

NON EXTRACTION TREATMENT OF SEVERE CASE OF CLASS II DIVISION 1 MALOCCLUSION: A CASE REPORT

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Abstract:

Correction of class II malocclusion of adolescent poses a special challenge as regards control of growth versus dentoalveolar changes. The treatment plan remains always controversial as regards the growth modification. A case is presented for an orthodontic management of an adolescent with severe deep bite with non traditional approach.

Key Words: Non grower, Deep bite, Malocclusion, Management, Extrusion, Intrusion

INTRODUCTION

The diagnosis and orthodontic treatment of Class II Division 1 malocclusion in an adult patient with impinging deep bite can be challenging for the practitioner.¹

A clinical examination and cephalometric assessment are needed to determine whether a patient can be treated with orthodontic camouflage, or orthognathic surgery is required. With respect to the clinical factors affecting this decision, Proffit et al described an “envelope of discrepancy” to aid in treatment planning.²

Class II malocclusions can be treated by several means, according to the characteristics associated with the problem, such as anteroposterior discrepancy, age and patient compliance. Class II division 1 malocclusion incorporates many variations of dental, skeletal and functional components that can significantly influence the treatment plan. Treatment approach including

growth modification by extraoral traction, expansion appliances, extraction procedures and functional jaw orthopedic should correspond to the true aetiology.³

On the other hand, in a patient who has completed growth, there are 2 options for treatment of a Class II malocclusion with a skeletal discrepancy: compensation of the dentition to camouflage the underlying skeletal problem and surgical correction of the underlying skeletal discrepancy.

Recent study has shown that the repositioning of mandible can be done even at the age between 12 years 10 months to 55 years 7 months (Mean age 23 years 10 months).⁴

In this case report, we present the sequential management of an adult severe class II division 1 malocclusion with dentoalveolar deep bite.

CASE REPORT

16-year-old boy, a non-grower presented to Modern Dental College with chief complaint of forwardly placed upper front teeth. The patient was healthy with no medical or dental history of any trauma or major concern.

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The extraoral Clinical examination revealed a balanced face, convex profile and deep mentolabial sulcus. The intraoral clinical examination revealed good oral health, an Angle Class II division 1 malocclusion, 100% deep overbite, extruded maxillary anteriors, intruded and retroclined lower incisors. (Figure: 1).



Fig.1b: Pretreatment Photographs



Fig. 2a: Pretreatment Radiographs

The intraoral examination of OPG demonstrated the presence of all erupting

3rd molars, upper and lower extruded incisors, convergent roots of lower anteriors. (Fig: 2a)

The lateral cephalogram revealed normal maxilla and retropositioned mandible with skeletal class II pattern and horizontal growth pattern, proclined and extruded upper incisors and retroclined and extruded lower incisors with obtuse nasolabial angle and convex profile (Fig: 2b).



Fig.2b: Pretreatment Radiograph

TREATMENT OBJECTIVES

1. Correction of skeletal II discrepancy
2. Correction of mild mandibular anterior crowding
4. Proper inclination of upper and lower anterior teeth
4. Bite opening before establishing over jet
5. Establishing Class I molar and canine relationship
6. Improve facial esthetics

TREATMENT ALTERNATIVES

The following four possible treatment alternatives were thought of:

1. Growth Modification by Removable or Fixed Functional Appliance.
2. Non extraction Treatment
3. Extraction of Upper first premolars and Lower second premolars.
4. Mandibular advancement by orthognathic surgery.

TREATMENT PLAN

After considering all the factors and communicating with patient who refused to undergo Orthognathic surgery, it was decided to advance the mandible which is controversial as patient was a nongrower. The recent studies suggesting that the mandible can be advanced even at the age between 12 years to 55 years.⁴

We decided to treat this patient non extraction with mandible advancement with inclined plane and finishing with fixed functional appliance.

TREATMENT PROGRESS

Treatment with fixed mechanotherapy using MBT 0.22 slot appliance was initiated. An anterior inclined plane was given to advance the mandible & open the bite after the initial levelling and alignment was achieved with gradual changeover from NiTi round wires to rectangular stainless steel wires. (Figure:3). The ends of lower arch wire were cinched to prevent flaring of lower incisors.

A relative intrusion mechanic was used to allow the mandibular posterior teeth to extrude. The severe deep overbite was opened with the extrusion of mandibular posterior teeth and intrusion of upper anterior teeth and proclination of lower anterior teeth (Figure.4).



Fig. 3: Initial levelling and aligning



Fig. 4: Opening of severe deep bite with Relative Intrusion & Extrusion

TREATMENT RESULT

Overall active treatment time was 15 months. The severe deep over bite was opened and the ideal overbite was established. Good intercuspation was achieved, and midlines were coinciding with each other and facial midline. Interproximal contact was good, roots were parallel, and the final appearance of the teeth and the extraoral profile was aesthetically pleasing. (fig.5a, 5b & 5c). Class I molar and canine relationships have yet to be fully finished with Fixed functional appliance.



Fig.5a: Finally established ideal over bite



Fig.5b: Post-treatment Result (Root Parallism)



Fig.5c: Post-treatment Result profile view

DISCUSSION

A non extraction approach seems to be most effective for controlling deep overbite in low-angle cases (MP angle less than 25°). In such cases, levelling and subsequent bite opening occur primarily as a result of the uprighting and slight extrusion of posterior teeth.

If teeth are extracted in low-angle cases, overbite control becomes difficult because strong muscle forces impede the ability of the posterior teeth to move forward. As the extraction sites are closed, the anterior teeth then tend to upright and move posteriorly which leads to further bite deepening and undesirable profile changes.

In a Class II deep bite case, it is usually the forward positioning of the maxillary dentition that has led to the extrusion of anterior teeth and subsequent development of the overbite. If the lower incisors can be slightly advanced, it minimizes the need for over-retraction of the upper incisors (with negative profile changes) and also initiates the bite-opening process.⁵

In this case being reported, surgical option of treatment was declined by the patient and it was decided to hide the skeletal discrepancy by non extraction treatment.

CONCLUSION

The treatment of an adult case also shows improvement in correction of class II division 1 malocclusion vertically as well as horizontally besides bite opening and improvement of profile.

One can expect the growth at the mandibular condyle even at the age between 12 years 10 months to 55 years 7 months (mean age 23 years 10 months).

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