

SIMULTANEOUS OCCURRENCE OF MISSING UPPER INCISORS AND FUSED LOWER INCISORS...A RARE CASE REPORT.

¹ Ratnakar. P

¹Professor, Department of Oral medicine and radiology, Career post graduate Institute of Dental sciences and Hospital, Lucknow, UP.

ABSTRACT

Missing teeth are one of the most common developmental problems in children. The adult teeth are more frequently affected than the baby teeth. Fusion defined as the merger of two adjacent tooth germs producing one tooth. These teeth may be fused by enamel, dentin, or both. The fused crown is broader than non fused adjacent teeth and thus resembles gemination. However, tooth counting reveals decreased numbers. Fused teeth are rare in the permanent dentition. A case of simultaneous missing upper incisors and fused lower incisors is reported.

KEY WORDS : Missing, Lateral incisors, Fusion, Lower incisors.

INTRODUCTION

Dental anomalies have always been of great interest. Developmental disorders may be due to abnormalities in the differentiation of the dental lamina and the tooth germs (anomalies in number size and shape) or due to abnormalities in the formation of the dental hard tissue (anomalies in structure). Developmental disorders are not only congenital but also may be inherited, acquired or idiopathic¹.

Congenitally missing teeth have been observed as one of the most common human dental developmental anomalies. Various studies have shown differences in frequency and pattern between sexes and in frequencies among the races².

Fusion is an embryonic union of normally discrete structure. If it occurs early, two developing teeth will unite to form a single tooth of almost normal size. And if it occurs very late, one tooth almost twice the normal size will develop³. Fusion usually leads to one less tooth than normal in the affected arch.

This article reports a case of missing maxillary lateral incisors and fusion of mandibular incisors with a discussion of clinical implication and treatment methods.

Case Report

A patient of age 29 years came with a complaint of pain in relation to upper left quadrant and ugly appearance. On examination dental caries present with pulpal involvement in 24. Other intra oral

findings were shift in midline, spacing in 22 region, class I molar occlusion, a little increase in overbite and over jet, 12 and 22 were missing, 31, 32 and 41, 42 were looking like "double tooth" (Fig. 1). Full compliment of other teeth were present.

Clinically counting the total number of teeth and I.O.PA. X- ray confirmed fusion of 31, 32 and 41, 42 (Fig.2 and Fig.3). Patient was treated for dental caries with 24 by endodontic treatment followed by ceramic crown.

When ever missing teeth, fusion and germination teeth occur specially in anterior region it becomes a very much concern regarding esthetics as the CANINES, which are considered as cornerstones of occlusion are changed in their position.

Various treatment options are possible to improve the ESTHETICS. Considerable improvement can be achieved in patients with missing lateral incisors by combining carefully detailed orthodontic space closure with techniques from esthetic dentistry. Such methods may include:

1. Individualized extrusion and intrusion during mesial movement of the canine and first premolar respectively, to obtain an optimum level for the marginal gingival contours of the anterior teeth.
2. Careful correction of the crown torque of a mesially relocated canine to mirror the optimal crown torque of a lateral incisor, along with the provision of optimal torque for the mesially relocated maxillary first and second premolars.

3. Esthetic recontouring of a mesially relocated canine to a more ideal lateral incisor shape and size with a combination of grinding and composite resin build-ups or porcelain veneers
4. Increasing the width and length of mesialized and intruded first premolars with composite resin build-ups and/or porcelain veneers to achieve optimal esthetics and functional occlusion

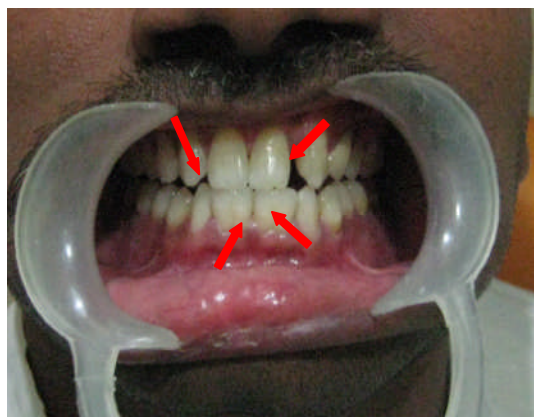


Fig. 1. Photographs showing the missing 12 and 22. There is fusion between 31 and 32 , 41 and 42.

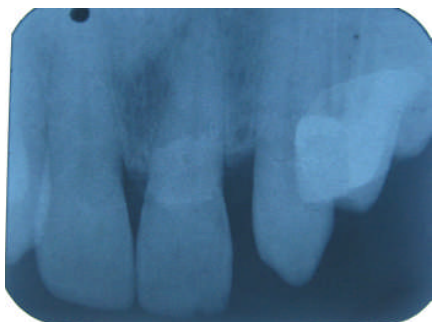


Fig. 2. IOPA. X-ray confirming the missing 12 and 22. There is fusion between 31 and 32 , 41 and 42.



Fig.3 IOPA. X-ray confirming the fusion between 31 and 32 , 41 and 42.

The common esthetic problems with orthodontic space closure⁴⁻⁷ are the most obvious difficulty in substituting canines for missing maxillary lateral incisors is the achievement of an excellent esthetic and functional outcome that resembles an intact natural dentition. Particularly, space closure can create problems in matching tooth size, shape, and color. The canine is normally a longer and larger tooth, mesiodistally and labiolingually, than the lateral incisor it is to replace, and more saturated with color. The first premolar is generally shorter and narrower than the contra lateral canine. If these natural size differences are not compensated for, the esthetic outcome will be compromised.

A combination of carefully performed orthodontic space-closure and a cosmetic finishing stage, can achieve the look of a natural, healthy dentition in a patient with one or both missing maxillary lateral incisors. A major advantage of this approach is the permanence of the finished result. Alveolar bone height is maintained by early mesial movement of the canine. Another important advantage of the space closure alternative is that the healthy gingival tissues and intact inter dental gingival papillae will change in synchrony with the patient's own teeth over a life time.

The only possible disadvantage of the space-closure approach is that spaces may reopen after treatment. However this can be overcome with long-term fixed retention, using a lingually bonded flexible spiral wire retainer from first premolar to first premolar.

Regaining adequate space for 12, 22 orthodontically and then

1. Maryland bridge for missing 12, 22.
2. Metal ceramic bridge 13, 12, 11, 21, 22, 23.
3. Removable dental prosthesis 12, 22.
4. Single tooth implants 12, 22.
5. Auto-transplantation of premolars⁸

If the treatment plan includes space reopening, it is preferable to open the spaces for prosthetic replacements in the premolar areas. It is emphasized that in lateral incisor agenesis cases, where the teeth tend to be relatively small, it is frequently desirable to build up the maxillary central incisors to improve the balance of the six maxillary anterior teeth. This approach will also minimize the amount of grinding required on the canines and improve the central incisor display (with relaxed lips and in speaking) in cases of insufficient incisor exposure. However the treatment of choice

depends on patient's orthodontic, periodontal, esthetic and functional requirements. Usually multi disciplinary approach is needed.

Various treatment options for fused teeth are

1. Separation of conjoined tooth into two single teeth.
2. Hemi section
3. Reshaping of the crown⁹ and application of fissure sealant is recommended to prevent dental caries¹⁰.

Discussion

Case history, clinical and radiological examination can provide information for diagnosing dental anomalies. Judicious evaluation of all information is required to diagnose the case. Hoblink et al¹¹ surveyed presenting complaints in a group of hypodontia patients. The most common complaints were missing teeth, spacing in the dental arches and poor appearance.

Natural marginal gingival contours (high-low-high) can be achieved by selective extrusion and intrusion of the canines and first premolars, respectively. Restoration of intruded first premolars with composite resin build ups or porcelain veneers is necessary to reshape such teeth to resemble natural canines and to produce a balanced smile. Composite build-ups may also be required on the central incisors for two reasons: the canines cannot be ground beyond the diameter of the roots and may be too wide for the existing central incisors, and the patient's incisor display with relaxed lips is often inadequate. Attention to achieving correct maxillary arch form and torque of the posterior teeth will ensure a full and radiant smile.

Enamel-bonded porcelain veneers provide improved esthetics with less need for maintenance than composite resin build-ups. The major advantages of space closure are that treatment is finished at an early age, that the result is permanent, and that optimum gingival and periodontal health can be preserved with later modifications occurring in synchrony with the patient's own teeth. For these reasons, space closure is particularly indicated in agenesis patients with gummy smiles.

With fusion, deep groove present may predispose the teeth to development of dental caries and periodontal disease. Possibility of bacterial plaque accumulation in this area is high. Strict oral hygiene is imperative to maintain periodontal health¹². Difficult cases include a wide spectrum of problems¹³ and the best way to manage these difficult cases depends on a number of factors including the knowledge and technical skills of the practitioner.

CONCLUSION

A rare case of simultaneous missing upper lateral incisors and fused lower incisors is presented. Brief review of all possible modes of treatments are discussed.

References

1. Terezhalmay GT, Riley CK. Geminatio/fusio. Quintessences Int 1999;30:437.
2. Macklin M, Dummet O: A study of oligodontia in a sample of new Orleans children. J Dent Child 1979;46:578-482
3. GershRP, Isler S. Bilateral connotation of primary molars: Report of case. J Dent Child 1973;40:39-41.
4. Rosa, M. and Zachrisson.B.U. Integrating esthetic dentistry and space closure in patients with missing maxillary lateral incisors. J. Clin. Orthod 2001, 35:221-234.
5. Tuversou, D.L.: Orthodontic treatment using canines in place of missing maxillary lateral incisors. Am J Orthod. 53:109-127. 1970.
6. Tuversou, D.L.: Close space to treat missing lateral incisors, Am. J. Orthod 125:17A. 2004.
7. Zachrisson, B.U.: Improving the esthetic outcome of canine substitution for missing maxillary lateral incisors. World J. Orthod. 8:72-79, 2007.
8. Zachrisson, B.U. and Toreskog, S.; Missing maxillary central incisors: Interdisciplinary approach with orthodontic space closure, auto-transplantation of premolars, and single-tooth implants, The Art of the Smile, ed. R. Romano, Quintessence Publishing Co., New Malden, England, 2005, pp. 142-166.
9. SenizKaracay, GunseliGuvan, Ramazan Koymen. Management of Fused central incisor in association with a macrodont lateral incisor. A case report. Pediatric Dentistry 2006, 28 (4):336-340.
10. Surmont PA, Martens LC, Craene LG. A complete fusion in the primary human Dentition. A histologic approach. J Dent Ch1988;55:362-367
11. Hobkirk JA, Goodman JR, Jones SP. Presenting complaints and findings in a group of patients attending a hypodontia clinic. Br Dent J 1994; 177; 337-9.
12. Blank BS, Ogg RR, Levy. A fused central incisor. Periodontal considerations in comprehensive treatment. J Periodonto1985;56:21-4.
13. Valcso LF, De Araujo FB, Ferreira ES, Velasco LE. Estheticand functional treatment of a fused permanent tooth. A case report. Quintessence Int 1997;13:677-80.

Corresponding Author

Dr. P. Ratnakar MDS

Professor Department of Oral Medicine and Radiology,
Career post graduate Institute of Dental sciences and Hospital,
Lucknow
Uttar Pradesh.

E-mail: dr.ratnakar_p@rediffmail.com