Simple, planned aesthetic orthodontics for the General Practitioner

By Dr. Tif Qureshi

Dr. Tif Qureshi shows how digital technology has moved progressive smile design on and the enormous benefits this will have for planning and consent. Digital Smile Design is making a come back in a very smart and intelligent form through the use of live video, cameras, and keynote presentations.

I commend the users of this technique as it is clearly a far better form of smile design planning than just using plain static before and after pictures with someone else’s smile stitched into place.

However in cases where there are alignment issues, I would still argue that any patient who does not at least go down the pathway of alignment and bleaching, cannot really see their teeth change in a dynamic way.

I have found that patient’s feelings about their smiles change if you think they want one thing but after they see their smile change a little they start to appreciate it in a different way. How can someone really be consented unless they are given the opportunity to bleach their teeth, perhaps with slight alignment and bonding.

This case is the perfect example and will show how progressive smile design also using digital technology can produce beautiful predictable results that often require far less invasive treatment.

We use digital technology in a different way of course and this is all to do with planning and consent. Previously with Inman Aligners, we had to use ‘lesser models’. These are effectively fairly crude stone models which take a cut and once repositioned in wax the aligner is then built on that model. As soon as the aligner is fitted into an uncorrected mouth the forces are there to push the teeth to the final position. The real downside of this is that because the model is wax, the patient might be unhappy with the fit if space is needed.

In this case the patient also had a retained upper left deciduous tooth which we decided to remove. The curve is set according to the spacewize digital calculator.

Setup

A full orthodontic examination was carried out. All orthodontic options were discussed and the patient understood the benefits of fully comprehensive orthodontics, and was also given a range of short-term techniques that he could have chosen. He declined comprehensive orthodontics on the basis that he only wanted to deal with his anterior teeth.

He chose to have an Inman Aligner because of the shorter wear time and the minimal cost impact on his overall treatment desires. Our first goal was to evaluate the aesthetics and function to decide on landmark or reference teeth. As part of the digital planning process, these teeth are not moved and ensure the setup accommodates these teeth to ensure the proposed curve is not flared out or over constructed.

In this case the patient also had a retained upper left deciduous tooth (no canine had developed). Fortunately this tooth was in the right position so it became the reference tooth and hence no orthodontic force would need to be applied to it. Both upper centrals needed to be retracted and both laterals advanced. It was important to visualize a chin up view to ensure this was viable for the patient from an occlusal and guidance point of view. All the movements were possible.

Figure 1: Occlusal showing landmark and desired movements.

In the chair the occlusal photo is taken and uploaded into the spacewize digital calculator.

The curve is set according to the landmark teeth and required movements. This showed a crowding result of 5mm which was within the easy limits for Inman treatment.

Impressions were taken and were sent to the lab with the spacewize trace.

 Throughout the case, patient consent was not an issue.

Figure 2: Showing spacewize trace

The 3D model was returned and we could view the proposed setup made according to the spacewize instructions.

Figure 3: Overjet before

Figure 4: Overjet reduced and proposed on 3D print

Figure 5: 3D Print Occlusal

An appointment was made with the patient to sit down and examine the models. At this point the patient clearly sees any compromises in the posterior region of his mouth. These were again highlighted but the patient insisted he did not want these treated. The over jet was also discussed with the patient he could see a reduction but not a complete closure, he was happy with this.

You can see the width difference in the anterior teeth that would require adjustment and the laterals advanced by about 1.75mm exactly. These setups can be viewed as digital files in 3D if needed beforehand by the dentist and adjustments can be made if needed. Once we are happy, the 3D model was printed.

Consent part two

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tooth shaping with PPR (predictive proximal reduction). This made it far easier for him to understand the processes required to create the space. Finally he could also see the differential wear in his tooth outline that would be evident after alignment. He clearly understood that edge bonding and tooth contouring might be required after alignment and bleaching were complete. That is assuming he did not want to come back with porcelain veneers.

It was noted that the patient had reviewed and understood the 3-D model and what it was proposing. The Inman Aligner was then built and fitted.

**Treatment**

Inter-proximal and Predictive proximal reduction were carried out in a progressive and measured manner over 3 visits. This was done to ensure good anatomy and to reduce the risk of gouging, over stripping and poor contacts. With Inman Aligner treatment stripping is never carried out in one go.

Composite anchors were also placed in a timed and sequenced manner to ensure the forces could be directed at the right time. This allows for rapidly increased treatment times.

After only nine weeks the patient’s anterior teeth had nearly creased treatment times. This allows for rapidly increased treatment times.

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