

A Case Report-Non Extraction Treatment of Class II division I Malocclusion with Excessive Overjet and Traumatic Bite

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ABSTRACT

In our orthodontic practice we have seen a recent spurt of increasing numbers of young adults who desire cost effective, non surgical correction of malocclusion and accept dental camouflage as a treatment option to mask the skeletal discrepancy. Usually over 10 mm overjet with traumatic bite is very difficult to treat without extraction; therefore this case is handling so carefully that the upper central incisors cannot loose or dead because of excessive force. In this case patient growth is complete and therefore the only option is fixed orthodontic treatment. So here the challenge is reduction of overjet and correction of traumatic bite without any extraction and is careful to save the tooth vitality. Following treatment marked improvement in patient's smile, facial profile and lip competence were achieved and there was a remarkable increase in the patient's confidence and quality of life.

Key Words : Overjet, Extraction, Traumatic bite, tooth vitality.

INTRODUCTION

Well aligned teeth not only contribute to the health of the oral cavity and the stomatognathic system, but they also influence the personality of the individual. A malocclusion compromises the health of the oral tissues and it can also lead to psychological and social problems.¹ Over the last decade, increasing numbers of adults have become aware of orthodontic treatment and are demanding high quality treatment, in the shortest possible time with increased efficiency and reduced costs.² The classical features of the class II, div 1 malocclusion include a mild to severe class II skeletal base with an Angles class II molar relation and class II canine and incisor relations, proclined maxillary incisors and an increased overjet and it generally has a convex profile with incompetent lips. With all the classical feature the patient has class I molar & canine relation. Treatment of an adult Class II patient requires careful diagnosis and a treatment plan involving esthetic, occlusal, and functional considerations.³ Ideally, the ability to identify specific abnormalities should lead to elimination of a malocclusion by normalization of the defective structures. In many situations, however, diagnosis is not matched by comparable differential treatment objectives and procedures. This problem is particularly evident in the correction of Class II malocclusions of skeletal origin in a non-growing patient. Class II malocclusion can be treated by several means, according to the characteristics associated with the problem, such as anteroposterior discrepancy, age, and patient compliance.⁴ On the other hand, correction of Class II malocclusions in nongrowing patients usually includes orthognathic surgery or selective

removal of permanent teeth, with subsequent dental camouflage to mask the skeletal discrepancy. The indications for extractions in orthodontic practice have historically been controversial.^{5,6,7}

This case report presents one such case of a 21 year old non-growing female, having Class I molar & canine relation with class II division I incisor relation, an overjet of 10mm with spacing of upper anterior segment. As there sufficient space was present camouflage treatment with nonextraction was considered acceptable.

CASE DESCRIPTION

The patient is a 21years old women came from Mymensing reported to BSMMU orthodontic department with the chief complain of aesthetic problem with spacing and proclination of anterior teeth, she is also depress about her smile and try to mask it. Her family worried and came Dhaka with the hope to change her life. Extra oral examination revealed a mesocephalic symmetrical face, convex hard and soft tissue profile and an acute nasolabial angle. The patient showed a good range of mandibular movements and no TMJ symptoms. Intra oral examination revealed that the patient has class I molar and canine relation. Incisors are class II division 1 with Traumatic bite and overjet is almost 10mm in central incisors and 7mm in lateral incisors. Traumatic over bite of 9 mm and associated palatal impingement of the lower incisors present. Spacing is present in upper anterior teeth. There is slight rotation of lower lateral incisors and also

impression of upper anterior teeth present in inner portion of upper lip (fig 1).

Panoramic radiograph shows right lower central incisor root is short. There is no other pathological finding(fig 2). Cephalometric examination revealed Class II skeletal relation with severe maxillary incisor proclination with horizontal growth pattern. (Fig 3) Our treatment objective focused on the chief complaint of the patient, and the treatment plan was individualized based on the specific treatment goals.



Figure 1: Pretreatment Intra & Extra oral photographs



Fig 2: Pre-treatment Orthopentamogram

TREATMENT GOAL

- Obtaining a good facial balance
- Obtaining an optimal static and a functional occlusion and stability of the treatment results.

TREATMENT OBJECTIVES

The treatment objectives which would lead to an overall improvement of the hard and soft-tissue profile and the facial aesthetics are:

- To correct the upper incisors proclination
- To achieve an ideal overjet and over bite
- Correct the anteroposterior relationship.
- Improve the profile and facial esthetics.

TREATMENT PLAN

- . Leveling and alignment of upper & lower arches
- . Close the spaces between upper Incisors
- . Correction of deep overbite
- . Upper arch contraction
- . Arch co-ordination
- . Residual space closer
- . Finishing
- . Retention

BIOMECHANICS:

Treatment started with a fixed appliance in the upper and lower arches. The first molars were banded and the maxillary and mandibular teeth were bonded from premolar to premolar with a 0.018 x 0.025 standard edgewise brackets. Initial leveling was accomplished with the use of multiloop arch wire of 0.014" SS wire with stop loops and tip back and toe-in anchorage bends. Extreme care was taken to align upper incisors very slowly over 4-5 months. After initial leveling the incisors are apposition very slowly by loops and power chain with 0.016" SS wire over 3 months. Then anterior retraction was done by rectangular (0.017 X 0.025 inch) Stainless Steel archwire with "V" loops with proper control of third order bend (Torque)over 6 months. After anterior retraction, up and down elastic was given for 3 months. Final settling of occlusion was done with proper interdigtation, inclination, angulation, ideal overjet and overbite. After 20 months (from the time of placement of appliances) all teeth were aligned, & satisfactory interdigtation was achieved, following which the case was debonded and fixed upper and lower lingual bonded retainer was given.

Fig 4: Post treatment Extra oral photographs



Fig 5: Post treatment Intra oral photographs



RESULT

the overall end result was satisfactory and describe below:

1. Dental changes: The arches are well aligned and normal overjet and overbite are achieved.
2. Profile changes: Initially her profile was convex and it's became straight after treatment.
3. Soft Tissue and smile changes: She is beautiful but her smile turns all beauties in dark shadow. So she tried to hide her smile always before treatment but now she looks gorgeous with her smile. Here soft tissue change was also achieved.
4. Cephalometric changes: Her cephalometric analysis show some changes after treatment.

	Variable	Pre-treatment	Post-treatment
Skeletal	SNA	86°	81°
	SNB	78°	78°
	ANB	8°	3°
	GoGn-SN	32°	22°
Dental	I1-SN	125°	114°
	U1-NA	40°/8mm	33°/11mm
	L1-NB	27°/9mm	37°/11mm
	IMPA	85°	115°
	Overjet	15mm	3.5 mm
Soft-tissue	Nasolabial angle	78°	110°
	U lip-S line	5 mm	0° (Just touching)
	L lip-S line	6 mm	3 mm

5. Patient and parent psychological changes: There is very satisfactory physiological change achieved. According to patient her life is changed with this treatment.

DISCUSSION

The orthodontic treatment goals usually include obtaining a good facial balance and an optimal static and functional occlusion and stability of the treatment results.^{8,9} Whenever possible, all should be attained. Here the patient had improved smile and profile after orthodontic treatment. Lips

were competent and lower lip controlled upper incisors successfully, which is very important for incisor stability. Upper incisors were retracted to achieve normal incisor inclinations, overjet and overbite. The case was successfully managed by contemporary orthodontic technique with intra oral anchorage incorporated in archwire.

CONCLUSION

Treatment time was 20 months. Patients had improved smile & Profile. The correction of the malocclusion was achieved, with a significant improvement in the patient aesthetics and self-esteem. The patient was very satisfied with the result of the treatment.

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