CORRECTION OF ANTERIOR OPEN BITE USING INVISALIGN TEEN

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The patient was a 13-year-old female, KK, who presented to my clinic. She disliked the way her teeth looked and was unable to use her front teeth to incise. She did not mind the idea of wearing braces but did not want to have jaw surgery to correct her bite, which she had been advised by another doctor who she and her mother had consulted with.

CLINICAL FINDINGS
• Bilateral Class I canine and molar relationship
• 2-4 mm asymmetrical anterior open bite
• Mild anterior spacing
• Tongue thrust and forward tongue protrusion
• Bolton ratio discrepancy due to smaller-than-ideal-sized upper-right and left-lateral incisors
• 1 mm midline discrepancy

CLINICAL PRESENTATION
KK presented with a Class I subdivision, Class II malocclusion, accompanied by an anterior open bite, excessive overjet and midline discrepancy. She had no history of any previous orthodontic treatment and no history of any finger or thumb-sucking habits.

TREATMENT APPROACH
In this case, the open bite was closed via a combination of relative extrusion and absolute anterior extrusion with some help from posterior intrusion. Relative extrusion was produced by reducing the proclination of the maxillary incisors through simple space closure. The patient was instructed to squeeze on the aligners to produce posterior intrusion to help close the open bite as well as 30 seconds of squeezing twice daily with an Aligner Chewie device on the anterior teeth to help seat the aligners properly.

TREATMENT OUTCOME
The patient stayed highly motivated throughout the entire treatment. Immediately following the final aligner, there was a bilateral posterior open bite, which is what I have noted happening with similar cases, but this resolved after only a few weeks and, of course, given that the patient started with an anterior open bite, this is not a problem at all.

Vivera retainers are now my preferred choice for retention in open-bite cases, to help control the vertical component.

Clinical Tips
My advice when treating open bites is as follows:
1. Velocity and staging
   • Ideally, all the teeth should move simultaneously to their final positions. In this case I planned for 1.5 mm of posterior intrusion and between 3 and 4 mm of anterior extrusion. The total amounts will vary per patient, but I advise not to plan for or/and expect too much anterior extrusion if the patient does not have adequately spaced teeth.

2. Interproximal reduction (IPR)
   • This case required no IPR as, fortunately, there was adequate spacing, which helped to close the anterior open bite; however, there are certainly times where anterior open bites can benefit from having IPR, not just to reduce or eliminate black triangles but also to aid in repositioning of the upper and/or lower incisors.

3. Attachments
   • I have most success when treating anterior open bites by using bevelled horizontal attachments or Optimized Anterior Extraction attachments if triggered on all the upper anterior teeth in the majority of cases, and some of the lower incisors in some other cases.
open bite result due to the constant posterior intrusion and only mild extrusion applied to the anterior teeth.

• When treating open bites with the Invisalign system, select posterior intrusion of about 2 mm for each molar and premolar and no more than 1–1.5 mm of anterior extrusion unless there is generalised spacing to the anterior teeth.

• Fixed appliances, when not positioned close to perfectly on posterior teeth, have a tendency to open bites even in cases where you started with ideal interdigitated molars in a Class I relationship; hence my rationale for using Invisalign to treat anterior open bites for all non-surgical and even surgical anterior open-bite cases.

CONCLUSION
The main clinical findings of the case were:

Class I canines and molars, an asymmetrical moderate anterior open bite of 2–4 mm, mild anterior spacing, excessive overjet and mild midline discrepancy. A combination of relative extrusion and absolute extrusion, and likely some help from posterior intrusion, were used to correct the open bite. Simple space closure was performed to correct the anterior proclination and combined with posterior intrusion. It was important to treat this case using Invisalign and not braces, and the patient was thrilled not to have braces and even more excited about not needing to undergo jaw surgery (as previously advised by another doctor). This case demonstrates that with a proper diagnosis and a cooperative patient, one can achieve excellent results when treating anterior open-bite malocclusions with Invisalign aligners.

Impact On Clinical Practice

• I will not usually place any buccal attachments on the posterior teeth as I've found that posterior teeth will successfully intrude without them so long as you have enough retention on the anterior teeth, which you tend to have with all the bevelled horizontal attachments on these teeth. The horizontal bevelled attachments are still excellent attachments, but the new Optimised Attachments are producing excellent results with decreased size and profile of the attachments.

4. Tooth positions

• Finally, note the mild Class II malocclusion on the right side is due to the initially diagnosed Bolton ratio discrepancy.

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