

Fusion of Primary Lateral Incisor and Canine with Agenesis of the Permanent Lateral Incisor: A Case Report

Osmana Omnia Tagelsir Sharif¹, Shetty Raghavendra M², Waliaa Tarun³

¹Dept. of Clinical Sciences, College of Dentistry, Ajman University, UAE.

²Center of Medical and Bio-allied Health Sciences Research, Ajman University, UAE.

³Dept. of Pediatric and Preventive Dentistry, Sharad Pawar Dental College and Hospital, Datta

Meghe Institute of Higher Education and Research (Deemed-to-be-University), Sawangi, Maharashtra, India.

Received : 09-03 -2023

Revised : 14-03-2023

Accepted : 20-03-2023

Address for correspondence:

Omnia Tagelsir Sharif Osmana, MSc (Pediatric Dentistry), Former Postgraduate Student, College of Dentistry, Ajman University, UAE
Email - omnia.taj92@hotmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Noncommercial ShareAlike 4.0 license, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Abstract:

Dental anomalies in primary teeth may affect permanent teeth eruption and occlusion disability. Dental anomalies occurrences such as fusion in primary dentition can be frequent in daily practice. The aim of this study is to present a case of fusion, the clinical management, and the consequent effects. The paper presents a case of the fused primary mandibular lateral incisor and primary canine along with agenesis of the permanent lateral incisor.

Introduction

Developmental dental anomalies can be seen in teeth number, shape, size, position, and structure¹. The frequency of dental hard tissue developmental anomalies has been reported only in a few studies. Their prevalence has been reported in the literature as a range of 0.5% to 7%². Fusion and gemination are often called primary double teeth (PDT). PDT are the most common developmental dental anomalies in primary teeth³⁻⁵.

Fusion is known as the union of two separated tooth germs⁶. It is also known as conjoined teeth, twinned teeth or double teeth. The involved teeth appearance clinically can be normal- sized or large, depending upon the embryological union stage that occurs during the development. Fusion is usually confused with

gemination especially if the supernumerary tooth is involved². Fusion is more commonly seen in primary dentition than in permanent dentition⁷. In the primary dentition, the prevalence of unilateral fused teeth is 0.1% to 1.5%². However, Reddy and Munshi reported a prevalence of 0.14% in the Indian population⁸. When there is a high incidence, genetics has an important role⁹. Fusion can result in clinical complications related to spacing, appearance, and periodontal conditions¹⁰. The agenesis of permanent teeth prevalence depends on the fused primary teeth combination¹¹.

Case report:

A six-year-old female reported to the Department of Pediatric Dentistry at Ajman University with the chief complaint of multiple carious teeth. The patient had no relevant medical history. The family history did not show any dental abnormalities. No history of dental trauma as stated by the child's parents.

Intraoral examination showed a primary dentition with carious maxillary incisors, canines, and molars. Maxillary right permanent molars were partially erupted. Also, a dental fistula was noticed on the maxillary left canine and the first primary molar. The mandibular arch showed defective restorations and

carious involvement on molars (Figure 1 & 2). The mandibular right primary lateral incisor and canine were present with an enlarged bifid crown (82 and 83). An incisal ditch was noticed between 82 and 83 (Figure 3).

The intraoral periapical radiograph showed that the enlarged bifid crown of the 82 and 83 teeth is due to



Figure 3:
Fused primary mandibular lateral incisor and canine

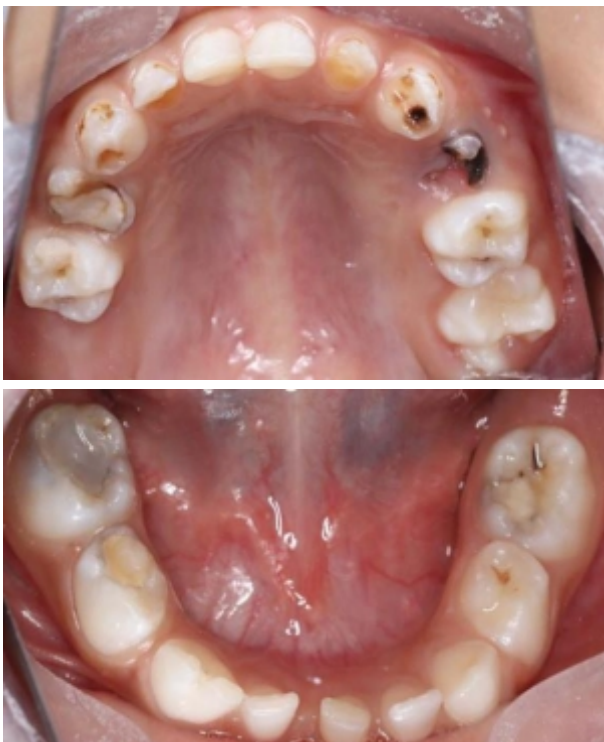


Figure 1&2:
Multiple decayed teeth in upper and lower arch



Figure 4:
Intraoral periapical radiograph

fusion. The affected tooth revealed crowns and root fusion resulting in a pulp canal joining through pulp chambers. Missing tooth bud of 42 is also noticed (Figure 4).

Treatment plan was developed after clinical and radiographical examination. Application of preventive measure was performed provided that the fused teeth are caries free. Topical fluoride application on the deep groove. Dietary changes and periodic follow ups were advised to the parents. Parents were informed about the missing permanent lateral incisor tooth bud.

Follow-up appointments were ensured on 3,6, and 12 months (Figures 5 &6). No carious involvement was seen on the fused teeth.

Discussion:

A double tooth is a dental anomaly resulting from the fusion of two adjacent tooth germs. This usually occurs during the embryological period⁶. Fusion can either be



Figure 5:
Clinical photograph at 3 months follow-up appointment



Figure 6:
Clinical photograph at 6 months follow-up appointment

complete or incomplete according to the teeth developmental stage at the union time. When the fusion is complete, the crown usually appears large clinically with no substantial groove. In this situation, the pulp chamber appears as the common teeth. In case of incomplete fusion, usually, the crown shows a separating groove on the vestibular surface¹². The pulp chamber appears bifid or separated in case of an incomplete fusion as seen in the present study⁶. Although the etiology of the fused or double teeth is still not fully understood,

different genetic and physical forces such as trauma have an important role in the fusion of tooth germs¹³. It can also result as a secondary appearance of different syndromic disorders like Chondroectodermal dysplasia, achondrodysplasia, focal dermal hypoplasia, Russel-Silver syndrome, and otodontal dysplasia¹⁴. This type of dental anomaly can occur on both primary and permanent teeth. However, the incidence has been noted to be more in anterior primary teeth especially in the mandibular primary incisors either unilaterally or bilaterally^{15,16}. In the present case the fused primary mandibular lateral incisor and canine i.e, 82,83 succeeded by normally developing mandibular permanent canine but congenital absence of mandibular permanent lateral incisor. The findings of the present case are similar to the findings of Yuen et al that stated if fusion is present in primary dentition some of the primary incisor's absence can be seen¹⁷.

Fusion can cause some dental complications such as delay in the exfoliation, caries, subsequent permanent teeth impaction, supernumerary teeth presence, tooth misalignment with the possibility of a future malocclusion, and aplasia of the subsequent permanent teeth¹⁶. Management of double teeth in child patients is usually planned according to a lot of factors such as combinations of fused primary teeth, fusion level and patient cooperation. The tooth mobility degree must be considered. When the successor permanent tooth will substitute the primary tooth shortly, no additional measures must be taken¹⁸. A preventive approach should also be applied in the case of caries-free fused teeth by topical fluoride application, dietary changes, and periodic follow-ups¹⁹. If caries is present, a restorative procedure should be done while endodontic treatment is needed in case of pulpal involvement²⁰. If extraction of the fused primary teeth was decided due to deep caries, confirmation of the permanent tooth bud's presence is very important. In addition, orthodontics and prosthodontics management might be required to improve occlusion esthetically and functionally²¹. Regular and long-term follow-up appointments are needed in the management of fusion²¹.

Conclusions

Fused teeth are usually noticed during the routine oral examination. A careful clinical and radiographic assessment is important to confirm its presence in the primary dentition as fusion in primary teeth can be associated with anomalies in permanent dentition. Therefore, it is necessary to acknowledge this dental anomaly sooner and establish a suitable treatment plan.

Conflict of interest: None

Source of support: Nil

References:

1. Folayan MO, Alade M, Adeniyi A, El Tantawi M, Finlayson TL. Association between developmental dental anomalies, early childhood caries and oral hygiene status of 3- 5-year-old children in Ile-Ife, Nigeria. *BMC Oral Health*. 2019;20:1.
2. Ahmet ES, Yildiray S, Yasin Y, et al. Prevalence of fusion and gemination in permanent teeth in Coppadocia region in Turkey. *Pak Oral Dent J*. 2011;31:17-22.
3. Kramer PF, Feldens CA, Ferreira SH, Spiguel MH, Feldens EG. Dental anomalies and associated factors in 2- to 5-year-old Brazilian children. *Int J Paediatr Dent*. 2008;18:434-40.
4. Yonezu T, Hayashi Y, Sasaki J, Machida Y. Prevalence of congenital dental anomalies of the deciduous dentition in Japanese children. *Bull Tokyo Dent Coll*. 1997;38:27-32.
5. Aguiló L, Gandia JL, Cibrian R, Catala M. Primary double teeth. A retrospective clinical study of their morphological characteristics and associated anomalies. *Int J Paediatr Dent*. 1999;9:175-83.
6. Shafer, Hine, Levy. *Shafer's Textbook of Oral Pathology*. 7th ed. 2012.
7. Grahnen H, Granath LE. Numerical variations in primary dentition and their correlation with the permanent dentition. *Odontol Recy*. 1961; 4:348-357.
8. Reddy NN, Munshi AK. Fusion of primary incisors: A report of six cases. *J Indian Soc Pedod Prev Dent*. 1999;17:55-60.
9. Hagman FT. Anomalies of form and number, fused primary teeth, a correlation of the dentitions. *J Dent Child*. 1988;55:359-361.
10. Mader CL. Fusion of teeth. *J Am Dent Assoc*. 1979;98:62-64.
11. Tsujino K, Yonezu T, Shintani S. Effects of different combinations of fused primary teeth on eruption of the permanent successors. *Pediatr Dent*. 2013;35:64-67.
12. Tomizawa M, Shimizu A, Hayashi S, et al. Bilateral maxillary fused primary incisors accompanied by succedaneous supernumerary teeth: report of a case. *Int J Paediatr Dent*. 2002;12:223-227.
13. Giffoni TCR, Brandt GZ, Rocha IS, et al. Relation of dental anomalies with occlusal alterations in the pediatric patients. *Pesqui Bras Odontopediatria Clin Integr*. 2019;19: e4026-10.
14. Zhu M, Liu C, Ren S, et al. Fusion of a supernumerary tooth to right mandibular second molar: a case report and literature review. *Int J Clin Exp Med*. 2015;8:11890-11895.
15. Neves AA, Neves MLA, Farinhas JA. Bilateral connation of permanent mandibular incisors: a case report. *Int J Paediatr Dent*. 2002;12:61-65.
16. Guimarães Cabral LA, Firoozmand LM, Dias Almeida J. Double teeth in primary dentition: report of two clinical cases. *Med Oral Patol Oral Cir Bucal*. 2008;13: E77-80.
17. Yuen SW, Chan JC, Wei SH. Double primary teeth and their relationship with the permanent successors: A radiographic study of 376 cases. *Pediatr Dent*. 1987;9:42-48.
18. Bernardi S, Bianchi S, Bernardi G, Tchorz JP, Attin T, Hellwig E, Karygianni L. Clinical management of fusion in primary mandibular incisors: a systematic literature review. *Acta Odontol Scand*. 2020 ;78:417-424.
19. Alpöz AR, Munanoğlu D, Oncag O. Mandibular bilateral fusion in primary dentition: case report. *J Dent Child (Chic)*. 2003;70:74-6.
20. Tewari N, Pandey RK. Bilateral fusion in primary mandibular teeth: a report of two cases. *J Indian Soc Pedod Prev Dent*. 2011;29: 50-52.
21. Prabhu RV, Chatra L, Shenai P, Prabhu V. Bilateral fusion in primary mandibular teeth. *Indian J Dent Res*. 2013;24:277

How to cite this article: Osmana O T S, Shetty R M, Waliaa T. Fusion of primary lateral incisor and canine with agenesis of the permanent lateral incisor: A case report. *J Oral Biomed Sci* 2023; 2:40-4