any orofacial trauma, or recollection of serious dental problems in other family members. Therefore, no clear etiology is evident. In general the shape and size of teeth are genetically determined. However, external and/or internal factors such as trauma, radiation, hormonal changes, and nutritional deficiencies could affect the shape, number, and quality of dentition.[13,14] The nature of any such changes in the dentition as a result of these factors usually depends on the timing of insult in relation to the developmental stage of the affected teeth. The first and second primary molars begin hard tissue formation between five or six months in utero. Perhaps the higher prevalence of fused teeth in anterior teeth as compared to posterior teeth may indicate a susceptibility to insult during the first four months of life in utero, which could result in fusion. Insults in utero would probably be more difficult to document, however. Genetic etiology would not be as limited by the timing of the insult.

Conclusion

This paper highlighted:

1. An unusual location for dental fusion (primary molars)
2. A type of variation seen in fusion (complete as compared to partial)
3. An unusual finding in primary tooth fusion (supernumerary permanent tooth—an apparent third bicuspid).

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System for allocating donor kidneys works against blacks

Emphasis on antigen match puts efficiency ahead of equity

The current system devised for allocating donor kidneys for renal transplant works against African Americans, according to a special communication in a recent issue of the *Journal of the American Medical Association.*

"In the face or a critical (and growing) shortage of transplantable kidneys, current directives place potential black recipients at a significant disadvantage," writes Robert S. Gaston, MD, from the departments of Medicine and Surgery, University of Alabama at Birmingham, with colleagues. "Despite their constituting 31% of patients on waiting lists, blacks received only 22%of cadaveric kidney transplants in 1990, with a median waiting time of 13.9 months vs. 7.6 months in whites."

The authors say each year, more than 23,000 Americans with End-Stage Renal Disease (ESRD) wait for a suitable cadaveric kidney for transplant, while fewer than 8,000 transplants are done annually.

The current system for allocating kidneys focuses on trying to minimize the risks the donor organ will be rejected. Both the kidney and the patient have a set of antigens (human leukocyte antigens, or HLA) — substances which can trigger the immune response in the body that leads to transplant rejection. If there are good HI,A matches between the recipient and the donor organ, the organ is less likely to be rejected. The optimal situation is when all six antigens match.

HLA antigens are distributed differently among races. Nationally, blacks constitute 12 percent of the donor population, but 34 percent of those with ESRD. Consequently, "the closer the match, the less likely a kidney will cross racial lines."

However, the authors say Medicare data of cadaveric transplants "demonstrate little statistical relationship of HLA match to survival of first allografts at five years in the presence of one or more mismatches."

They say the emphasis on efficiency has come at the expense of equity. "Preference for HLA matching should be given only in proportion to its documented effectiveness in improving graft survival, that is, in extremely well-matched recipients (usually white) and retransplant candidates."

They add: "Efforts to increase black donations are to be encouraged but will not eliminate disparity. If racial equity is to be achieved, alternative allocation strategies must be formulated that forthrightly address the interests of all potential recipients."