Dental Research Journal

Case Report

Non-invasive management of fused upper incisors

Pouran Samimi[1], Mohammad-Reza Shirban[2], Farahnaz Arbabzadeh-Zavareh[1]

[1]Department of Operative Dentistry and Torabinejad Dental Research Center, [2]Department of Operative Dentistry, School of Dentistry, Isfahan University of Medical Sciences, Isfahan, Iran

ABSTRACT

The union of two different dental sprouts which can happen in any phase of dental development is commonly called fusion. This developmental anomaly may cause clinical problems including esthetic impairment, which are mainly treated by endodontic and surgical treatments. There are a few reports of conservative not invasive treatment of fused incisors teeth through restorative or prosthetic techniques. They are rarely reported in mandibular posterior teeth. This paper presents an unusual case of fusion of 7 and 8, and also 9 and 10 teeth which was treated with a nonendodontic and nonsurgical conservative approach. Patient was a healthy 18-year-old female with chief complaint of bad-looking teeth that in intraoral examination revealed the fusion of 7 and 8, and also 9 and 10 teeth. The space between the mesial of the 6 and 11 teeth was reconstructed. Diastema between the fused teeth was closed. A new lateral tooth was replaced between the fused teeth (7 and 8) and 6 tooth with direct fiber-reinforced composite. The space between the fused teeth (9 and 10) and also tooth 11 was partially closed. Gingival papillas were reconstructed using pink composite. The mandibular anterior missing teeth were replaced with rochett bridge. At the end of treatment the esthetic of the patient was improved. As the treatment was not invasive, major complications are not expected; however, there is potential for eventual long-term periodontal problems due to poor oral hygiene. Debonding of the rochett bridge may happen as well.

Key Words: Fusion, incisors, non-invasive management

Received: September 2011
Accepted: November 2011

Address for correspondence:
Dr. Farahnaz Arbabzadeh-Zavareh,
Department of Operative Dentistry, School of Dentistry, Isfahan University of Medical Sciences, Isfahan-81746-73461, Iran.
E-mail: arbabzadeh@dnt.mui.ac.ir

INTRODUCTION

The union of two different dental sprouts which can happen in any phase of dental development is commonly called fusion. When the union occurs, pulp chambers and canals may be linked or separated depending on the developmental stage and they are joined by dentine. Due to involvement of epithelial and mesenchymal germ layers, irregular tooth morphology is resulted.[1,2] Although the precise etiology remains unknown, but the influence of the presence of physical forces causing closing contact between two developing teeth[1,3] and genetic predisposition is often suggested in the process.[4] This developmental anomaly may cause clinical problems including esthetic impairment, pain, caries and tooth crowding,[5,6] which are mostly reported in maxillary teeth and are mainly treated by endodontic and surgical treatments.[7-10] There are a few reports of conservative not invasive treatment of fused incisors teeth through restorative or prosthetic techniques.[11,12] They are rarely reported in mandibular posterior teeth.[1,13] This paper presents an unusual case of fusion of 7 and 8, and also 9 and 10 teeth which was treated with a non-endodontic and non-surgical conservative approach.

Access this article online

Quick Response Code:

Website: www.drj.ir

DOI: 10.4103/1735-3327.92962

CASE REPORT

Patient

An 18-year-old female patient was referred to the operative dentistry clinic of dental school with chief complaint of bad-looking teeth and requesting for extraction and replacement of the teeth with denture.

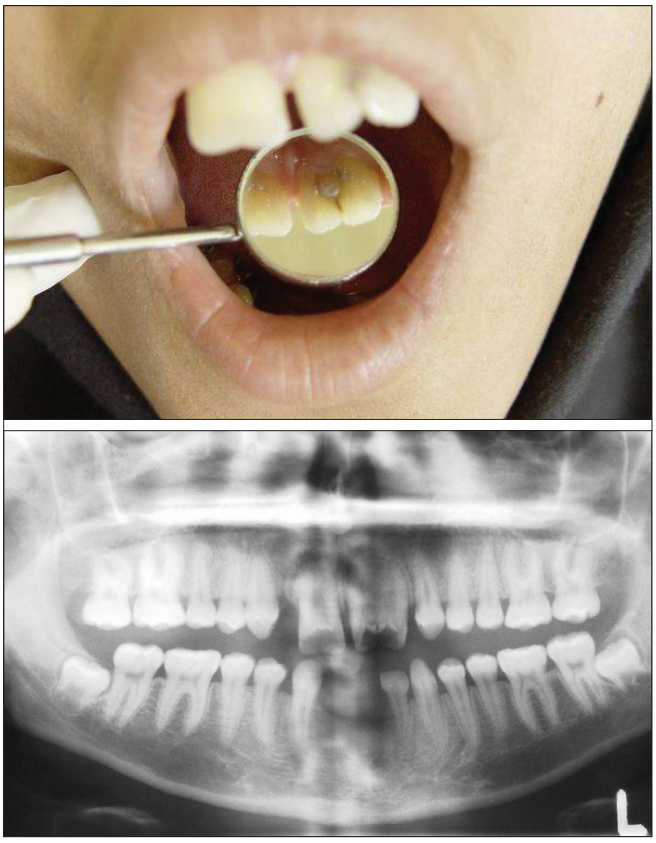

Figure 1: Caries observed on buccal surface of fused 9 and 10 teeth in clinical examination and OPG radiography

Figure 3: Pretreatment view of fused maxillary incisors (7 and 8 and also 9 and 10 teeth)

Clinical evaluation showed a healthy girl with no other physical abnormalities but with poor oral hygiene. Oral examination revealed the fusion of 7 and 8, and also 9 and 10 teeth. In panoramic radiography and clinical examination, caries was observed on labial and palatal surface of fused 9 and 10 teeth [Figure 1]. Preapical radiographic observation also showed that the two fused teeth had two distinct canals with one

Figure 2: Two fused teeth with two distinct canals with one pulp chamber in preapical radiography

Figure 4: The diastema between fused teeth was closed using composite resin (Point 4, Kerr, USA)

pulp chamber [Figure 2]. There was a 2 mm space in midline. The anterior maxillary teeth were malformed. The 24, 25 and 26 mandibular teeth were missing. The 11 and 22 teeth were in cross bite. A 2-mm space was observed between the two fused teeth. There were also spaces between fused 9 and 10 teeth with 11 tooth (2 mm) and fused 7 and 8 teeth with 6 tooth (5 mm). The width of fused teeth of 7 and 8, and 9 and 10 were 11 and 14 mm, respectively [Figure 3]. In vitality test (cold test) the fused teeth were vital.

Treatment

For proper division of the space among four central and lateral teeth, the space between the mesial of the 6 and 11 teeth was reconstructed on the study cast of the patient by wax.

Caries of fused teeth (9 and 10) were removed, adhesive was applied (Optibondsolo, Kerr, USA) and the lesion was restored with composite resin

(Point 4, Kerr, USA). Diastema between the fused teeth was closed [Figure 4]. A new lateral tooth was replaced between the fused teeth (7 and 8) and 6 tooth by fiber-reinforced composite resin system (Interlig, Angelus, Brazil). For this, the fused teeth were striped to provide the space required [Figure 5]. One millimeter of the distal of the fused teeth (9 and 10) which had 2 mm diastema was closed and the 22 tooth which was in cross-bite position was reshaped [Figure 5, right]. The contours of the fused teeth were corrected by composite veneering (Point 4, Kerr, USA). The contours of the teeth were designated by lines made by thin tapered bur (D and Z, Germany) [Figure 5, right]. For providing the length difference in the central and the lateral teeth, the incisal edge at the distal sides of the two fused teeth were reshaped by shortening of them [Figure 5, right]. For providing gingival papilla between 7 and 8 and also 9 and 10 teeth, they were reconstructed using pink composite (Point 4). As there was space for two teeth the three missing mandibular teeth in anterior segment were replaced with two teeth by rochett bridge [Figure 6]. Post-treatment intraoral view of the maxillary and mandibular central incisors is shown in Figure 7.

DISCUSSION

Many different multidisciplinary approaches are suggested in the therapy of fused incisors including endodontic and surgical interventions depending on separate pulp chambers and canals or one pulp chamber and two canals.[7-10,14] The determining factor in the selection of therapeutic approach is esthetic criterion. When the pulp and canals are separated, different approaches have been suggested including: (a) the separation and extraction of the anomalous tooth with orthodontic closing of the space and reshaping of the teeth, (b) surgical separation and restoration of both

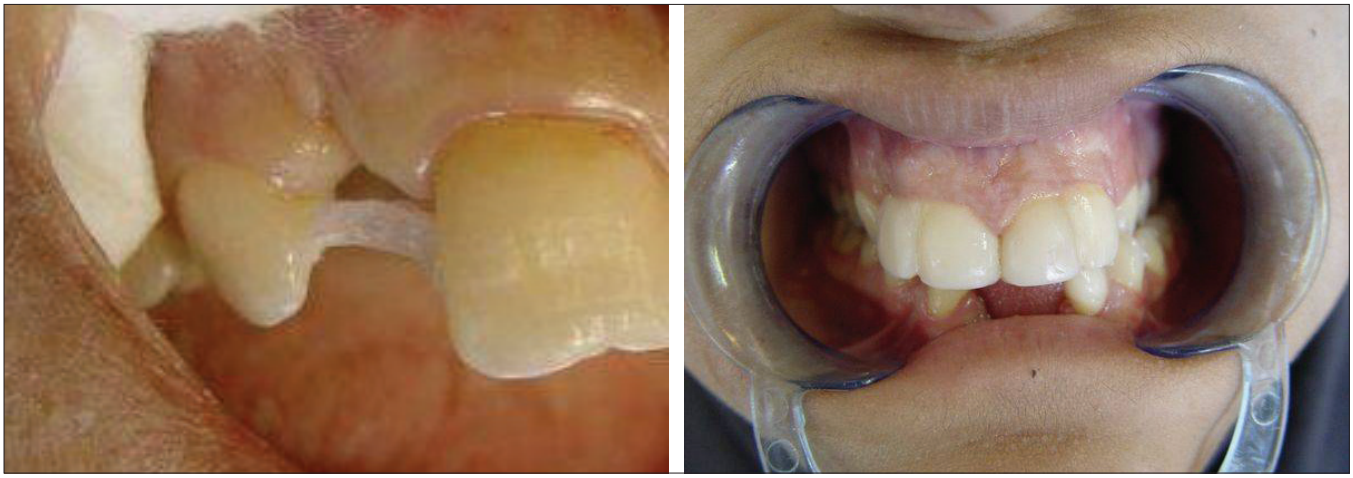

Figure 5: Replacement of new lateral tooth between fused teeth (7and 8) and 6 tooth using fiber reinforced composite resin system

Figure 6: Replacement of three mandibular teeth with two teeth by rochett bridge

Figure 7: Post-treatment intraoral view of the fused maxillary and missing mandibular teeth

teeth and (c) selective grinding of the fused teeth to reduce the crown width.[12] There are a few reports of conservative noninvasive treatment of fused incisors teeth through restorative or prosthetic techniques.[11,12] This case report in some extent is similar to the one reported by Garattini *et al*. 1999,[11] only on their approach in treating the fused teeth. In this case, there was no need for surgical and orthodontic treatments because the root canals were distinct with one pulp chamber. However, there are potential for eventual long-term periodontal problems due to poor oral hygiene.

REFERENCES

1. Nunes E, de Moraes IG, de Novaes PM, de Sousa SM. Bilateral fusion of mandibular second molars with supernumerary teeth: Case report. Braz Dent J 2002;13:137-41.
2. Tannenbaum KA, Alling EE. Anomalous tooth development. Case reports of gemination and twinning. Oral Surg Oral Med Oral Pathol 1963;16:883-7.
3. Shafer WG, Hine MK, Levy BM. A text book of pathology. Philadelphia: WB Saunders Company; 1983.
4. Caliskan MK. Traumatic gemination-triple tooth. Survey of the literature and report of a case. Endod Dent Traumatol 1992;8:130-3.
5. Canger EM, Celenk P, Sezgin OS. Dens invaginatus on a geminated tooth: A case report. J Contemp Dent Pract 2007;8:99-105.
6. Gunduz K, Acikgoz A. An unusual case of talon cusp on a geminated tooth. Braz Dent J 2006;17:343-6.
7. Hulsmann M, Bahr R, Grohmann U. Hemisection and vital treatment of a fused tooth-literature review and case report. Endod Dent Traumatol 1997;13:253-8.
8. Benetti R, Toffanin A, Zupi A. Gemination of maxillary incisors. Minerva Stomatol 2004;53:375-8.
9. Kim E, Jou YT. A supernumerary tooth fused to the facial surface of a maxillary permanent central incisor: Case report. J Endod 2000;26:45-8.
10. Kremeier K, Pontius O, Klaiber B, Hulsmann M. Nonsurgical endodontic management of a double tooth: A case report. Int Endod J 2007;40:908-15.
11. Garattini G, Crozzoli P, Brenna F. Bilateral dental fusion of the upper central incisors: A multidiciplinary approach. J Esthet Dent 1999;11:149-54.
12. Malcic A, Prpic-Mehicic G. Conservative treatment of fused teeth in permanent dentition. Acta Stomatol Croat 2005;39:327-8.
13. Tsesis I, Steinbock N, Rosenberg E, Kaufman AY. Endodontic treatment of developmental anomalies in posterior teeth: Treatment of geminated/fused teeth-report of two cases. Int Endod J 2003;36:372-9.
14. Ballal NV, Kundabala M, Acharya S. Esthetic management of fused carious teeth: A case report. J Esthet Restor Dent 2006;18:13-7.

How to cite this article: Samimi P, Shirban M, Arbabzadeh-Zavareh F. Non-invasive management of fused upper incisors. Dent Res J 2012;9:107-10.

Source of Support: The authors do not have any financial interest in the companies whose products are included in this article. **Conflict of Interest:** None declared.