

A Case Study on the Treatment of Crowding with ClearPath Orthocare Australia Aligners



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By Dr Vincent Wan

In April 2014, a 15 year old female patient presented with her mother for her regular six monthly recall, wanting to discuss options to improve her smile through orthodontics. Her main concern was "crooked front teeth", in particular "one tooth sticks out more than the others", pointing at tooth 22, while "another tooth sits too far in", pointing at tooth 25. She wanted orthodontics to fix her teeth just like her friends at school who were having it done.

The patient had no medical conditions, her teeth and periodontal tissues were healthy and she displayed good oral hygiene. Opaque white patches on the surfaces of her dentition were suggestive of fluorosis from growing up in an area of Australia with water fluoridation, but this was not a concern for the patient.

A full orthodontic examination was carried out and records organised for analysis, including extra-oral and intra-oral photographs, OPG and Lateral Cephalogram, and upper and lower alginate impressions to form study models.

Diagnosis

Analysis revealed upper and lower anterior crowding with teeth 11 and 21 inclined towards each other, tooth 22 rotated and protruding labially, and tooth 25 in crossbite with teeth 35 and 36. Molar relationships were Class I, but canine relationships was Class I on the left but Class II on the right. Incisor relationships were reasonably normal with average overjet and overbite, but the lower midline was shifted to the right.

Treatment Options

The results of the analysis and the following treatment options were discussed in detail with the patient and her mother.

- ◆ No treatment
- ◆ Aligner orthodontic treatment through Invisalign or ClearPath
- ◆ Traditional orthodontic treatment with brackets and wires
- ◆ Referral to specialist orthodontist
- ◆ Restorative treatment with veneers, preferably when the patient is older

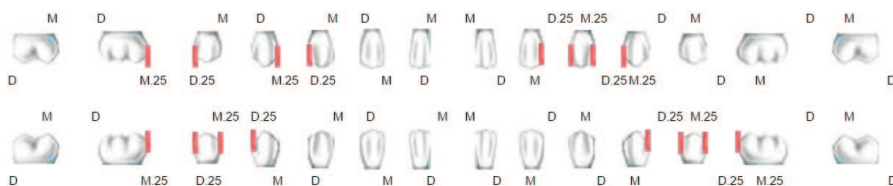
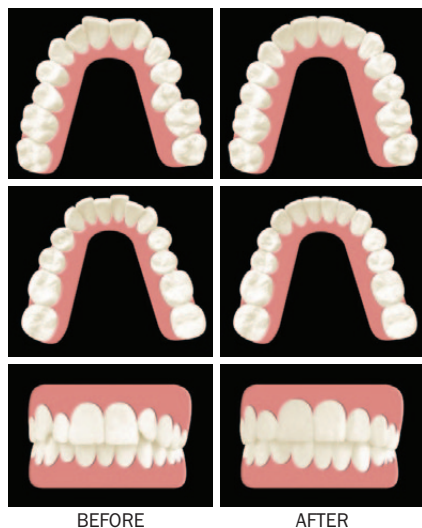
The patient and her mother wanted treatment of the patient's malocclusion, but they did not like the concept of hiding the irregularities with restorative treatment or want the tooth structure removal required for veneers. They wanted orthodontic treatment with aligners rather than brackets and wires as this was more socially acceptable and cleaning was easier with removable appliances. They preferred their long term dentist to provide the treatment rather than being referred to a specialist orthodontist they did not know or trust. Although Invisalign was more well known to them, they preferred ClearPath as there was no need for composite resin attachments to be bonded to the teeth, which the patient mentioned she disliked when she saw them on some of her friend's teeth when they removed their aligners.

An orthodontic consent form was discussed in detail as well as the need for interproximal reduction of enamel (IPR) to create space for tooth alignment.



Treatment

The orthodontic records along with upper and lower PVS impressions and PVS bite registrations were sent to ClearPath. A treatment plan including before and after animation of the arches showing the expected treatment outcome and the IPR required was available after two



weeks and this was discussed in detail with the patient and her mother. There was the option to modify the treatment plan but this was not required. Once the treatment plan was accepted, the aligners, a movement record form to follow each movement the aligners should perform and an IPR form arrived in three weeks from ClearPath.

For this case, 22 upper aligners and 17 lower aligners were required with IPR before the second and eight sets of aligners. The aligners were worn at least 22 hours per day, only taking them out to eat and drink and clean the teeth. Each set was worn for two weeks before moving onto the next set until all sets were complete. After finishing the lower seventeenth set, this was worn as a retainer until the remaining upper aligners were finished.

The patient was initially seen every two weeks for review and then every four weeks as she became comfortable wearing the aligners. Good oral hygiene was maintained during the course of treatment and the patient continued regular six monthly recalls.

Aligner Loss

During treatment, the patient lost the upper twelfth aligner after only wearing it for three days. After consultation with ClearPath, the patient was instructed to move onto the upper thirteenth aligner, wearing this for the remainder of the two week period she was supposed to wear the upper twelfth aligner as well as wearing it for the two weeks she was supposed to wear the upper thirteenth aligner. During this period, she progressed with the lower aligners as normal. Although this was not ideal, the thirteenth aligner compensated for the movements of the missing twelfth one and orthodontic treatment continued to progress smoothly after that.

Perhaps due to the orthodontic movements of the twelfth aligner not being fully completed as a result of it being lost, at the completion of all aligners, the position of tooth 22 was markedly improved but still slightly rotated. All other goals of treatment had been achieved including relief of anterior crowding, correction of the crossbite of 25 with 35 and 36, and improvement of the patient's smile and alignment of the arches. ClearPath offer refinement aligners free of charge if there are still irregularities needing correction after all initial aligners are completed. Despite the slight rotation of tooth 22, the patient and her mother were very pleased with the end result and did not wish to get refinement aligners.

Retention

Removable retainers were issued to hold the final position and prevent relapse, being worn full time for the first month and then every night from then on. ClearPath includes two sets of removable retainers as part of their aligner package. The patient was also given a set of models of the final result to keep in case more retainers are required to be made. The unerupted wisdom teeth need to be reviewed and possibly extracted in the future due to suggestions of impaction on the OPG and pressure on the corrected position of the teeth. At the latest six monthly recall, the corrected position of the teeth had not relapsed and the patient was still very pleased with the orthodontic result provided by the ClearPath aligner treatment. ♦

Dr Vincent Wan achieved his BDS with First Class Honours in 2003 from the University of Queensland, Australia. He is the principal dentist and owner of First Dental Studio and Central Brisbane Dental, located in the Brisbane CBD, Australia. Both practices provide all general dental services as well as cosmetic dental treatments such as aligner orthodontics.