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Case Report

Impacted Upper Incisors, a Conservative Surgical Approach

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Abstract
Supernumerary teeth are common cause of upper incisors impaction. The tuberculated type consists of a crown with multiple tubercles, and incomplete or absent root formation; usually accompanied with eruption failure of maxillary permanent incisors, thus necessitating surgical intervention accompanied with orthodontic treatment. This case study reported a pair of tuberculate supernumerary teeth which caused an impaction of upper central incisors in a female child, ten years and two months old.

Keywords: supernumerary, tuberculate teeth, central incisors, impaction.

INTRODUCTION
The eruption process of upper incisors might be interrupted by several environmental and genetic factors, commonly by the presence of supernumerary teeth which have different types and shapes;[1] the tuberculate form consists of a crown with multiple tubercles and incomplete or absent root formation, usually paired and in palatal position according to the upper central incisors; this in turn will cause eruption failure even after their surgical excision; therefore, subsequent orthodontic intervention will be necessary especially if incisors roots are mature.[2] This case report presented a conservative surgical removal of two tuberculated supernumerary teeth in a child, ten years and two months old, resulted in spontaneous eruption of the two mature upper central incisors.

Case history
A female healthy child, ten years and two months old, presented with her parents to pediatric dental clinic “to check missed upper front teeth”. Clinical examination revealed two retained upper primary central incisors and two fully erupted upper permanent lateral incisors, the first permanent molars and canines were in Angle's class I relationships, and there was a noticeable spacing in the upper and lower arches. Radiographic examination, using orthopantomogram and cone beam computed tomography CBCT, revealed two impacted upper central incisors, and a pair of palatal supernumerary teeth with incomplete root formation which appeared to be tuberculated (Figure 1, 2).

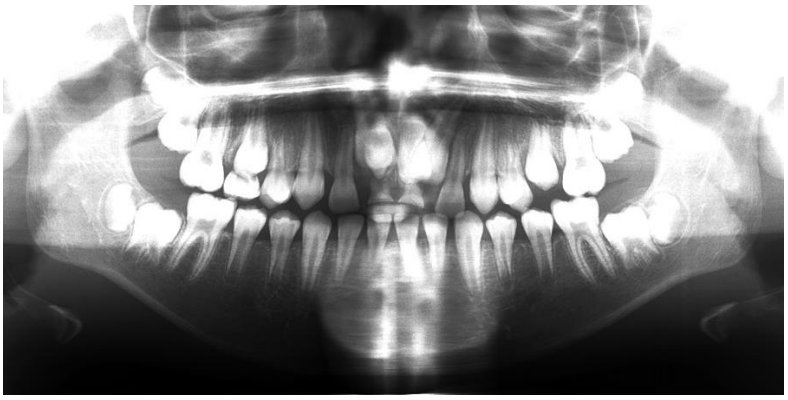

Figure 1: Pre-treatment orthopantomogram revealed two impacted upper central incisors.

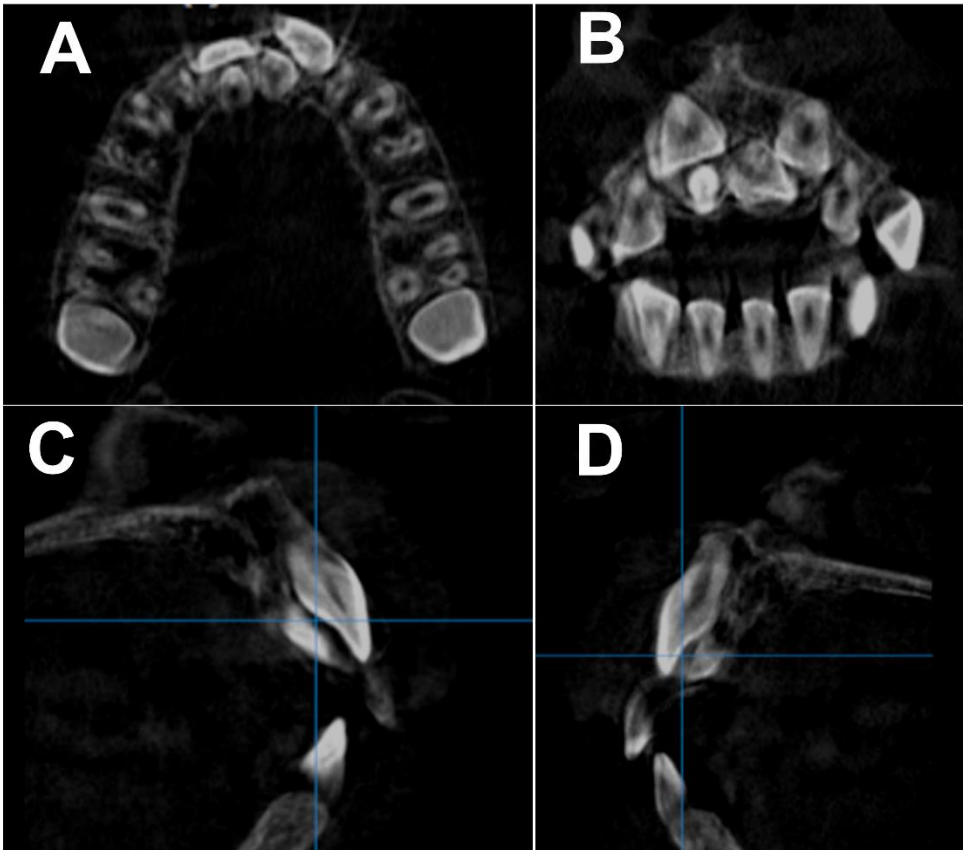

Figure 2: CBCT showing the impacted upper central incisors and a pair of tuberculated supernumerary teeth, in: (A) axial, (B) coronal and (C, D) sagittal views.

An informed consent had been obtained from parents before treatment which aimed to remove the obstruction only; the surgical intervention included extraction of the two tuberculated supernumerary teeth along with the two upper primary central incisors in the same session under local anesthesia. After suturing the surgical incision, oral hygiene instructions were given along with antibiotic and analgesic prescription. Follow up was maintained regularly every three months to check the spontaneous eruption of upper permanent central incisors; and no space maintainer was applied through the meantime. The upper left central incisor emerged after one month and ten days, while the upper right central incisor had erupted after 19 months; the gingiva of upper central incisors remained healthy, and well supported by attached gingiva after three years and five months of observation (Figure 3, 4).

Figure 3: periapical radiographs showing the spontaneous eruption of the upper central incisors: (A) after 40 days of surgery, (B) after four months, (C) after one year of follow up.

Figure 4: the upper central incisors after three years and five months of observation.

DISCUSSION

Tuberculate supernumerary teeth are commonly responsible for eruption failure of upper central incisors.[1] In this case report the child age was above ten years, and the mature upper permanent central incisors were still held in place by the two supernumeraries; CBCT was used for diagnosis; because it would be prudent to use this technology for an accurate maxilla-facial imaging and localizing the obstruction three-dimensionally.[1] After the obstruction was removed, the two incisors started moving spontaneously toward the occlusal plane without any orthodontic traction or surgical exposure despite their maturity. Indeed, It has been advocated that if the child age is over nine and the impacted permanent maxillary incisors are mature, it is wise to consider an open or closed surgical exposure accompanied with an orthodontic attachment bonded to the impacted incisor at the same time of obstruction removal, aiming to apply light orthodontic forces right away after surgical intervention, or later on if the spontaneous eruption could not be recognized within the observation period; the main purpose of this technique is to prevent exposing the child to another general anesthesia in future.[1,3] However, the surgical intervention in this case report was accomplished under local anesthesia; In addition, research revealed that orthodontic traction of impacted incisors had been correlated with significantly greater root resorption,[4] irregular gingival contour after treatment, and less labial bone thickness than on spontaneous eruption.[5-8] These consequences might be attributed to orthodontic tipping movements of the labially inclined impacted incisors.[5,6,9] Furthermore, Exposing the unerupted teeth, with or without bonded attachment, necessitates greater amount of the supporting bone to be sacrificed, which may result in poor gingival aesthetics with less attached gingivae,[2] in addition to the extra time needed for bonding a golden chain and the additional expenses as well.[3] On the other hand, the unaesthetic appearance and the longer observation period till the spontaneous eruption takes place might have negative psychological effects on the child, especially at school and social activities. Therefore, utilizing an upper removable appliance with two acrylic anterior teeth, as a space maintainer during the waiting period, was suggested in the treatment plan of this case study, because it is easy, aesthetic, and might be used for orthodontic traction in case the spontaneous eruption fails. Indeed, no space maintainer was used in this case report, because originally there was spacing in the upper jaw which paved the way for the spontaneous eruption of impacted incisors after obstruction removal;[3,9-11] in addition, the parents and the child did not prefer neither space maintainer nor orthodontic intervention even after the two incisors had erupted, and they are totally satisfied with the final result.

In a conclusion, within the limitation of this case report; it is wise to remove only the obstruction causing the impaction of permanent incisors and expect the spontaneous eruption, providing the child is cooperative, the surgical intervention is operated under local anesthesia, and the space in the upper arch is enough for incisors eruption; this in turn will make the treatment more convenient and less complicated with better results.

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