

# Orthodontic treatment of Class III malocclusion (Case series)

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## ABSTRACT

This article concerns orthodontic treatment of a 20 and 22 years old Bangladeshi female and 23, 21 and 23 years old Bangladeshi male with class III malocclusion. Orthodontic treatment carried out with preadjusted Roth type (018 slot) fixed brackets with maxillary and mandibular anteriors management and alignment to accomplish the treatment. The esthetics and occlusion were maintained after retention. The need for treatment is mainly attributed to esthetic and functional ones. This paper reviews different treatment techniques to manage the situation and presents five cases to illustrate a range of class III malocclusion corrections.

**Key words:** class III malocclusion, alignment, occlusion, retention. (Ban J Orthod and Dentofac Orthop, Oct 2011; Vol-2, No. 1, p 26-27)

## INTRODUCTION

Class III malocclusion is a subject of interest and concern to the orthodontist in both research and clinical practice. The appearance of a protruding mandible with reverse overlap of the anterior teeth is easy to identify<sup>1,2</sup>.

Dental class III malocclusion is associated with a wide variety of underlying skeletal and dental patterns<sup>1-3</sup>. The prevalence of class III malocclusion varies among different races and populations.<sup>1-5</sup> The etiology of class III malocclusion is a fascinating subject and there is still much to be elucidated and understood. The factors contributing to class III malocclusion are complex.<sup>1-5</sup> There is considerable controversy as to the relative contributions of the size and position of the cranial base, the maxilla and the mandible.<sup>4,5</sup>

Class III malocclusion should be corrected because it can: a. Cause premature wear of the teeth, b. Cause gum disease including bone loss, c. Cause asymmetrical development of the jaws, d. Cause dysfunctional chewing patterns, e. Make your smile less attractive

## TREATMENT OBJECT:

The patients presented to the orthodontic clinic as a healthy adult female and males with the chief complaint, "I cannot bite properly." The patients' age was 20 and 22 years old Bangladeshi female and 23, 21 and 23 years old Bangladeshi male. Their medical and dental histories were non-contributory. Following aims were planned for patients' malocclusion management.

**Case 1:** Space management and correct edge to edge bite of incisors and canines, normalize over jet, over bite and correct midline relationships.

**Case 2:** Correct edge to edge bite of incisors and canines; normalize over jet, over bite.

**Case 3:** Correct edge to edge bite of incisors and unilateral cross bite of left canines, space management, normalize over jet, over bite and improve midline relationships.

**Case 4:** Level and align incisors and canines, correct class III relationships of incisors and canines, normalize over jet, over bite and cosmetic treatment of upper left central incisor.

**Case 5:** Level and align incisors and canines, space management and correct class III relationships of incisors and canines, normalize over jet, over bite. Maintain midline relationships

## TREATMENT PROGRESS:

Mandibular incisors needed to be retrocline to correct misalignments. To normalize the class III misalignments, the best treatment option is to retrocline mandibular incisors until a positive overlap maintains. Treatment was started in the maxillary and mandibular arch with preadjusted Roth type (018 slot) brackets. A 0.012, 0.014 and 0.016 inch nitinol arch was used for leveling and labial alignment of the maxillary and mandibular arch. After space creation by selective disking (except in case 4 lower first premolars were extracted) and leveling of the mandibular anteriors a 0.016 × 0.022 inch nitinol arch was inserted to retrocline mandibular incisors (in case of case 5 posterior biteplane with class III elastics was used) and for the final alignment and detailing.

Lastly a 0.016 × 0.022 inch stainless steel arch wire was used for the alignment stabilization. An ideal occlusion was obtained after 9 months (case 1 and 2) and 14 months (case 3, 4 and 5) active fixed orthodontic treatment and all the appliances were removed. Fixed lingual type retainer was set on the palatal surface of the maxillary anteriors and Hawly type retainer in the lower arch for retention.

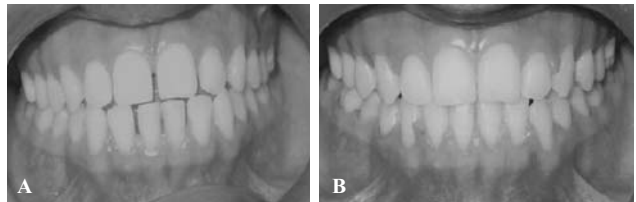


Figure 1: Case 1 - Intraoral photographs (A. before treatment and B. after treatment) showed successful accomplishment of Class III malocclusion with perfect dental midline and without any spacing.

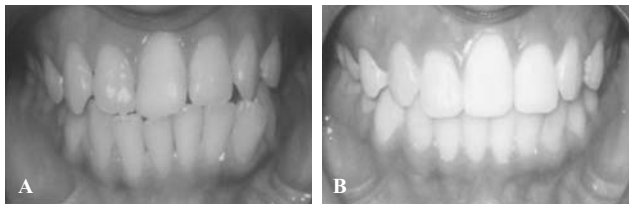


Figure 2: Case 2 - Intraoral photographs (A, before treatment and B, after treatment) showed successful accomplishment of Class III malocclusion with perfect crossbite correction, normal overjet and overbite.

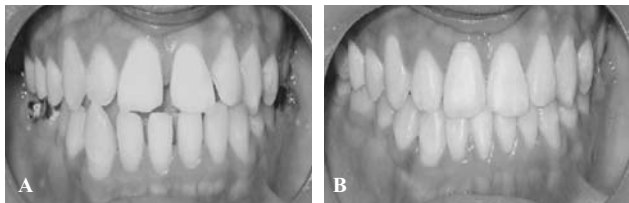


Figure 3: Case 3 - Intraoral photographs (A, before treatment and B, after treatment) showed successful accomplishment of Class III malocclusion with perfect crossbite correction, space management and improved mid-line relationship.

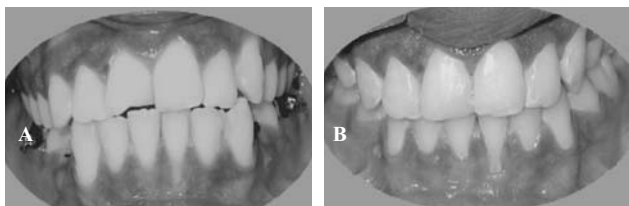


Figure 4: Case 4 - Intraoral photographs (A, before treatment and B, after treatment) showed successful accomplishment of Class III malocclusion improved dental midline with cosmetic treatment of upper left central incisor.

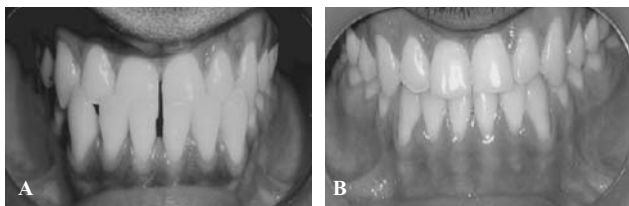


Figure 5: Case 5 - Intraoral photographs (A, before treatment and B, after treatment) showed successful accomplishment of Class III malocclusion with perfect dental midline and without any spacing.

## DISCUSSION

Early orthodontic intervention for Class III malocclusion should be initiated to: prevent existing problems from getting worse; and minimize or eliminate the need for comprehensive orthodontic treatment at a later stage. Another advantage of early treatment is the elimination of traumatic occlusion caused by the anterior crossbite. Polson et al.<sup>6</sup> reported that traumatic occlusions and their sequelae produce considerable morphologic alterations in the periodontal ligament and alveolar bone in squirrel monkeys. These changes were reversible when traumatizing

forces were discontinued or the tooth moved away from the influence of the force. A thorough clinical assessment and accurate records are necessary. Treatment modalities will vary according to the specific diagnosis. Clinical management of anterior dental edge to edge bite requires early and immediate treatment to prevent abnormal enamel attrition, anterior teeth mobility, fracture, periodontal pathosis and temporomandibular joint disturbance.<sup>3-8</sup> The main goal of treatment is to tip the affected mandibular teeth lingually to the point where a stable overbite relationship exists.<sup>6</sup> Relapse is usually prevented by the normal overjet/overbite relationship that is achieved.<sup>6</sup>

If there is edge to edge bite, the teeth can be moved with braces into the correct position. Once space is created, retrocination of anteriors will move the teeth in the normal occlusal relationship with selective force mechanism. Correction of class III malocclusion can help to prevent premature contact, dental decay, periodontal disease and TMJ disturbance.<sup>8</sup>

## CONCLUSION:

It may be stated that improvement in many instances is all that can be expected and there are times when even any degree of improvement is problematic. Fortunately, in these cases the patients had successful treatment of malocclusion which restored their function, improved dental esthetics and elevated their self-esteem.

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