Management of Impacted Maxillary Central Incisor and Supernumerary Tooth: Combined Surgical Exposure and Orthodontic Treatment- A Case Report

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Abstract

Supernumerary teeth are the main cause of impaction of upper incisor. Supernumerary teeth when present can cause both aesthetic and pathologic problems. Supernumerary teeth in the maxillary midline are common. Early detection of such teeth is most important if complications are to be avoided. We report a case of 11 year old male with an impacted supernumerary tooth in the maxillary anterior region, which was interfering with the eruption of the permanent, left central incisor. The impacted supernumerary tooth was surgically removed. With the application of an orthodontic traction, impacted left maxillary central incisor was brought down to its proper position in the dental arch.

INTRODUCTION

Supernumerary teeth in the maxillary midline are common. Early detection of such teeth is most important if complications are to be avoided [1]. Impacted or clinically missing maxillary incisors can have a major impact on dental and facial aesthetics of an individual. Although impaction of permanent tooth is rarely diagnosed during the mixed dentition period, an impacted central incisor is usually diagnosed accurately when there is delay in the eruption of tooth [2]. Supernumerary teeth are the main causes of impaction of upper incisor. Supernumerary teeth are the extra teeth formed due to the disturbances during the initiation and proliferation stages of tooth development. The supernumerary tooth present in the midline or just lateral to the midline is referred to as mesiodens. Supernumerary teeth are most frequently located in the maxillary incisor region with mesiodens accounting for 32.4% of such presentation. 56-60% of premaxillary supernumerary teeth cause impaction of permanent incisor due to a direct obstruction for the eruption tipping of adjacent teeth towards the place of the impacted tooth, narrowing of the dental arch, displacement of the permanent teeth bud, or malformations of the unerupted tooth root. An interesting case of an impacted supernumerary tooth in the maxillary anterior region, interfering with the eruption of the permanent left incisor. An anomaly in the eruption of anterior teeth can interfere with facial aesthetics and cause other clinical problems. If the impacted tooth is extracted, loss of alveolar bone is anticipated. Following the healing period, the alveolar ridge becomes thinner and deficient. With these disadvantages in mind, orthodontic treatment to facilitate eruption of the natural tooth and maintaining natural appearance are the goals of treatment. As a result, surgical and orthodontic treatment approaches are accepted for such impacted teeth. Careful planning is required when moving an impacted tooth by orthodontic means. The mechanics of the treatment can be modified according to the individual clinician’s preferences [3].

CASE PRESENTATION

A 11-year-old male patient reported with the chief complaint of unerupted upper left front tooth (Figure1). Patient had no significant medical history and Dental history and intra oral examination revealed missing maxillary permanent left central incisor. An intra oral periapical radiograph of upper anterior region demonstrated an impacted supernumerary tooth and an impacted permanent left central incisor (Figure 2). Upper occlusal radiograph was taken which showed the presence of supernumerary tooth (Figure 3).

The treatment plans comprised of surgical removal of the supernumerary tooth and orthodontic traction of the impacted incisor and bring it into proper position in the dental arch. With the patient under general anesthesia as patient was not willing
Central for local anesthesia, full thickness mucoperiosteal flap on the labial side was reflected (Figure 4). After careful elevation of the flap, adequate amount of bone was removed using the rotary cutting instruments and the impacted supernumerary tooth was exposed. The supernumerary tooth was removed surgically and extraction socket was inspected for any pathology (Figures 5 and 6). The extracted supernumerary tooth was conical in shape. The labial mucoperiosteal flap was repositioned and adequate amount of crown was exposed for bonding of the orthodontic bracket. Ligature was twisted to the flat Begg’s incisor bracket and made into a hook form and was bonded on the labial surface of the impacted incisor. The labial flap was repositioned and sutured, keeping the ligature wire hook suspended in the oral cavity making sure the occlusion was not interfered (Figure 7). After a week, the healing was normal and the sutures were removed. In the subsequent visit, a 0.018 inch pre-adjusted edgewise bracket was bonded to the patient. For initial alignment and leveling, a 0.016 inch nickel titanium wire was placed. The traction was applied with the help of the ligature wire tied to the permanent maxillary left central incisor (Figure 8). In the subsequent visit, a 0.016 stainless steel wire with the occlusal step bend in the permanent maxillary left central incisor region was given and traction was applied until it erupted to the occlusal plane. Then Begg’s bracket of the impacted central incisor was replaced with the MBT bracket. After initial alignment and leveling, a 0.016 × 0.022 inch NiTi wire and 1 month later a 0.016 × 0.022 inch stainless steel wire was placed. After achieving a desired result debonding was done (Figure 9).
Impaction of maxillary anterior teeth can be a challenging orthodontic problem. Several reports have indicated an impacted tooth can be brought into proper alignment in the dental arch.7-10 The following factors are used to determine whether successful alignment of an impacted tooth can take place: (1) the position and direction of the impacted tooth, (2) the degree of root completion, (3) the degree of dilacerations, and (4) the presence of space for the impacted tooth [6].

REFERENCES


DISCUSSION

The occurrence of unerupted maxillary incisors can be associated with hereditary and environmental factors. However, the relevant importance of these different factors is not known. For example, the presence of supernumerary teeth does not necessarily mean that the incisor will be prevented from eruption [4].

Supernumerary teeth can affect the normal position and eruption of adjacent teeth and often require clinical intervention. The most common complication due to presence of supernumerary teeth is the failure of eruption of maxillary incisors [5].