

## Treatment of Fused Teeth: A Case Report Study

**Aljazi Hussain Aldweesh\***

*Associate Professor, Division of Orthodontics, Department of Pediatric Dentistry and Orthodontics, College of Dentistry, King Saud University, Riyadh, Saudi Arabia*

**\*Corresponding Author:** Aljazi Hussain Aldweesh, Associate Professor, Division of Orthodontics, Department of Pediatric Dentistry and Orthodontics, College of Dentistry, King Saud University, Riyadh, Saudi Arabia.

**Received:** April 02, 2023; **Published:** April 30, 2023

### Abstract

**Aim:** The present case study discusses available treatment options for fused teeth.

**Background:** Fusion and gemination are considered dental anomalies of form and may occur in the deciduous and permanent dentitions. It is important to monitor such anomalies, because geminated teeth often cause aesthetic problems and malocclusion, such as diastema, crowding, or protrusion of the teeth.

**Case Description:** A male patient of 11 years and 5 months came to the clinic with a chief complaint of "My teeth are crooked". The patient had a class II malocclusion with fused teeth (lower left incisors). The treatment plan called for nonsurgical, non-extractive, orthodontic treatment with a transpalatal arch to derotate the upper first molars as well as cervical headgear for the distalization of the upper molars, followed by upper and lower fixed appliances. The fused teeth were maintained using interproximal reduction.

**Conclusion:** Diverse treatment approaches can be used for fused/geminated teeth, and esthetic considerations should be primary in choosing the appropriate therapy for patients with fused teeth.

**Keywords:** Orthodontics; Fused Teeth; Anomalies

### Abbreviations

#31 and #32: The Lower Left Central and Lateral Incisors; Cs: The Primary Canines; Es: The Primary Second Molars; Ds: The Primary First Molars

### Introduction

Disturbances during the differentiation stage of tooth development can result in abnormalities in the size, shape, and structure of the tooth, i.e. dental anomalies [1]. Fusion and gemination are considered dental anomalies of form and may occur in the deciduous and permanent dentitions. Various terms have been used to describe dental twinning anomalies, including joined teeth, double teeth, double formation, synodontia, schizodontia, concrescence, and dental twinning [2]. Gemination usually arises from a single tooth germ's attempt

at division by an invagination [3]. Division is usually incomplete and results in a large tooth crown with a single root and a single canal [3]. Gemination and fusion have a similar clinical appearance, which may cause confusion [3] but they can be distinguished by assessing the number of teeth in the dentition, as fusion results in a decreased number [4,5]. Furthermore, one root canal appears in gemination, while there are separate root canals in fusion [4,6]. It is important to monitor such anomalies, because geminated teeth often cause aesthetic problems and malocclusion, such as diastema, crowding, or protrusion of the teeth [5]. This case report discusses various treatment options for patients with fused teeth.

### Case Report

A male of 11 years and 5 months came to the clinic with a chief complaint of “My teeth are crooked”. An examination revealed that the patient was in the mixed dentition stage, with a class II malocclusion and fused lower left central and lateral incisors (#31 and #32). The primary upper canines (Cs), primary upper second molars (Es), and primary lower first and second molars (Ds and Es) were retained. Follow-up at six months was recommended, at which time the patient was still in mixed dentition, with the upper primary canines (Cs), upper left primary second molar (D), and lower second primary molars (Es) retained. The patient was referred to the pediatric dentist to have all the remaining primary teeth extracted. After six months, all the permanent teeth were erupted. When the patient was ready for comprehensive orthodontic treatment, orthodontic records were taken (intra-oral photos, upper/lower impressions, radiographs). The patient had a ¼ cusp CLII molar and a ½ cusp CLII canine on the right side, and on the left side he had a ½ cusp class II molar and a ¼ cusp CLII canine. He had a 50% overbite, 4 mm overjet, and mild upper and lower crowding (Figure 1-5). An orthopantomogram showed that the patient had a fusion at #31 and #32 (Figure 6), and a cephalometric radiograph revealed a slight skeletal class II due to a retrognathic mandible as well as proclined and protruded upper and lower teeth (Figure 7 and table 1). The treatment plan involved non-surgical, non-extraction, orthodontic treatment with a transpalatal arch to derotate the upper first molars along with cervical headgear for the distalization of the upper molars, followed by upper and lower fixed appliances. The fused teeth would be maintained (lower left central and lateral incisors, #31 and #32). The transpalatal arch was cemented, and the patient wore the provided cervical headgear for one year before the bonding of the upper and lower arches; he was instructed to wear it for 16 hours/day. The bonding was done using 0.022” slot-Roth prescription brackets. During the treatment, interproximal reduction was employed, especially at the area of the fused teeth, to maintain them in proper position. After two years of treatment, debonding was done, and upper and lower 3-3 lingual retainers with Essix retainers were given to the patient (Figure 8-13).



Figure 1



Figure 2



Figure 3



Figure 4

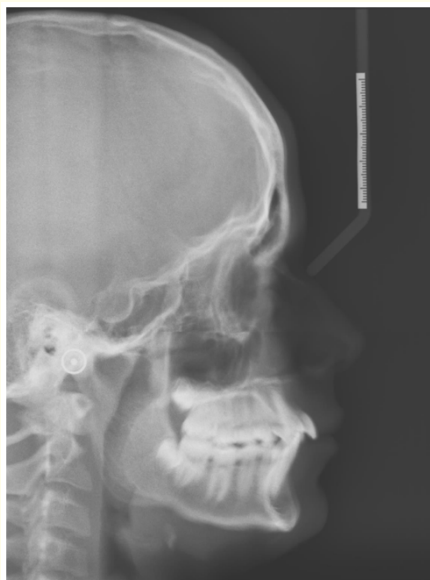


**Figure 5**

**Figure 1-5: Pre-treatment photographs.**



**Figure 6: Pre-treatment orthopantomogram radiograph.**



**Figure 7: Pre-treatment cephalometric radiograph.**

**Table 1:** Cephalometric analysis results.

Variable	Patient's Value	Normal Value
SNA	80°	82° ± 3
SNB	75°	79° ± 3
ANB	5°	3° ± 1
Max-mand planes angle (MMPA)	33°	27° ± 5
Face height ratio	55%	55%
U incisor-max plane angle	120°	108° ± 5
L. Incisor-mand plane angle	100°	92° ± 5



**Figure 8**



**Figure 9**



Figure 10



Figure 11



Figure 12

Figures 8-12: Post-treatment photographs.



**Figure 13:** Pre-debonding orthopantomogram radiograph.

## Discussion

The etiology of fused teeth remains uncertain, as various factors have been reported to cause fused teeth, including environmental factors, trauma, systemic diseases, vitamin deficiencies, and genetic predisposition [4,7]. There is no difference in fusion incidence between the sexes, and it is believed that physical forces that induce compression bring the tooth germs into contact, causing fusion [4]. The various treatment approaches and the treatment of choice in cases of fused and geminated permanent teeth are determined by the condition of the teeth involved, the patient's particular needs, and esthetic considerations [7]. Treatment options include extraction with approximation and conversion crowning of the adjacent teeth [8] surgical division of the fused teeth (if the fusion is mild) [9], selective grinding to reduce the width of the double teeth [10] and extracting the teeth and providing an implant or fixed denture [10]. Finally, retaining fused/geminated teeth may be acceptable if other options are not suitable [10]. In the present case, because the fused teeth were in a good position and could be maintained, and because their position in the lower arch made them less visible and obviated the need to split or esthetically reshape them, maintaining the teeth with interproximal reduction was the treatment of choice.

## Conclusion

Esthetic considerations take precedence in choosing the appropriate therapy for a patient with fused teeth. In this case, patient was treated with excellent esthetic and functional results though an efficient, less invasive approach.

## Conflict of Interest

None.

## Bibliography

1. Altug-Atac AT, *et al.* "Prevalence and distribution of dental anomalies in orthodontic patients". *American Journal of Orthodontics and Dentofacial Orthopedics* 131.4 (2007): 510-514.
2. Guimaraes Cabral LA, *et al.* "Double teeth in primary dentition: Report of two clinical cases". *Medicina Oral, Patología Oral y Cirugía Bucal* 13 (2008): 77-80.
3. Le Gall M., *et al.* "Orthodontic treatment of bilateral geminated maxillary permanent incisors". *American Journal of Orthodontics and Dentofacial Orthopedics* 139.5 (2011): 698-703.

4. Falcón BE. "Interdisciplinary conservative approach of a geminated tooth". *Journal of Dentistry and Oral Disorders* 2.8 (2016): 1042.
5. Guerrero F. "Mandibular third molar retained and fused with a supernumerary fourth molar: A case report". *The International Journal of Dental and Health Sciences* 1 (2014): 443-448.
6. Beltrán V, et al. "Dental gemination in a permanent mandibular central incisor: an uncommon dental anomaly". *International Journal of Odontostomatology* 7.1 (2013): 69-72.
7. Khurana K and Khurana P. "Esthetic and endodontic management of fused maxillary lateral incisor and supernumerary teeth with all ceramic restoration after trauma". *Saudi Endodontic Journal* 4.1 (2014): 23.
8. Mills JR. "Principles and practice of orthodontics". London: Churchill Livingstone (1982).
9. Itkin AB and Barr GS. "Comprehensive management of the double tooth: report of case". *Journal of the American Dental Association* 90.6 (1975): 1269-1272.
10. Hashim HA. "Orthodontic treatment of fused and geminated central incisors: a case report". *The Journal of Contemporary Dental Practice* 5.1 (2004): 136-144.

**Volume 22 Issue 5 May 2023**

**© All rights reserved by Aljazi Hussain Aldweesh.**