

Cases & Commentaries in Orthodontic Technology

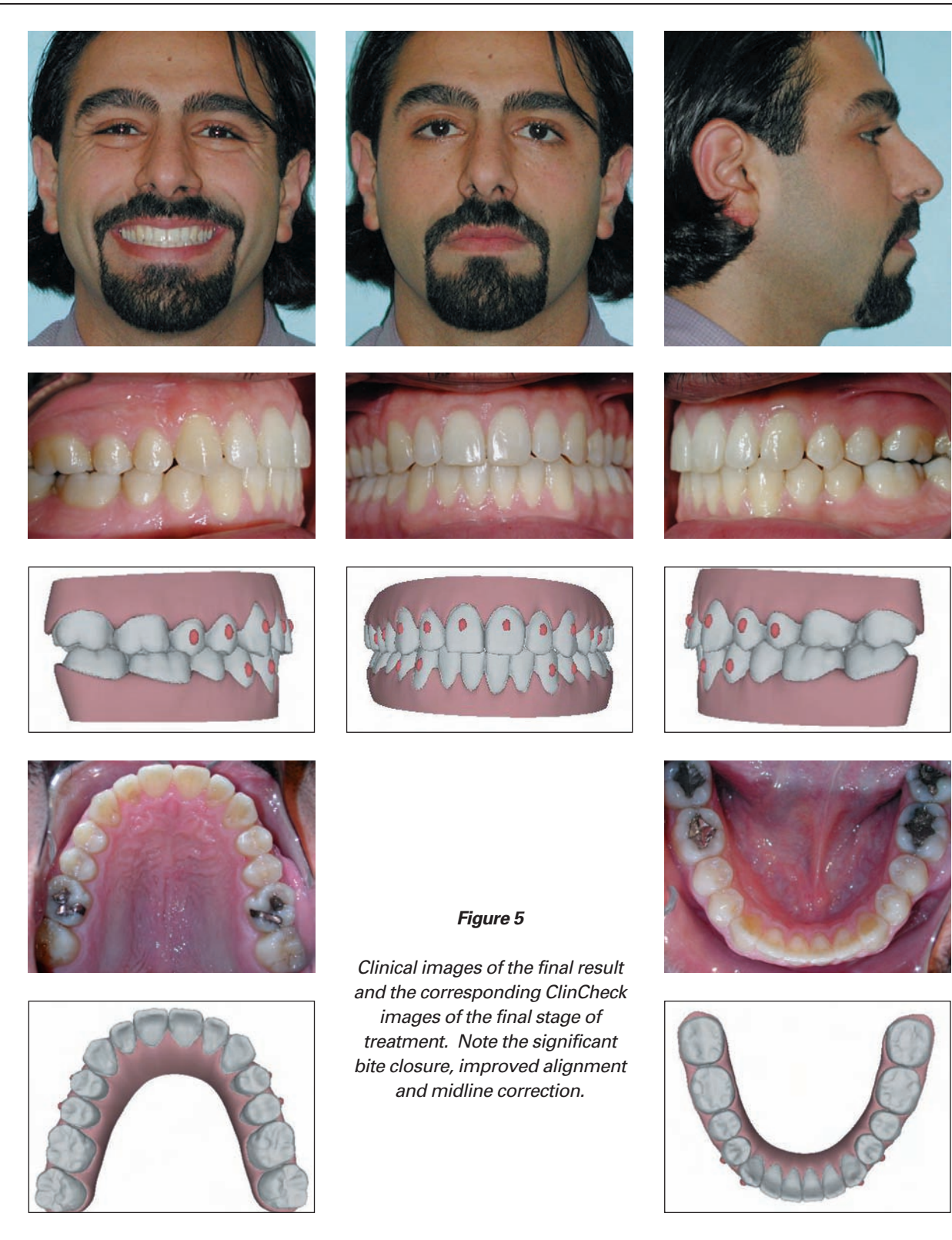


Figure 5

Clinical images of the final result and the corresponding ClinCheck images of the final stage of treatment. Note the significant bite closure, improved alignment and midline correction.

(Continued on next page)

POST-TREATMENT ASSESSMENT

Correction of the open bite is evident in the clinical pictures. The excellent cooperation of this patient (he was about to begin his orthodontic residency) made the result effortless to achieve. Initially, the number of Aligners was thought to be excessive. Perhaps, one could have used a thicker material and intrude the posterior teeth with the bite plane effect of the Aligners, thereby reducing the number of trays. But as in all the cases a clinician treats, this too was a learning experience. With the benefit of hindsight and today's cumulative wisdom, it would have been better to start this colleague at the outset with the Invisalign system.



CLINICAL TIP

If there are problems with tracking, it helps if the patient is instructed to bite into a cotton roll, and snap the attachments into the blisters.

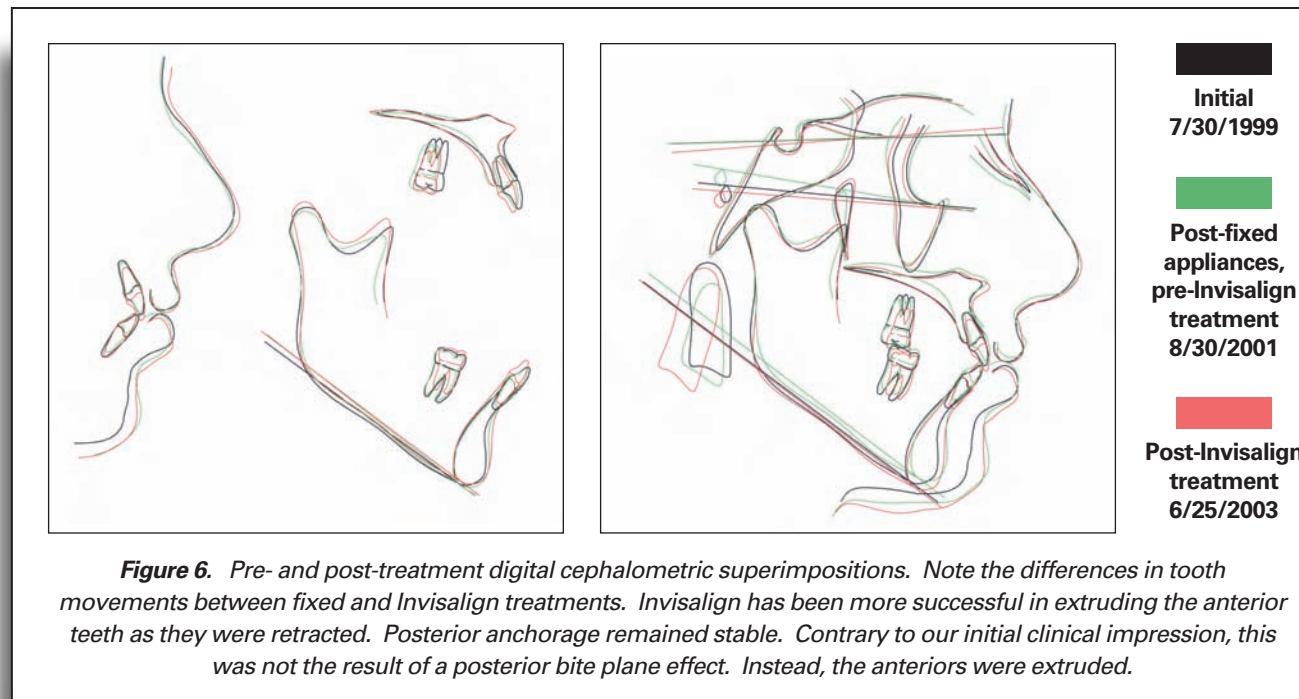


Figure 6. Pre- and post-treatment digital cephalometric superimpositions. Note the differences in tooth movements between fixed and Invisalign treatments. Invisalign has been more successful in extruding the anterior teeth as they were retracted. Posterior anchorage remained stable. Contrary to our initial clinical impression, this was not the result of a posterior bite plane effect. Instead, the anteriors were extruded.



EDITOR'S NOTE

With the current design of Aligners, single-tooth extrusions are difficult. But the control of the degree of extrusion during retraction can be built into the Aligner during the ClinCheck phase. In either case, if there is interproximal space present, extrusion is more predictable. If IPR is not desired, initial flaring of the teeth will provide the spacing.

To view the ClinCheck animated images depicting the progress of this case, visit www.myinvisalign.com/studies and click on Dr. Hennebry's Case.

Copyright © 2003 Professional Audience Communications, Inc., Yardley, PA. All rights reserved.

From the Editor

In traditional orthodontics, the finish put on the treatment is determined by the manual skills of the clinician. Among clinicians, variations in the finish are known to be more frequent and independent of diagnosis and treatment plan. Perhaps this disparity stems from the standardized nature of the diagnostic and treatment planning process. The standardization is made possible by the use of facsimiles; *i.e.*, plaster casts, radiographic and photographic images, and the like. Clearly, even in the absence of the live patient, any experienced clinician can study these "patient substitute" images and determine how the patient should be treated. In the process, the clinician will visualize (rather than see) how, when and where the teeth will be moved by the appliances. This is a personal, intimate-with-oneself type of activity. Generally, in the minds of most clinicians, estimation of therapeutic modifiability in this manner is efficient practice management. They are thus, unwilling to think differently.

Following this facsimile exercise, the interaction between the clinician and brackets and wires moves the teeth into prescribed new positions. Although this is a comfortable routine for the clinician, teeth don't care as they don't know where the forces are coming from. They will move when pushed or pulled. The critical difference is the comfort level of the clinician. For the most part, clinicians know what works in their hands and are unwilling to experiment. But there are times when the familiar mechanics do not deliver the desired tooth movements fully. Those are the times when alternate solutions are sought.

One could argue the clinician's wisdom may be formed either by repetition or by reasoning. Thus, one element is the technician's (technical) wisdom, and the other is the clinician's (clinical) wisdom. Technician's wisdom is formed by repetition of the task or by having seen the problem to be solved many times over. In contrast, clinical wisdom is formed by the clinician's powers of reasoning. Clinical wisdom is independent of the tools of the trade. Accordingly, clinical wisdom is the expression of a system, rather than of technical mastery. Whereas hardware and technical skills might have limitations, wisdom has no boundaries. The Invisalign® system is grounded on the wisdom of the clinician, not the nature of facsimiles or the level of technical skills. The clinician is free to step outside the box, for the results can be rewarding.

Studies of Invisalign effectiveness and efficiency will soon be published in various scientific journals. These reports will cover excellence of finish, patients' perceived quality of life, and periodontal impact, to mention a few. Consequent to the publication of these papers, it is hoped the clinician will step outside the box with feet firmly based on evidence rather than just opinions.

Orhan C Tuncay, DMD
Chairman, Department of Orthodontics
Temple University School of Dentistry

Correction of the Persistent Open Bite

Richard Hennebry, Alberto Vargas, Ousama El-Hillal
Philadelphia, Pennsylvania

INTRODUCTION

Correction of the open bite is challenging and frustrating. As much as intrusion of the posterior teeth is the desired strategy, more often than not the open bite is corrected by the extrusion of the anterior teeth. But generally, the extent of this correction is just past the edge-to-edge relationship of the incisors. There are many orthodontic appliances, and they all have their good and mediocre points. When one type of appliance fails, another can do better.

CASE REPORT

When this patient presented with an edge-to-edge bite and a slight Class III tendency, he was still in dental school with aspirations of becoming an orthodontist. Both the maxillary and mandibular dentition were prognathic. His dentition sat on a skeletal base that was not particularly beyond the range of normal, and there were no unusual radiographic findings.



Figure 1

The pre-treatment clinical images of the patient. Note the open bite and the fixed maxillary retainer from a previous treatment.

(Continued inside)

TREATMENT PLAN

Initially, this patient was treatment planned for fixed appliances. Mild expansion for the maxillary dental arch was planned, along with mandibular interproximal reduction to over-correct the open bite problem. Intra-arch mechanics were to be used and, if need be, the final over-correction of the incisor relationship was to be accomplished with anterior box elastics, possibly on segmented archwires.

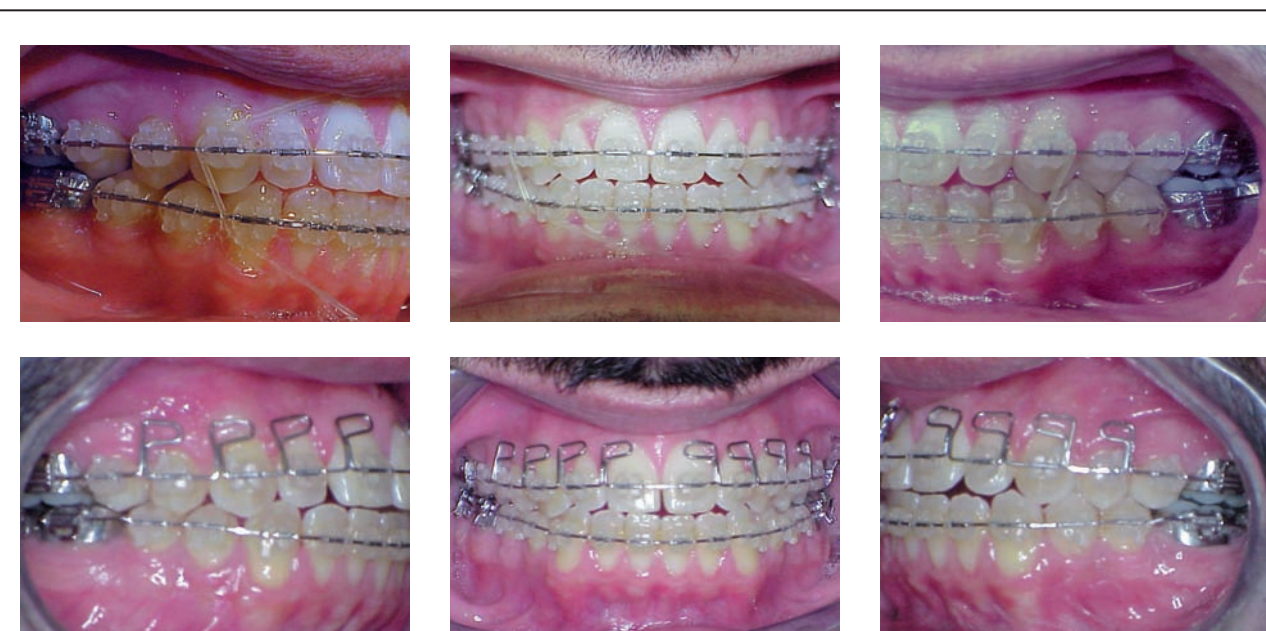


Figure 2. Various configurations of fixed appliances used to correct the persistent open bite tendency. These archwires were augmented by anterior box elastics. Patient's cooperation was excellent.

TREATMENT PROGRESS

The fixed appliances were used on the patient for 19 months. These appliances represented numerous designs, including the multi-looped edgewise archwires (MEAW). Unfortunately, at the conclusion of treatment, only a hint of an overbite could be created. Dissatisfied with this result, the patient was offered Invisalign® therapy.



Figure 3. The final result after 19 months of fixed appliance treatment with anterior box elastics.

(Continued on next page)



CLINICAL TIP

The effectiveness of different attachment designs is not fully characterized, but it is obvious in this case that the oval design was capable of extruding the teeth, contrary to one's instincts. It appears, therefore, the number of hours clocked on the Aligners might be the difference between the teeth that are tracking and the ones that are not. It is advisable that each set of Aligners be worn not less than 250 hours, approximately 17-18 hours per day for 2 weeks per Aligner.

Thirty-one Aligners were used for the upper, and thirteen for the lower teeth. As can be seen in the ClinCheck images, oval-shaped attachments were placed on the maxillary anteriors.

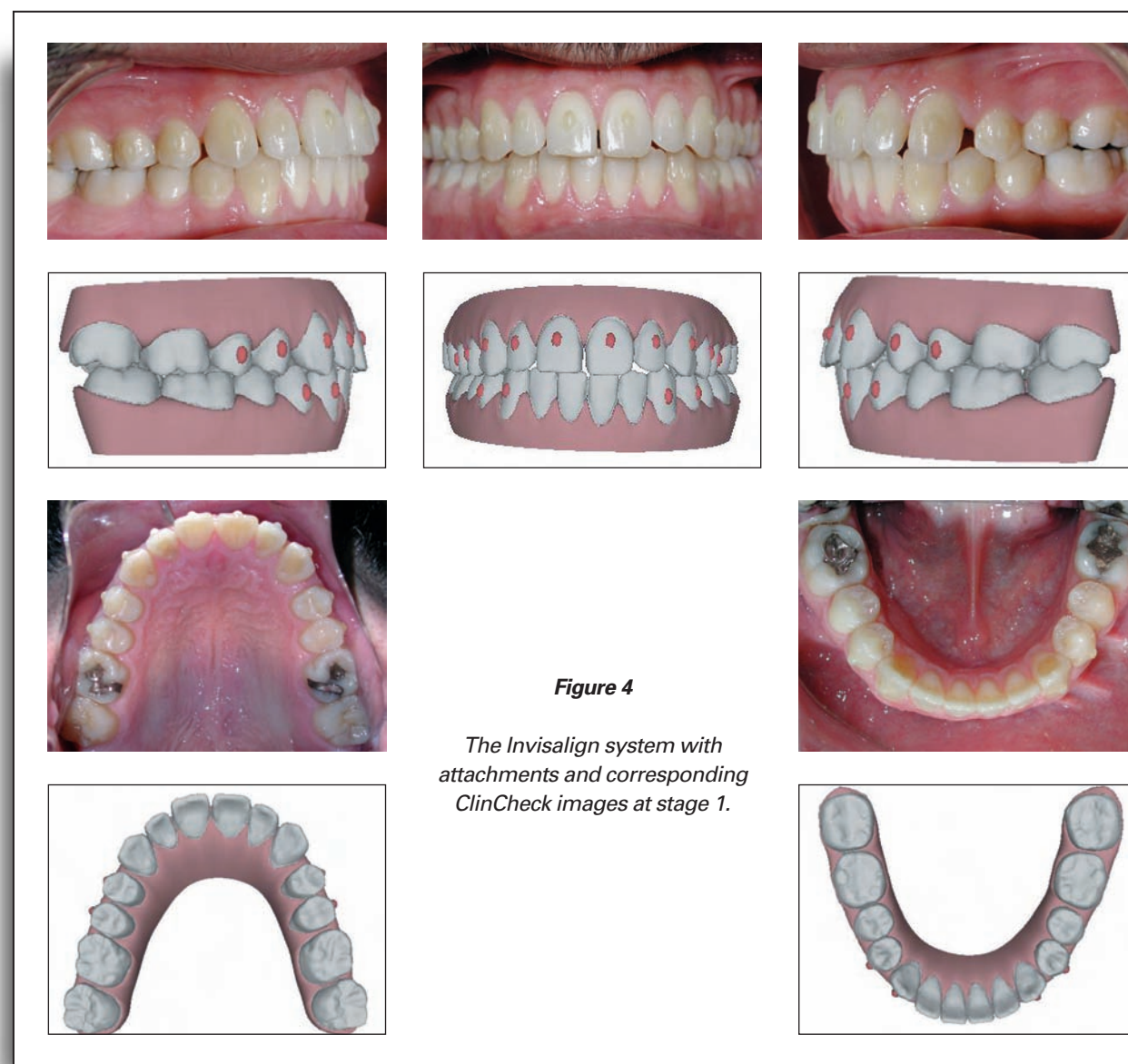


Figure 4

The Invisalign system with attachments and corresponding ClinCheck images at stage 1.

(Continued on back)