

Orthodontic management of a young girl with Class II div-1 malocclusion with spacing of upper anterior segment: A case report

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ABSTRACT

We describe the treatment of a young girl age, 24 years, with class II division 1 malocclusion and spacing of upper anterior segment. Treatment consisted mainly of space closing, arch contraction, leveling and alignment with Edgewise fixed appliances by multiloop technique. Due to patient good cooperation, treatment time reduced (10 months). The treatment resulted in proper alignment of upper & lower anterior segment, an ideal overjet, overbite and incisor angulations.

Key Words: **Proclination, spacing, edgewise orthodontic therapy.**

INTRUDUCTION

Class II is the most common & difficult to treat malocclusion as compared to other malocclusions, due to its wide ranging varieties & interplay of various types of etiological factors.¹

It is important for every orthodontist to have adequate knowledge & correct understanding of the various types of Class II malocclusions before instituting a treatment plan. There is no universal method of managing the condition. It is essential to have an adequate knowledge of normal growth pattern & various cephalometric analysis for proper diagnosis & treatment planning.

CASE REPORT

Case history: Sikha Khatun, age 24, came to the Department of Orthodontics & Dentofacial Orthopedics at Dhaka Dental College & Hospital for treatment. She had proclination and spacing of upper anterior segment. Patient's major reason for seeking treatment was to improve her dental esthetics and function. She complained of his ugly look during smile.

Clinical examination



Profile-Right side Facial photo-Frontal view Profile-Left side

Figure-1: Pre-treatment extra-oral facial photographs

Shape of the head	: Brachycephalic
Profile Analysis	: Convex
Shape of the face	: Oval
Facial symmetry	: Symmetrical
Lips	: Potentially competent
Upper lip line	: Low
Lower lip line	: Low
Naso-labial angle	: Acute
Labio-mental depress	: Normal
Temporo-Mandibular joint	: Normal path of closure
Breathing	: Nasal
Deglutition	: Normal



Intraoral view-Right side Anterior view Intra oral view-Left side



Upper Occlusal view Lower Occlusal view

Fig-2: Pre-treatment intra-oral photographs

The patient was in the permanent dentition. She presented with an overjet of 7 mm, and the overbite was 3mm and complete. Molar relationships were Class I on both sides, Canine & Incisor relationship was Class-II div-1. Her oral hygiene was good.

Model analysis:

ARCH DISCREPANSY:

Upper arch	Lower arch
Arch perimeter - Total tooth material = 108mm – 104mm =4 mm	Arch perimeter -Total tooth material =90 mm --91mm = -1 mm

Remarks:

Spacing in upper arch due to tooth tissue discrepancy.

Radiographic examination:



Fig-3: pre-treatment OPG and lateral cephalogram

TREATMENT OBJECTIVES

The following treatment objectives were established:

1. Arch contraction of maxillary anterior segment that will result normal overjet & overbite
2. Improvement of aesthetics by the correction of lip posture & facial profile
3. Improvement of functional demand by correcting better occlusal interdigitation.

Treatment plan:

1. Initial alignment and leveling of upper and lower jaw
2. Retraction of upper canines
3. Contraction of upper arch.

Treatment sequence/ progression:

1. TPA for increase anchorage value
2. Upper multibond edgewise technique
3. Canine retraction by 0.016 inch S.S. arch wire
4. Arch contraction by 0.017x0.025 inch S.S. rectangular wire
5. Retention by Hawley retainer.



Fig 4: TPA is inserted for anchorage demand.



Intraoral view-Right side

Intraoral Anterior view

Intraoral view-Left side



Upper Occlusal view

Lower Occlusal view

Fig 5: Post-treatment intra-oral photograph



Fig 6: After treatment OPG and lateral cephalogram

Pre and post treatment cephalogram analyses:

Parameters	Reference value (Caucasians) Ref: Om P Kharbanda. Orthodontics Diagnosis and Management of Malocclusion and Dentofacial Deformities,; Elsevier 2009 edition.	Reference Value (Bangladeshi) Ref: Rizvi HM, Hossain MZ. Cephalometric norms of young adults of Bangladesh (Steiner's analysis)- priliminary report. Bangladesh journal of Orthodontics and Dentofacial Orthopedics, 2011, Vol 2, No 1, 13.	Pre-treatment measurement	Post-treatment measurement
SNA°	82°	83.8°	83°	84°
SNB°	80°	81.5°	79°	80°
ANB°	2°	2.3°	4°	4°
IIA°	131°	117.7°	95°	116°
U1 to NA°	22°	29.8°	30°	30°
U1 to NA mm	4mm	8mm	7mm	7mm
L1 to NB°	25°	30.6°	30°	25°
L1 to NB mm	4mm	8mm	6mm	6mm

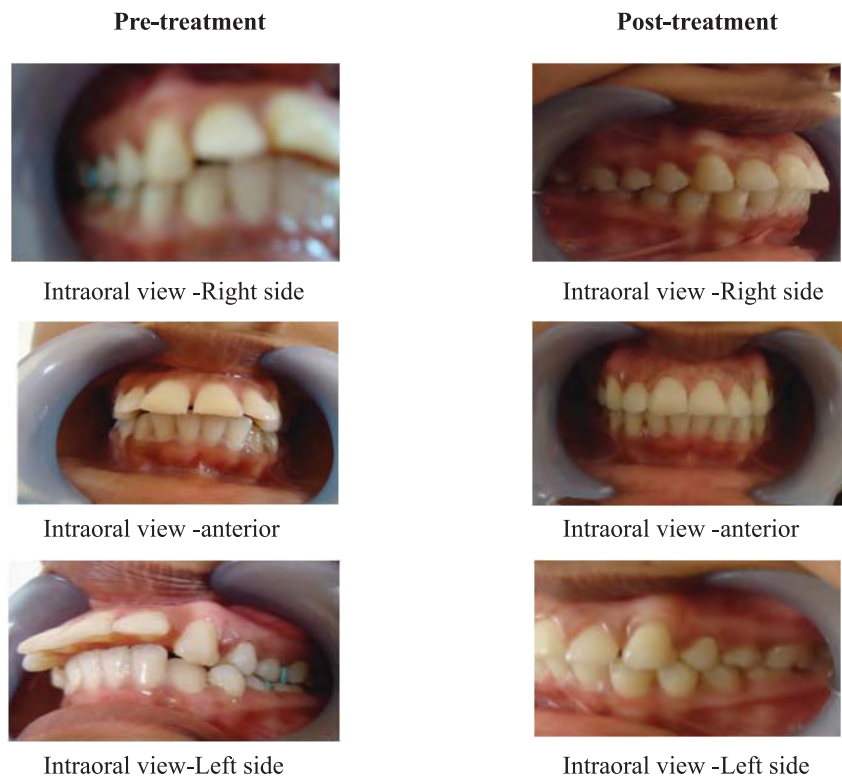


Fig7: Pre and Post treatment intra oral photographs

Pre-treatment



Profile-Right side



Facial photo-Frontal view



Profile-Left side

Post-treatment



Profile-Right side



Facial photo-Frontal view



Profile-Left side

Fig 8: Pre and Post treatment extra oral photographs

DISCUSSION:

One of the most common problems in orthodontics today is Class II div-1 malocclusion. This patient was treated with space closing, arch contraction and light edgewise forces to produce a result that was pleasing to the patient and satisfying to the orthodontists in a one year period.

CONCLUSION

Analysis of final records indicated that all treatment objectives were achieved. The teeth were placed in good alignment, spacing and proclination were relieved & good occlusion was maintained. A satisfactory esthetic result had been achieved. The parent & patients psychological satisfaction was also achieved.

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