



# Treatment of Skeletal Class III Malocclusion Using Facemask and Rapid Palatal Expansion in Growing Patient – A Case Report

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## Introduction :

Class III malocclusion is a condition in which a disharmonious proportion between the maxilla and mandible. Maxillary retrusion in Class III malocclusion obviously should be treated with encouragement of maxillary growth. In recent years, rapid maxillary expansion and face mask therapy has become a common technique to correct Class III malocclusion in which the etiology is maxillary deficiency. Studies have shown that these appliances are able to produce maxillary advancement combined with a downward and backward movement of the mandible. This case report presents the use of rapid maxillary expansion and face mask therapy for the successful management of Class III malocclusion with maxillary deficiency in a 13 year old patient.

## Case Report :

A 13 year old boy came with the chief complaint of forward lower jaw. On extraoral examination, concave profile was seen. Intraoral examination showed Class III molar relation on both sides with overjet -5 mm and overbite 5 mm. Unilateral posterior crossbite on left side is seen and lower midline was shifted to right during closure (Fig. 1). Cephalometric analysis showed diagnosis of skeletal class III malocclusion with maxillary retrusion (SNA = 75°; SNB = 79°; ANB = -4°; Witts = -4 mm). (Fig.2)

## Treatment Objective :

- To improve the skeletal jaw relationship by protracting the maxilla anteriorly
- To correct unilateral posterior crossbite by expanding maxilla transversally.

## Treatment Plan :

Protraction of maxilla using facemask while simultaneously expanding it transversally using Rapid Maxillary Expansion, followed by finishing and detailing with fixed orthodontic appliance. (Fig.3)



Fig. 1 Extra oral and Intra oral photographs before treatment



Fig. 3 Application of facemask and bonded rapid maxillary expansion

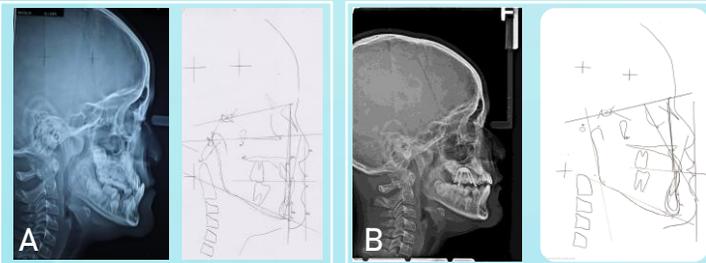


Fig. 2. Cephalometric radiography and tracing; (A) before treatment ; (B) After 2 months treatment

## Results:

After 2 months treatment, patient's profile was better, it could be seen that the upper lip was advanced moderately and had improved patient's profile and smile. (Figure 4). Anterior crossbite and deep bite were corrected successfully (Overjet = 1 mm ; overbite = 1 mm). However, molar relation is still slightly Class III and will be further corrected by protraction of maxilla.

Cephalometric analysis after 2 months treatment showed that SNA has increased from 75° to 78° which showed a significant improvement for maxillary advancement, even though it's still need to be advanced more. ANB has reduced from -4° to -1°. Skeletal concavity NAPog has also reduced from -11° to -3°, as well as witts appraisal from -4 mm to -2 mm. Ricketts Esthetic line showed advancement of the upper lip from -4 mm to -2 mm.

Superiority showed that progress of the treatment caused maxilla to move downward and forward as a result of the protractive force.

Significant improvement have been seen in this case after 2 months treatment. However, treatment still need to be continued for further improvement.



Fig. 4. Extra oral and intra oral photographs after 2 months treatment

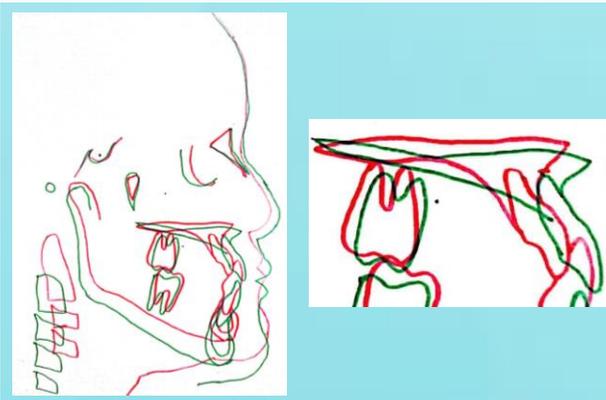


Fig. 5. Superimposition of cephalometry tracing before treatment (red line) and after 2 months treatment (green line)

## Conclusion :

After 2 months treatment in this case, it was concluded that treatment of class III malocclusion with Rapid maxillary expansion combined with face mask was effective, leading to improvement in the facial profile and treatment will still be carried on for further improvement.

## References :

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