ORTHODONTIC CAMOUFLAGE TREATMENT IN SKELETAL CLASS II PATIENT- CASE REPORT

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Abstract
Treatment of class II patient requires careful diagnosis and a treatment plan involving esthetic,occlusal,and functional considerations. Planned extraction of some teeth will help us achieve favorable dental occlusion.The purpose of this report is to describe case selection and diagnosis of a Class II malocclusion with Class II skeletal base, which has been treated by way of orthodontic camouflage. All objectives were achieved with a reduction in severity of facial convexity, the face becoming more orthognathic, lower face height increased; traumatic bite was eliminated with normal overjet and overbite. The patient was pleased with the treatment outcome
Key words: Class II Malocclusion, Camouflage, Facial Convexity, Planned Extraction.

Introduction

Orthodontic camouflage is a method of correcting malocclusion by making the skeletal problem less apparent. Planned extraction of some teeth will help us achieve favorable dental occlusion. The challenge lies in proper diagnosis and case selection so as to decide on dental camouflage as a treatment option in skeletal discrepancy cases. 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. [1] Methods include extraoral appliances, functional appliances and fixed functional appliances associated with Class II intermaxillary elastics. [2]
The purpose of this report is to describe case selection and diagnosis of a Class II malocclusion with Class II skeletal base, which has been treated by way of orthodontic camouflage.

Case report:

A 14-year-old female patient presented to our department with the chief complaint of forwardly placed upper front tooth . Pretreatment clinical examination showed that she had Class II Division I malocclusion associated with mandibular retrusion and an increased overjet.
Extraoral examination: Mesoprosopic facial form,Mesocephalic head shape,incompetent lips with interlabial distance of 5mm,acute nasolabial angle,convexfacial profile, posterior facial divergence, normal mandible plane angle and average clinical FMA.
Intraoral examination: End-on molar and canine relationship, increased overjet of 8mm, amount of incisor exposure at rest is 5mm and during smile full incisor exposure with 2mm gingival exposure.(**Figure 1**)
Cephalometric analysis revealed ANB was 7˚, MPA was 26 pointing to Class II skeletal base and hypodivergent growth pattern (Table 1). As clinical examination already revealed proclined upper and lower incisors hence the 1/NA, 1/NB and IMPA angulations were found to be increased i.e. 39, 3 and 106 respectively.

Figure 1 Pre treatment records

Treatment Objectives:
To match the skeletal bases
To correct incisor proclination
To achieve ideal overjet and overbite

To improve patients profile and smile

Treatment plan:
Among the treatment modalities possible we decided on two suitable treatment options. The first treatment option involved myofunctional/ fixed functional therapy followed by fixed mechanotherapy and complete the case in class I molar relation.The second option involve upper first premolar extraction and completing the case in class II molar relation.
In the present case, myofunctional appliance treatment option was declined due to patient compliance and fixed functional appliance was refused due to economic status of the patient .which was decided to camouflage the skeletal discrepancy by extracting the maxillary premolars and retracting the anterior teeth to improve facial profile and obtain proper functional occlusion.

Treatment progress:
The treatment was progressed with extraction of indicated teeth and MBT appliance prescription with 0.022 inch slotbrackets(Gemini Series, 3M Unitek, CA, USA)was bonded and bands were cemented on molars in the upper arch. Leveling and aligning was initiated on 0.014 NiTi along with lacebacks.
Archwire sequencing followed the following order as 0.014 SS, 0.016 SS,0.016×0.022SS,0.017 × 0.025 SS and lastly 0.019 ×0.025 SS. A self-tapping miniscrew incision-free method applied after making a punch marking on the attached gingival (S.K.surgicals) 1.5mm × 8 mm was inserted interdentally between the maxillary second premolar and first molar in upper arch bilaterally.The treatment plan extraction of the maxillary first premolars, followed by retraction of the anterior teeth with maximum anchorage by mini-implant. Miniscrews provide an efficient system of bony anchorage for anterior retraction without affecting the posterior dentition.

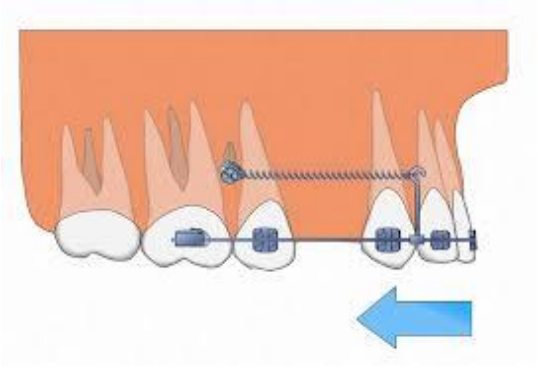

Figure2: Enmasse Retraction of the anteriors by Mini-implant

The lower arch bonding was done after the completion of upper arch leveling and alignment which was after 5 months. Lower arch bonding was chosen to be done later due to the risk of flaring of lower anteriors which would jeopardize the available overjet and hamper the leveling and aligning of upper arch. The same arch wire sequence was followed i.e. 0.014 NiTi, 0.014 SS,0.016 SS, 0.016×0.022 SSand lastly0.017 × 0.025 SS.
Finishing and detailing was carried out in 0.014 inch nickel titanium archwire. Occlusal settling was completed by using short class II settling elastics. The case was debonded and posttreatment radiographs were taken.Removable wrap around retainer was placed in maxillary arch to aid in further settling, and lingual 3-3 fixed retainer in the mandibular arch was bonded.Patient was very much satisfied and pleased with her soft tissue profile.

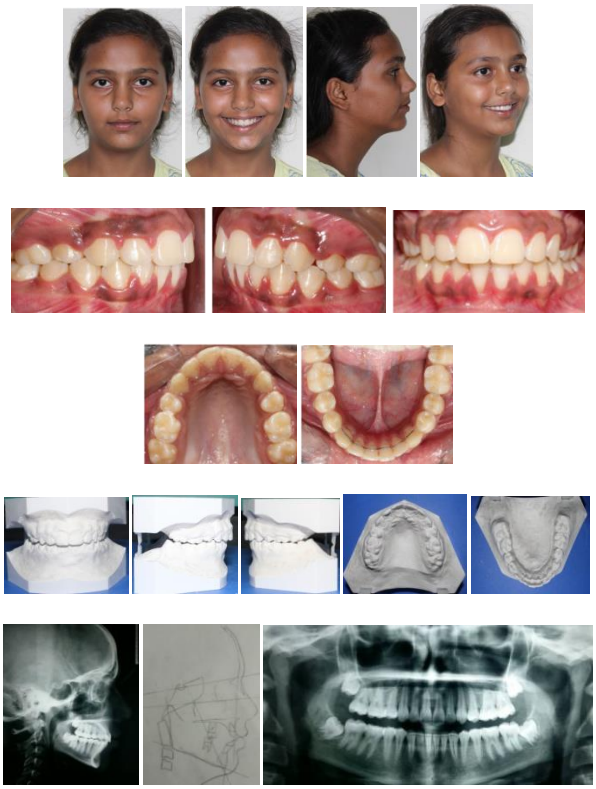

Figure 3: Post treatment records

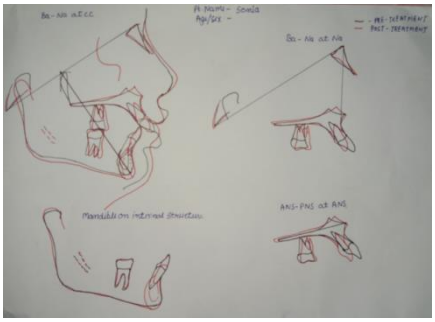

Figure 4: Superimposition

SKELETAL	PRETREATMENT	POSTREATMENT
SNA angle	88	78
SNB angle	81	72
ANB angle	7	5
N prep to pt. A mm	4mm	4mm
N Prep to pog mm	13mm	12mm
Mandibular plane angle	26	25
Facial axis angle	84	70
Lower anterior face height mm	51mm	49mm
DENTAL	PRETREATMENT	POSTREATMENT
UI to NA angle	39	29
UI to NA mm	7mm	1mm
LI to NA angle	26	23
LI to NA mm	5mm	4mm
LI to A pog mm	3mm	2mm
LI to MPmm	106	100
Interincisal angle	115	130
S' Line mm-upper-lower	8mm,11mm	2mm,2mm

Discussion:

Treatment of class II patient requires careful diagnosis and a treatment plan involving esthetic,occlusal, and functional considerations.In the present case, functional treatment option was declinedby the patient and it was decided to camouflage theskeletal discrepancy by extracting the maxillary first premolarsand retracting the anterior teeth to improve facial profileand obtain proper functional occlusion, correcting the canine to a normal class I relationship, leaving the molars in a class II relationship.Dentoalveolar camouflage of milder Class II cases is possible in most instances.

However in Class II patients with mild-to-moderate skeletal discrepancies, dental compensation is the treatment of choice.Class II treatment with upper first premolar extractions require adequate UI palatal root torque to achieve good buccal segment interdigitation and incisor relationships.

When correcting Class II malocclusion in the permanent dentition, close attention should be paid to three aspects: The A-P horizontal relationship of the maxillary incisor, the transverse midline relationship of the maxillary incisor, the vertical position of the maxillary incisor. The A-P horizontal relationship of the maxillary incisor is advocated by Arnett (1999) in the soft tissue cephalometric analysis (STCA). The position of maxillary incisor should be at 9 mm (female) and 12 mm (male) reported to the true vertical line (TVL) in order to obtain a proper facial aesthetic profile. Regarding transverse midline relationship of the maxillary incisor (Kokich 1999), a small midline deviation (1-2mm) can be acceptable as long as the midline is vertical and a canted midline is unacceptable even if coincident with the facial midline.

G Janson (2004) reports that treatment with two maxillary premolar extractions gives a better occlusal result than treatment with four premolars extractions. The correction of the malocclusion was achieved, with a notable improvement in the patient aesthetics and self-esteem. The patient satisfaction with a camouflage treatment is similar to that which is achieved with fixed functional appliance.The most significant change was an improvement in the recessive chin.

Esthetic objectives were achieved with a reduction in severity of facial convexity, the face becoming more orthognathic, lower face height increased; traumatic bite was eliminated with normal overjet and overbite. The patient was pleased with the treatment outcome. All results were confirmed by superimposition of pretreatment and post retention cephalogram tracings. Achieving proper interdigitation is one of the key factors for long-term stability of the corrections brought by treatment.

Conclusion:

Orthodontic camouflage treatment in Class II patient is challenging, unless proper diagnosis and treatment plan is laid down. Planned extraction of indicated teeth to bring about dental compensation and camouflage the skeletal discrepancy gives an overall improvement in facial esthetics, occlusion and also satisfaction to the patient.In figure 5 post treatment lateral profile was compared with pre treatment lateral profile(VTO) and both are showing almost similar results with good esthetic harmony and pleasing profile.

Figure 5: Pre treatment VTO VS Post treatment

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