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Fusion of Primary Mandibular Anterior Teeth Associated with Partial Anodontia of Primary and Permanent Dentition: A Case Report

Abstract

Fusion is a developmental anomaly of the teeth. It is defined as the union of two independently developing primary or permanent teeth. Aberrations in morpho differentiation stage of tooth development lead to abnormal forms and sizes of teeth. This paper reports a rare case which had the presence of fused primary incisors in the right mandibular region along with agenesis of primary and permanent mandibular left lateral incisor.

Keywords: Fusion; Primary incisors; Mandibular region; Partial anodontia

Case Report

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Introduction

Fusion represents the union of two normally separated tooth germs [1]. It is a dental twinning anomaly and also known as double teeth, conjoined teeth or twinned teeth. Clinically, the appearance of the involved teeth may be normal sized or large, depending upon the stage at which embryological union occurs during development. It is commonly confused with gemination, particularly if it involves a supernumerary tooth [2]. Fused teeth are more common in primary dentition as compared to permanent dentition [3]. The prevalence of fusion in the primary dentition for unilateral presentation is 0.1% to 1.5% [2]. However for Indian population it is 0.14%, as confirmed by Reddy and Munshi [4]. Males and females are equally affected. According to Hagman, genetics plays an important role when there is an increased incidence [5]. The presence of fused teeth can cause clinical problems related to appearance, spacing and periodontal conditions [6]. Fused primary teeth are correlated with the agenesis of permanent teeth, and the prevalence depends on the combination of fused primary teeth as reported by Tsujino et al [7].

Case Report

A six-year-old male reported to the Outpatient Department of Pedodontics and Preventive Dentistry with the chief complaint of multiple decayed teeth.

The medical history of the child patient was non contributory. The family history did not reveal any dental abnormality and the parents had non-consanguineous marriage. The parents of the child patient gave no history of facial trauma.

Thorough intraoral examination showed a primary dentition with carious involvement of maxillary incisors and mandibular right and left primary first molars. The mandibular arch revealed an asymmetry in the tooth number. There were four primary teeth on the left side along with first permanent molar and primary lateral incisor i.e., 72 was missing. There were four primary teeth along with first permanent molar on the right side. The mandibular right primary central and lateral incisors were present along with an enlarged bifid crown i.e., 81 and 82. An incisal ditch was seen between 81 and 82 (Figure 1 & 2).

Figure 1 & 2: Multiple decayed teeth.

Intraoral periapical radiograph revealed that the enlarged bifid crown was due to fusion of the 81 and 82 tooth (mandibular right primary central incisor and primary lateral incisor). The affected tooth showed the fusion of crown and roots resulting in joined pulp canal through pulp chambers. Missing tooth buds of 32 were also noticed (Figure 3). An ortho pantomogram was taken which confirmed fused mandibular primary central incisor and lateral incisor and missing primary left lateral incisor and agenesis of permanent left lateral incisor (Figure 4). The fused tooth had one root and two pulp chambers and two root canals.

Figure 3: Intraoral periapical radiograph.

Figure 4: Ortho pantomogram.

Treatment plan was formulated after clinical and radiological examination. Pulpectomy was done in 61, and restoration of carious teeth was done with glass ionomer cement. This was followed by topical fluoride application and regular checkup was advised. Parents were informed about the missing primary left mandibular lateral incisor and corresponding permanent tooth buds.

Discussion

Fusion can be defined union of two normally separated tooth germs. It can either be complete or incomplete, depending upon the stage of development of teeth at the time of union [1]. The etiology is still unknown but according to the most accepted theory it results from contact between developing teeth due to some physical force or pressure [1]. This developmental anomaly is thought to originate from morpho differentiation stage of tooth development [8]. Fusion should be differentiated from gemination which represents an attempted division of a single tooth germ by invagination, with resultant incomplete formation of two teeth [1]. Previously cases of bilateral fusion in primary mandibular teeth [9], and primary double tooth with partial anodontia of permanent dentition [10] have been reported in the literature but this paper presents a rare case of unilaterally fused primary mandibular teeth associated with agenesis of both primary and permanent teeth in the adjacent region. In the present case the fused primary mandibular teeth i.e., 81 and 82 are succeeded by normally developing mandibular central and lateral incisor tooth buds, instead there is congenital absence of mandibular primary and permanent lateral incisor of left side. This particular finding makes this case report unique. The findings of the present study are in accordance with the findings of Yuen et al that if fusion occurs in primary dentition some of the permanent incisors are absent [11].

Clinical problems associated with the presence of fusion are unaesthetic appearance, malocclusion, and susceptibility to caries [10]. Furthermore Ahmet et al. [2] reported delay in resorption of root due to increased root surface area relative to the size of permanent successor crown. Fusion of primary teeth may also be associated with developmental disturbances such as micro dontia and delayed tooth formation.

Management of fused teeth in child patient depends on a lot of factors like combinations of fused primary teeth, level of fusion and cooperation of child patient. If the clinician plans extraction of fused primary teeth, the presence of permanent tooth buds should be confirmed. If the fused teeth are carious, restoration should be done and if they are free from caries, they may be retained as such and proper oral hygiene instructions are given. If the tooth is pulpally involved, endodontic treatment is recommended [12]. Fusion of teeth may require orthodontic and prosthodontic management to ensure improvement in esthetics and functional occlusion. Periodic long-term follow-ups are required in the management of fusion.

In the present case fused primary tooth was retained as such, as they were free of caries and preventive approach was planned.

New advanced imaging techniques like cone beam computed tomography can be used as an adjunctive aid in diagnosis and treatment planning for endodontic management of fused teeth to ensure predictable results [13].

Conclusion

Fused teeth are frequently observed during routine oral examinations. A thorough clinical and radiographic evaluation is essential to confirm its presence in the primary dentition. X ray computed tomography can help in making precise diagnosis and formulating the right treatment plan as fused teeth in primary

dentition may be associated with anomalies in permanent dentition. Hence it becomes imperative to recognize this dental anomaly at the earliest and establish a right treatment plan.

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