

3급 부정교합의 초기치료

Early Treatment of Class III Malocclusion



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ABSTRACT

The Class III malocclusion classified in two types of Skeletal Class III and Pseudo Class III.

In the case of the maxillary deficiency, the protraction H-G(facemask) with Bonded RPE can be used.

For children with A-P and vertical maxillary deficiency, the preferred treatment is to move the maxilla into a more anterior and inferior position, which also increases its size as bone is added at the posterior and superior sutures. Successful forward repositioning of the maxilla can be accomplished before age 8.

To resist tooth movement as much as possible, the maxillary teeth should be splinted together as a single

unit. The maxillary appliance must have hooks for attachment to the facemask that are located in the canine-primary molar area above the occlusal plane.

The facemask usually worn until a positive overjet of 2-5mm is achieved interincisally. Occipital chin cup is successful in those patients who can bring their incisors close to an edge-to-edge position when in centric relation. This treatment is particularly useful in patients who begin treatment with a short lower anterior facial height, as this type of treatment can lead to an increase in lower anterior facial height. If the pull of the chin cup is directed below the condyle, the force of the appliance may lead to a downward and backward rotation of the mandible.



INTRODUCTION

The Class III malocclusion classified in two types.

1. Skeletal Class III
 - A. Maxillary deficiency
 - B. Mandibular hypertrophy
 - C. Combination of maxillary deficiency and mandibular hypertrophy
2. Functional Class III (Pseudo Class III)

These Class III malocclusions can be treated with different methods.

In the case of the maxillary deficiency, the protraction H-G with Bonded RPE can be used.

For children with A-P and vertical maxillary deficiency, the preferred treatment is to move the maxilla into a more anterior and inferior position, which also increases its size as bone is added at the posterior and superior sutures. As with transverse expansion, it is easier and more effective to move the maxilla forward at younger ages, although recent reports indicate that some A-P changes can be produced into early adolescence.^{1,2,3,4,5}

The maxillary appliance can be banded, bonded, or removable. Whatever the method of attachment, the

appliance must have hooks for attachment to the facemask that are located in the canine-primary molar area above the occlusal plane.⁶ This places the force vector nearer the center of resistance of the maxilla and limits maxillary rotation.

The facemask usually is worn until a positive overjet of 2-5mm is achieved interincisally. At this time, part time or nighttime wear is recommended for an additional three to six month period.⁷

The occipital-pull chin cup that is the more frequently used type of chin cup treatment for Class III malocclusion. This type of chin cup is indicated in instances of mild to moderate mandibular prognathism. Success is greatest in those patients who can bring their incisors close to an edge-to-edge position when in centric relation.

The occipital-pull chin cup also is indicated in patients who have normally positioned or slightly protrusive lower incisors. Since the chin cup generates some force against the soft tissue in the chin region, some backward tipping of the lower incisors often is observed.⁸

CASE PRESENTATION

#CASE I

Name : I. H. Tak Gender & Age : Male, 8Y 6M
C. C. : Anterior crossbite.

Treatment Goal : Acceleration of the Maxillary growth

Treatment Plan : Protraction H-G with Bonded RPE

FR III for retention



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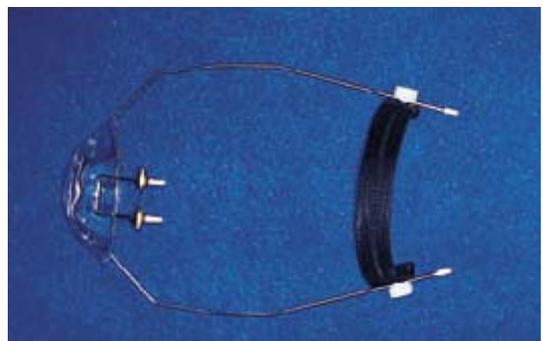
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< APPLIANCES >



< APPLIANCES > Bonded RPE



< APPLIANCES > Protraction Headgear(Facemask)



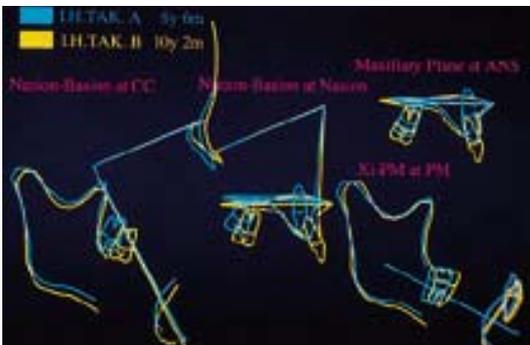
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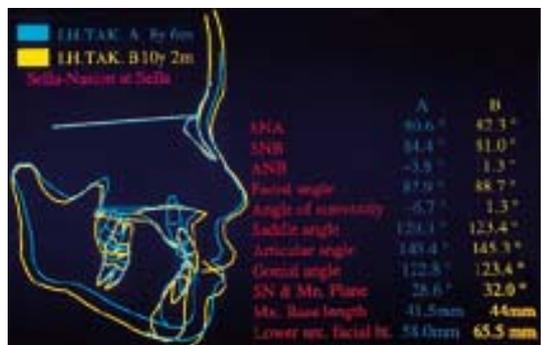
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< SUPERIMPOSITION >



#CASE II

Name : Y. J. Kim Gender & Age : Female, 5Y 1M

C. C. : Anterior crossbite

Treatment Goal : Backward and downward rotation
of the Mandible

Removal of functional factor
(premature contact)

Treatment Plan : Chin cup with lower bite block
FR III for retention



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< APPLIANCE > Chin cap





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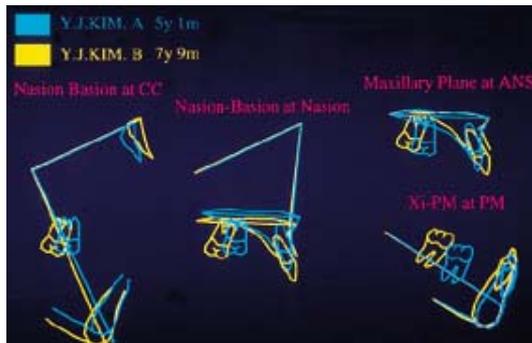
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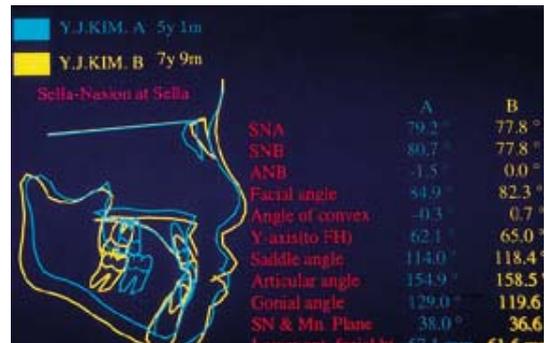
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FR III 장착시 측모



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CONCLUSION

<Case I >

A 8 years boy shows anterior crossbite of the early mixed dentition, Clinically the patient exhibiting midfacial retrusion and Class III malocclusion relationship. Cephalometric evaluation showed retrognathic in maxilla and prognathic in mandible. Anterior facial height is small, a diagnosable skeletal maxillary retrusion was noted along with a profile sorely in need of increased vertical dimension,

It was decided to initiate early orthognathic treatment to the maxilla into a more anterior and inferior position. Because the maxillary arch was also narrow, we used a protraction H-G with Bonded RPE. The patient wore the protraction H-G full-time for 6 months. And then, he wore the protraction H-G night time for 4 months.

After treatment, the facial profile was improved, and the anterior crossbite was corrected.

The ANB angle was increased from -3,8 degree to 1,3 degree.

The SN & Mandibular plane angle was increased

from 28,6 degree to 32,0 degree.

And the patient now wears FR III for retention.

<Case II >

A 5 years girl shows a concave profile and anterior crossbite in deciduous dentition. According to the cephalometric evaluation, the maxilla is retruded and the mandibular plane angle is slight steep.

But the mandible could be achieved to edge to edge relationship. It means that the functional factor may be combined.

Occipital pull chin cup was placed to position the chin down and back.

A chin cup and a lower bite block were used for about 1½ year.

The anterior crossbite was corrected and the facial profile was also improved.

The ANB angle was increased from -1,5 degree to 0 degree.

With improvement, the patient now wears FR III for retention.



DISCUSSION

Diagnoses of Case I & II were different. So we approached these patients with different appliance.

The Mx. base length of the Case I was more increased and the Mx. of Case I positioned more anteriorly than Case II. But, the Y-axis angle of Case II was more increased than in Case I.

It means that the direction of the growth of mandible rotated downward and backward during the period of chin cup use. And also showed a minor acceleration of maxillary bone growth for correction of crossbite.

Successful forward repositioning of the maxilla can be accomplished before age 8, but after that

orthodontic tooth movement usually overwhelms skeletal changes.

To resist tooth movement as much as possible, the maxillary teeth should be splinted together as a single unit.⁹

Chin cup treatment is particularly useful in patients who begin treatment with a short lower anterior facial height, as this type of treatment can lead to an increase in lower anterior facial height. If the pull of the chin cup is directed below the condyle, the force of the appliance may lead to a downward and backward rotation of the mandible.¹⁰

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