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

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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.¹

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.² 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 bud³ or due to localized, independent and conditioned hyperactivity of dental lamina.⁴ Genetic factor also suggested since many incidence of recurrence within the same family.⁵

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 such as Cleidocranial dysplasia and Gardner’s syndrome.⁶

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 45⁰ 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.

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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

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

Fig 6: Intraoral photograph during treatment:

Fig 7: Intraoral photograph after treatment

Fig 8: Lip posture before and after treatment

Fig 9: Post treatment OPG & Lateral cephalogram

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Bangladesh Journal of Orthodontics and Dentofacial Orthopedics (BJO & DFO)
Vol. 3, No. 1, October 2012
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Table shows Pretreatment and post treatment Lateral Cephalometric evaluation.

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.

**REFERENCES**

1. S.I Bhalaji, Orthodontics, The art of Science. 4th edi, 408-410

**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.