

Aesthetics in arch form

Andrew Wakefield describes an alignment, bleaching and edge-bonding approach that produced a well-balanced outcome within four months

Dr Andrew Wakefield

Retired general dental practitioner



Case overview

A female in her mid-20s attended an appointment at Apolline Dental, wishing to make improvements to her upper dentition (Figure 1).

She had undergone non-extraction fixed orthodontic treatment as a teenager and there had been relapse in both upper and lower arches.

Several ortho-restorative options were discussed, including fixed, removable clear aligners and removable IAS Inman Aligners.

The patient chose to proceed with orthodontic alignment with the Inman Aligner. The treatment plan would also involve intrusion of the UR1 using several IAS Clearsmile Aligners, followed by whitening and composite edge-bonding to complete the aesthetic effect.

The patient's UR2 also needed to be proclined and the UR1 retroclined.



Figure 1: The patient wished to make improvements to her upper dentition

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“ The material chosen for the edge bonding was Kulzer Venus Pearl B1 shade. Venus Pearl delivers consistently superior results, particularly when building up incisal edges where strength is important.

It is easy to handle – not too fluid and not too viscous – and does not slump. The composite also polishes to a very high lustre to achieve an outstanding aesthetic effect.

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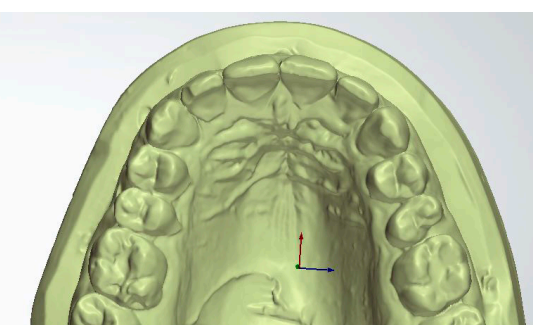
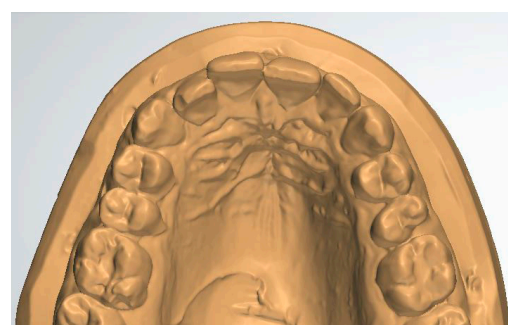
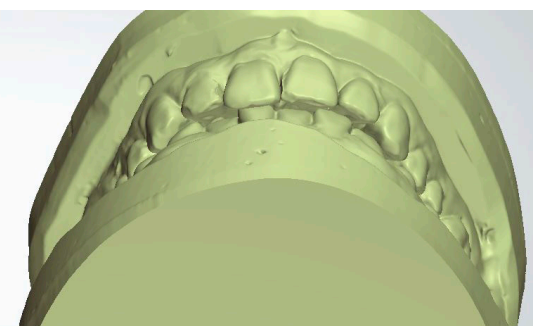
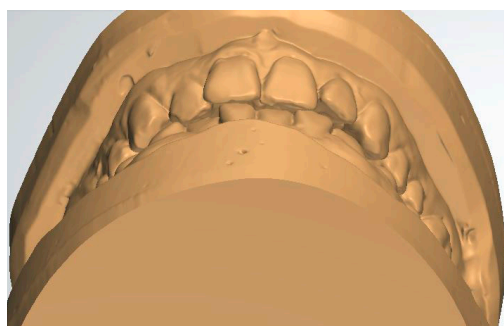
Figures 2 and 3: She had a class I incisor relationship, an overjet of 2mm, an overbite of 40% and overlapping incisors



Figures 4 and 5: The patient had a class I canine relationship on the right and left



Figure 6: She was inclined to bite her tongue bar and the habit had caused palatal movement of the UR2



Figures 7 and 8: The scan data shows the planned tooth movement following orthodontic treatment

Patient examination and case history

The extraoral examination revealed the patient had a mild skeletal class II malocclusion, an average Frankfort-mandibular plane angle (FMPA), average lower face height, no facial asymmetry and normal soft tissues.

The intraoral examination revealed a class I incisor relationship, an overjet of 2mm, an overbite of 40% and overlapping incisors (Figures 2 and 3).

The centrelines deviated to the lower right by 1mm, but there was no displacement on closure.

The patient had a one quarter class II molar relationship on the right and left, and a class I canine relationship on the right and left (Figures 4 and 5).

There was a unilateral right buccal crossbite with no displacement and a poor but asymptomatic posterior occlusion.

She had a posterior crossbite on the right from teeth 5 to 8, and anterior crowding on a mild skeletal class II base.

The difference between the available and required space was 0.5mm, as determined by the IAS Spacewise software.

The patient wore a tongue bar, which she was inclined to bite. This habit had caused palatal movement of the UR2.

The shape of the ball had worn into the disto-incisal angle of UR2 and mesial surface of the UR3.

The resultant wedging effect had led to slippage of the distal contact of the UR1 with the UR2.

Consequently, the UR1 had become slightly over erupted, resulting in a discrepancy in the gingival level of the upper central incisors (Figure 6).

Treatment planning and objectives

This treatment would present several challenges.

The UR2 needed to be brought sufficiently labial to clear the mesial surface of the LR3.

Overeruption of UR1 had led to the uneven gingival level. And the incisal edge wear on the UL1 also needed correcting.

The ideal treatment plan would be to provide fixed braces to align the incisors to class I, intrude the UR1, correct the gingival levels and the buccal crossbite, and improve the posterior occlusion to class I.

The alternative option would be a slight compromise to the ideal treatment plan. This would align the upper incisors only, attempt to intrude the UR1 as much as possible, carry out composite edge-bonding to level the teeth and prevent further movement with a bonded retainer.

The patient opted for the alternative treatment, as she was only concerned with the anterior teeth and the posterior occlusion was not presenting issues for her.

She would therefore be provided with an upper Inman Aligner to align the incisors. This treatment would be reasonably short at around three months, and the removable appliance would produce a good aesthetic result.

Upper clear aligners would intrude the UR1 by 0.5mm to correct the slight overeruption and achieve a symmetrical appearance by rectifying the gingival margin discrepancy.

Alignment would be followed by teeth whitening, composite edge-bonding and the fitting of a bonded retainer for permanent retention.

Accurate impressions

At the initial appointment, an upper full-mouth impression was taken using Kulzer Flexitime Dynamix Monophase in the tray, with Kulzer Flexitime Light Flow extruded over the teeth.

The impression material was mixed in a Kulzer Dynamix speed system. The Dynamix machine ensures a clean, smooth, even and effortless mix, and is popular with the practice's nurses.

The lower-arch impression was taken using Kulzer Xantasil, which is a silicone-based alternative to alginate.

These impression silicones are highly accurate and stable and I have never had a problem with badly fitting appliances when I use them.

I like the handling of Flexitime due to its ►

