



MAXILLARY RESPONSE AFTER FACIAL ORTHOPEDIC TREATMENT IN CLASS III PATIENTS IN EARLY AND LATE MIXED DENTITION

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Introduction

Skeletal Class III malocclusions are usually growth-related discrepancies, and these patients are well-recognized and perceived to be abnormal by the lay public as well as by health care practitioners. Concave facial profile is one of the most unattractive facial look who has negative impact to normal socializing of those individuals in the community. In many patients with Class III malocclusion the mandible appears large because of a deficient maxillary growth. With the limited ability to influence mandibular growth, treatment modalities for influencing mild to moderate Class III alveolar base discrepancies have shifted to a maxillary protraction therapy.

Aim

The purpose in this study was to determine sagittal behavior of the jaws and profile convexity changes in Class III growing patients in early(6-9years) and late(9-12 years) mixed dentition after maxillary protraction therapy.

Material and methods

The sample consisted 28 patients divided in two groups: early mixed dentition (6-9 years) and late mixed dentition (9-12years), who had Class III malocclusion with an anterior crossbite and a component of maxillary deficiency. The evaluation of the facial profile was one of the most important items in our differential diagnosis. Flat or concave profiles, retrusive maxillas, and prominent mandibles were included. The maxillary protraction was performed through a Delaire facial mask, using elastics with a force delivering of about 350 gm per side. In some patients with posterior cross bite, before protracting maxilla, rapid maxillary expansion appliance was used, and it was activated every day until achieving correction of the bite posteriorly.

Two radiographs were evaluated, the first was taken before the beginning of the treatment, the second was taken immediately after face mask therapy. The treatment time varied as a result of patients compliance, severity of the problem and individual response of the patient to treatment. Treatment was discontinued when positive overjet was achieved and no more changes were noted after 3 months. Mean treatment time was 11 months.



A. Patient before treatment



B. Delaire facial mask



C. Patient after treatment

The results obtained with this therapy have been evaluated through pretreatment and posttreatment lateral radiographs. Cephalometric measurements that were used included evaluation of maxillary sagittal relationships (SNA, Co-A point mm) mandibular sagittal relationships (SNB, Co-Gn mm), facial convexity angles and measurements (ANB, N-Pg to A) (Figure 1).

Results

Results from these study showed forward displacement of maxilla(SNA p<0.05), increasing of maxillary length (Co-A p<0.05) correction of maxillary-mandibular relationship (ANB p < 0.05) and soft tissue changes resulting in a more convex profile, mostly as a result of forward displacement of the maxilla. Skeletal response of the protraction treatment in upper jaw was highly significant in younger patients (early mixed dentition 6-9 years) while a smaller effect of treatment was obtained in older patients (late mixed dentition 9-12 years).

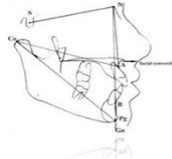


Figure1. Cephalometric angles and measurements for sagittal jaw relationship and profile convexity

Table 1. Sagittal relationship of the jaws before and after face mask therapy

Treated group	average	zst.dev	N	Differ.	zst.dev	t	df	p
SNA before	80.50000	1.190238						
SNA after treatment	1.190238	0.577350	28	-2.50000	1.040833	-6.35489	6	0.000712
SN before	64.98571	1.074598						
SN after treatment	65.34286	1.029332	28	-0.357143	0.35715	-3.29516	6	0.603188
Co-A before	77.00000	1.732051						
Co-A after treatment	80.28571	2.058663	28	-3.28571	0.487950	-17.8157	6	0.000002
SNB before	79.85714	1.345185						
SNB after treatment	79.71429	1.409998	28	0.142857	0.626783	0.603023	6	0.568571
Co-Gn before	103.00000	2.309401						
Co-Gn after treatment	101.8571	2.968084	28	1.14286	1.069045	-3.77817	6	0.03232

Table 2. Average values on examined parameters for upper jaw after the treatment in early and late mixed dentition

Parameters	N	Average	zst.dev.
Early mixed dentition			
SNA	13	82.5	1.126601
Co-A	13	80.7	1.797434
Late mixed dentition			
SNA	15	81.3	1.222799
Co-A	15	82.7	1.531417

Table 4. Profile convexity changes before and after face mask therapy

Treated group	Average	zst.dev	N	Differ.	zst.dev	t	df	P
ANB before	0.642857	1.651118						
ANB after treatment	3.285714	1.286375	28	-2.64286	0.852168	-8.20536	6	0.000177
NPg-A before	24.42857	1.511858						
NPg-A after treatment	25.88571	1.286375	28	-1.457143	0.626783	-6.61814	6	0.001122
NsSnPgs before	176.1429	2.410295						
NsSnPgs after treatment	165.7143	1.380131	28	10.42857	2.439750	11.30911	6	0.000029

Table 3. t-test for difference on average values on examined parameters for upper jaw between early and late mixed dentition after treatment

Parameters	Treated group		
	t-test	df	P
SNA	2.84579	28	0.008529
Co-A	-3.13969	28	0.004182

Conclusion

The results from this study indicate that forward movement of maxilla can be obtained after Face mask therapy and better period for facial orthopedics is early mixed dentition rather than late mixed dentition.

Based on our findings we can concluded that even though, the management of Class III malocclusion remains one of the most challenging problems in the clinical practice today, the results from this study support maxillary protraction, for the correction of Class III malocclusion with deficient maxillary growth which is very important in the teenage period of life for building self confidence and normal socializing in the community.