

Case Report

Dentofacial changes in Class II division 1

Alam MK

Abstract

A 19 year-old Bangladeshi female presented with a severe Class II division 1 incisor relationship on a Skeletal II base and localized spacing in the upper arch. The lower arch was well aligned. Treatment was commenced using fixed appliances and followed by anterior retraction. This case illustrates the versatility of the fixed appliances in the treatment of those cases exhibiting Class II division 1 malocclusion with spacing.

Key words: Class II division 1; spacing; fixed appliance

DOI: <http://dx.doi.org/10.3329/bjms.v13i3.19158>

Bangladesh Journal of Medical Science Vol. 13 No. 03 July '14. Page: 350-352

Introduction

Most people have some degree of malocclusion. A malocclusion is a misalignment of teeth and/or incorrect relation between the teeth of the two dental arches¹⁻³. The term malocclusion was coined by Edward Hertley Angle¹⁻³. Class II Division 1 incisor relationships are like that the upper incisor teeth are protruded¹⁻⁷. The Class II malocclusions have a strong hereditary component as etiologic factor, both in families and in ethnic and racial groups¹⁻⁶. Spacing is an excess of space which results in gaps between teeth^{1-3,8}. This generally occurs when the teeth are smaller than the available space. Spacing can also be caused by protrusive teeth, missing teeth, impacted teeth or abnormal tissue attachments to the gums¹⁻³. Esthetic lip morphology can be assessed by the esthetic plane analysis of Ricketts⁹ is based on the esthetic plane, which is a line drawn tangent to the tip of the nose and soft tissue pogonion. According to Ricketts, a profile is considered to be ideally beautiful when the lower lip is approximately 2.0 mm and the upper lip is about 4.0 mm posterior to the esthetic plane. Measurement of the lips relative to Ricketts⁹ E-line focuses attention on the relationship of nose, lips, and chin⁹.

Lip morphology for Bangladeshi adults^{10,11} are different than Ricketts⁹ E-line.

Case presentation

A 19 year-old Bangladeshi female seeking for Orthodontic treatment. The patient complained that her 'upper teeth stuck out and were spaced'. On examination she presented with a Class II division 1 incisor relationship on a Class II skeletal base and localized spacing in upper anterior teeth (Fig. 1 a, b and c). Her lips were of average thickness and upper lip was ahead of Ricketts' E-plane (Fig 2). They were incompetent at rest with the lower lip lying palatal to the upper incisors.

The patient was in the permanent dentition. She presented with an overjet of 8 mm, and the overbite was increased and incomplete. Upper incisors were proclined and canine relationships were Class I on both sides. Molar relationship on the right side was class I and on the left side class II. The upper arch spacing was localized with the inclined upper lateral incisors. Total 11 mm spacing was measured in the upper arch. In the lower arch the teeth were well aligned. Her oral hygiene was average.

Problem list

1. Class II skeletal pattern.
2. Increased overjet.
3. Increased overbite.
4. Spacing in upper arch.
5. Incompetent lip
6. Protruded upper lip

Dr. Mohammad Khursheed Alam, Senior Lecturer, Orthodontic Unit, School of Dental Science, Universiti Sains Malaysia.

Dr. Mohammad Khursheed Alam, Senior Lecturer, Orthodontic Unit, School of Dental Science, Universiti Sains Malaysia. Email: dralam@gmail.com, dralam@kk.usm.my

Treatment plan

1. Review the plan for treatment.
2. Pre-adjusted edgewise appliances to align arches, correct spacing, and improve lip relation.
3. Retain and monitor the occlusion.

Treatment sequence

The decision was taken to retract the upper anteriors, to correct severely proclined incisor relationships and spacing. An upper MBT prescription pre-adjusted edgewise appliance was fitted and a standard arch wire sequence of 0.012, 0.014, 0.016-inch nickel-titanium, 0.016-inch stainless steel, 0.016'0.022 - inch nickel-titanium, and 0.016'0.022-inch stainless steel was followed. Complete correction was achieved using power chain. Once the spacing was correct and the upper arch was fully aligned then anterior retroclination was done. Final detailing, finishing and stabilization were done respectively. Following debonding and debanding, upper Begg type retainer was used to maintain the results achieved.

Discussion of case

This case presented with a Class II division I incisor relationship on a Class II skeletal base. Anterior retraction decisions were converted a difficult case into one that was more readily manageable¹, providing that the correct anchorage was carefully controlled. The anterior retraction decision was made to allow relief of spacing and also to facilitate correction of the incisor relationships. The standard arch-wire sequence enables a smooth and rapid progress. Following corrections lip relationships was improved. Begg type retainer was used as this is closely adapted to the dentition and retains the achieved result.

The final result shows well-aligned arches with the overjet and overbite reduced successfully (Fig.3 a, b and c), and improved inter-digitation in the buccal segments. Lip relationship become competent and esthetically acceptable in relation to the Ricketts' E-plane (Fig. 2).

Conclusions

This case report clearly illustrates how versatile the fixed appliances are, when used for treatment of Class II division 1 malocclusion with spacing.



Figure 1a: Intraoral frontal occlusion photograph (Before treatment).



Figure 1b: Intraoral right lateral occlusion photograph (Before treatment).



Figure 1c: Intraoral left lateral occlusion photograph (Before treatment).

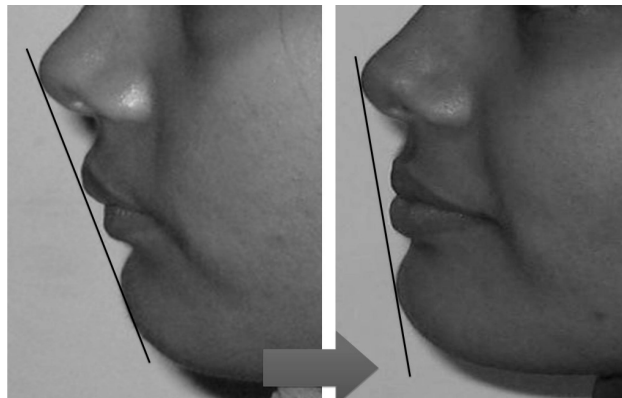


Figure 2: Lip (Before and after treatment) in relation to Ricketts' E-plane.

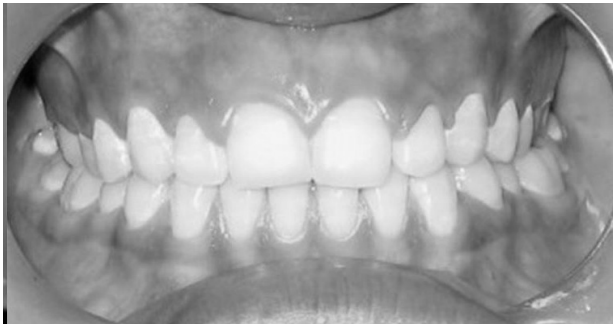


Figure 3a: Intraoral frontal occlusion photograph (After treatment).



Figure 3b: Intraoral right occlusion photograph (After treatment).



Figure 3c: Intraoral left occlusion photograph (After treatment).

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