

**Case report**

**Bimaxillary proclination with spacing: Treatment for  
Esthetic Improvement**

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**Abstract**

This paper concerns orthodontic treatment of a 20 years old Bangladeshi female with bimaxillary proclination, localized spacing in the maxillary and mandibular arch and rotations in the central incisors of the mandibular arch. Orthodontic treatment carried out with preadjusted MBT type (018 slot) fixed brackets with alignment and retroclination of the maxillary and mandibular incisors to accomplish the treatment for esthetic improvement. The esthetics and occlusion were maintained after retention.

**Key words:** Bimaxillary proclination, spacing, rotation, labial flaring.

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**Introduction**

In recent years, the demand for orthodontic treatment in adults has greatly increased. A desire for esthetic improvement of dental anomalies that are causing psychosocial problems in the patient is a frequent factor in the decision to obtain orthodontic treatment.

Esthetic improvement in the maxillary and mandibular anterior region, with a focus on bimaxillary proclination and spacing, will be discussed in this article

and illustrated by case reports. Spacing is an excess of space for your teeth which results in gaps between your teeth. This generally occurs when the teeth are smaller than the available space. Bimaxillary protrusion is a condition characterized by protrusive and proclined upper and lower incisors and an increased procumbency of the lips<sup>1-4</sup>

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Spacing can also be caused by protrusive teeth, missing teeth, impacted teeth or abnormal tissue attachments to the gums 1-4. Spacing should be corrected because it can:

- a. result in gum problems due to the lack of protection by the teeth
- b. prevent proper functioning of the teeth
- c. make your smile less attractive

**Treatment objectives:**

Bimaxillary protrusion patients want instant esthetic facial results and that their soft tissue profile should be more regard than hard tissue.

Treatment objectives were to:

1. Level and align the arches
2. Correct rotation
3. Retract and upright anterior teeth
4. Maintain Class I canine and molar relationships
5. Obtain canine and incisal guidances
6. Maintain dental and facial midline
7. Achieve proper overbite and overjet
8. Improve the gingival condition.
9. Improve the profile
10. Improve facial balance
11. Improve smile esthetics
12. Achieve long-term stability

**Treatment progress:**

The maxillary and mandibular arch needed to be leveled to correct misalignments, considering that the patient had completed growth. The maxillary and mandibular arch had 6mm and 10mm localized spacing respectively (Fig-1). Overjet was 1 mm and overbite was 0 mm. To normalize the overjet, overbite, misalignments and bimaxillary proclination, the best treatment option is to level and retrocline both incisors (maxillary and mandibular). Treatment was started with preadjusted MBT type (018 slot) brackets. A 0.014 and 0.016 inch nitinol arch was used for leveling and sinch back bend was maintained to prevent labial flaring of the incisors. After leveling rotation correction, a 0.016 × 0.022 inch nitinol arch was inserted for the final alignment and retrocline both incisors (maxillary and mandibular) for space closing and to correct bimaxillary proclination. Lastly a 0.016 × 0.022 inch stainless steel arch wire was used for the final alignment, detailing and stabilization.

An ideal occlusion was obtained after 8 months active fixed orthodontic treatment, and all the appliances were removed. Fixed lingual type retainer was set on the lingual surface of the maxillary and mandibular anterior prepared extended onto the mesial fossa

## Bimaxillary proclination with spacing

of the first premolars by coaxial wire and set by light cure composite (Fig-2). Best possible esthetic and functional results with a resultant decrease in soft tissue procumbency and convexity was achieved.

The goals of orthodontic treatment of bimaxillary protrusion includes the retraction and retroclination of maxillary and mandibular incisors with a resultant decrease in soft tissue procumbency and convexity (Fig 3).



**Figure 1: Intraoral figures (before treatment) shows bimaxillary proclination, localized spacing, class I molar relationship and rotated mandibular central and left lateral incisors.**



**Figure 2: Intraoral figures (after treatment) shows corrected bimaxillary proclination, spacing were closed, maintained class I molar relationship and well aligned rotated mandibular central and left lateral incisors with normal overjet and overbite.**

### **Discussion**

Bimaxillary protrusion is a condition characterized by protrusive and proclined upper and lower incisors with or without spacing and an increased procumbency of the lips<sup>1,5-6</sup>. Because of the negative perception of protrusive dentition and lips in most cultures, many patients with bimaxillary protrusion seek orthodontic care to decrease this procumbency. It is commonly seen commonly in African

American<sup>1</sup> and Asian<sup>1</sup> populations, but it can be seen in almost every ethnic group. The etiology of bimaxillary protrusion suggested to be multifactorial and consists of a genetic component as well as environmental factors, such as mouth breathing, tongue and lip habits, and tongue volume<sup>2-4</sup>. Pre-adjusted fixed orthodontic appliances commonly utilizes sliding mechanics for space closure with force



**Figure 3: Facial figures frontal, smile and profile view. Upper panel; taken before treatment shows soft tissue procumbency and convex profile. Lower panel; taken after treatment shows reduced soft tissue procumbency and profile become near straight (photographs published with permission).**

delivery systems such as elastomeric chain, nickel titanium coil springs, elastomeric modules attached to wire ligatures, or intra oral elastics<sup>1,5-6</sup>.

The advent of sophisticated appliances and materials has helped to raise the standard of orthodontic treatment and as a consequence achieving an “ideal” occlusion has become a realistic aim. These current concepts of ideal static occlusion are basic on Andrew’s six keys of normal occlusion (1972). Andrew’s stated that if the six keys are not achieved either a space discrepancy

will arise in the dental arch or there will arise in the dental arch or there will be a compromise in the occlusion. The third key (labio-lingual inclination of the teeth to the occlusal plane) may have a significant implication on the space requirements in the dental arch<sup>2</sup>. If the maxillary labial segment teeth are retroclined, space will be required within the arch to correct their inclination due to the palatal movement of contact points as the incisors are retroclined or torqued. Treatment will not only help to create a beautiful smile

but will help your oral health as well. Every treatment option has its own merits and demerits. As an orthodontist's point of view, present case was treated best by retroclination of incisors. Once space is closed retroclination of incisors will eliminate soft tissue procumbency. Correction of bimaxillary protrusion and localized spacing can help to prevent gum problems, improper functioning of the teeth and less attractive smile<sup>3-4</sup>.

### **Conclusion**

The goals set in the pretreatment plan were successfully attained. Solid

intercuspatation of the teeth was maintained with class I molar relationship. Treatment of bimaxillary protrusion and localized spacing includes the retraction and retroclination of maxillary and mandibular incisors with a resultant decrease in soft tissue procumbency and convexity was successfully done (Fig 3). The maxillary and mandibular teeth were found to be esthetically satisfactory in the line of occlusion. The overjet become near ideal and normal overbite was found.

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