

# Management of impacted permanent maxillary incisors caused by supernumerary tooth: Case report



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## Abstract

**Purpose:** Improving patient's esthetic and appearance due to impacted upper right incisors caused by impacted supernumerary tooth by moving them in to their proper position within the dental arch.

**Methods:** Surgical exposure and open tooth eruption technique with fixed orthodontic appliance have been used.

**Principal findings:** Treating impacted maxillary incisors with immediate esthetic improvement.

**Conclusion:** Impacted maxillary incisors could be treated using surgical exposure and open tooth eruption technique with acceptable gingival contour.

**Keywords:** *Impacted canine, Impacted incisor, supernumerary tooth*

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## Introduction

Unerupted maxillary incisors can have a major impact on dental and facial aesthetics and were considered to be the most unattractive deviant occlusal trait. This may have an effect on self-esteem and general social interaction <sup>(1)</sup>. It is important that this problem is detected and managed as early as possible to minimize these negative consequences <sup>(2)</sup>. Delayed eruption of permanent incisors may be associated with a variety of causes. Supernumerary tooth is considered as one of the major causes <sup>(3)</sup>.

Supernumerary teeth are teeth in excess of the normal number. The literature reports that 80% to 90% of all supernumerary teeth occur in the maxilla. Half are found in the anterior region <sup>(4)</sup>. About 56-60% of premaxillary supernumerary teeth cause impaction of permanent incisors, due to a direct obstruction for the eruption, tipping of the 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 <sup>(5)</sup>.

Spontaneous eruption of the impacted tooth occur in 49% of cases following removal of the supernumerary teeth and the chronological age and space availability are critical in determining spontaneous eruption <sup>(6)</sup>. However, this spontaneous eruption may take up to 3 years and

sometimes-orthodontic treatment is necessary to achieve adequate alignment of the erupted tooth in the dental arch <sup>(5)</sup>. Orthodontic management of impacted permanent maxillary incisors is reported.

## Case Report

A 13 years old female patient has been referred to our clinic by a general dental practitioner, complaining from missing her upper right permanent incisors. There was no relevant medical history.

Clinical examination revealed well balanced face with no gross asymmetry (Fig 1). Intra oral clinical examination revealed despite of missing upper right incisors the canine was also missed (Fig2). Radiographs prescribed including ortho-pantomogram (OPG) and lateral cephalometric radiograph, they revealed impacted upper left permanent lateral and central incisors, impacted supernumerary tooth and impacted upper right canine, which was transpositioned with first premolar (Fig 3). Treatment plan was established and it was decided to remove the impacted supernumerary tooth surgically (Fig 4).

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Figure 1: Pre-treatment facial photograph.



Figure 2: Pre-treatment Intra oral photograph



Figure 3: Pre-treatment OPG



Figure 4: Impacted supernumerary tooth



Figure 6: Nine months after exposure



Figure 5: Seven months after exposure



Figure 7: Post-treatment facial photograph

Upper and lower fixed orthodontic appliance (Roth 0.22) was used for correcting occlusion and tracting the impacted teeth. Upper right first premolar was extracted and then surgical exposure was done for canine, lateral and central incisors and orthodontic brackets were attached to them and traction was started (Fig 5 & 6).

After 26 months of active treatment, the fixed appliance was removed. The impacted teeth showed normal clinical crown length with acceptable gingival contour and width. The patient was satisfied with the esthetic results (Fig 7, 8 & 9) and passive phase of the treatment (retention period) was started using upper and lower removable orthodontic appliances. At 9-month follow-up, the patient showed stable result (fig 10).

### Discussion

The treatment of impacted teeth requires a multidisciplinary approach. Successful treatment of impacted teeth requires close cooperation of orthodontist, oral surgeon, sometimes prosthodontist and periodontist<sup>(7)</sup>. Although for aligning the impacted tooth closed eruption technique has been highly recommended by many authors compared to methods like excisional-gingivectomy and apically positioned flap techniques because of better esthetic results<sup>(8)</sup>. Open eruption technique was used in this case.

### Conclusion

Treatment of each impacted tooth should be decided individually and independently after a thorough case study. The treatment plane could be either extraction or orthodontic traction using closed or open eruption technique. Immediate aesthetic improvement is achieved by surgical exposure and orthodontic traction of the impacted incisors.

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Figure 8: Post-treatment Intra oral photograph



Figure 10: Post retention photograph

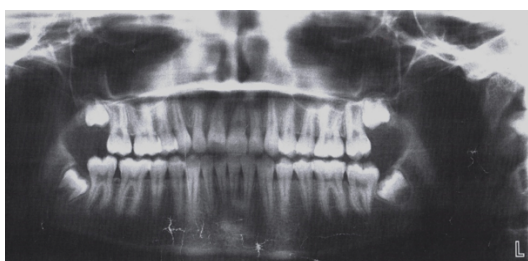


Figure 9: Post-treatment OPG

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