

## *Orthodontic management of a young boy with Class I malocclusion with crowding, supernumerary tooth and rotated central incisor: A case report*

**Faruk SMO<sup>1</sup> BDS, Haque I.E<sup>2</sup> BDS and Hossain MZ<sup>3</sup> BDS, PhD**

### **ABSTRACT**

This article describe the treatment of a boy of 15 years old, with Class I malocclusion and anterior crowding and rotated upper right central incisor. The patient had thick and fleshy extra labial frenum between upper right central and lateral incisor. The patient had also rotated supernumerary tooth labial to upper right lateral incisor. The patient was treated by extraction of supernumerary tooth and frenectomy followed by derotation of right central incisor with standard edgewise orthodontic therapy.

**Key Words: Class I malocclusion, crowding, extra labial frenum, edgewise orthodontic therapy** (Bangladesh Journal of Orthodontics and Dentofacial Orthopedics, October 2012, Vol. 3, No.1, p 30-33)

### **INTRODUCTION**

Crowding of teeth is a common manifestation of Class I malocclusion. Crowding usually occurs as a result of disproportion between tooth size and arch length. A relative decrease in arch length or an increase in tooth material can result in crowding. Presence of supernumerary teeth, prolonged retention of deciduous teeth, abnormalities in size and shape of teeth can also lead crowding.<sup>1</sup>

It is important for every orthodontist to have adequate knowledge & correct understanding of the various types of malocclusions before instituting a treatment plan. There is no universal method of managing the condition. It is essential to have an adequate knowledge of normal growth pattern & various cephalometric analysis for proper diagnosis & treatment planning.

Supernumerary tooth is one that is additional to the normal series and can be found in almost any region of the dental arch.<sup>2</sup> Etiology of the development of supernumerary tooth is not clear. Atavism theory suggested that supernumerary teeth were the result of phylogenetic reversion to extinct primates with three pairs of incisors. It may be due to dichotomy of the tooth bud<sup>3</sup> or due to localized, independent and conditioned hyperactivity of dental lamina.<sup>4</sup> Genetic factor also suggested since many incidence of recurrence within the same family.<sup>4,5</sup>

The supernumerary teeth may be single, multiple, unilateral or bilateral, erupted or unerupted and in one or both jaw. Multiple supernumeraries are rare in individuals with no other associated disease or syndromes. Multiple supernumerary teeth are usually associated with conditions such as cleft of the lip and palate or syndromes like Cleidocranial dysplasia and Gardner's syndrome.<sup>6</sup>

### **CASE REPORT**

#### **CASE HISTORY**

Mahdi, age 15 years old, came to the Department of Orthodontics of Dhaka Dental College and Hospital for treatment. He had Class I malocclusion with crowding on both the upper and lower anterior segment with rotated upper right central incisor, supernumerary tooth labial to upper right lateral incisor and thick, fleshy extra labial frenum between upper right central and lateral incisor. The right sided lateral incisor has not been fully erupted. Patient's major reason for seeking treatment was to improve his dental esthetics.

#### **CLINICAL EXAMINATION**

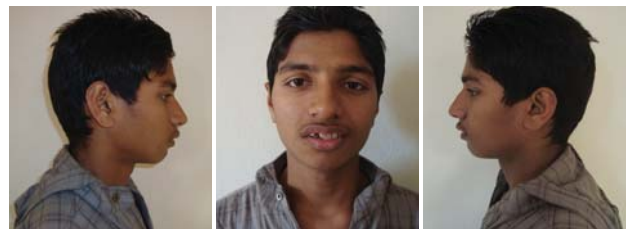


Figure-1: Pre-treatment extra-oral facial photographs

On extra-oral examination, the patient had an oval face form and a convex profile. Intra-oral examination revealed a supernumerary tooth which was erupted labial to right lateral incisor facing the palatal surface labially. The right central incisor was proclined and rotated near about 45° distolabially. The patient had extra thick fleshy labial frenum between right central and lateral incisor. He was in permanent dentition with Class I molar and canine relationship and an overjet of 10mm and overbite of 3mm.

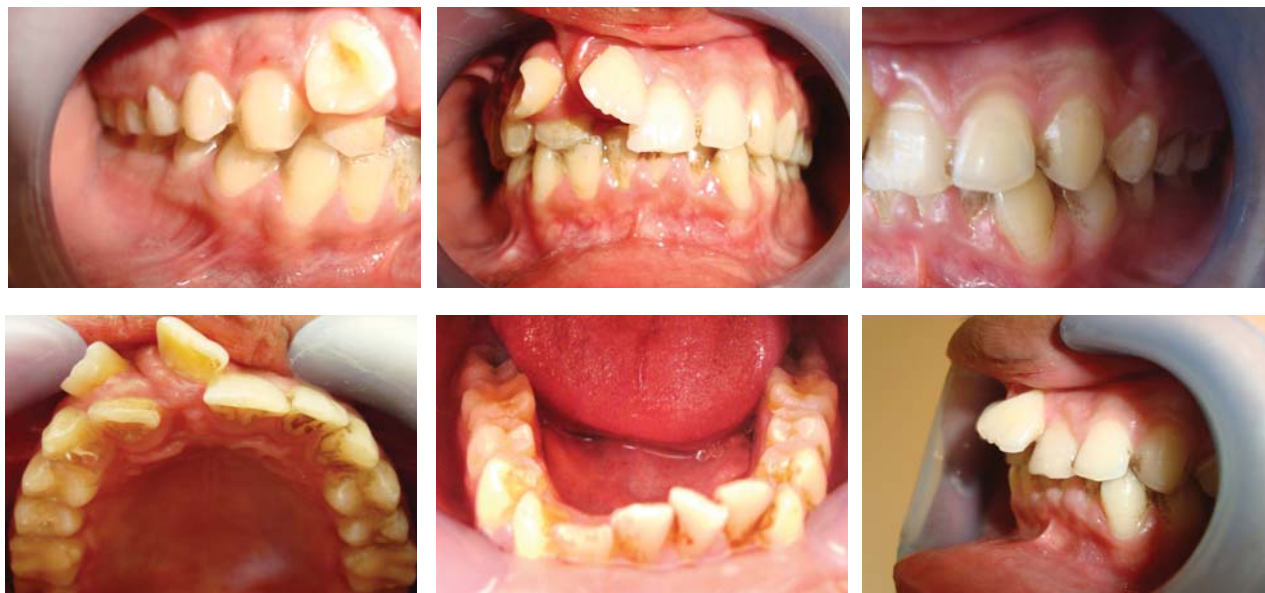


Fig-2: Pre- treatment intra-oral photographs

**MODEL ANALYSIS**

**Arch Discrepancy:**

**Upper arch**

Arch perimeter - Total tooth material  
= 95mm – 108mm = - 13 mm

**Lower arch**

Arch perimeter -Total tooth material  
=95 mm –99mm = - 4 mm

**Remarks :** Crowding in both the arches due to tooth tissue discrepancy.

**RADIOGRAPHIC EXAMINATION**



Fig 4 : Pre treatment OPG



Fig 5: Pretreatment Lateral Cephalometric Radiograph

All the permanent teeth are present. Presence of supernumerary tooth and rotated right central incisor.

Parameter	Patient,s measurement	Reference value
SNA (angle)	85°	82°
SNB (angle)	79°	80°
ANB (angle)	6°	2°
Inter incisal angle	125°	131°
Upper1 to NA(mm)	6mm	4mm
Upper1 to NA(angle)	18°	22°
Lower1 to NB(mm)	5mm	4mm
Lower1 to NB(angle)	22°	25°
Go Gn to SN (angle)	28°	32°

Table shows Pretreatment Lateral Cephalometric evaluation

### TREATMENT OBJECTIVES

The following treatment objectives were established

1. Elimination of the crowding
2. Establishment of normal overjet and overbite.
3. Establish and maintain occlusal harmony and interdigitation for improved aesthetics and proper function.

### TREATMENT PLAN

1. Extraction of supernumerary tooth and frenectomy and wait for one month.
2. Leveling and alignment of upper arch with multiloop archwire
3. Labial movement of upper lateral incisors.
4. Coordination & interdigitation of upper & lower arch.



Fig7 : Intraoral photograph after treatment

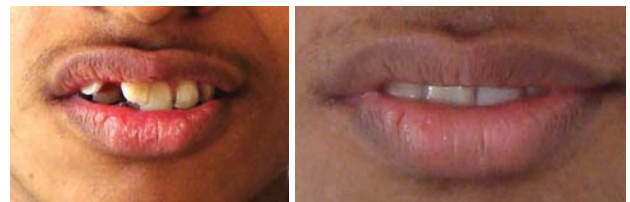


Fig 8:Lip posture before and after treatment



Fig6:Intraoral photograph during treatment:



Fig 9 : Post treatment OPG & Lateral cephalogram



Parameter	After	Before
SNA (angle)	84°	85°
SNB (angle)	80°	79°
ANB (angle)	4°	6°
Inter incisal angle	118°	125°
Upper1 to NA(mm)	5mm	6mm
Upper1 to NA(angle)	30°	18°
Lower1 to NB(mm)	5mm	5mm
Lower1 to NB(angle)	23°	22°
Go Gn to SN (angle)	28°	28°

Table shows Pretreatment and post treatment Lateral Cephalometric evaluation



Fig 10: Post-treatment extra oral Photograph

## DISCUSSION

One of the most common problems in orthodontics today is crowding. This patient was treated with extraction of supernumerary tooth, frenectomy of abnormal thick extra frenum and derotation of rotated right upper central incisor.

Pericision was done to prevent relapse tendency of rotation. Light forces were applied to produce a result that was pleasing to the patient and satisfying to the orthodontists in one and half years. Patient was not interested to treat his lower jaw.

## CONCLUSION

Analysis of final records indicated that all treatment objectives were achieved. The upper central and lateral incisors were placed in good alignment, good occlusion was maintained. A satisfactory esthetic result had been achieved. The patient and his parents psychological satisfaction was also achieved.

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## Correspondence

**Dr. S. M. Omar Faruk BDS**  
 FCPS-II Trainee  
 Dept. of Orthodontics and Dentofacial Orthopedics  
 Dhaka dental College and Hospital  
 Mirpur-14, Dhaka-1206  
 Mobile: +8801552410354  
 E-mail: omar\_faruk@yahoo.com