ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)
IJDSIR : Dental Publication Service
Available Online at: www.ijdsir.com
Volume – 6, Issue – 2, April - 2023, Page No. : 185 – 188

Surgical removal of supernumerary tooth followed by orthodontic traction of permanent central incisor by fixed appliance therapy

[1]Dr. Koundal Lisma, Junior Resident, Department of Pedodontics and Preventive Dentistry, Himachal Dental College, Sundernagar (H.P)

[2]Dr.Priyanka Kumari, Junior Resident, Department of Pedodontics and Preventive Dentistry, Himachal Dental College, Sundernagar (H.P)

Corresponding Author: Dr. Koundal Lisma, Junior Resident, Department of Pedodontics and Preventive Dentistry, Himachal Dental College, Sundernagar (H.P)

Citation of This Article: Dr. Koundal Lisma, Dr.Priyanka Kumari, "Surgical removal of supernumerary tooth followed by orthodontic traction of permanent central incisor by fixed appliance therapy", IJDSIR - April - 2023, Volume – 6, Issue - 2, P. No. 185 – 188.

Type of Publication: Case Report

Conflicts of Interest: Nil

Introduction

A child's smile is a reflection of beauty and joy. The unerupted maxillary central incisor is a significant matter of esthetic and practical concern for an individual life's. The frequency of impaction of the maxillary central incisor has been found to be within a range of 0.006–0.2% in the age group of 5–12 years. [1] A tooth is called impacted when there is retardation in normal eruption process. Archer (1975) defined impacted tooth as the tooth which is completely or partially unerupted and is positioned against another tooth or bone or soft tissue so that its further eruption is unlikely. [2] According to Kuftinec and Shapira, [3] impaction is a condition in which a tooth is embedded in the alveolus so that its eruption is impeded and it is locked in position by bone or by adjacent teeth. The etiology of impaction of permanent maxillary incisors are categorized into a) local, b) systemic and c) genetic factors such as- over retained or early loss of deciduous tooth, supernumerary teeth, tooth agenesis, tooth malformation or dilacerations, cysts or other pathological obstructions, dense mucoperiosteum or submucosa, arch length and tooth material discrepancy, endocrinal and nutritional disorders, certain syndromes etc. [4]

Supernumerary teeth are the leading cause of impaction of the maxillary central incisor. The supernumerary teeth can be defined as any teeth-like substance in excess of the typical configuration of the standard number of deciduous or permanent teeth. When impaction occurs, surgical removal of the supernumerary tooth is always indicated. After the removal of the supernumerary tooth from the path of eruption, an impacted tooth either erupts spontaneously or orthodontic force is required to bring the tooth into normal position. [5]

Case Report

A 10-year-old female reported to the Department of Pedodontics and Preventive Dentistry, Himachal Dental College, Sundernagar, Himachal Pradesh with a chief complaint of missing tooth in the upper front region of the jaw.The child was physically healthy and had no history of any medical and dental trauma or extraction. On clinical examination, a missing maxillary permanent left central incisor (Fig 1) was seen with no apparent arch length discrepancy in both maxillary and mandibular arches. The patient had a skeletal class I malocclusion and a balanced facial pattern. Intraoral examination revealed a mixed dentition period with an Angle's class I molar relationship. Intraoral periapical view further revealed the presence of a supernumerary tooth with an impacted permanent central incisor on the left side of the maxillary arch (Fig 2). The treatment plan was explained to the patient and her parents. They agreed for the extraction of supernumerary tooth surgically followed by surgical exposure of impacted central incisor and alignment of the left impacted incisor into the arch with orthodontic treatment. Informed consent was obtained from the parents for the same. On the same day, bands were placed on the maxillary permanent first molars. Before the beginning of the surgical phase, the patient was advised to go for a regular medical check-up, her complete blood picture routine investigation was done. Under local anesthesia, crevicular and vertical incisions were given using surgical blade number #15, and #11 and a full-thickness mucoperiosteal flap on the labial side was raised using a periosteal elevator (Fig 3). The supernumerary tooth and impacted central incisor tooth were identified followed by the removal of supernumerary tooth surgically using extraction forceps (Fig 4) and followed by suture placement. After one week patient was recalled and sutures were removed. Brackets were placed on the exposed maxillary left central incisor and on the all the maxillary teeth followed by placement of the 0.012 NiTi round archwire (Fig 5).Patient was recalled every month to clinically evaluate the progress of the treatment. The impacted maxillary left central incisor was successfully positioned into proper alignment by orthodontic traction by fixed orthodontic therapy in about six months (Fig 6).

Discussion

The impaction can be defined as a tooth that cannot or will not erupt into its normal functional position in time. Impacted maxillary incisor occurs less frequently than the maxillary canine but it brings concerns to the parents in the early mixed dentition because the missing tooth space causes unesthetic appearance. [6] Failure of complete eruption of maxillary incisors is one of the most common complications due to the presence of supernumerary teeth in the anterior maxilla. Timely removal of mesiodens and with adequate space, spontaneous eruption of upper incisors has been found to occur in about 54–6% of the cases. However, the complete eruption of impacted maxillary incisor may take up to 3 years till the root formation is completed, and orthodontic treatment may be required to achieve proper positioning of the erupted tooth in the dental arch. [7]

Before treatment plan the following determining factors were considered for successful alignment of an impacted tooth are -a) The position and the direction of impacted tooth, b) The degree of root completion, c) The presence of space for the impacted tooth, d) presence of adequate width of attached gingival. [8]

According to Becker, three ways of surgical exposure for the impacted tooth [9] are the following:

- Oral mucosa overlying the impacted tooth may be circularly excised

- Incorporating the attached gingival covering the impacted tooth by repositioning the raised flap apically
- Closed eruption technique: flap raised, incorporating the attached gingiva, and is replaced back in its former position entirely.

Favorable results have been achieved with the closed eruption technique as the aesthetic and periodontal outcome is far more superior as compared to the other two techniques. The only disadvantage of combined surgical/ orthodontic therapy as it requires longer treatment time, and some complications including ankylosis, non vital pulps, and root resorption, which may be encountered at the end of the treatment. [10]

Conclusion

Maxillary left permanent central incisor was successfully repositioned in the arch by combined surgical exposure and orthodontic traction after which it showed good stability and retention with sufficient width of attached gingiva.

References

1. Lin YT. Treatment of an impacted dilacerated maxillary central incisor. Am J Orthod Dentofacial Orthop 1999;115:406–409. DOI: 10.1016/ S0889-5406(99)70260-X.
2. Archer WH. Oral surgery. 4th ed. Philadelphia: WB Saunders Co.1996.
3. Shapira Y, Kuftinec MM. The impacted maxillary canines: a review of concepts. ASDC J Dent child. 1995;63(5):317-324.
4. Huber KL, Suri L, Taneja P. Eruption disturbances of the maxillary incisors: A literature review. J Clin Pediatr Dent. 2008; 32:221-30.
5. Agarwal S, Pandey SN, et al. From Disharmony to Harmony: Management of Impacted Central Incisor with the Combined Surgical and Orthodontic Approach. J South Asian Assoc Pediatr Dent 2019;2(1):1–4.
6. Bishara SE. Impacted maxillary canines: a review. Am J Orthod Dentofacial Or thop 1992;101:159–171. DOI: 10.1016/0889- 5406(92)70008-X.
7. Vanarsdall R, Corn H. Soft tissue management of labially positioned unerupted teeth. Am J Orthod 1977;72:53–64. DOI: 10.1016/0002-9416(77)90124-5.
8. Brin I, Zilberman Y, Azaz B. The unerupted maxillary central incisor: Review of its etiology and treatment. ASDC J Dent Child. 1982; 49:352-7.
9. Ferrazzano GF. An impacted central incisor due to supernumerary teeth: a multidisciplinary approach.
10. European J Paediatr Dent 2014;15(2):187–190. 10. Becker A, Brin I, et al. Closed eruption surgical technique for impacted maxillary incisors: a postorthodontic periodontal evaluation. Am J Orthod Dent facial Orthop 2002; 122(1):9–14. DOI: 10.1067/ mod.2002.124998.

Legend Figure

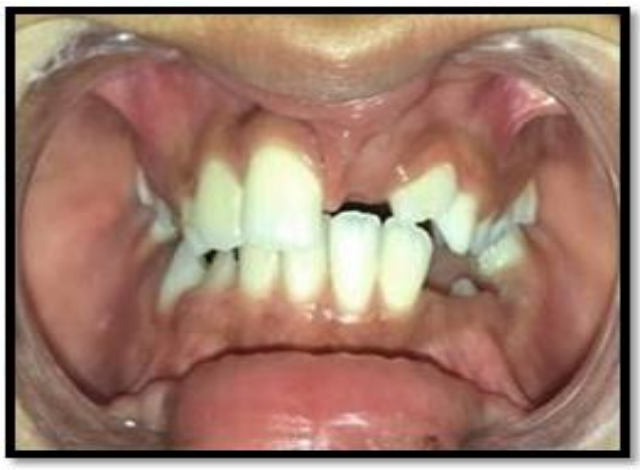

Figure 1: Preoperative photograph

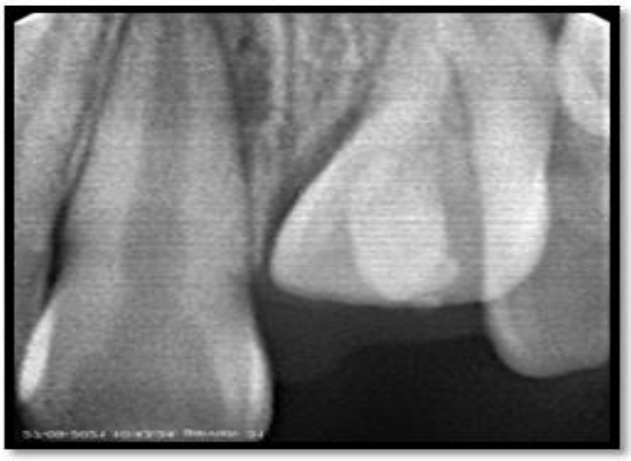

Figure 2: Periapical radiograph showing the supernumerary tooth with the impacted tooth 21

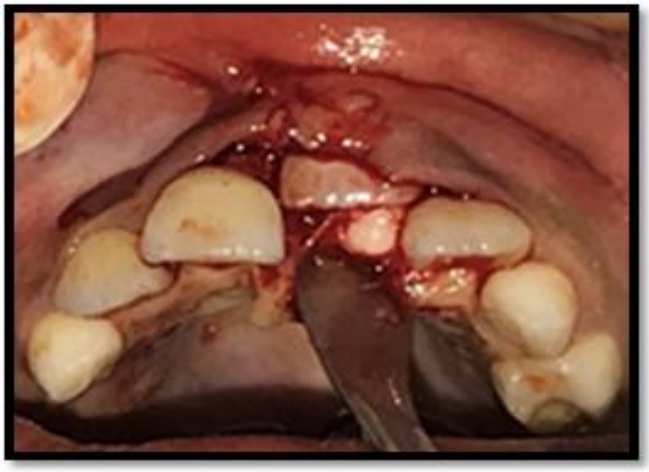

Figure 3: Operative view showing impacted central incisor with supernumerary teeth on raising the labial mucoperiosteal flap

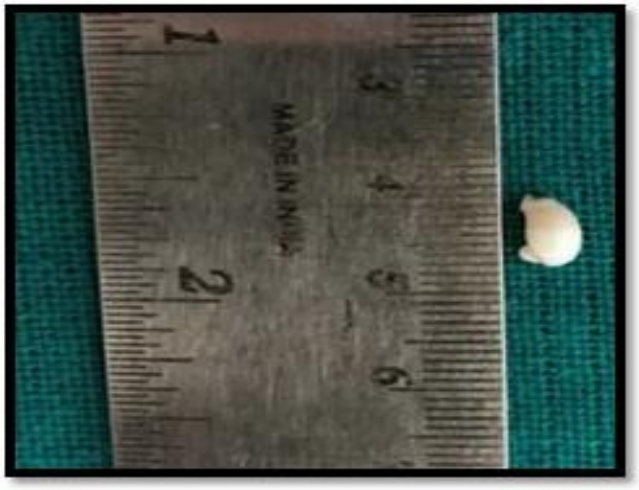

Figure 4: Extracted supernumerary tooth

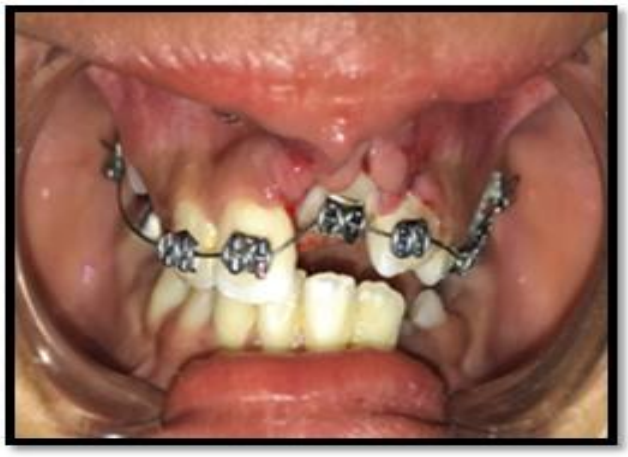

Fig 5: Orthodontic traction of exposed central incisor

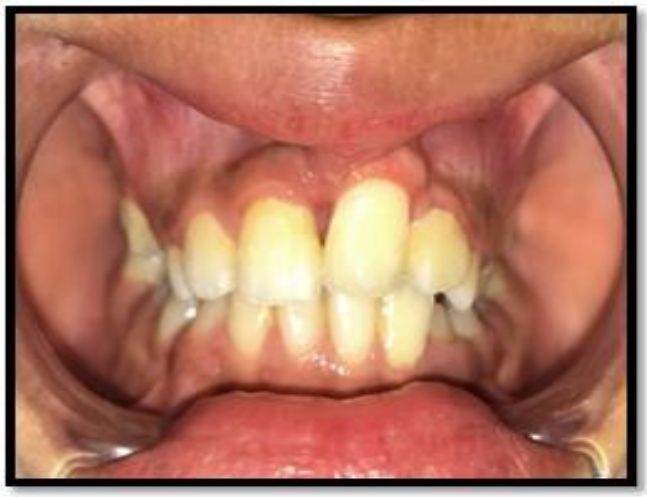

Figure 6: Postoperative photograph