

Effective Management of Incompetent Lips with Mouth Breathing and Tongue Trusting Habit using Myobrace Appliance

Dr. Savitha Sathyaprasad¹, Dr Akshata Gangur²

Abstract: Growing children develop malocclusion due to interaction of growth habits and imbalance in peri - oral and intraoral musculature creating balance and equilibrium among them, there by intercepting habits at a early stage can completely or partially prevent malocclusion.1 Myofunctional appliances form an integral part of the interceptive orthodontics.2 Myobrace appliance is one such preformed myofunctional orthodontic device which is designed for the treatment of malocclusion in the patient in late mixed dentition.3 Its mechanism of action is a combination of a myofunctional device and a tooth positioner.4 We present a case report of a developing malocclusion in late mixed dentition stage which was intercepted successfully using this appliances.

Keywords: Malocclusion, Myofunctional appliances, Interceptive orthodontics, Myobrace, Mixed dentition.

1. Introduction

Habits and Malocclusion are interrelated and need immediate attention once diagnosed. This intricate relationship, with adverse effects on growing soft and hard tissues, should be identified in the growing child and treated immediately to avoid the long term complication.4 The beauty of pediatric dentistry lies in its capability to recognize, revert, reorganize, and restructure the moldable masticatory and cognitive characteristics of the child. Since habits die hard, early recognition can prevent malocclusion. In the present case we have delivered myobrace as the oro myofunctional therapy, it is specifically designed to treat malocclusion and correct bad habits like Open bite, Overjet, In addition to guiding teeth and aiding proper alignment and Increase the effectiveness of orofacial myofunctional therapy.5

2. Case Report

A female patient of 9 years old presented to the Department of pediatric and preventive dentistry, KVG Dental College and Hospital, Sullia with the chief complaint of protrusive upper anterior teeth during her late mixed dentition period.

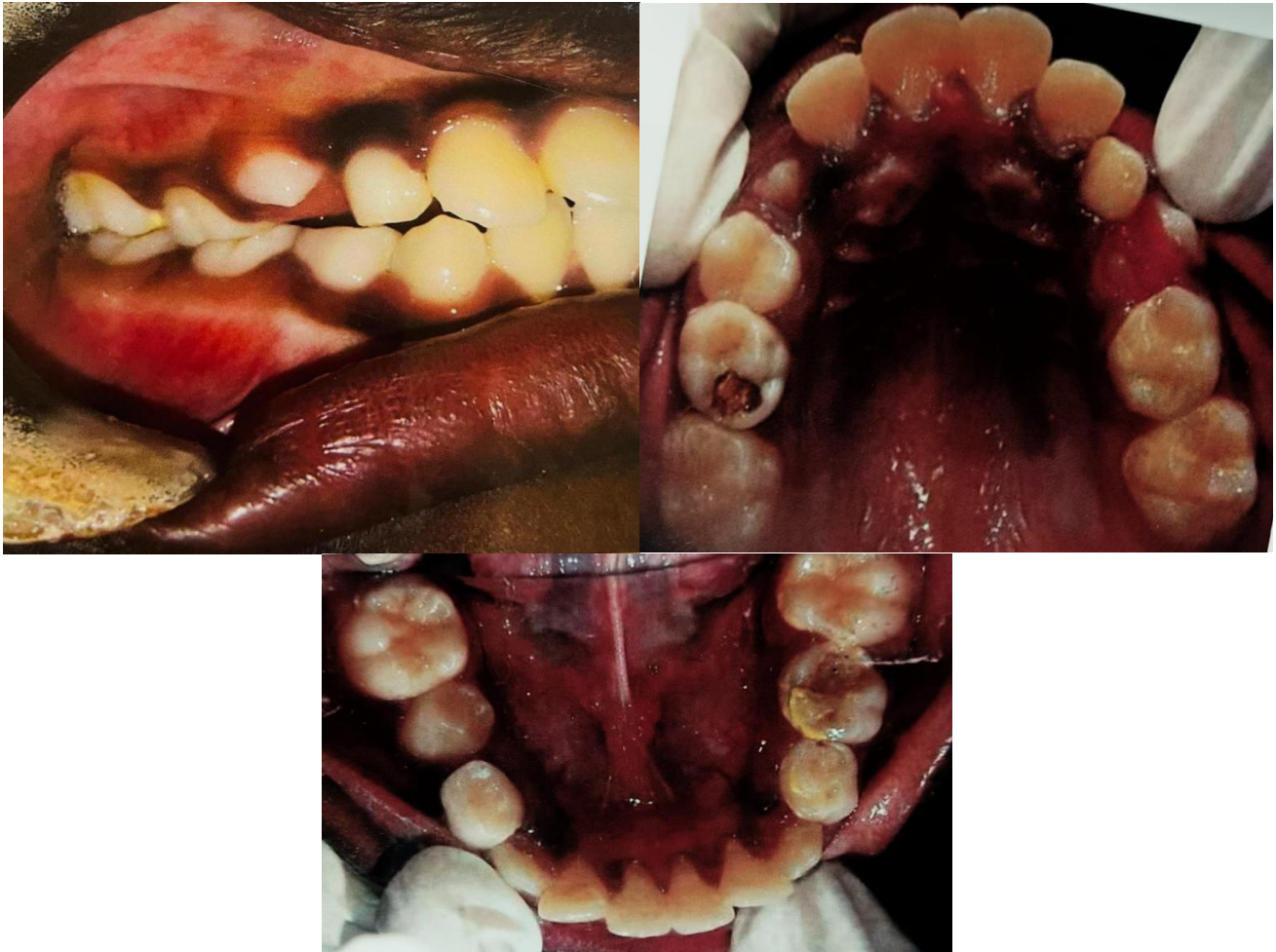
The clinical examination revealed a convex profile with a protrusive maxilla, retrusive mandible, an increased lower anterior facial height, hypotonic upper lip, deep labiomental fold, and hyperactivity of the mentalis and buccinator muscles (Fig 1, 2). The prevalence of hyperactivity in the mentalis and buccinator muscles is frequently observed in individuals with lip incompetence or those exhibiting protrusion of the upper incisors. She tended to mouth breathing due to seasonal allergies, and lip sucking.



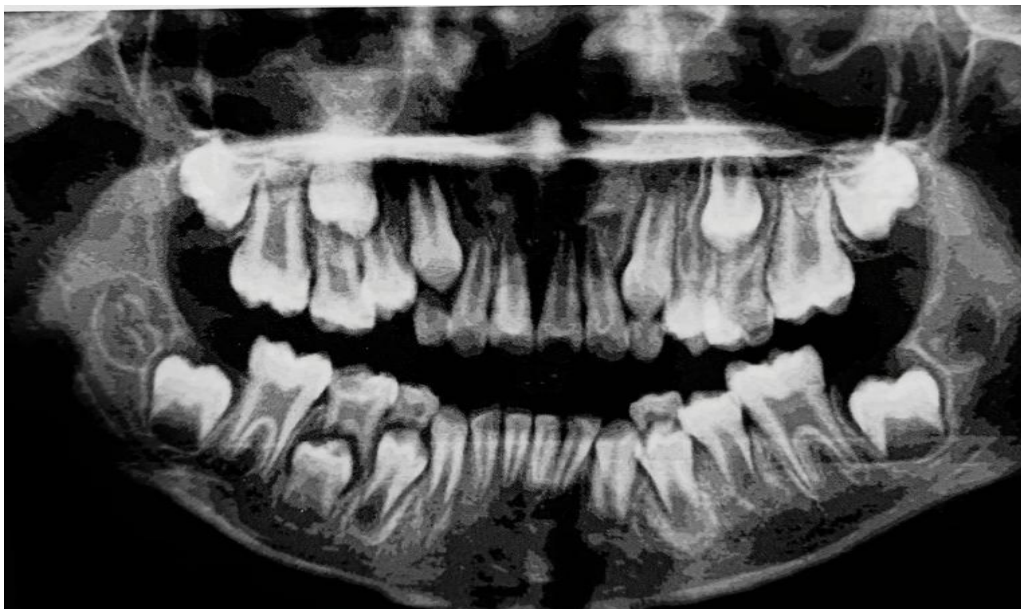
Pretreatment extraoral photographs.

Intraoral examination revealed Angle's Class II relationship bilaterally with a protrusion (large overjet up to 6 mm),

deep overbite of 6 mm, and constricted maxillary dental arch. (Fig 3) deep dental caries with respect to 55 and 75, partially erupted 13



Pretreatment intraoral photographs



Due to a prognathic maxilla and an increase in ANB Angle, pretreatment cephalometric data indicated a developing skeletal Class II.



The treatment objective was to enhance alveolar development, alleviate crowding, correct maxillo - mandibular relationship, and modify vertical growth patterns. The skeletal growth of the patient was seen to be in the prepubertal phase, This suggests that there is a possibility for the skeletal growth to be altered towards Class I skeletal growth.

Wearing the MyobraceT1 appliance for one hour each day, plus overnight, was prescribed for the patient for the first six months, to initiate habit correction (training the patient to breathe through their nose rather than through their mouth, adapting their tongue to rest in the appropriate position, and swallowing correctly), followed by the T2 appliance for 4 months, which provides arch development.



Myobrace appliance

The Myobrace T3 was the final appliance that the patient wore for 2 hours daytime plus overnight, for five months. This appliance gives additional space for erupting teeth.



The intraoral photographs are shown with the myobrace appliance after 12-month period of treatment. The appliance allowed for arch development which helped to relieve the crowding and also improvement in her smile.

3. Discussion

Myobrace therapy aims at correcting the functional aberrations of the stomatognathic system namely the position and function of the tongue, abnormal nasal breathing patterns and the tonicity of the oral muscles.⁶ The treatment not only corrects skeletal mal - relationship of growing jaw bases but also intercepts habits which cause aberrant facial and dental development. Thus the appliance therapy has the goals To correct nasal breathing, retrain oral facial musculature, expand the constricted arch forms and to align teeth. Effect on the Stomatognathic Functions: With the Myobrace therapy, the tongue gets positioned correctly in the upper jaw. This ensures correct swallowing and breathing patterns.⁷ The appliance also retrains the oral musculature which in turn exert light forces that expand the jaws and align the teeth. The Tongue tag, guard and the elevators in the Myobrace Appliance train the tongue to position properly and prevents thumb sucking. The extended lip bumper discourages strong, overactive lip muscles thus improving their tonicity. Effect on dentition and arch forms: With the retraining of aberrant oral musculature the resulting forces are directed towards the jaws which help in expanding the arches and alignment of irregular teeth.⁸ This is enabled by the Frankel Cage which assists in widening and developing the jaws. The Air spring allows gentle and active stimulation to the growing facial and jaw muscle.

The treatment is designed for the following stages namely:

- 1) Primary dentition (junior)
- 2) Mixed dentition (kids)
- 3) Developing permanent dentition (teens)
- 4) Permanent dentition (adults)
- 5) Mixed dentition (interceptive class III) ⁶

Stages	Primary dentition (Junior)	Mixed dentition (Kids)	Developing permanent dentition(Teens)	Permanent dentition (adults)	Mixed dentition Interceptive Class III
STAGE 1 Habit correction	J1 Flexible appliance with air springs	K1 Flexible appliance with air springs	T1 Flexible appliance with air springs	A1 Flexible appliance	i 3 N
Available sizes	Single size	Three size	Seven sizes	Regular and large size	Three sizes
STAGE 2 Arch development	J2 Medium hardness appliance	K2 DYNAMICOR E with Frankel Cage	T2 DYNAMICORE with Frankel Cage	A2 Medium hardness appliance	i 3
Available sizes	Single size	Three size	Single size	Regular and large size	Three sizes
STAGE 3 Tooth alignment and occlusal development	J 3 Rigid appliance with tongue tag	K 3 Rigid appliance for final alignment and retention	T 3 DYNAMICORE with Frankel Cage.	A3 Rigid appliance with tongue tag	i 3 H DYNAMICORE with Frankel Cage.
Available sizes	Single size	Three size	Seven sizes	Regular and large size	
STAGE 4 Retention	Not available	Not available	Rigid appliance with hollow tongue tag	Not available	
Available sizes	--	---	Regular and large size	--	

4. Conclusion

Myobrace appliance is a removable appliance that combines the rehabilitation of the oral musculature to the properties of a dental positioner, acting on the mouth breathing, atypical swallowing and on the thumbsucking. It can be used in replacement of other functional appliances: in fact it is a viable alternative for the treatment of malocclusions at an early age, as it acts advancing the mandible and improving dental alignment. Myobrace appliance provides brace free correction of skeletal and dental discrepancy however short phase of fixed orthodontic correction may be necessary in some patient for finishing and detailing.

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