



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/5011
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/5011>



RESEARCH ARTICLE

FIXED TWIN BLOCK-HARNESSING THE REMAINING GROWTH: CASE REPORTS.

Dr. Shweta Bhayade¹, Dr. Kumar Niwlikar², Dr. Vivek Shinde³, Dr. Snehalatha Narvekar⁴ and Dr. Minal Niswade⁵.

1. Sr Lecturer, Department of Pedodontics and Preventive Dentistry, NRDCRC, Nanded.
2. Reader, Department of Orthodontics and Dentofacial Orthopaedics, NRDCRC, Nanded.
3. PG Student, Department of Orthodontics and Dentiofacial Orthopaedics, SDKSDCH, Nagpur.
4. Sr. Lecturer, Department of Oral and Maxillofacial Surgery, NRDCRC, Nanded.
5. PG Student, Department of Pedodontics and Preventive Dentistr, VSPMDC, Nagpur.

Manuscript Info

Abstract

Manuscript History

Received: 28 May 2017
 Final Accepted: 30 June 2017
 Published: July 2017

Copy Right, IJAR, 2017.. All rights reserved.

Introduction:

Skeletal class II division 1 is one of the most common type of malocclusion exhibiting retrognathic mandible as the most common feature.¹ Treatment of class II division 1 depends upon the age of the patient, growth potential, severity of malocclusion and patient's compliance. Early treatment for class II malocclusion is frequently undertaken with the objective of correcting skeletal disproportion by altering the growth pattern.

Since its introduction by Dr. William Clark in 1977, "Twin Block Appliance" appliance has become one of the most widely used myofunctional appliance for the correction of class II as it is easy to fabricate, less bulky hence better patient acceptability, adaptability along with ease of incremental mandibular advancement without changing the appliance.

Twin Block appliances are simple bite blocks that are designed for full time wear which causes speedy functional correction of malocclusion by the transmission of favorable occlusal forces to occlusal inclined planes that cover the posterior teeth. The forces of occlusion are used as the functional mechanism to correct the malocclusion.² However when compared with fixed functional appliances, the compliance of removable twin block appliance is not good particularly in cases which are near to maturation.³ The present case report aims to report two cases of skeletal class II malocclusion successfully treated using fixed twin block.

Case report:

A 13-year-old female patient reported to the Department of Pedodontics and Preventive Dentistry with a chief complaint of forwardly placed upper teeth. (fig 1) Clinical examination displayed a convex, retrognathic profile and incompetence lips at rest. The patient had a class II, division 1 malocclusion with an over-jet of 9 mm and an overbite of 5 mm and a pronounced Curve of Spee. (fig 2) clinically visual treatment objective (VTO) was positive.

Corresponding Author: Shweta Bhayade.

Address: Sr. Lecturer, Department of Pedodontics and Preventive Dentistry, Nanded Rural Dental College and Research Center, Nanded.

The lateral cephalogram confirmed a class II skeletal base relationship and the patient was in the cervical vertebral maturity index stage 4. (table1 and fig 3).

A 2-stage treatment was planned in stage I, to reduce the skeletal discrepancy in antero-posterior plane, it was decided to treat the case with a fixed twin-block, followed by stage 2 consisting of fixed appliance for the final finishing and detailing of occlusion. Complete treatment plan was explained to parents and an informed consent was obtained. Impressions of maxillary and mandibular arches were made and bite registration was recorded for the fabrication of fixed twin block appliance.² The appliance was constructed using clear acrylic followed by finishing and polishing. The upper and lower components of the fixed twin block were cemented with type I of glass ionomer cement. All the necessary instructions regarding feeling of initial discomfort, pain, difficulty in speech and eating was imparted to the patients and their parents.

A 12 years old female patient reported to the Department of Pedodontics and Preventive Dentistry, with a chief complaint of mal-aligned teeth. A same treatment protocol as for case I was planned and followed for case II.

Case I

	Normal	Pre Treatment	Post Functional Therapy
SNA	82° ± 2°	77 ⁰	82 ⁰
SNB	82° ± 2°	75 ⁰	79 ⁰
ANB	2°	2 ⁰	3 ⁰
Sn-GoGn	32°	32 ⁰	32 ⁰
UI-NA	22°	37 ⁰	22 ⁰
UI-NA (LINEAR)	4mm	12 mm	4 mm
LI-NB	25°	34 ⁰	28 ⁰
LI-NB (LINEAR)	4mm	8 mm	5 mm
Interincisal Angle	131°	101 ⁰	110 ⁰
FMA	25°	30 ⁰	20 ⁰
FMIA	65°	45 ⁰	50 ⁰
IMPA	90°	105 ⁰	110 ⁰
E Line-Upper Lip	-	1mm	2mm
E Line- Lower Lip	-	1mm	3mm
Nasolabial Angle	102° ± 8°	-	-
Overjet	2mm	9 mm	-
Overbite	2mm	5 mm	-

Case II

	Normal	Pre Treatment	Post Functional Therapy
SNA	82° ± 2°	80 ⁰	82 ⁰
SNB	82° ± 2°	78 ⁰	79 ⁰
ANB	2°	4 ⁰	3 ⁰
Sn-GoGn	32°	30 ⁰	27 ⁰
UI-NA	22°	28 ⁰	22 ⁰
UI-NA (LINEAR)	4mm	8mm	12mm
LI-NB	25°	54 ⁰	42 ⁰
LI-NB (LINEAR)	4mm	6mm	9mm
Interincisal Angle	131°	78 ⁰	116 ⁰
FMA	25°	23 ⁰	29 ⁰
FMIA	65°	54 ⁰	40 ⁰
IMPA	90°	101 ⁰	110 ⁰
E Line-Upper Lip	-	1mm	0mm
E Line- Lower Lip	-	5mm	3mm
Nasolabial Angle	102° ± 8°	-	-
Overjet	2mm	7mm	4mm
Overbite	2mm	5mm	3mm

Case I:

Pre-Treatment



Pre Treatment extra-oral photographs



Pre Treatment intra-oral photographs



Intra-oral photographs demonstrating fixed twin block

Post treatment



Post Treatment extra-oral photographs



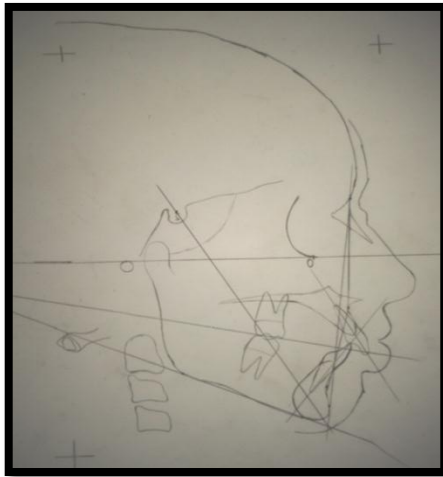
Post Treatment intra-oral photographs

Case II:

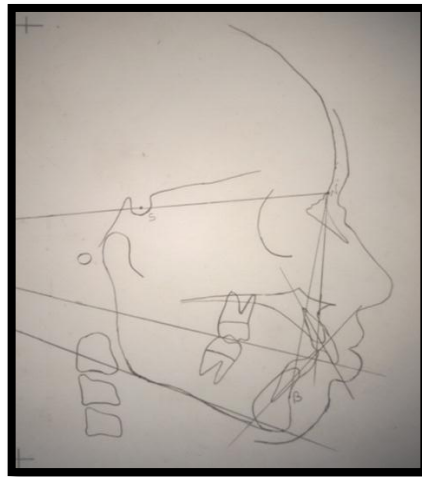


Pre Treatment post treatment

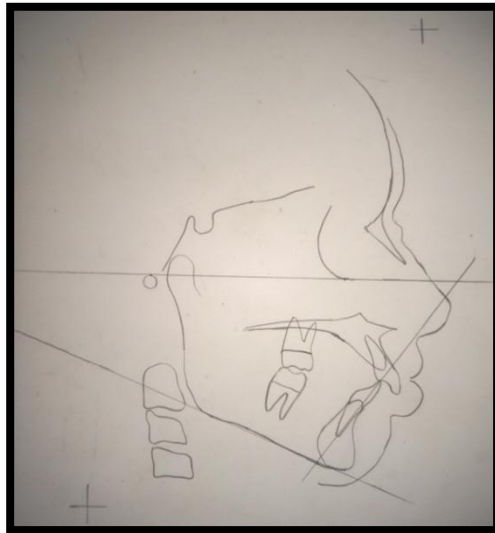
Pre Treatment analysis



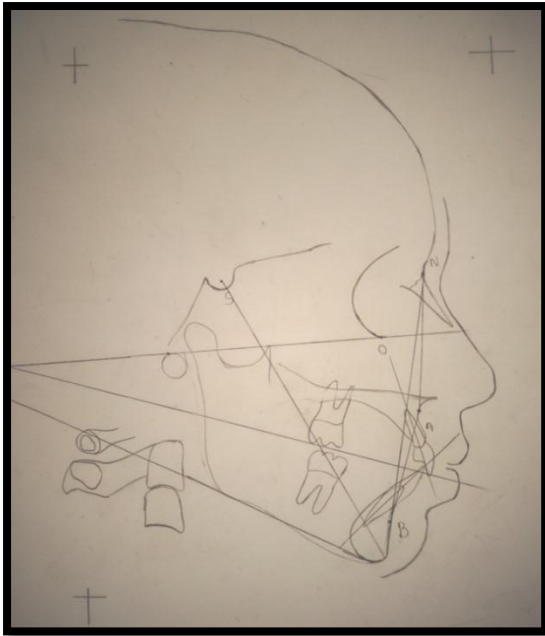
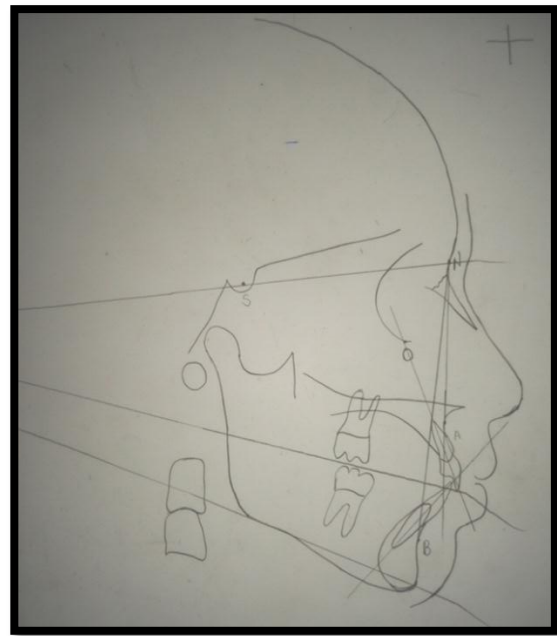
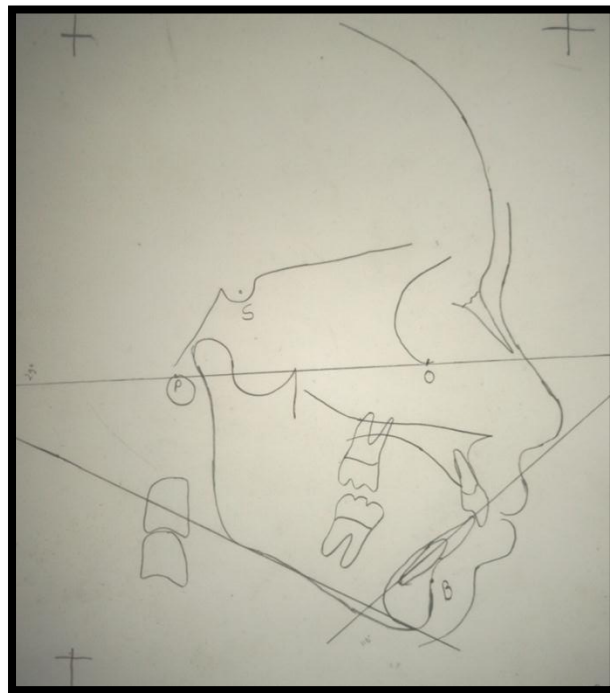
Downs analysis



Steiner's analysis



Tweeds analysis

Post Treatment analysis**Downs analysis****Steiner's analysis****Tweeds analysis****Discussion:-**

The best way to intercept the developing malocclusion in mixed dentition is by using myo-functional appliance as their main goal is to bring about the changes in the skeletal bases by striating the muscles which eventually redirects the growth pattern of jaws bases and achievement of desirable occlusion.

Amongst the myo-functional appliances, removable twin block appliance is widely used because of its ease of fabrication and better patient compliance. A variant of removable twin block, the fixed type had been used mainly in

the late mixed dentition/early permanent dentition to harness the remaining growth and to obtain proper relationship between maxillary and mandibular jaw bases and establish class i molar relationship.

References:-

1. Mcnamara J. Component of class ii malocclusion in children 8-10 years of age. Angle Orthod 1981;51:177-202.
2. Clark WJ. Twin-block functional therapy. Ed 1. Mosby Wolfe, London; 1995.
3. Kevin O Brien, Jean Wright, Frances Conboy, Yewengsanjie, Nicky mandall. Effectiveness of early orthodontic treatment with the twin block appliance: a multicenter randomized controlled trial: skeletal and dental effects. Am J Orthodontofacorthop 2003; 124(3): 234-243.