

Invisalign masterclass

Invisalign Teen and class II correction

Continuing our Invisalign Masterclass series, Raman Aulakh highlights the use of Invisalign with elastics to treat a class II malocclusion

A popular method to correct a class II skeletal and dental relationship in a growing child is with the use of the twin block followed by the fixed appliance. The functional appliance produces its effect by altering the position of the mandible relative to the maxilla. The appliance utilises the forward posturing of the mandible as well as the muscle action of the patient to produce the desired orthodontic and orthopaedic forces.

It has been postulated that the same effect can also be achieved with Invisalign Teen combined with class II mechanics such as bite jump (also referred to as elastic simulation) in conjunction with or without upper molar distalisation. The following case will show the example of a bite jump to correct a class II malocclusion using Invisalign and class II elastics.

A 13-year-old male presents with a skeletal class II base due to a retrognathic mandible. The incisor relationship is a class II div I with a deep bite and 5mm overjet. The canines and molars are a full unit class II on both sides.

Setting up the Clincheck

Understanding how to set up the Clincheck to demonstrate the A-P bite correction is paramount in the treatment-planning phase. This will be indicated as a single-stage shift in the Clincheck model which

simulates an A-P bite correction with elastics. Elastics are always necessary and usually advised to be used from an early part of the Invisalign treatment. The Clincheck image in Figure 1a corresponds to the start of treatment displaying the right buccal view.

The number of planned active aligners was 17 in the upper and 11 in the lower. Lower passive aligners were ordered from L12 to L17. Figure 1b shows the right buccal view at aligner 17, which actually demonstrates that the class II canine and molar relationship is still not corrected with a further increased overjet. This does not reflect clinically what is to be anticipated at aligner 17 since the progressive use of class II elastics would be providing the A-P correction during aligner 1 to 17.

The definite end point of the A-P correction on the Clincheck is indicated by an additional stage after number 17 in the upper which is annotated with the number 18. This is not an aligner but the bite jump simulation which is demonstrated in Figure 1c. The expected canine and molar correction to class I with overjet reduction can be seen. This treatment outcome shown here is solely reliant on the patient being compliant with elastic wear and the clinician utilising refinements and mid-course corrections as necessary to treat the growing patient.

Treatment progress

Treatment time was 20 months in total with the use of refinements. The aligners were changed every three weeks as opposed to the normal two weeks. This was to maximise the use of light class II elastics for anterior-posterior correction. This progressive improvement in overjet, overbite and skeletal relations are shown in Figure 2.

Aligners can be cut by the clinician to facilitate space for the attachment of auxiliaries such as buttons and brackets for elastic placement. This can be seen in Figure 3.

However, to avoid the inconvenience of



Figure 1a: Clincheck of right buccal view at start of treatment.



Figure 1b Clincheck showing aligned arches prior to bite jump.

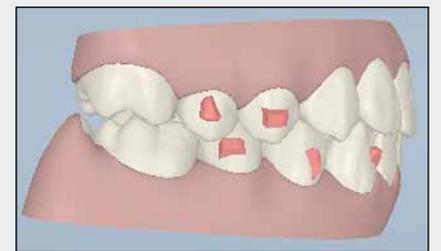


Figure 1c Clincheck showing the simulated bite jump to ideal Class I relations

trimming each aligner in the surgery, Align Technology has incorporated precision cuts as an option on the Clincheck treatment plan. Thus, precision cuts could have been incorporated into this Clincheck treatment plan using upper hooks and lower button cutouts (Figure 4).

Elastics can be worn bilaterally or unilaterally depending on the correction required. The force vectors of traction can also be changed by altering the position of the cuts on different teeth. It is recommended to carefully review the patient on a six-week basis to analyse the occlusion in terms of



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0 months



9 months



18 months



Figure 2: Treatment progress demonstrating anterior-posterior improvement.



Figure 3: Class II elastics running from UR2 to LR6 using auxiliaries and cut outs

molar and canine relations on both sides, the clinician can therefore monitor and make the necessary changes to the class II elastic configuration as required.

The corresponding end result of the Clincheck and end photos demonstrate that the desired end result was achieved by the clinician (Figure 5-6).

Conclusion:

The Clincheck served a dual purpose in this treatment; in addition to allowing the clinician to plan the class II correction on the Clincheck utilising class II elastics, the Clincheck also served as an informed consent tool. The patient and parent can visualise the importance of compliance

by the visible difference in results shown from Figure 1b to Figure 1c.

The use of Invisalign Teen to correct class II malocclusions does have advantages as the system allows for disocclusion, distalisation mechanics in the upper, class II traction and alignment of teeth which can all occur simultaneously.

See www.invisalign.co.uk for more information

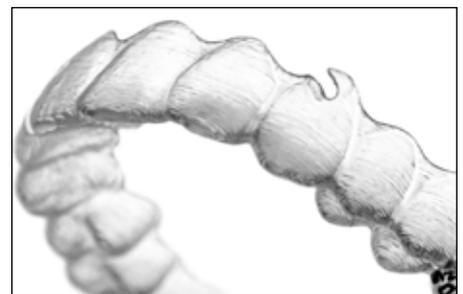


Figure 4: Aligners with upper hooks (left) and lower button cutouts (above)



Figure 5: Final treatment images

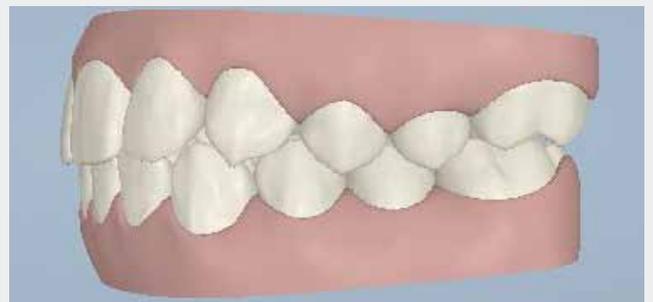


Figure 5: Final Clincheck images