

Dynamic Cleft Infant Maxillary Orthopedics and Periosteoplasty: A 25 Year Study

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Abstract

Background: In 1990, the presenting author published an initial experience with Dynamic Maxillary Appliances (DMA) and periosteoplasty in cleft lip and palate patients. This was based upon the belief of "normal to normal and keep it there." The goal was to align the alveolar segments, close the oral-nasal fistula and provide better facial balance with tension free closures. Opponents argued that this approach increased the incidence of mid-facial retardation and created orthodontic cripples. In 1998, the presenting author reported a 13-year longitudinal study on 35 unilateral and 10 bilateral complete clefts with regard to their physical and psychosocial outcomes. Twenty-five of these patients were monitored and treated into adulthood. Our research demonstrated conclusively that the DMA concept set forth by Drs. Millard and Latham should be strongly considered as a program in treating cleft patients.

Methods: Patients were assessed as to the need and the amount of bone required to consolidate the maxillae, the complexity of orthodontics, the need for orthognathic surgery and the number of interim surgeries performed throughout the growth period. A long-term psychosocial questionnaire was given to parents to evaluate satisfaction with early active intervention and normalization.

Results: Early intervention with maxillary orthopedics and complete closure of the primary palate at 3 months, eliminated the oral-nasal fistula, and provided excellent facial balance. Alignment of the cleft segments allowed for easier closure of the secondary palate and eliminated velo-pharyngeal insufficiency procedures. Bone was demonstrated in the cleft segments, and for those needing additional grafting, the requirements were much less. Because the bone was placed in a healthy recipient bed, consolidation of the maxillae was more successful. Anterior and lateral cross-bites were dental, not skeletal, and were managed with orthodontics. Orthognathic procedures were decreased (0/21 unilateral, 2/4 bilateral) and when performed were easier because of the unification of the upper jaws. Serial photographs and occlusograms, as well as interval cephalometrics will be presented to demonstrate the positive outcomes of this study and technique. A parental survey further reinforced the psychosocial well-being that accompanied early intervention, especially with family and peer bonding and with feeding without nasal escape.

Conclusions: We can conclude that this method of cleft closure leads to excellent aesthetic and psychosocial outcomes.

References:

1. Lukash, F.N., Schwartz, M., Grauer, S., Tuminelli, F. Dynamic cleft maxillary orthopedics and periosteoplasty: benefit or detriment? *Ann Plast Surg* 40: 321-6, 1998.

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