A Multi-step Approach

Dr. Samuel Wong

Samuel Wong describes the treatment of moderate crowding using removable appliances

At dental school, we were taught that removable appliances have limited effect on malocclusion, so when I took the Clearsmile Inman Aligner online training course back in October 2011 I was a bit sceptical.

However, after my first case aligning my colleague's teeth, I was amazed at the speed and the effectiveness of the IA appliance.

As such, I decided to take the hands-on course in May 2014, the Orthodontic Restorative course in May 2016, and IAS Advanced Course in November 2016, as I was looking for an alternative orthodontic pathway that offered step-by-step training and guidance.

IAS Academy fit that bill down to a tee. Since becoming a certified user of the appliances, the Academy's online forum has been instrumental in helping me deliver safe, effective, and ethical treatment to my patients.

I have also learned a lot from other general dental practitioners, as well as from the Clearsmile Inman Aligner trainers, which has helped me to refine my skills.

Assessment

In this case, the patient was referred to me for anterior alignment treatment of her upper anterior teeth.

She was self-conscious about her teeth and felt she couldn't smile properly without everyone staring at them. She wanted to improve their appearance before she got married.

Fig 1: Full facial view pre-treatment

Skeletal	Class II	
FMPA	Average	
Lower face height	Average	
Facial asymmetry	Fairly symmetrical	
Soft tissues	Gingival recession of varying degrees (Between 1mm and 3mm)	
Incisor relationship	Class II	
Overjet	4mm	
Overbite	6mm	
Displacement on closure	None	
Molar relationship	Left: 1 unit class II	Right: 1 unit class II
Canine relationship	Left: 1 unit class II	Right: 1 unit class II
Teeth presents	765321	123567
	765321	123567
Centrelines	Lower 2mm to left	

Table 1: Patient diagnosis

Fig 2: Anterior view pre-treatment

Fig 3: Anterior view open bite pre-treatment

Fig 4: Right lateral view pre-treatment

Fig 5: Left lateral view pre-treatment

Fig 6: Upper occlusal view pre-treatment

Fig 7: Lower occlusal view pre-treatment

She was self-conscious about her teeth and felt she couldn't smile

Due to time constraints, the patient was advised the treatment would likely need to be carried out in two parts on either side of the wedding.

The patient demonstrated very good oral health, with no signs of clicking or pain. From an orthodontic perspective, the patient had moderate crowding in both upper and lower arches, with a maximum opening of 34mm, while movement range on the right side was 4mm and the left side was 6mm (Table 1).

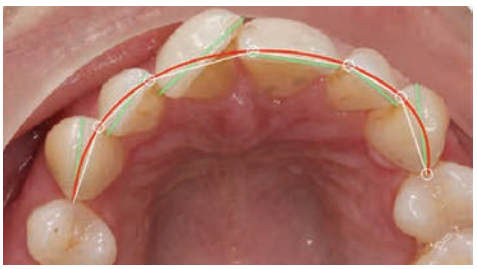

Fig 8: Spacewize calculations

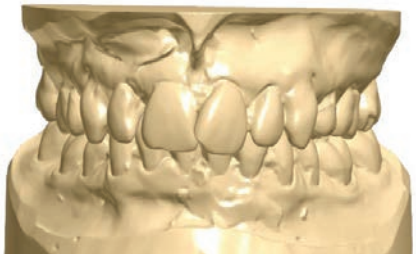

Fig 9: Archwize analysis anterior view pre-treatment

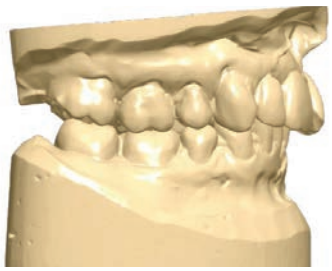

Fig 10: Archwize analysis right lateral view pre-treatment

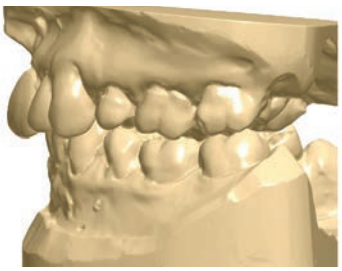

Fig 11: Archwize analysis left lateral view pre-treatment

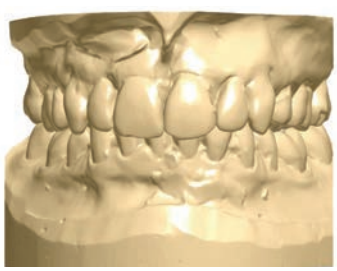

Fig 12: Archwize analysis anterior view post-treatment

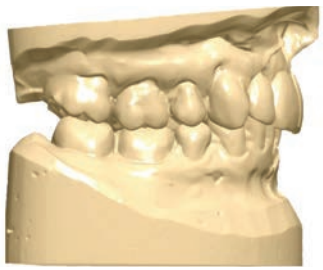

Fig 13: Archwize analysis right lateral view post-treatment

Fig 14: Archwize analysis left lateral view post-treatment

Fig 15: Fan screw in situ

Fig 16: Full facial view post-treatment

Fig 17: Anterior view post-treatment

Fig 18: Archwize analysis anterior view post-treatment

Fig 19: Right lateral view post-treatment

Fig 20: Left lateral view post-treatment

Fig 21: Maxillary occlusal view post-treatment with fixed retainer

Treatment planning

The patient's ideal treatment aims were to align the anterior upper incisors and correct the crossover of the central incisors before her wedding day.

In order to achieve the optimal results, several treatment pathways were discussed, including:

- Comprehensive orthodontics with fixed braces
- The Clearsmile Inman Aligner
- The Clearsmile Aligner.

The patient opted for the Clearsmile Inman Aligner removable appliance with a fan screw, followed by Clearsmile Aligners.

At this stage, it was decided the overbite would have to be accepted, as the posterior bite would need to be opened towards the end of the treatment so a fixed retainer could be bonded.

The patient was also informed that the overjet increase after treatment would need to be accepted due to the limitations of the Clearsmile Inman Aligner and the anterior teeth could possibly end up being out of contact after the movement of the teeth.

Small corrections can make a big difference to the movement of teeth

She was happy with the projected outcome, so as soon as case suitability was confirmed by the IAS Academy's Spacewize+ digital crowding calculator (the difference between available and required space was 4.1mm), impressions were taken and sent to the laboratory.

Typically, the recommendation is 3mm, but as she was just over, the case was given the "all clear" by the trainers via the online forum with the recommendation to use a fan screw before the alignment began.

Appointment	Stage
1.	Initial consultation and assessment • Spacewize+ digital crowding calculator was used to confirm suitability of the Clearsmile Inman Aligner appliance
2.	Impressions were taken, along with pre-treatment photographs
3.	The fan screw was fitted with a composite anchor placed on UR1 to keep the fan screw in position
4.	Fan screw was trimmed from the canines and UL2 two weeks later
5.	A further two weeks later the fan screw was trimmed again from the canines and UL2
6.	• After three months of expansion using the fan screw, the Clearsmile Inman Aligner was fitted and an anchor was placed on UL1 on both the buccal and distal-palatal surfaces • Interproximal reduction (IPR) and predictive proximal reduction (PPR) was carried out
7.	• Progress was reviewed • Composite anchors were repositioned on UL1 buccally and palatally
8.	Composite anchors were further repositioned
9.	• Composite anchors were placed on LL7 and LR7 to allow Dahl effect • Composite anchor was placed on incisal edge of UL1
10.	Disking was carried out on UR1 and UL1 to achieve a better contact point
11.	IPR carried out on UL1 and springs were tightened by composites
12.	• The spaces between UL1 and UR1 had closed • Process was reviewed • At this stage treatment paused for the patient's wedding, so an Essix retainer was given to prevent any relapse
13.	Whitening was carried out and impressions were taken for Clearsmile Aligners to finish alignment
14.	Clearsmile Aligner was fitted with composite stents
15.	• Next Clearsmile Aligner fitted • Further IPR carried out
16.	• IPR and disking of corners of UR1 to match the appearance of the other incisor • Gave patient the third aligner at this appointment to use after second aligner – she fitted herself
17.	• Last aligner in position • More composite anchors were placed on LR7 and LL7 to give Dahl effect for fixed retainer space • Impressions were taken for retainers
18.	Patient fitted with a fixed retainer and there are plans to fit an Essix retainer in the near future for added retention

Table 2: Treatment timeframe

Treatment

As predicted, there was a pause in treatment as the patient took some time out to get married. Between this break and the fact that the patient could not always attend appointments at the necessary times due to work commitments (the patient is a teacher), the process took significantly longer than usual (Table 2).

Self-appraisal

This was a very challenging case, especially as the ideal outcome was compromised by large time gaps between appointments.

In order to achieve optimal results, I would have liked to have seen the patient more often and to have had more control over the case.

The placement of anchors was not very effective at first and I learned how small corrections can make a big difference to the movements of the teeth over the course of treatment.

It was the first time I used the Clearsmile Aligner stent, which was a huge learning curve for me. Overall, however, the patient and I were happy with the outcome. She is far more confident and enjoys showing off her smile. ■

Dr. Samuel Wong
After graduating from University College London in 1986, Samuel obtained a Master of Medical Sciences at Sheffield University and a Diploma in Dental Studies in Bristol University. He is always learning and studying new ways to help patients improve their smiles. He has been working at Revive Dental Care in Monton since 2006.