

Orthodontic Treatment In Class Ii Malocclusion : Case Report

Ardiansyah S Pawinru^{1*}

Abstract

Objective: A male patient 23 years, 10 months with a Class II skeletal malocclusion, n class II subdivision dental-malocclusion, included openbite, overbite -6 mm, overjet 8 mm, agenesis of 41, mandibular midline shift to the right, deep palate, mandibular rectognathi and mild crowding of mandibular.

Methods: Treatment was extraction of maxillary first premolar with a fixed appliance combined with Class II elastics and box elastic. After 2 years of treatment, correction of the openbite and overjet, lower anterior crowding were achieved. The treatment still continued.

Results: The retention of post treatment with camouflage treatment is needed and takes a long time because some cases is reported be relapse very frequently, some literature suggests the use of permanent retention in openbite cases.

Conclusion: Treatment of Class I dental and class II skeletal malocclusion case with severe openbite and severe overjet, can beca treated with camouflage treatment such as class II division I treatment with extraction of left and right premolars of maxillary

Keywords: Class II skeletal Class I Dental, Class II elastics and box elastic, Extraction treatment, fixed appliance, Openbite.

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Department of Orthodontic, Faculty of Dentistry, Hasanuddin University

Introduction

Malocclusion is deviation from a standard form which is known as a normal occlusion¹. Malocclusion can occur in the sagittal direction, vertical or transverse, one of the malocclusion in the vertical direction is Openbite.^{1,2} Openbite is a malocclusion that is very difficult to treat, it is because openbite is due to the multifactorial etiology and tendency to relaps at the end of treatment.³ Generally, Openbite can occur due to dental, skeletal and dentoskeletal factors.^{1,2,4} Treatment of openbite cases is according of the etiology such as functional treatment, orthognati surgery, or fixed camouflage orthodontic treatment either with extraction or without extraction and orthodontic surgery.^{5,6,7,8}

There are many theories explain about the etiology of openbite, including hereditary factors, bad habits and environmental factors. The environmental factors are include variations of the eruption and development of the alveolar bone.^{1,3,5}

Literatur Review

There ara many research about prevalences of openbite, Proffit found that openbite in children aged 8-17 years in the United States about 3.5%. Then Kelly et al, explained that the prevalence of openbite in white children is 3.5 - 4%, while in black children is 16 - 16.5%. Some experts argue that the incidence of openbite will increase in adolescence.^{9,10}

Openbite characteristics can be divided into 2 (two) categories. First, dental openbite, there are no change in craniofacial shape, proinclination and undererupted anterior teeth, normal or excessive eruption of molars, no gummy smile, bad habits such as finger biting and tongue pushing and abnormal eruption.^{11,12} Whereas the skeletal openbite has characters such as a short mandibular ramus, downward and backward rotation of the mandible, reduced palatal angle, increased mandibular base angle, anterior openbite, increased lower face height, and mandibular retrognathi.^{11,12}

Cangliosi explained that the skeletal openbite usually shows more eruption than dental openbite.¹³ According to Moyers, skeletal openbite is the failure of teeth to meet their antagonists or to form occlusal contacts involving the cranium base, maxilla or mandible which is also called an severe and complex openbite.

Case Report

A male patient aged 23 years and 10 months with the main complaint of teeth feeling forward and open, it was difficult to close the mouth. Extra oral examination revealed normal facial type, convex profile and symmetrical with deep mentolabial fold. Lower face height is shorter than normal, the median line of the mandible is shifted to the right 1.5 mm with incompetent lips, the patient's bad -

*Correspondence to:
pawinru190879@gmail.com

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habit of frequent biting the tongue.

Intra oral examination [Figure 1 D - I](#) showed gingival recession in the maxillary canines. All third molars had erupted, protrusion and extrusion of the maxillary central incisor, mesiolabial rotation of the mandibular left central incisor, while the right first incisivus of mandibular was agensis.

Shape of the maxillary dental arch was V form and the mandible was parabolic, deep palate, normal curve of spee [Figure 1 G & H](#). The relationship between the left first molar and left canine showed a class I relationship, while the right canine relationship showed a class II malocclusion relationship and the right first molar tended to be class II as well as an open, protusive and openbite incisive relationship [Figure 1 E & F](#). Overjet 9 mm and overbite -7 mm [Figure 1 I](#). Model analysis showed crowding of 2 mm in the maxillary arch and 1 mm in the mandibular arch.

Pre-treatment panoramic photo showed that dental agensis was 41. The lateral cefalometric analysis before treatment showed a Class II skeletal pattern, retrognathic, normal SNA angle and SNB angle, convex of facial angle, mandubular angle and Y angle and occlusal angles showed indicating clockwise rotation, relation of central incisivus maxillary and mandible is protrusive with small interinsisal angles and short lower facial height.

Diagnosis

Class II of skeletal and class I of dental malocclusion with a tendency to retrognathi the mandible, accompanied by severe openbite and big overjet, convex of facial angle, small interincisal angle, maxillary and mandibular incisor protrusion, deep palate and short lower face height.

Treatment Plan

The first step of treatment was carried out by extracting the maxillary first premolar with fixed orthodontic devices. Then, do leveling and aligning of the upper and lower jaw. Then followed by retraction of the upper canine until it touched the second premolar, then performed by enmasse retraction for 4 anterior teeth, using an elastic box to correct the anterior openbite. Furthermore, the stages of artistic positioning, occlusal adjustment, stabilization and retention.

Treatment Progress

Orthodontic treatment used the usual Class II malocclusion treatment mechanism, starting with the extraction of the left and right first premolar of maxilla, then using a standard fixed appliance, edge

wise slot. 018 inch. Treatment begins with leveling and aligning by using SS wire. 14 inch with multiple loops and stopper to the mesial tube, then, the treatment continued by respectively 0.014 inch, then 0.016 to 0.018 inch plane arch for 7 months to correct crowding in the upper and lower jaw.

After that, performed tooth retraction of left and right maxillary canines teeth, then enmasse retraction was performed using T-loop distal to the teeth brackets 12 and 22 with 0.016 x 0.022 inch rectangular wire until all spaces were closed.

After that, Class II elastic with a force of 125g/side from teeth 13 - 46 and 23 - 36 was used for 3 months to correct the canine and molar relationships to be Class I and use box anterior elastic, to correct the remaining openbite on teeth 13 - 23 - 33 - 43. Also assisted by the bending of the first order bend, the second order bend to intrude the posterior teeth of the maxilla and mandible.

Until now, the patient's crowding has been corrected, the 9 mm overjet has become 2 mm, the openbite is - 7 mm to 1 mm, and now the patient's dental treatment is still being carried out to get a normal bite. To get of class I occlusion was not possible due to the agensis of tooth 41.

The facial analysis ([Figures 2.A-C](#)) showed that the lateral convex profile was slightly reduced and the chin was less retracted. The maxillary and mandibular curves of the parabola were symmetrical and the spee curve was minimal. The teeth are generally well arranged [Figure 2 G & H](#).

The superimposition found on lateral cephalometric radiographs ([Figure 3](#)) showed slight forward (anticlockwise) rotation of the mandible, retroclination of the maxillary incisors, proclination of the mandibular incisors.

Discussion

The choice of treatment for each patient depends on etiology of the malocclusion, the degree of crowding, profile of patient and other consideration.¹⁵

This case was diagnosed as class II skeletal and class I dental malocclusion accompanied by an severe openbite and large overjet, deep palate, some of the characteristics looks similar to Class II division I malocclusion such as deep palate and V-shaped maxillary arch. The alternative treatment of this case is orthognathic surgery, but the patient choose the compromise class II treatment with extraction of the left and right maxillary premolars.

Then, with perform retraction of the anterior teeth, naturally the severe overjet and openbite could be corrected, combined by using elastic box for closing anterior openbite, also performed intrusion of the maxillary and mandibular posterior teeth.



Figure 1 Pre-treatment

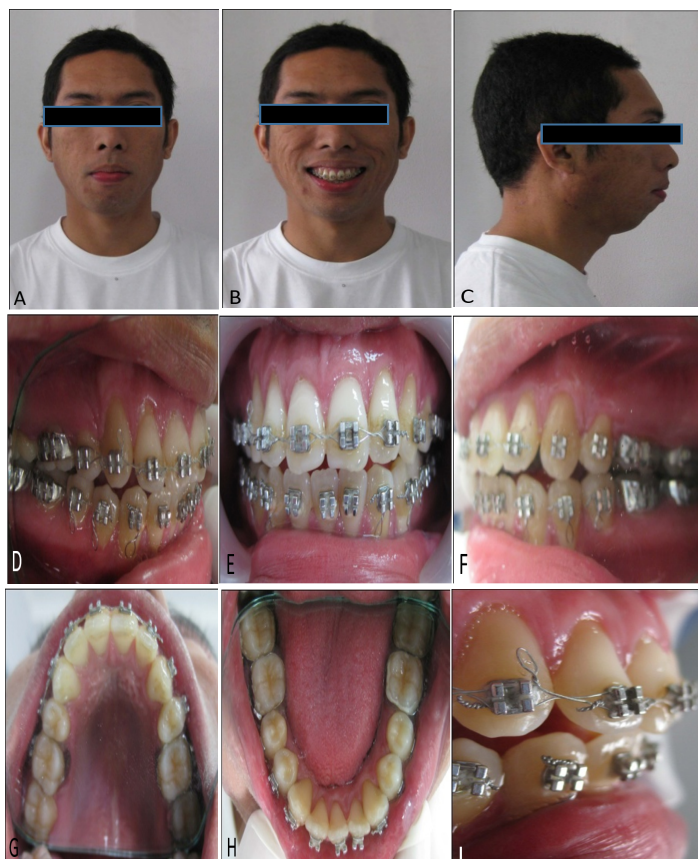


Figure 2 After treatment of 24 month.

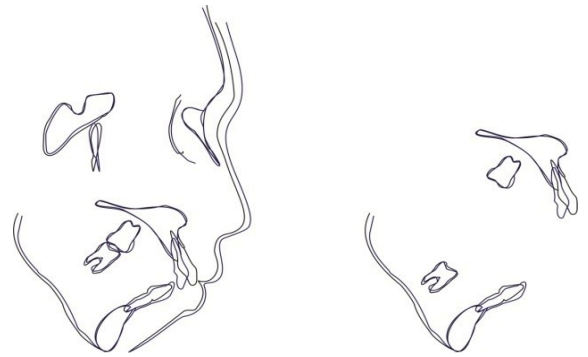


Figure 3 Superimposition of the anterior cranial base before treatment and after 24 months of treatment on fixed appliance treatment

By using class II intermaxillary elastic, it is expected that the mandible move to forward, to correct the molar relationship to be a class I occlusion and to obtain a normal overjet. It is important to use the elastic for correcting occlusion of jaws and teeth.

The retention of post treatment with camouflage treatment is needed and takes a long time because some cases is reported be relapse very frequently, some literature suggests the use of permanent retention in openbite cases.

Conclusion

Treatment of Class I dental and class II skeletal malocclusion case with severe openbite and severe overjet, can beca treated with camouflage treatment such as class II division I treatment with extraction of left and right premolars of maxillary, while for mandibular teeth, we can be performed with leveling and flaring, with standard edgewise fixed device and combined with box elastics and class II elastics, it can correct for large overjets and openbites. Long retention is required for the stability of the treatment results.

Aknowledgment

None .

Conflict of Interest

The authors report no conflict of interest.

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