



Weekly aligner changes to correct anterior crossbite: a case report

Peer review status:

No

Corresponding Author:

Dr. Amira Al Habash,
dentist, Policlinica Identalia - Italy

Submitting Author:

Dr. Amira Al Habash,
dentist, Policlinica Identalia - Italy

Other Authors:

Dr. David Raickovic,
Orthodontist, Policlinica Identalia - Croatia

Article ID: WMC005613

Article Type: Case Report

Submitted on: 28-Mar-2020, 09:05:45 AM GMT **Published on:** 30-Mar-2020, 03:37:06 PM GMT

Article URL: http://www.webmedcentral.com/article_view/5613

Subject Categories: ORTHODONTICS

Keywords: orthodontics, clear aligners, invisalign, dentistry, scissor bite, oral medicine

How to cite the article: Al Habash A, Raickovic D. Weekly aligner changes to correct anterior crossbite: a case report. WebmedCentral ORTHODONTICS 2020;11(3):WMC005613

Copyright: This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC-BY\)](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Source(s) of Funding:

The authors declare they don't receive any source of funding.

Weekly aligner changes to correct anterior crossbite: a case report

Author(s): Al Habash A, Raickovic D

Abstract

The aim of this paper is to present and debate the treatment of a unilateral crossbite using clear aligners (Invisalign) with weekly changes. The advantages of protected movement, due to the presence of the aligners, to jump the occlusion during crossbite correction is also highlighted.

Introduction

Nowadays, there is a growing demand for aesthetic treatment among both adolescents and adults. Indeed, a recent study estimated that 45% of adults are unhappy with their smile and that 20% of these have considered undergoing orthodontic treatment to improve their appearance. Hence, aligner systems must now be able to treat various types of malocclusion, and over recent years, many studies have shown their great efficacy in correcting crowding, crossbite and diastems, and even complex cases featuring extraction, open-bite, and poor occlusal relationships.

Case Report

This case report describes an adult male patient with class III subdivision, dental crossbite, and crowding treated successfully with aligners.

Diagnosis and etiology

A 25 years old patient came to our observation complaining of a relational problem regarding poor aesthetics of the smile (Figs. 1, 2).

Clinical examination revealed class III subdivision with slight upper midline deviation caused to mesial tipping of central upper incisors, crowding in the inferior dental arch (Fig. 4), with the presence of cross bite against the elements 1.2, 4.2, 4.3 (Figs. 3, 5).

The pre-treatment OPT (Fig. 7) shows the presence of all the permanent teeth with overall good alveolar bone density and good root morphology.

Periodontal biotype and oral hygiene were good (Fig.2)

Treatment objectives

The treatment objectives were to align the arches, correct the crossbite, correct tipping of central incisors and obtain ideal overate and overbite. Upper and lower crowding was to be resolved by interproximal reduction.

Additional objectives were to improve facial aesthetic and reduce black buccal corridors during smiles.

The buccal segment occlusion and Class III molar relationship was to be maintained with both fixed and removable retainers to maintain the treatment outcomes.

In view of the case history, a non-invasive treatment was chosen that would resolve aesthetic and functional problems. The Patient's desire was to improve the smile, but without going through fixed type traditional orthodontics.

Treatment progress

The virtual set-up dictated 27 treatment steps for each arch.

To achieve the correction of the crossbite, the plan involved disto-rotation of tooth 1.2 (28.9 degrees) and proclination of 1.2 (1.9 degrees) reciprocally with rotation distal crown tip of 1.3 and lingual retrusion.

In order to align lower frontal teeth, IPR in combination with expansion of premolars and rotation was done.

In upper arch, IPR and sequential distalization of upper premolars and molars was done in order to provide space for 1.3 and 1.2.

The patient was instructed to wear each aligner for 22 h per day and to move on to the next one in the series after 7 days.

At the end of treatment a successful outcome was achieved (Fig. 9). Both upper and lower arches were well aligned with complete correction of crossbite (Fig. 10).

Discussion

Post-treatment records demonstrate satisfactory final results with all objectives achieved, only the lower midline is not completely centred but improved.

Extraoral photos show a good profile, correct incisor exposure during smile and absence of buccal corridors (Fig.9). Intraoral examination reveals the achievement of all planned objectives, crossbite correction and

crowding correction (Fig.9). Post-treatment panoramic radiography (Fig.11) showed good root parallelism, no sign of crestal bone height reduction, and no evidence of apical root resorption.

Conclusion

Use of aligners is an efficacious means of resolving orthodontic issues such as dental cross-bite and crowding within a time-frame comparable to conventional fixed orthodontics, but with excellent aesthetics and oral hygiene.

References

1. Walton DK, Fields HW, Johnston WM, Rosenstiel SF, Firestone AR, Chirstensen JC. Orthodontic appliance preferences of children and adolescents. *Am J Orthod Dentofac Orthop.* 2010;138(6):698.e1 12.
2. Feu D, Catharino F, Duplat CB, Capelli Junior J. Esthetic perception and economic value of orthodontic appliances by lay Brazilian adults. *Dental Press J Orthod.* 2012;17(5):102 14.
3. British Orthodontic Society. News release, www.bos.org.uk/news/NOWYouGovSurvey. Accessed 9 Apr 2013.
4. Boyd RL, Miller RJ, Vlaskalic V. The Invisalign system in adult orthodontics: mild crowding and space closure cases. *J. Clin. Orthod.* 2000;34(4):04 203.
5. Womack WR. Four-premolar extraction treatment with Invisalign. *J Clin Orthod.* 2006;40:493 500.
6. Hänn M, Gätz G. A premolar extraction case using the Invisalign system. *J Orofac Orthop.* 2006;67:385 94.
7. Boyd RL. Complex orthodontic treatment using a new protocol for the Invisalign appliance. *J Clin Orthod.* 2007;41:525 47.
8. Boyd RL. Esthetic orthodontic treatment using the Invisalign appliance for moderate to complex malocclusions. *J. Dent. Ed.* 2008;72:948 67.
9. Tuncay OC, editor. *The Invisalign system.* 1st ed Quintessence Publishing; 2006.
10. Align Technology
11. Boyd RL, Oh H, Fallah M, Vlaskalic V. An update on present and future considerations of aligners. *J Calif Dent Assoc.* 2006;34:793 805.
12. Nedwed V, Miethke RR. Motivation, acceptance and problema of Invisalign patients. *J Orofac Orthop.* 2005;66:162 173.

Illustrations

Illustration 1

Smile before treatment (t0)



Illustration 2

Frontal view (t0)



Illustration 3

Occlusal view of upper arch (t0)



Illustration 4

Occlusal view of lower arch (t0)



Illustration 5

Lateral view of right side



Illustration 6

Lateral view of left side (t0)



Illustration 9

Smile after treatment (t1)



Illustration 10

Extra-oral photo (t1)



Illustration 11

OPT after treatment



Illustration 12

Lateral view (t1)



Illustration 13

Lateral view (t1)



Illustration 14

Occlusal view of upper arch (t1)



Illustration 15

Occlusal view of lower arch (t1)

