

# DENTOFACIAL CHANGES OF COMBINED DOUBLE-HINGED RAPID MAXILLARY EXPANSION AND PROTRACTION FACEMASK THERAPY

Wen-Ching Tsai<sup>\*\*</sup>, Chiung-Shing Huang<sup>\*\*</sup>, Chi-Ting Lin<sup>\*</sup>, Eric Jein-Wein Liou<sup>\*\*</sup>

Department of Orthodontics, Chang Gung Memorial Hospital, Kaohsiung, Taiwan<sup>\*</sup>

Department of Orthodontics and Craniofacial Dentistry, Chang Gung Memorial Hospital, Taipei, Taiwan<sup>\*</sup>

Institute of Craniofacial and Oral Medicine, Chang-Gung University<sup>\*</sup>

**Objective:** This study was designed to measure the dentofacial changes of combined double-hinged rapid maxillary expansion and protraction facemask therapy. Under the concept of the Alternate Rapid Maxillary Expansions and Constrictions, we try to increase the degree of disarticulation of the circum-maxillary sutures, and then to increase the result of maxillary protraction. The actual result of clinic therapy needed further assessment, including the dentoskeletal changes.

**Methods:** Twenty consecutive subjects with unilateral cleft lip and palate (male: 14; female: 6) were included in this prospective study. Their average age was 12 year-old. All of the subjects were under gone combined double-hinged rapid maxillary expansion and protraction facemask therapy in a six-month duration. Pre-treatment (T1) and post-treatment (T2) lateral cephalograms were taken in order to measure the dentofacial changes of all the subjects.

**Results:** In terms of skeletal changes, a 5 mm forward movement of A point was observed. The ANB angle changed from  $-3^{\circ}$  to  $4^{\circ}$ . The maxilla moved forward and downward. The mandible rotated backward. In terms of dental changes, the overbite decreased to correct the problem of deepbite. The overjet changed from minus to plus to correct the problem of anterior crossbite.

**Conclusion:** The application of combined double-hinged rapid maxillary expansion and protraction facemask therapy was an effective treatment course for the patients with unilateral cleft lip and palate. This course not only effectively created an anterior movement of the maxilla but also pushed the front teeth forward.

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**Key words:** rapid maxillary expansion, Alternate Rapid Maxillary Expansions and Constrictions, protraction facemask, maxillary protraction, unilateral cleft lip and palate

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Reprints and correspondence to: Dr. Tsai Wen-Ching, Department of Orthodontics, Kaohsiung Chang Gung Memorial Hospital, 123, 2F, Ta Pei Road, Niao Sung Hsiang, 833 Kaohsiung County, Taiwan.  
Tel: 07-7317123 ext. 8291   E-mail: twc10242003@yahoo.com.tw