

Treatment Of Class Ii Malocclusion Using Advansync And Intrusion Arches

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Abstract

A case report of a patient with skeletal class II malocclusion and anterior Proclination is presented. The patient was fitted with a class II fixed corrector: AdvanSync 2 and a three-piece intrusion arch.

Key Words: AdvanSync2, 3- Piece Intrusion Arch, Angle's Class II malocclusion

Introduction

Aesthetic and functional concerns have been a significant issue when it comes to Class II malocclusion with anterior proclination. Different authors have created various permanent functional appliances throughout the years to address skeletal class II malocclusions brought on by retrognathic mandibles. The Advansync2 (Ormco Co, Glendora, Calif.) appliance, commonly known as the molar-molar appliance, is one of the fixed functional appliance for class II correction and has been utilized successfully in recent times. It's a fixed tooth-born functional appliance with the benefit of enabling fixed orthodontic treatment to be used concurrently. This makes it easier to shorten the treatment's overall length.^[1,6]

The following case report gives an account of the treatment of class 2 malocclusion with anterior proclination using AdvanSync 2 and 3 Piece Intrusion Arch.

Diagnosis And Treatment Plan

A 18 year old male reported to the Department of Orthodontics and Dentofacial orthopaedics in DY Patil school of dentistry, Navi Mumbai, with the chief complaints of forwardly placed upper teeth. On clinical examination, extraorally patient had a convex profile with incompetent lips on rest. Intra-orally Angles class 2 molar relation was observed with proclination of maxillary and mandibular anterior teeth, Spacing in the upper anterior region was also noted.

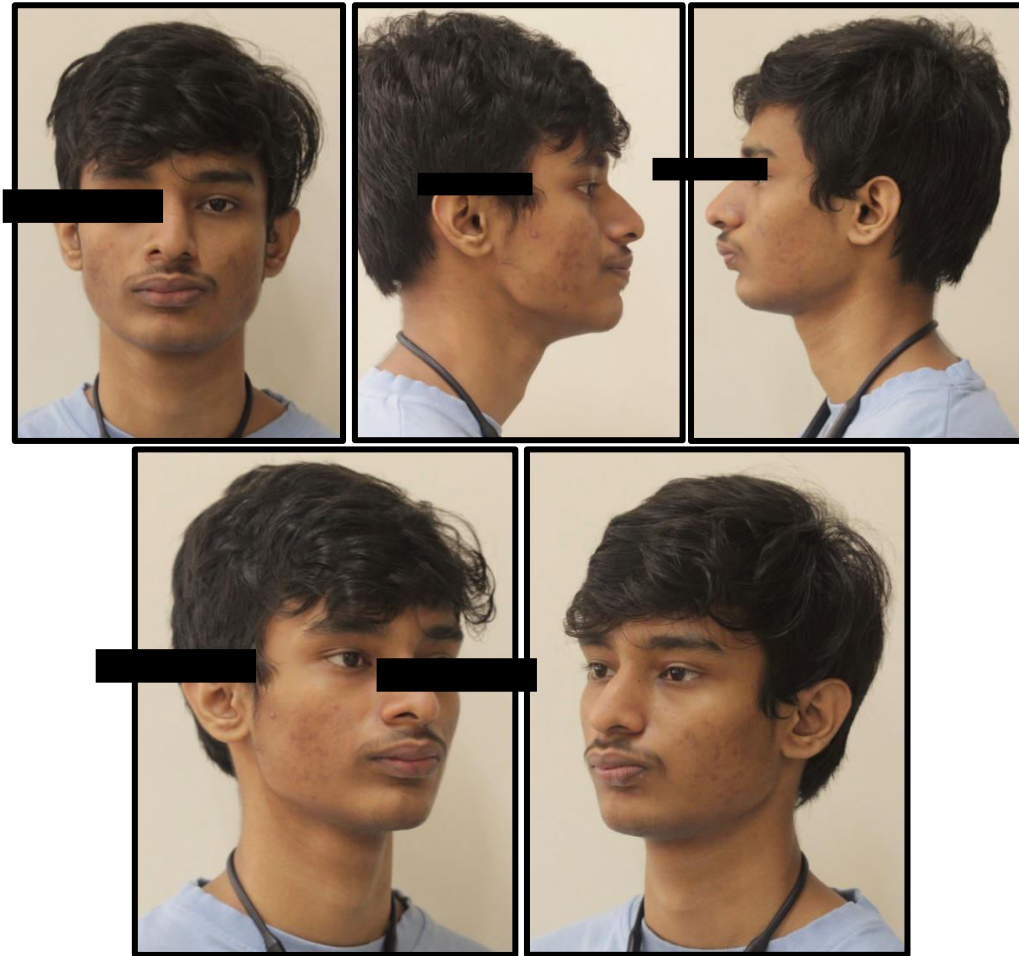
Photographs and dental casts revealed mild crowding in the mandibular arch. The maxillary arch revealed severe proclination. The upper and lower mid-line coincided with the facial midline and there was an increased overjet and overbite.

Cephalometric Analysis showed ANB angle of 5° indicating Angle's class II skeletal pattern. An average facial pattern was evident on account of the increased GoGn- Sn value (36°), Jarabaks ratio being 63% and overall average values of Y- Axis (63°). The upper and lower incisors were not only proclined (U1-NA: 34°/8mm L1-NB: 37°/10mm) but were forwardly placed too with an reduced inter-incisal angle of 104°.

Treatment Objectives

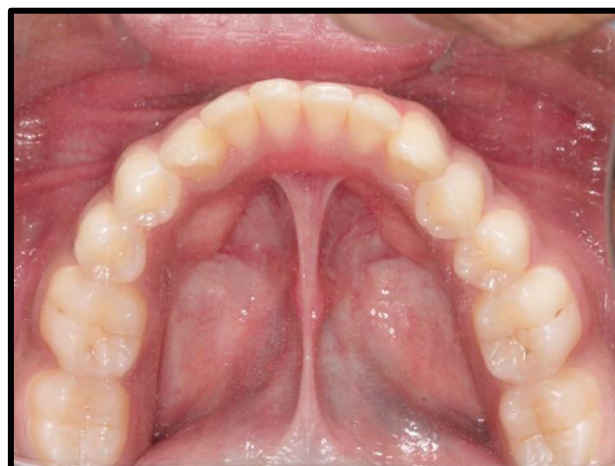
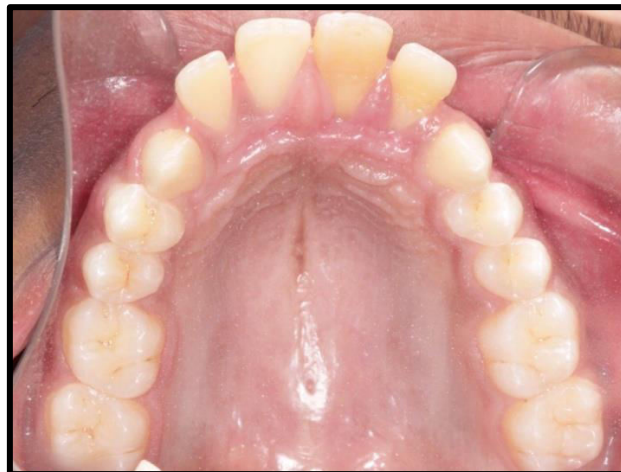
The orthodontic objectives were to improve patient's profile, to achieve ideal horizontal and vertical overlap of anterior teeth with proper lip positioning and to close the spacing in the upper arch.

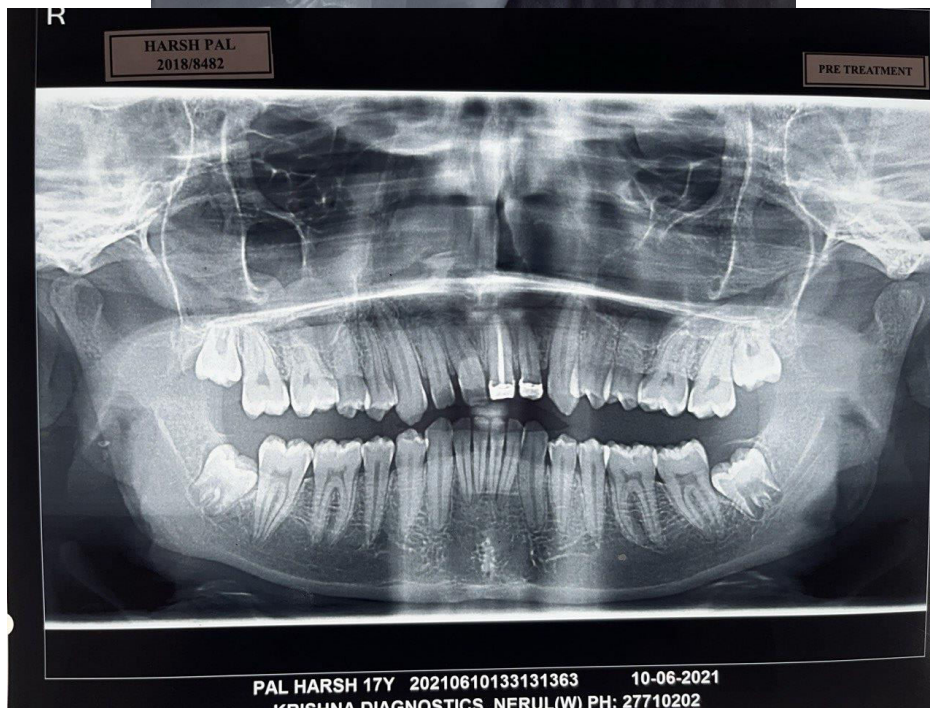
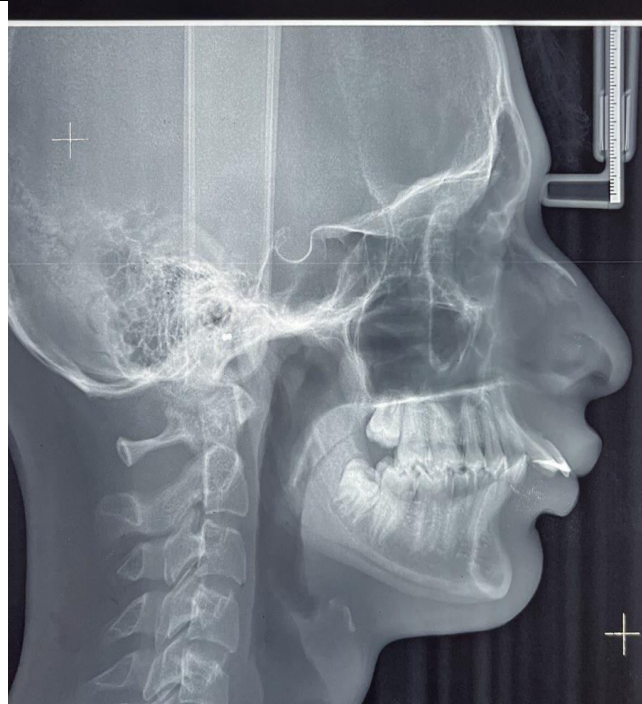
Extra Oral Photographs



INTRA-ORAL PHOTOGRAPHS







Cephalometric Analysis

VARIABLE	NORMAL	PRE-TREATMENT
Skeletal Relationship		
SNA	82±2°	75°
SNB	80±2°	70°
ANB	2±2°	5°
Wits Appraisal	-1mm	2mm

FMPA	25° (16-25)	32°
SN plane-mandibular plane (GoGn-SN)	32°±2°	36°
Y – axis	59.4° (53-66)	63°
Facial Angle	87.8° (82-95)	83°
Angle of convexity	0°	+8°
Dental Relationship		
Upper Incisor-NA (deg/mm)	4mm/22°	8mm/34°
Upper Incisor- SN plane	102°±2°	108°
Lower Incisor - NB (deg/mm)	4mm/25°	10mm/37°
IMPA	90°	106°
Lower Incisor to A-Po line	1±2mm	5mm
Inter-Incisal angle	131°	104°
Soft tissue		
Nasolabial angle	90°-110°	93°

VARIABLE	NORMAL	PRE-TREATMENT
Skeletal Analysis		
Saddle Angle	123±5°	130°
Articular Angle	143±5°	140°
Gonial Angle	128±7°	130°

Sum Of Angles	396 ⁰ ±6 ⁰	400°
Ant. Facial Ht.(N-Me)		115mm
Post. Facial Ht. (S-Go)		71mm
Jarabak's Ratio	62%- 65%	63.3%
Maxilla (Co-Pt.A)		82mm
Mandible (Co-Gn)		100mm
Cranial Base (S-N)		63mm

Treatment Progress

Patient was referred to the department of Periodontology for routine oral prophylaxis.

Bonding of maxillary and mandibular teeth with .022" slot preadjusted edgewise prescription was performed. AdvanSync 2 was banded to all the 1st molars. .014" round Nickel Titanium arch-wires were placed in the maxillary and mandibular arches on the first appointment, post which the patient was recalled after 21 days. .016" round Nickel Titanium arch-wires were placed in the next visit and the sequence of arch wire followed in the following appointments was 16x22 Niti, 17x25 Niti and 19x25 Niti. Levelling and aligning of maxillary and mandibular arch for 6 months was done till 19x25 stainless steel wire engaged the brackets slots passively.

AdvanSync 2



3-Piece Intrusion Arch

Three-part incursion arch was made, with the following components:



Anterior Segment: .019" x.025" stainless steel wire that makes up the rigid anterior segment was bent gingivally, distal to the brackets on the lateral segment after being inserted into the incisor bracket. Again, the wire was bent to a 90-degree angle just before the center of resistance. It was then further inclined downward to terminate 2-3 mm distal to the anterior segment's center of resistance.

Posterior Segment: A stainless steel is used passive stabilization measuring .019" x.025" to consolidate the posterior segments on both sides from the canine to second molar.



for



Intrusion Spring: The bilateral intrusion springs were constructed from TMA wire with dimensions of .017" x.025". The springs were placed on the maxillary molar teeth into the auxiliary tubes, and the tip back bends were integrated mesially to it. The hooks, which indicate where the intrusive force was applied, were curved inward and bent at right angles. They were then engaged on the anterior segment's posterior extension, namely distal to the lateral incisor, which is the estimated position of the anterior segment's center of resistance.^[3,4]

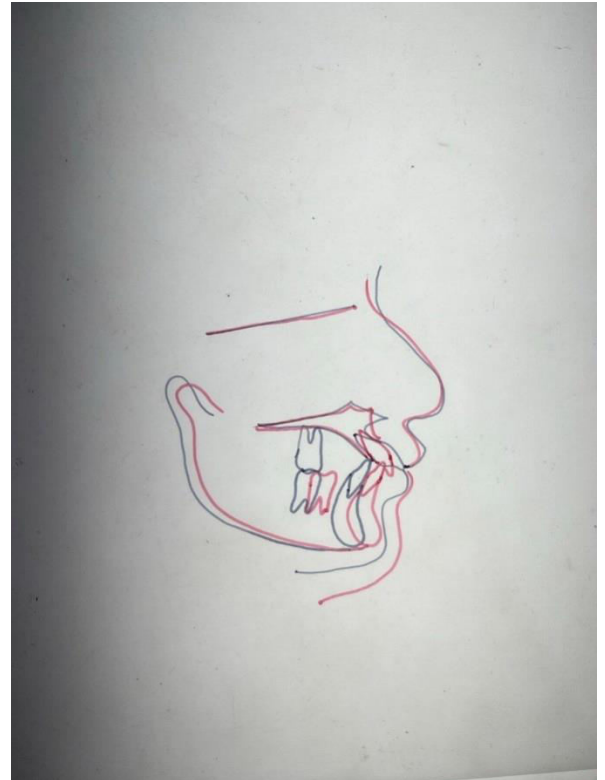
Distal Force Component (E-Chain): From the molar hook to the anterior segment's posterior hook, an elastic chain is extended bilaterally. This little distal force directs the intrusive force so that its path of action is lingual and parallel to the long axis of the incisor. A tip back moment is generated on the posterior portion. The anterior section will retract as a result of the tiny tip back motion caused. Treatment took a total of sixteen months to complete, including finishing and detailing. After achieving the correct overjet and overbite, the spaces were closed and interdigitated with class 1 molar relation, and the fixed appliances were taken out.

Retention was aimed at preventing relapse in the antero-posterior plane and reopening of spaces. Essix retainers were fabricated.





Comparison of Patient Profile Before and After



Treatment results

The goals of the treatment were accomplished. On both sides, a class I molar relation was attained. The spaces were closed and the perfect overbite and overjet were attained. The patient was generally satisfied with the care.

Ethical Clearance: Nil

Source of Funding: Nil

India Conflict of Interest: Nil

Referencing

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