

Surgical Removal of Two Supernumerary Teeth Followed by Orthodontic Traction of Impacted Central Incisor—A Case Report

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Abstract

Supernumerary teeth can cause ectopic and delayed eruption of the permanent teeth, which can further alter the occlusion and appearance of the child. It is therefore very important for the dentist to diagnose supernumerary teeth early in development to allow for optimal yet minimal treatment. Treatment options may include extraction of supernumerary teeth. After extraction of supernumerary teeth, if permanent teeth do not erupt then surgical exposure and orthodontic forced eruption may be required for complete eruption of the teeth. This case report describes the multidisciplinary management of two impacted supernumerary teeth, which prevent the eruption of the maxillary left central incisor (21) in a paediatric patient. Surgical removal of the supernumerary teeth followed by orthodontic correction of the impacted 21 was planned in this patient for aesthetically pleasant and balanced occlusion.

Keywords: Supernumerary Teeth; Orthodontic Traction; Impacted Central Incisor

Introduction

The supernumerary teeth (hyperdontia) can be defined as any teeth or tooth like substance in excess of the normal number of deciduous or permanent teeth [1]. The most common etiology of supernumerary teeth is due to hyperactivity of the dental lamina [2].

The frequency of supernumerary tooth in the maxillary incisor region is very common. The reported incidence of supernumerary teeth is about 1.5 - 3.5% in permanent dentition and male to female ratio is of approximately 2:1 [3-6]. Supernumerary teeth, especially in anterior region of maxilla, can cause eruption failure, displacement and rotation of the permanent teeth [7]. The management of the unerupted teeth caused by supernumerary teeth is frequently prolonged. Spontaneous eruption of permanent teeth after removal of supernumerary teeth, there are no doubt has a more advantage over its surgical and orthodontic approach. However, previous research reports indicate that the spontaneous eruption of permanent teeth may take up to 3 years and sometimes active orthodontic management is required to achieve proper alignment of the erupted tooth in the dental arch [8].

This paper presents a case of surgical removal of two impacted supernumerary teeth with orthodontic alignment of impacted maxillary left permanent central incisor.

Case Report

A 16 year old healthy female patient was reported with a chief complaint of a missing maxillary left central incisor (21). The patient had no history of dental trauma. The intraoral examination showed absence of 21 (Figure 1). Intra-oral periapical radiograph revealed the presence of an impacted 21 and two supernumerary teeth, one superficial and another inverted below the roots of 21 (Figure 2). With the help of SLOB technique, the position of 21 and two supernumerary teeth were determined. On the basis of the above findings, diagnosis of non-syndromic supernumerary teeth was made. In this present case, surgical removal of the supernumerary teeth and orthodontic correction of the impacted 21 were planned. Prior to the surgical phase, brackets were bonded and 0.014 Ni-Ti arch wire was placed (Figure 3).



Figure 1: Preoperative View.



Figure 2: IOPAR showing impacted 21 and two supernumerary teeth.



Figure 5: Exposed inverted supernumerary and impacted 21.



Figure 3: Brackets positioned irt 16 to 26 using 0.014 Ni-Ti arch wire.



Figure 6: Extracted supernumerary teeth.

Surgical extraction of the supernumerary teeth

Under local anaesthesia, a muco-periosteal flap was elevated on the labial side. After careful elevation of the flap, the superficial supernumerary tooth was removed (Figure 4) followed by extraction of inverted supernumerary tooth with preservation of root of adjacent 21 (Figure 5,6). The muco-periosteal flap was repositioned and suture with 3-0 black silk, which was removed after 7 days (Figure 7). The impacted 21 was left on its own place for its eruption.



Figure 4: Extraction of supernumerary.



Figure 7: Black silk 3-0 Suture placed.

Orthodontic traction of permanent left central incisor

The impacted 21 was kept under observation to wait for its natural eruption; however, after 1 month, spontaneous eruption of 21 was seen (Figure 8). Bracket was bonded to the labial surface of 21. 0.014 Ni-Ti arch wire was placed with ligature wire tied onto the bracket placed and activated with extrusive force (0.2 N) irt 21 (Figure 9). The bracket was then rebonded to its correct position on incisor so that the tooth could be properly positioned

(Figure 10). The final alignment was completed by 0.016 x 0.022” Ni-Ti wire (Figure 11). Maxillary left central incisor was come into arch space and in stable occlusion after 6 months (Figure 12).



Figure 8: Spontaneous eruption irt 21.



Figure 9: Orthodontic traction irt 21 using ligature wire.



Figure 10: Orthodontic alignment using 0.014”NiTi arch wire.



Figure 11: Orthodontic alignment using 0.016 x 0.022” NiTi wire.



Figure 12: Postoperative view showing 21 in occlusion.

Discussion

Supernumerary teeth can affect the normal position and eruption of adjacent teeth and often require clinical intervention, this reported by Harris and Clark. Rajab and Hamdan concluded that the most common complication due to presence of supernumerary teeth is the failure of eruption of maxillary incisors [9].

The spontaneous eruption of impacted central incisor would take longer time if more than 3 mm of bone over impacted tooth. This delay in eruption of permanent teeth can cause a drift of adjacent teeth into the empty space, which may further prevent eruption of the unerupted tooth.

The developmental stage of the unerupted or impacted tooth will also help in planning of appropriate treatment plan. The natural eruptive potential is lost, if the apex of the impacted tooth has been closed, and the tooth will need active orthodontic guidance [10,11].

Early detection of supernumerary teeth allows the most accurate management of this condition, often reducing the extensive surgery, orthodontic correction and related complications. The permanent incisors with immature roots erupt spontaneously after removal of the supernumerary tooth [10], but in some cases, only removal of the supernumerary tooth does not lead to spontaneous eruption of the permanent teeth [10,12].

After extraction of the supernumerary tooth, the patient undergoes an initial phase of orthodontic treatment. After gaining the sufficient arch space in the initial phase, active orthodontic treatment to extrude the unerupted incisor can be started [11].

In case of insufficient arch space, extra space can be created by active orthodontic treatment before eruption starts. In case of sufficient arch space, if a tooth does not start erupting within a year after removal of supernumerary tooth, then surgical exposure followed by orthodontic traction of the unerupted incisor are recommended [13,14]. Before start with the surgical exposure, orthodontic appliances should be placed on teeth to serve as appropriate anchorage to facilitate eruption. Before start with active orthodontic traction, arch alignment should have progressed to a stable arch wire that will maintain the integrity of the dental arch. Elastic and ligature wire are used in orthodontic traction. It can be tied from the arch wire to the bonded bracket. This should allow the tooth to be erupted by the application of light forces. The eruption process of unerupted or impacted teeth may take around 6 to 18 months, depending on the original position within a jaw. The precautions must be taken to erupt the tooth along the correct path using only light forces; heavy forces may cause resorption, ankylosis and devitalization of the tooth [14].

Conclusion

The presence of supernumerary teeth within a jaw has the potential to disrupt the development of normal occlusion and function. Therefore, a timely management that aims to remove the supernumerary teeth as early as possible are recommended, followed by an observation period until the permanent teeth erupts into the oral cavity. If the impacted tooth does not erupt spontaneously, active orthodontic intervention is required to align the tooth in the dental arch. In this reported case, maxillary permanent incisor showed normal eruption after removal of supernumerary tooth but to align the tooth in proper occlusion it was followed by orthodontic traction, which showed good stability.

Source of Support

Nil.

Conflict of Interest

None.

Bibliography

1. Pels E., *et al.* "Rare cases of supernumerary teeth". *Anna University Mar Cur 2* (2006): 849-853.
2. Kokten G., *et al.* "Supernumerary fourth and fifth molars: A report of two cases". *Journal of Contemporary Dental Practice* 4.4 (2003): 67-76.
3. Ravn JJ., *et al.* "Aplasia, supernumerary teeth and fused teeth in the primary dentition. An epidemiologic study". *Scandinavian Journal of Dental Research* 79.1 (1971): 1-6.
4. McKibben DR., *et al.* "Radiographic determination of the prevalence of selected dental anomalies in children". *Journal of Dentistry for Children* 38.6 (1971): 390-398.
5. Hurlen B., *et al.* "Characteristics of premaxillary hyperodontia. A radiographic study". *Acta Odontologica Scandinavica* 43.2 (1985): 75-81.
6. Nazif MM., *et al.* "Impacted supernumerary teeth: a survey of 50 cases". *Journal of the American Dental Association* 106.2 (1983): 201-204.
7. Giancotti A., *et al.* "Multidisciplinary evaluation and clinical management of mesiodens". *Journal of Clinical Pediatric Dentistry* 26.3 (2002): 233-237.
8. Becker A. "Early treatment for impacted maxillary incisors". *American Journal of Orthodontics and Dentofacial Orthopedics* 121.6 (2002): 586-587.
9. Al-Jumaili KA., *et al.* "Surgical Exposure and Orthodontic Treatment of Impacted Maxillary Central Incisors. A Case Report". *Al-Rafidain Dental Journal* 13.2 (2013): 259-265.
10. Kulkarni G. "Guiding Unerupted Teeth into Occlusion: Case Report". *Journal of the Canadian Dental Association* 76 (2010): a147.
11. Kokich VG., *et al.* "Surgical and orthodontic management of impacted teeth". *Dental Clinics of North America* 37.2 (1993): 181-204.
12. Mason C., *et al.* "A retrospective study of unerupted maxillary incisors associated with supernumerary teeth". *British Journal of Oral and Maxillofacial Surgery* 38.1 (2000): 62-65.
13. Brand A., *et al.* "Orthodontic, genetic, and periodontal considerations in the treatment of impacted maxillary central incisors: a study of twins". *American Journal of Orthodontics and Dentofacial Orthopedics* 117.1 (2000): 68-74.
14. Cangialosi TJ., *et al.* "Management of a maxillary central incisor impacted by a supernumerary tooth". *Journal of the American Dental Association* 105.5 (1982): 812-814.

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