SUCCESSFUL TREATMENT OF CLASS III MALOCCLUSION USING THE INVISALIGN TEEN SYSTEM

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The patient was a teenage male, aged 12 years and 8 months who presented to my clinic. He did not like the appearance of his mouth and the fact that his lower teeth were in front of the upper teeth.

CLINICAL PRESENTATION
The patient presented with dental Class III malocclusion, along with crowding in the anterior region.

CLINICAL FINDINGS
- Dental and skeletal Class III malocclusion.
- Anterior crowding.
- Negative overjet.
- Excessive curve of Spee.
- Retrusion of the upper lip in profile view.

TREATMENT GOALS
- To align anteriors.
- To correct the vertical component.
- To coordinate the widths of the two arches during expansion.
- To improve the anterior/posterior relationship.
- To improve the facial profile.

TREATMENT APPROACH
Intraoral scans (iTero) were performed to commence Invisalign Teen treatment. Full comprehensive treatment plan involved 27 set of aligners, followed by two sets of refinement aligners. The initial set of aligners were aimed to improve vertical relationship, expand arches and align anteriors. The first refinement was aimed at correcting the Class III relationship using Class III elastics, and the second refinement was aimed at holding the correction also using Class III elastics.

Stage 1
27 sets of aligners
- Active stages maxillary: aligner sets 1 to 19.
- Overcorrection: aligner sets 25 to 27.
- Active stages mandibular: aligner sets 1 to 26.
- Passive stages mandibular: aligner sets 27 to 29.
- Overcorrection: aligner sets 30 to 32.

Stage 2
First refinement
- Active stages maxillary: aligner sets 1 to 13.
- Passive stages maxillary: aligner set 14 to 16.
- Second refinement
- Active stages maxillary: aligner sets 1 to 13.
- Passive stages maxillary: aligner sets 14 to 16.
- Overcorrection: aligner sets 19 to 21.
- Active stages mandibular: aligner sets 1 to 18.
- Overcorrection: aligner sets 19 to 21.

TREATMENT DETAILS
Active Treatment Time
23 months.
Aligners Used
- Active maxillary treatment: 27 aligners.
- First refinement: 16 aligners.
- Second refinement: 21 aligners.
- Active mandibular treatment: 32 aligners.
- First refinement: 16 aligners.
- Second refinement: 21 aligners.

Attachments
Stage 1: 27 aligners
- Optimised Root Control Attachments: teeth 3.3 and 4.3.
- Optimised Extrusion Attachments: teeth 1.1, 1.2, 1.3 and 1.4.
- Optimised Rotation Attachments: teeth 2.4, 2.5, 3.4 and 4.5.
- 3 mm rectangular attachments: teeth 4.4 and 3.5.
- Power Ridge features: teeth 3.1, 3.2, 4.1 and 4.2.
First refinement: 16 aligners
- Optimised Multi-tooth Extrusion Attachments: teeth 1.1, 1.2, 2.1 and 2.2.
- Optimised Extrusion Attachments: teeth 1.3, 2.3 and 3.3.
- Optimised Root Control Attachment: tooth 4.3.
- Optimised Rotation Attachment: tooth 2.5.
Second refinement: 21 aligners
- Optimised Extrusion Attachment: tooth 1.3.
- Optimised Root Control Attachments: teeth 3.3, 3.4 and 4.3.
- Power Ridge features: teeth 3.1, 3.2, 4.1 and 4.2.
- Eruption compensation: teeth 1.7 and 2.7.
TREATMENT OUTCOME
The post-treatment cephalometric tracing demonstrated an improvement in the Wits appraisal and in the ANB angle, suggestive of an improvement in maxillary growth after the unlocking of the occlusion. Broad, well-contoured dental arches were achieved and the deep anterior overbite and the anterior crossbite, were corrected. The anterior teeth alignment, as well as the facial profile, had improved at the completion of treatment.

Clinical Tips
- Invisalign Teen is a guidance of the patient’s growth and development.
- In Class III deep bite cases, it is important to first control the vertical component to establish the extent of the anterior–posterior discrepancy, and then use elastics for Class III correction in the refinement stage.
- In growing male patients, an extra refinement can be used to maintain the Class III correction for a longer duration by the continued use of Class III elastics.

Impact On Clinical Practice
Class III skeletal cases provide extra challenges, and the treatment times may need to be increased.

The teenage patients are more amenable to extra treatment time using an aligner refinement and elastic so than they are to continuing full fixed appliances and elastics.

CONCLUSION
Disocclusion of the teeth with aligners allows for easier correction of anterior crossbites more so than with full fixed appliances.

Invisalign Teen can be used in growing patients with Class III deep bite to correct anterior crossbites and vertical discrepancies, allowing a more normal environment for maxillary growth.

Author disclosure
Dr John L. Brabant was provided an honorarium from Align Technology, Inc., for his contribution towards the creation of this case report.

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John Brabant graduated with a Bachelor of Dental Surgery (Honours) from the University of Sydney, where he also completed his Master of Dental Science (Orthodontics). He is a member of the Royal Australasian College of Dental Surgeons, as well as a member of the Pierre Fauchard Academy. Dr Brabant is a former Secretary and President of the Australian Society of Orthodontics (NSW Branch) and has previously held positions as a tutor in paedodontics and prosthetic dentistry at the University of Sydney, as well as lecturer to speech pathology students. He was also one of the invited speakers at the first Asia Pacific Invisalign Summit, held in Singapore in June 2014. Dr Brabant has worked for 32 years as a private specialist focusing on orthodontics and his practice, Evolve Orthodontics, won a Telstra Business Award in 2012. He is the founder of the Carevan Foundation, a non-profit organisation that aims to reduce poverty and helps the homeless and disadvantaged in rural Australia.