Case Reports

How Invisalign With IPR Can Save the Aging Patient's Teeth

by Jamie Mellert Houck, DDS

Dr. Jamie Mellert Houck is a fourth-generation dentist who practices general dentistry in Torrance, California, and feels blessed to be practicing with her father. She is a graduate of USC School of Dentistry, Class of 2016, and is on the Board of Directors of the AACA while also leading the AACA South Bay Study Club Chapter. Outside of dentistry, Dr. Houck loves being a mom and spending time with her husband and two young kids.

Susan, a health-conscious, female, 76-year-old retired spine surgeon, presented with Class 2+ mobility on teeth #24 and #25 with poor long-term prognosis. These teeth presented with bone loss. Another doctor in the practice had treatment-planned them for a bonded lingual splint and occlusal adjustment to prevent further loss of periodontal support. Upon examining the patient, I felt it was possible to improve her oral health and cosmetics through orthodontic treatment with Invisalign. We informed her of all risks and benefits, including the possibility of losing teeth #24 and #25.

Diagnosis

The patient was diagnosed with Class I malocclusion (**Figure 1**) with severe mandibular anterior crowding (**Figure 2**), mild maxillary anterior crowding, traumatic anterior occlusion (**Figure 3**), deep bite, narrow arch forms, and generalized gingival recession. Even though the patient had meticulous oral hygiene, there was often heavy calculus buildup on the lingual walls of the lower anteriors due to the overlapping of these mandibular anterior teeth. She had many posterior restorations, all with excellent fit and occlusion. The patient had a diagnosis of osteoporosis, and so we conducted medical consults with managing specialist physicians.

The treatment plan was to correct her malocclusion with Clear Aligner Therapy in the hope of improving her anterior

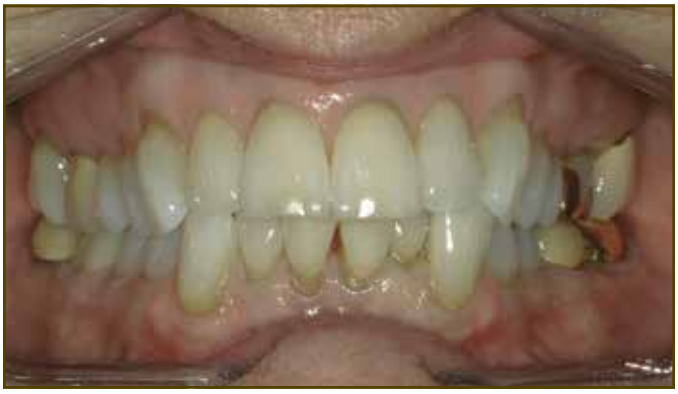

Figure 1: pre-treatment, showing Class I malocclusion.

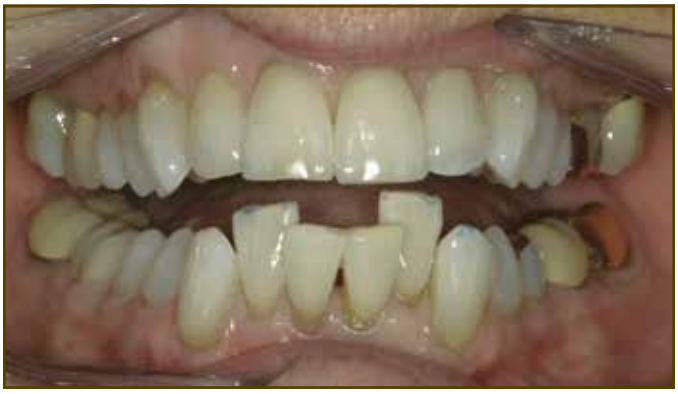

Figure 2: pre-treatment, showing severe mandibular anterior crowding.

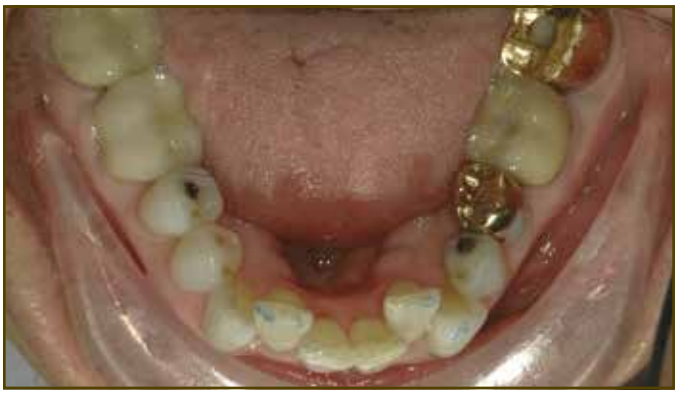

Figure 3: pre-treatment, showing overcrowded and traumatic anterior occlusion.

occlusion and the stability of her lower anterior teeth, while also repositioning teeth with the goal of gaining buccal tissue coverage. The secondary goal, after the improvement of her oral health, was to enhance esthetics with the healthier positioning of these teeth.

Treatment

We chose Invisalign as the treatment modality to give the patient the most comfortable, cosmetic, and concise treatment option. In order to create space for the boxed-out lower laterals, we set up the ClinCheck with the maximum mandibular IPR of 0.5 mm from premolar to premolar. But, in addition to Align's typical limit of 0.5 mm per contact (**Figure 4**), we added 0.1 mm to 0.2 mm of IPR in order to properly recontour the triangularly shaped lower anteriors and minimize the potential for black triangles.

The IPR was completed with QwikStrips, SpaceFiles, and a mosquito bur to open the embrasures and recontour between teeth #24 and #25, where the greatest IPR was needed. Slightly less IPR (0.4 mm instead of 0.5 mm) was done at each of these contacts than originally planned. We used bite ramps and GAIP attachments to intrude the lower anteriors.

The patient wore aligners for 9 months. In total she wore 35 aligners: 31 treatment aligners + 3 overcorrection aligners + 1 virtual C-chain. We slowed the velocity to 0.15 mm per aligner to allow more time for bone remodeling, given the osteoporosis diagnosis. The patient changed aligners every 7 days for aligners #1-23 and every 6 days for #24-35. For acceleration, we had her use Munchies (red) for 5 minutes, 2×/day and each time aligners were seated.

The case was completed without Refinement, and the patient was ecstatic with the results (**Figures 5-6**). At the completion of the case, the patient had a slight Class 1 mobility to teeth #24 and #25, which was a considerable improvement from her Class 2+ prior to orthodontic treatment. This slight mobility should decrease as the ligaments and bone have time to mature in this new healthier positioning, with teeth #24 and #25 slightly out of occlusal contact. She also had a much easier time keeping these teeth clean from plaque and calculus and had less gingival inflammation on the lingual surfaces of her lower anteriors (**Figure 7**).

Retention

We finished the case with a bonded lingual wire from teeth #22 through #26 (**Figure 8**) and upper and lower Vivera retainers.

Conclusion

The older patient population is one that many practitioners shy away from treating orthodontically; but in doing so, we are missing out on opportunities to positively impact the health and well-being of many. If this patient's traumatic malocclusion had not been corrected, it would have led to further wear and potential loss of teeth, which would in turn have necessitated less cosmetic, more invasive, and more costly solutions. With

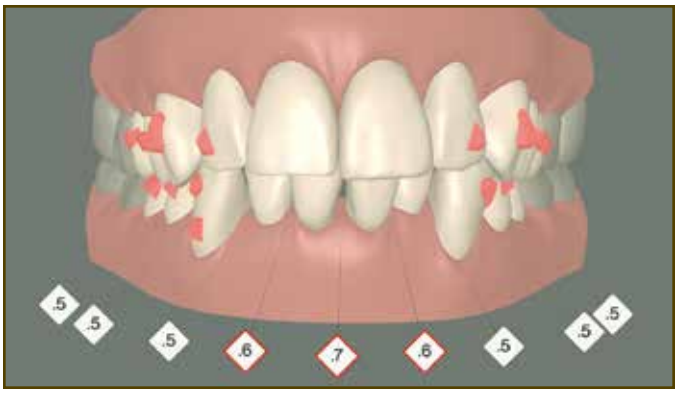

Figure 4: ClinCheck, showing significant IPR.

Figure 5: post-treatment, showing improved occlusion.

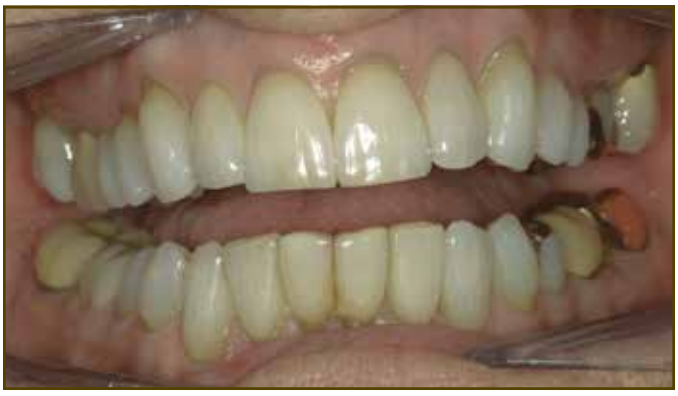

Figure 6: post-treatment.

Clear Aligner Therapy, this patient was able to achieve a healthy, beautiful smile which she can take care of well for the rest of her life.

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Figure 7: post-treatment; lingual gingival inflammation much reduced on lower anteriors.

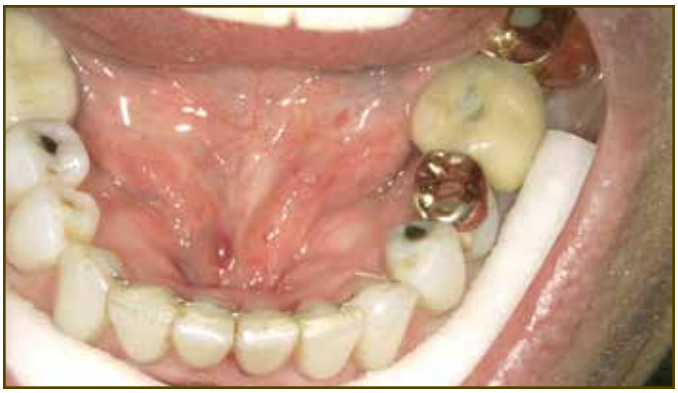

Figure 8: post-treatment, with bonded lingual wire for retention.

Treatment overview

- Treatment time: 9 months
- Total aligners: 35 (31 treatment aligners + 3 overcorrection aligners + 1 virtual C-chain)
- Change intervals: 7 days (aligners #1-23); 6 days (aligners #24-35)
- Velocity: 0.15 mm per aligner
- Acceleration with Munchie use 5 mins 2×/day
- Lower IPR
- No Refinement ■

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