

Orthodontic Treatment of Class III Malocclusion : A Case Report.

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ABSTRACT

Reported case of a 19 years old male, with Class III malocclusion, bilateral cross bite associated with anterior open bite, which was treated by fixed orthodontic treatment. After treatment there was a class I Molar and incisor relation as well as the open bite was corrected with accepted aesthetic and functional satisfaction of the patient.

Key Words: Class III malocclusion, bilateral cross bite, anterior open bite, fixed orthodontic. (Ban J Orthod & Dentofac Orthop, October 2010; Vol-1, No. 1, 22-23)

INTRODUCTION

The skeletal class III malocclusion is characterized by mandibular prognathism and/or, maxillary deficiency, clinically, these patients exhibit a concave facial profile, a retrusive nasomaxillary area and a prominent lower third of the face. The lower lip is often protruded relative to the upper lip. The upper arch is usually narrower than the lower, and the overjet and overbite can range from reduced to reverse.¹ The effect of environmental factors of a class III malocclusion is not completely understood. However, there is a definite familial and racial tendency to mandibular prognathism. For many class III malocclusion surgical treatment can be the best alternative. Sometimes a class III relationship is caused by a forward shift of the mandible to avoid incisal interferences.² This is a pseudo-class III malocclusion. In these cases, it is important to establish the inter-occlusal relationship with the teeth in the retruded contact position.

HISTORY

A 19 years-old male was presented to the Dhaka Dental College, Orthodontic department with orthodontic problem. His complaint was "inability to masticate/incise properly due to lack of tooth contact in the anterior segment of jaw". He and his mother were aware of the severity of the malocclusion and opposed any surgical approach. He was willing to accept a compromised or less than ideal result. The patient was uncomfortable with his long face and functional problem and promised to be cooperative.

Clinical examination

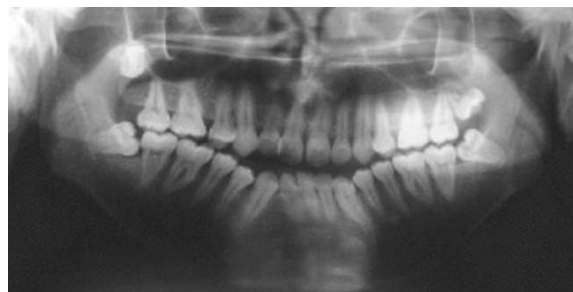
The patient had a concave profile, incompetent lip seal, prognathic mandible, with anterior open bite. A class III malocclusion, bilateral cross-bite associated with a constricted and V-shaped maxillary arch. The mandibular arch was ovoid and slightly crowded (1 mm) and its midline was shifted 2 mm to the left. The patients' oral hygiene was acceptable.

Clinical assessment of mandibular closure from rest position to habitual occlusion showed no mandibular displacement. No signs or symptom of TMJ dysfunction were noted. There was congenitally missing upper 2nd premolars and lower left lateral incisor.



Pre treatment photograph

Panoramic radiography revealed the presence of all permanent teeth without upper 2nd premolars and lower left lateral incisor.



Initial cephalometric examination revealed excess lower facial height, mandibular prognathism with class III skeletal pattern. Open bite was evident in the premolar to premolar region.



Treatment Objectives

The objectives in the treatment of this malocclusion were to

1. Reduce open bite.
2. Correct incisor relationship and cross bite.
3. Achieve arch form coordination.
4. Improve facial and dental aesthetics.
5. Restore proper masticatory efficiency.

Treatment Plan and Progress

The contemporary approach to treatment of class III malocclusion, without orthodontic surgery, includes gross modification aimed at promoting maxillary and restraining mandibular growth, and/or dento-alveolar compensation or 'camouflage' of skeletal discrepancy by differential movement of teeth on their bony bases into acceptable occlusion (Proffit, 2000). Therefore treatment was planned as follows:

- a) Upper arch wire in standard edgewise bracket system for approximation of upper central incisors.
- b) Derotation of upper right lateral incisor by using multiloop arch wire.
- c) Ext. of lower 1st premolars.
- d) Retraction of lower cuspids.
- e) Contraction of mandibular arch.
- f) Class III elastic was used to bring class I incisor relationship as well as to camouflage Class I skeletal pattern and to give better occlusal interdigitation.
- g) Up-down elastic was used to minimize the open bite and give proper interdigitation.
- h) Cross elastic were used to correct midline shift.



Intra-oral photograph during treatment

RESULT

The overall orthodontic treatment of this patient was quite successful. The following changes and improvements are - a class I molar and canine relationship, normal overbite and overjet with proper occlusal interdigitation are visible. Open bite has been eliminated, incisors are in proper positions. Patient can close his lips relaxly and his profile has been improved, as chin protrusion has disappeared after treatment. After treatment, cephalometric changes as compared to the before treatment showed skeletal pattern, has been camouflaged by the correction of incisor relationship. Open bite has been corrected and normal overbite and overjet is visible. It takes about 18 months from the starting of treatment and impression taken for retainer.



DISCUSSION

The surgical correction of class-III malocclusion can be undertaken in a variety of ways, e.g. a bilateral sagittal split osteotomy to retract the mandible or a Le Fort I procedure to advance the maxilla, or a combination of these.¹ However, the associated surgical risks and complications must be considered, as well the increased expense. If a non-surgical treatment alternative can produce results comparable with those that could be achieved surgically, then it should be considered and can be the treatment of choice for some patients.

This paper presents the non-surgical treatment of class-III malocclusion. Treatment was undertaken using a combination of compensation mechanics and fixed orthodontic appliance treatment only and suggests that in some, carefully selected cases, this approach can be a viable treatment option.^{1,3,4}

Although skeletal pattern was camouflaged only by correction of the incisor relationship, overall facial, dental and the occlusion changes were achieved. The stability for the position needs to be mentioned. Patient's aesthetic and functional (masticatory and incising) efficiency has been improved. The overall treatment results without any surgical intervention makes the patient very much confident.

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