Case Report

Treating an Adolescent Patient with Deep Overbite and Crowding with the Invisalign System

Dr Peter Miles

Peter Miles received the dental degree with honours from the University of Queensland and was awarded a research scholarship to complete his orthodontic training at the University of Pittsburgh in the USA, and he is a Fellow Orthodontist of the American Association of Orthodontists. He is a part-time senior lecturer in orthodontics at the University of Queensland and a Key Opinion Leader with Invisalign Australia.

In this case, the top retainer had a hole cut in the buccal surface for better placement, but the retainer still covered the occlusal and lingual surfaces to prevent palatal rolling.

As done for this patient, the lower retainer can be cut short engaging at the right second premolars to allow for the vertical and buccal rolling of the molars. This helps in vertical settling and maintenance of the non-extraction approach.

Patients should be advised to carefully remove and reinsert aligners made with the SmartTrack material. Patients should be instructed to use Chewies for at least the first few days of each new aligner, but can also be told that they can use them for the entire treatment period.

Discomfort due to edge rubbing can be easily overcome by smoothing the aligner with a nail file at home or at the clinic.

Refinement aligners can be over-expanded in the first molar regions to ensure transverse correction, as done for this patient.

Impact on clinical practice

This case demonstrates that the Invisalign System is very effective in cases such as this where the patient presents with crowded teeth; crowding, given the excellent fit of the aligners, provide an easy way to insert and remove by patients. In this case, no trimming of the aligners was required. Additionally, in my experience, the more the teeth are aligned, the less the aligner wear intervals need to be, which is encouraging to patients.

Conclusion

This case involved significant malalignment that compromised the aesthetics of the patient’s smile and arch form. The Invisalign System was effective at relieving crowding and correcting crossbites and the posterior right occlusion settled. The deep bite was also improved and the alignment almost fully corrected in the lower arch; thus, the patient’s treatment goals were achieved with the Invisalign System along with the use of elastics and IPR.

Author disclosure

Dr Miles was provided an honorarium from Align Technology, Inc., for his contribution towards the creation of this case report.

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Clinical presentation

The patient presented with a significant overjet, deep overbite as well as severe crowding and crossbites in both arches, resulting in a narrow smile.

Clinical findings

- AP cephalometric radiograph profile with a Class II molar relationship.
- No deep bite.
- Deep overbites with the first molars in crossbite.
- Constricted and V-shaped upper and lower arches.
- Both arches presented with 5-6 mm crowding.
- No lower wisdom teeth and deep overbite as well as severe crossbites in both arches.
- Thick tissue type in the lower anterior region and good gingival and periodontal health.
- There was a moderate overjet.
- No significant overbite.
- Good vertical dimension of occlusion.
- Lingual root tipping was considered low.
- Anterior incisor relationship was moderate.

Treatment goals

- Relieve crowding in both arches.
- Achieve ideal overjet and overbite.
- Correct alignment.
- Crossbite correction.

Treatment approach

Treatment options were discussed with the patient and parents. One of the options was a non-extraction approach involving settling of the upper and lower first molars; the initial Invisalign® system was recommended.

Treatment initiation

The patient was 17 years old at the time of first presentation. The patient was concerned with the crowding of his teeth and a retained left deciduous canine which was subsequently extracted. There was significant malalignment, which compromised the patient’s smile and his confidence.

Intra- and extra-oral images before treatment

I. Clinical presentation

The patient, a teenage male, was 17 years of age at the time of first presentation. The patient was concerned with the crowding of his teeth and a retained top left deciduous canine which was subsequently extracted. There was significant malalignment, which compromised the patient’s smile and his confidence.

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