

Case Report

Contemporary treatment of a Class II division 1 case

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Abstract

A 17 year-old Bangladeshi female presented with a severe Class II division 1 incisor relationship on a mild Skeletal II base. Crowding was moderate in the upper arch. The lower arch was well aligned. Treatment was commenced using fixed appliances and followed by extractions of upper first premolars. This case illustrates the versatility of the fixed appliances in the treatment of those cases exhibiting Class II division 1 malocclusion with crowding.

Key words: crowding, Class II division 1, fixed appliance and extraction.

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 protruded¹⁻⁶. The Class II malocclusions have a strong hereditary component as etiologic factor, both in families and in ethnic and racial groups¹⁻⁶.

A 17 year-old Bangladeshi female referred by a local specialist requesting that the patient was treated some cavity problems at Sylhet now she is seeking for Orthodontic treatment. The patient complained that her 'upper teeth stuck out and were crooked'. On examination she presented with a Class II division 1 incisor relationship on a mild Class II skeletal base. The Frankfort-mandibular planes angle was average as was her lower facial height. Her lips were of average thickness and lower lip was ahead of Ricketts' E-plane. They were incompetent at rest with the lower lip lying palatal to the upper incisors.

Intra-oral examination

The patient was in the permanent dentition. She presented with an overjet of 9 mm, and the overbite was increased and incomplete. Upper incisors were proclined and canine relationships were a full unit Class II on both sides. The upper arch crowding was moderate with the displaced upper lateral incisors. In the lower arch the teeth were well aligned. Her oral hygiene was average. There were three restorations in permanent molars.

Radiographs

An orthopantomograph confirmed the presence of all teeth including the unerupted third molars. The lateral cephalometric radiograph tracing (Fig. 1) and analysis (Table 1) confirmed the mild Class II skeletal pattern (ANB 7 degrees) and average lower facial height. The maxillary incisors were proclined at 127 degrees and the lower incisors were of average inclination at 100 degrees.

Table 1: Pre and post treatment cephalometric angular and linear measurements (SNA to L1-MP were angular measurement, measured in degree and the rests were linear).

Variable	Pre-treatment	Post-treatment	Change
SNA	86	85	1
SNB	79	80	1
ANB	7	5	2
Facial angle	86	86	0
Gonial angle	137	137	0
Inter incisal Angle	101	141	40
U1-SN	120	97	3
U1-FH	127	105	4
L1-MP	100	100	3
Ls to E line (mm)	0.5	1	0.5
Li to E line (mm)	-2	-2	0

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Problem list

1. Class II skeletal pattern.
2. Increased overjet.
3. Increased overbite.
4. Crowding in upper arch.
5. Incompetent lip (Fig. 1).

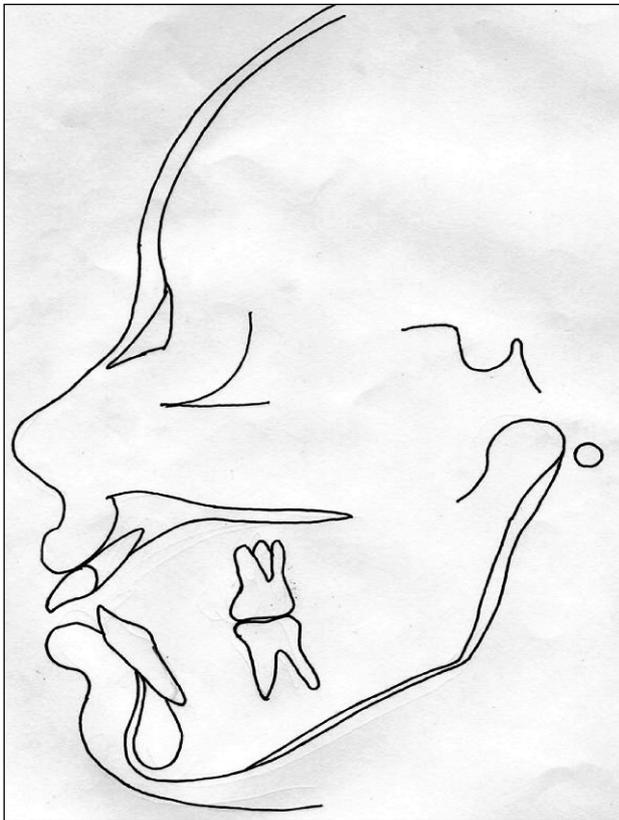


Figure 1: Cephalometric tracing of the initial treatment. Incisors are severely proclined with increased over jet and incomplete, increased over bite. Lip relationship is incompetent.

Etiology

1. Inherited skeletal pattern has led to the mild Class II skeletal pattern.
2. Lower lip trapping has contributed to the increased overjet.
3. Increased overbite due to unopposed vertical development of the labial segments.
4. Dentoalveolar disproportion has exacerbated the crowding

Treatment plan

1. Review the need for extractions.
2. Pre-adjusted edgewise appliances to align arches, correct crowding, and improve lip relation.
3. Retain and monitor eruption of third molars.

Treatment sequence

The decision was taken to extract the upper first premolars, to correct severely proclined incisor rela-

tionships and crowding. An upper MBT prescription pre-adjusted edgewise appliance was fitted and a standard archwire sequence of 0.012, 0.014, 0.016-inch nickel-titanium, 0.016 0.022 -inch nickel-titanium, and 0.016 0.022-inch stainless steel was followed. Bilateral sided lacebacks were used. This worked well and the canines moved into a Class I relationship. Complete correction was achieved using power chain. Once the crowding was correct and the arches were fully aligned upper arch then canine retraction followed by 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 mild Class II skeletal base. Extraction decisions were converted a difficult case into one that was more readily manageable¹, providing that the correct anchorage was carefully controlled. The extraction decision was made to allow relief of crowding and also to facilitate correction of the incisor relationships. The standard archwire sequence enables a smooth and rapid progress. Begg type retainer was used as this is closely adapted to the dentition and retain the achieved result.

Summary of case

The final result shows well-aligned arches with the overjet and overbite reduced successfully (Fig.2), and improved inter-digitation in the buccal segments. Lip relationship become competent. Cephalometric superimpositions reveal that anterior posterior correction was achieved by a decrease in the ANB angle, U1-SN angle, U1 to FH angle and increased Inter incisor angle (Table 1).

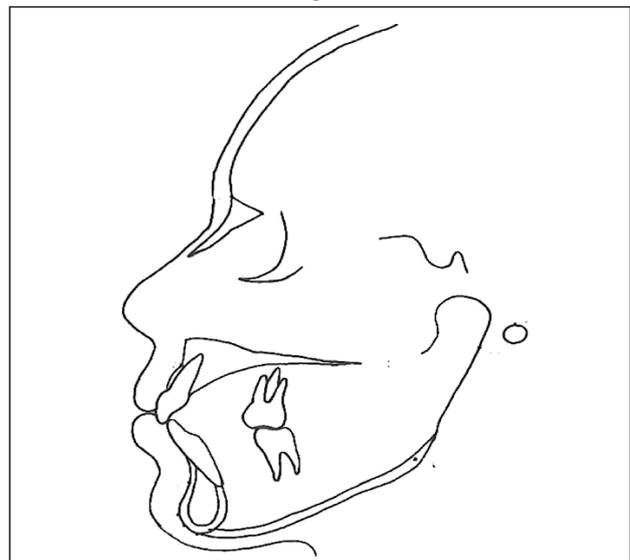


Figure II: Cephalometric tracing of the final treatment. Proclination of incisors become normal with normal over jet and over bite. Lip relation become competent.

Conclusions

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

References

1. Sarver DM, Proffit WR, Ackerman JL. Diagnosis and treatment planning in orthodontics. In: Graber TM, Vanarsdall RL Jr, eds. Orthodontics, Current Principles and Techniques. 3rd ed. St Louis: Mosby, 2000;3-15.
 2. Bishara SE. Textbook of Orthodontics, An approach to the diagnosis of different malocclusion. 2001; 13:146-184.
 3. Proffit WR and Fields, Jr. HW. Orthodontic treatment planning: from problem list to specific plan. 1992; 7:186-224.
 4. Sanborn RT. Difference between the facial skeletal patterns of class II malocclusion and normal occlusion. Angle Orthod. 1955;25:208-222.
 5. Baher AB, Arunas V, Ahmad SQ. Comparative cephalometric study of Class II division 1 malocclusion between Lithuanian and Jordanian females. Stomatologija, Baltic Dental and Maxillofacial Journal, 2008;10:44-48. PMID:18493165
 6. Ishii N, Deguchi T, Hunt NP. Craniofacial morphology of Japanese girls with Class II division 1 malocclusion. Journal of Orthodontics. 2001;28:211-215. <http://dx.doi.org/10.1093/ortho/28.3.211> PMID:11504898
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