

Treatment of Skeletal Class II Malocclusion in a Growing Child

Dr Pragya¹, Dr. Akhil Shetty², Dr.Crystal Runa Soans³, Prof. (Dr) U S Krishna Nayak⁴,

PG Student¹, Reader², Lecturer³, Principal & Dean⁴, Department of Orthodontics and Dentofacial Orthopaedics, A B Shetty Memorial Institute of Dental Sciences, Mangalore^{1,2,3,4}.

Access Online



Introduction

The most common skeletal problem in Orthodontics and Dentofacial Orthopedics is the Class II malocclusion characterized by mandibular retrognathia. In addition, most subjects with this type of malocclusion exhibit narrow maxillary arches. Functional appliances are thought to correct malocclusions by guiding and directing the movement of the jaws and teeth. The success of treatment depends upon patient cooperation, and this has a direct correlation with the extent of correction of the malocclusion⁴.

Case Report

A 11 year old growing female patient reported to our department of Orthodontics and Dentofacial Orthopedics with the chief complaint of forwardly placed upper front teeth. On extraoral examination patient had convex profile with posterior divergence and retrusive mandible. She had brachycephalic cephalic type and leptoprosopic facial type and recessive chin.

Pretreatment Extraoral Photographs



On intraoral examination molar and canine relation was angle's class II, incisor relationship was also class II div I with an overjet of 8mm and overbite of 6mm, rotation of 13 and 33 and mild

ABSTRACT

A 11 year old growing female reported with the chief complaint of forwardly placed upper front teeth. The case was diagnosed to be skeletal class II due to a retrognathic mandible. Since the patient was in the growing phase, two phase treatment was planned. The 1st phase comprised of mandibular advancement using 'TWIN BLOCK' appliance. The final finishing and detailing was achieved in the 2nd phase of treatment using .022 MBT prescription.

spacing present between upper and lower anterior teeth



Pretreatment Intraoral Photographs

Diagnosis

Growing female patient with Skeletal Class II relationship, horizontal growth pattern with retrognathic mandible

Treatment Objective

1. To achieve skeletal class I relationship
2. To achieve class I molar and canine relation with optimum overjet and overbite
3. Derotation of 13 and 33
4. To achieve optimal facial balance and aesthetics

Treatment Plan

The patient was in the growing phase and hence it was planned to use a growth modulation (TWIN BLOCK) appliance to advance theseverly retruded mandible



The Vto Was Positive Which Is Quite Evident From Photograph

Hence two phase therapy was finalized for the patient

1st phase: growth modulation using Twin Block

2nd phase: PEA - .022 MBT bracket

1ST PHASE

The Twin Block Appliance (TBA) is a functional appliance used in growing patients for the correction of Class II malocclusions, and has been described by patients as being comfortable to wear as it is not bulky, can be worn full time even during eating, does not restrict other oral functions. The TBA can give good results relatively quickly and has been considered to be advantageous when compared with other types of functional appliances such as the Bass or Bionator appliance. It is perhaps for these reasons that the TBA has become a popular choice of corrective appliance for growth guidance in Class II division I malocclusion. TBA



consists of mandibular and maxillary bite blocks that have inclined planes, meeting at an interlocking angle, to induce occlusal forces that guide the growth of the dental arches¹. It has

been claimed that this method of treatment stimulates growth of the mandible while simultaneously restricting growth of the maxilla, particularly if combined with extra-oral traction. In previous studies, the mandible has been putatively shown to increase in length and height following TBA treatment. Twin blocks should be worn 24hrs per day to avail full advantage of the appliance. Upper and lower bite blocks interlock at 70 degrees when engaged in full. This causes a forward mandibular posture to an edge to edge position with the upper anteriors, provided the patient can maintain full occlusion on the appliance in that position

Intraoral Photographs Of Twinblock Appliance



End Of Growth Modulation (twinblock Appliance)



Extraoral Photographs Of Post Twin Block Therapy (note The Change In Profile) 2nd phase(pea Appliance)



Non extraction treatment with fixed mechanotherapy using .022 slot MBT bracket system

2nd phase(pea) Intraoral Photographs Post Treatment Outcome

The post treatment intraoral photographs show the proper alignment of upper and lower arch with proper intercuspation and the extraoral photograph reveals harmonious profile of the patient. The treatment results shows significant improvement in patient's stomatognathic system with best possible aesthetics and function.



Post Treatment Extra-oral Photographs Post Treatment Intraoral Photographs

Retention Phase

Wrap around retainer in upper arch and fixed lingual retainer in lower arch



Post Treatment Retention

References

1. Clark, WJ. Twin block functional therapy; 2nd edition mosby, 2002
2. Rationale behind twin block incline; Michalae J. Trenouth; AJODO 2017, Vol 120, issue 4, p-15A-16A
3. Twin block appliance therapy; John DeVincezo, AJODO 2001, Vol 119, issue 1, p16A-17A
4. Long-Term Dentoskeletal Changes with the Bionator, Herbst, twin block and MARA Functional Appliances; Nicole J. Siara-Olds, Valmy Pangrazio-Kulbersh, Jeff Berger and Burcu Bayirli; The Angle Orthodontist Jan 2010, Vol. 80, No. 1 (January 2010) pp. 18-29