

# A Complex Case Successfully Treated with Clear Aligner Therapy

by Benjamin Schwartz, DDS, FAGD, FICOI

Many dentists are unaware of the full range of orthodontic conditions treatable with Clear Aligner Therapy (CAT). In this case report, a very complex case gets broken down to its bare components and is treated successfully using CAT.

## Introduction

As Clear Aligner Therapy increases in popularity, many practitioners are under the impression that this treatment modality is only applicable to simple cases of crowding or spacing. As demonstrated in this case report, CAT can correct what may initially appear as a very complex case. With further inspection, and through the proper use of the ClinCheck software, misaligned, crowded, tilted, and intruded teeth can be transformed into a very pleasing smile.



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## Diagnosis

A 23-year-old male presented at our office seeking a third opinion regarding his treatment possibilities. His main concern was that he didn't like the appearance of his smile and wanted it improved (**Figure 1**). He was embarrassed to smile in public, and would avoid taking pictures with friends and family. As a young working individual, he did not want traditional braces and was interested in Invisalign treatment. He had consulted with two other dentists previously and been told that CAT would not be able to resolve his specific issues. In addition, one dentist had informed him that serial extractions would be needed to properly align his teeth. This made the patient nervous, as he did not want any of his teeth extracted. A colleague at his workplace referred him to our office for an Invisalign consultation.

After a thorough examination, it was noted that the patient had a Class I malocclusion with crowding and flaring in the anterior portion of his mouth (**Figure 2**). Tooth #11 was palatally blocked out of the maxillary arch (**Figure 3**). The patient was particularly concerned about tooth #11, as it was not visible



Figure 1: unattractive smile with overlapping present.



Figure 2: maxillary arch with flaring and crowding.



Figure 3: left lateral view showing locked-out tooth #11.



Figure 4: mandibular arch with crowding and displaced teeth.

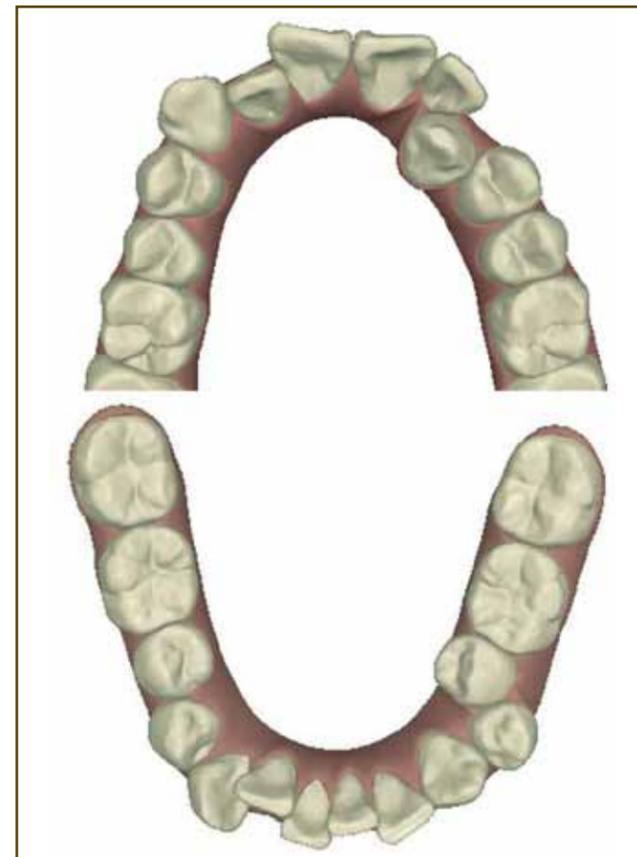


Figure 5: initial ClinCheck view.

at all when he smiled. There was 4 mm of existing overjet present, combined with approximately 7 mm of crowding and a moderate overbite. The mandibular arch exhibited 9 mm of crowding, tooth #20 was lingually displaced, and teeth #21 and #27 were mesially inclined and retruded (**Figure 4**).

## Options

Treatment options and goals were discussed at length. This discussion covered traditional braces, ceramic braces, lingual braces, 6-month braces, and CAT. After the expected outcomes and limitations of each treatment option had been explained in detail, the patient wished to proceed with CAT.

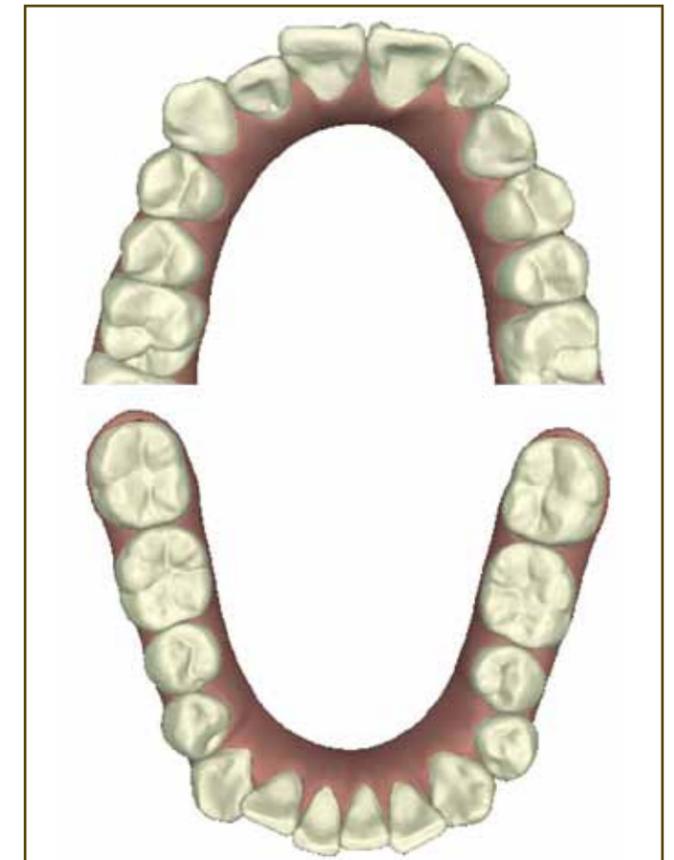


Figure 6: ClinCheck view after anterior protrusion.

Invisalign was chosen over other Clear Aligner therapies owing to its superior material properties and clinical track record of success. Full arch impressions were taken in vinyl polysiloxane impression materials (Genie; Sultan Healthcare, Hackensack, N.J.), together with a bite registration and all necessary photographs.

The ClinCheck software featured in the Invisalign system allows the dentist to visualize all aspects of tooth movement in three dimensions. In addition, ClinCheck images can be used as a teaching and presentation tool to help patients understand how the teeth will move and see what the desired end result will be.

## Treatment

Utilizing the software, a complex case was broken down into segments (**Figure 5**). The first step was to expand and protrude the anterior teeth so that the lingually displaced teeth could come into the arch. This occurred around aligner #23 for the maxillary arch and aligner #27 for the mandibular arch (**Figure 6**).

Once the teeth were aligned within the arch, the next steps were to upright and extrude the intruded teeth, while simultaneously retracting the anterior segment so as to decrease the amount of overjet that would be present at the end of treatment (**Figure 7**). This required the use of precision

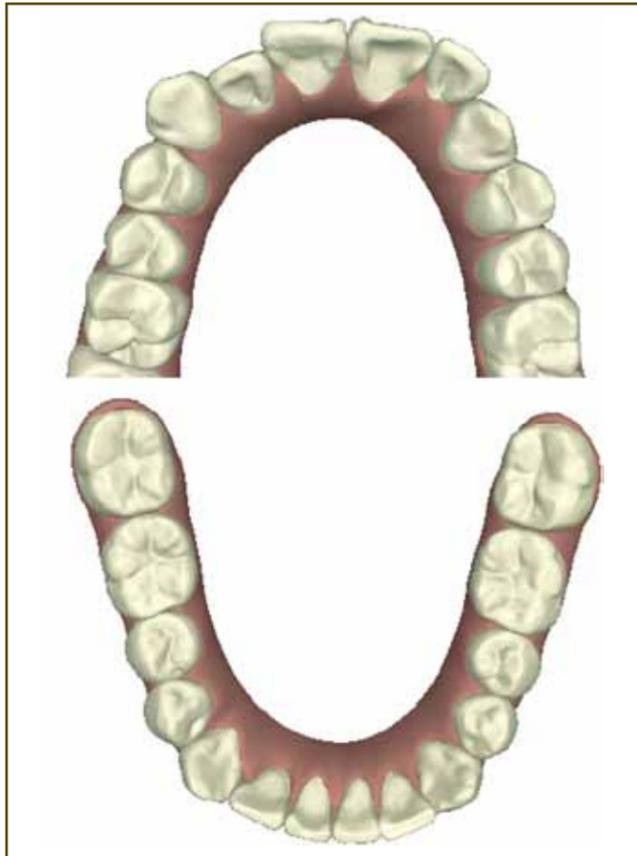


Figure 7: final expected outcome.



Figure 8: anterior retracted post-op view.



Figure 9: maxillary arch post-op.



Figure 10: mandibular post-op view.



Figure 11: left lateral final view.

attachments and IPR in both arches. In addition, intrusion of the mandibular anteriors was performed during this phase to allow for a more normalized overbite.

After the ClinCheck was approved and the aligners were fabricated, the patient returned for attachment placement and Invisalign instructions. The patient wore his aligners meticulously throughout the treatment process. Near the end of treatment, 1 refinement set was needed to help alleviate minor discrepancies and to allow for a more aesthetic treatment outcome.

#### Results

After 43 aligners, the patient's treatment was finally completed. Although this may appear to be a long time, it is in line with other treatment modalities, and the patient was informed of the time frame before treatment. The overlapping and lingually locked-out teeth (teeth #11 and 21) were all in proper positions at the end of treatment. The intruded teeth were extruded and the mesially inclined teeth were uprighted, allowing for a proper bite and an esthetic smile. The end result is shown in Figures 8-11. Without the use of extractions or any auxiliary methods, we were able to transform this patient's smile.

#### Conclusion

Proper use of CAT can correct more than just minor alignment issues. With appropriate treatment planning and good patient compliance, CAT can be utilized in a variety of situations to enhance and improve a patient's smile. Even seemingly complex cases can be successfully treated with this modality. ■

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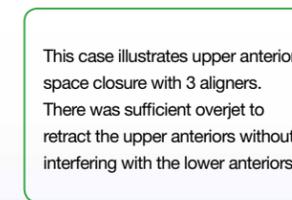
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This is a typical lower anterior crowding case resolved with 4 aligners. Moderate IPR (.025mm) was done on all 4 anterior teeth combined with overall arch form improvements.



This case illustrates upper anterior space closure with 3 aligners. There was sufficient overjet to retract the upper anteriors without interfering with the lower anteriors.



The upper anterior crowding was resolved with labial movement of the anteriors combined with slight IPR on the mesial and distal of the laterals. Total corrections were done using an initial set of 4 aligners followed by 2 "refinement" appliances.



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