

CASE STUDY

Precision-Driven Crown and Aligner Care

Dr. Kenneth Han

BEFORE



AFTER



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When patients require restorative care, dental crowns can be truly transformative—especially in the aesthetic zone. Beyond restoring function and comfort and addressing issues like decay, well-executed crowns can enhance a patient's confidence in their smile and can inspire them to pursue additional treatment they have previously deferred.

Tooth crowding and misalignment are common examples of conditions often considered elective, yet are commonly pursued as patients begin to regain confidence in their smile. Like crown and bridge treatment, orthodontic care has become more efficient, predictable, and accessible through digital workflows that simplify patient presentation and support consistent, reliable outcomes.

Partnering with a lab that excels in these technologies helps streamline the delivery of comprehensive care while creating continuity across restorative, orthodontic, and other treatment modalities. These capabilities enable clinicians to execute cases with greater precision, supporting a positive patient experience and often encouraging acceptance of further care. These tools also play a key role in patient buy-in—from approving temporaries in the aesthetic zone to visualizing a full smile transformation through aligner therapy.

The following case study illustrates how these multidisciplinary approaches come together to deliver a comprehensive smile transformation.

CASE DESCRIPTION

This case highlights how digital technologies can streamline the delivery of integrated, aesthetic dental care. A patient who initially presented for anterior crowns to address dental caries was inspired to pursue a complete smile transformation after experiencing the results of crown and veneer treatment. Both the restorative and orthodontic phases were guided by digital tools that enhanced predictability, improved efficiency, and made it easier to clearly communicate the treatment plan—helping maintain patient alignment and engagement throughout care.

Patient Presentation

The patient, a 35-year-old male who had been with the practice for many years, presented with a chief complaint of fractures, staining, and poor aesthetics involving the maxillary central incisors. Clinical examination revealed visible lateral fractures of tooth #8 and #9, while radiographic evaluation showed recurrent caries. Both teeth had previously received fillings, including endodontic treatment on tooth #8. The patient also had a history of dental treatment in other areas, including an implant restoration at tooth #4.

Crowding of the lower anterior teeth and additional alignment issues were also noted and discussed, but the patient was not interested in orthodontic care at this time.

A treatment plan was developed and accepted in which tooth #8 would receive a full-coverage crown and tooth #9 a veneer. Custom-fabricated temporaries, created from a lab-produced matrix, would be delivered at the time of tooth preparation, followed by delivery of IPS e.max final restorations.

Preoperative scans were captured and submitted to Dandy dental lab for fabrication of a custom matrix to support provisionalization. Following review and approval of the digital wax-up, the patient returned for tooth preps, beginning the restorative phase for the maxillary central incisors.



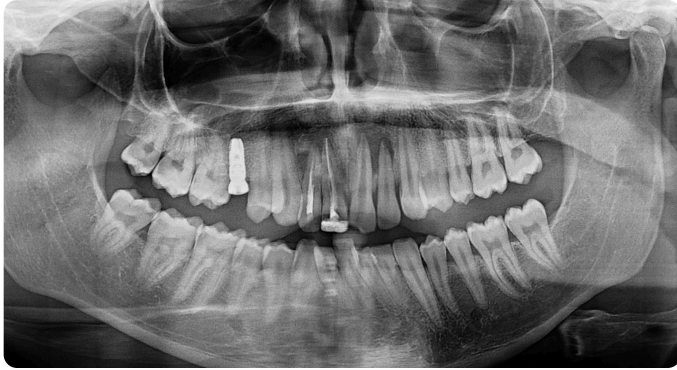
The patient initially presented for treatment of his maxillary central incisors, which suffered from recurrent decay and had fractured laterally.



Although tooth #8 and #9 were the most pressing needs for the patient, both arches exhibited alignment issues that called for orthodontic treatment. At this stage, however, the patient chose to focus on restoring his upper centrals and was not ready to proceed with aligner therapy.



Occlusal view of the maxillary anterior, illustrating the recurrent decay that had compromised the patient's central incisors as well as orthodontic concerns for the laterals.



Panoramic radiograph illustrates crowding of the lower anterior teeth, decay and fractures of the maxillary central incisors, prior endodontic treatment of tooth #7 and #8, and an implant restoration in the area of tooth #4.

Tooth Preparations, Initial Scans and Temporaries

At the next appointment, we began by removing the patient's previous composite restorations he had originally received to treat decay. We then prepared the teeth until we reached clean, intact tooth structure. Tooth #8 was reduced circumferentially to the lingual to accommodate a full-coverage crown, while the preparation for tooth #9 was limited to the incisal edge for a veneer.

Intraoral scans of the preparations, upper and lower arches, and bite were captured using the guided digital impression workflow included with the Dandy Chairside software. This technology streamlines each step of the scanning process and includes built-in tools to quickly verify accuracy of the preparation and digital impression, including Live Scan Review by a technician and AI Scan Review.

Next, the matrix produced from the digital wax-up was used to fabricate temporary restorations with bis-acryl. The material was loaded into the matrix, seated over the preparations, and allowed to set. After making minor adjustments and obtaining patient approval of the aesthetics, the seated provisionals were scanned and submitted with the lab order so the refinements could be carried through to the final restorations.

This streamlined, three-appointment workflow uses provisionals as a key tool to align with patient expectations and ensure the definitive restorations accurately reflect the approved result.



At the next appointment, temporary restorations were fabricated chairside using a matrix produced from a digital wax-up created by Dandy dental lab. The mockups were tried in prior to tooth preparations to verify that the patient liked the designs before proceeding.



Next, tooth #8 was prepared to receive a full-coverage crown and #9 was prepared for a veneer restoration.



After packing and pulling cord and drying the preps, we took intraoral scans for fabrication of the crown and veneer.



The shade for the upper centrals included an A2 base, A1 incisal and ND2 for the stump.



After seating and making minor adjustments to the provisional crowns, the temporaries were scanned so that the alterations could be included in the designs for the final restorations.

Final Restorations for Tooth #8 and #9

Following the tooth preparation and temporization appointment, the lab used the upper, lower, and bite scans to generate Digital Design Previews for the final crown and veneer. Minor refinements based on the scanned provisionals were incorporated, and the designs were approved for milling.

The restorations were fabricated from IPS e.max for lifelike, optimal aesthetics in the smile zone. Designed to replicate the contours

and margins of the approved provisionals, the crown and veneer seated easily and met the patient's expectations.

Carrying the digital design from provisional to final restoration ensures consistency and predictability, particularly in aesthetically demanding cases. As this patient underwent future treatment, this same digital platform would support a seamless transition into orthodontic treatment with aligners, enabling an efficient and coordinated approach to comprehensive care.



The CAD designs for the IPS e.max full contour restorations were shared by the lab via a 3D Digital Design Preview.



The Digital Design Previews offered by Dandy allow for evaluation of the restorations in 360 degrees, with the option to request alterations via chat or live video collaboration. In this case, the initial designs were perfect, and our team approved the crown and veneer for milling.



The final restorations for tooth #8 and #9 seated with ease, and no chairside adjustments were needed.



The patient was very happy with the aesthetics of his new crown and veneer, and agreed to let us know if he ever changed his mind about receiving aligner treatment.

Aligner Consultation and Treatment Planning

Six months later, the patient returned expressing interest in the aligner therapy discussed at his initial visit. Following restoration of the maxillary central incisors, he placed greater importance on his smile and now viewed the time and financial investment as worthwhile—especially with his brother's wedding approaching, where he wanted his smile to look as nice as possible.

The patient had orthodontic issues with both arches that could be treated efficiently and economically using the digital aligner workflow offered by Dandy. To optimize the patient's smile, the following tooth movements were planned as part of orthodontic therapy:

- Crowding of the mandibular anterior teeth required expansion of the arch, including:
 - Shifting of tooth #20, #25, #27 and #28 moderately toward the facial
 - Shifting of teeth #21, #22, #23, #24, #26 and #29 mildly toward the facial to expand the arch

- Tooth #7 was proclined and needed to be retroclined
- Tooth #10 was supraerupted and needed to be intruded to be flush with the incisal plane

To proceed with orthodontic treatment, new upper, lower, and bite scans were captured to reflect the patient's current anatomy and tooth positioning. These digital impressions were submitted to the lab to create a custom series of aligners.

Based on the scans and Rx, the lab team at Dandy, which includes experienced orthodontists, designed a treatment plan to move the teeth into the desired positions and sent an animation of how the orthodontic therapy would proceed over time. The treatment plan included composite attachments and a series of 17 pairs of aligners to be worn by the patient over the course of eight months.

The aligners were designed to create space for repositioning of the mandibular anterior teeth, and to refine the maxillary arch, including correction of tooth #7 and #10. A virtual c-chain was incorporated to tighten interproximal contacts and ensure proper space closure, with overcorrection built in for tooth #25 and #27 to achieve the desired final positions.

We reviewed the animation and treatment plan with the patient. Although there is an opportunity to request adjustments to the orthodontic treatment plan, in this case our team and the patient were happy with the initial proposal and agreed to have the aligners fabricated.



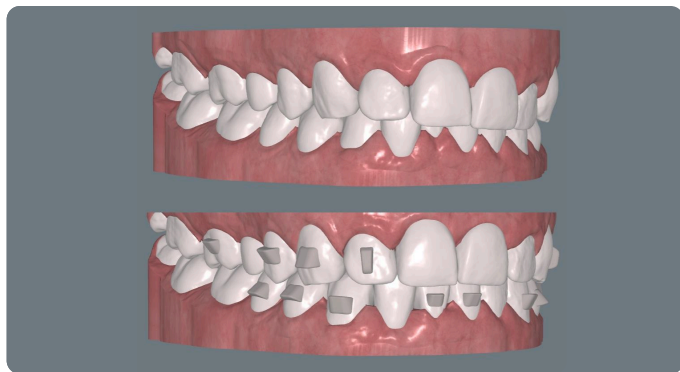
The restorations of tooth #8 and #9, along with his brother's upcoming wedding, prompted the patient to return six months later to address remaining concerns with his smile through aligner therapy. New scans were captured to initiate orthodontic treatment, focused on repositioning tooth #7 and #10 and resolving crowding in the mandibular anterior.



Occlusal view of upper scan shows proclined tooth #7 and supraerupted tooth #10.



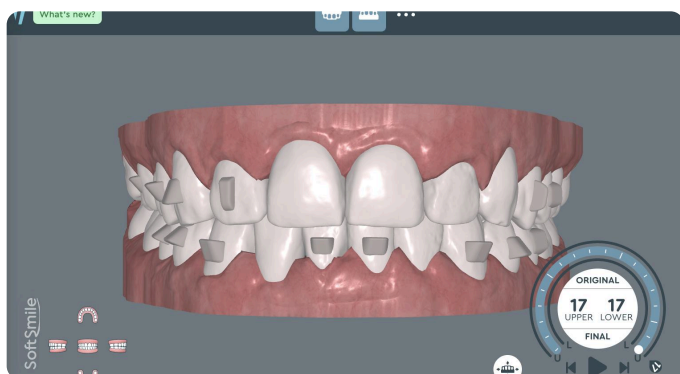
The primary indication for orthodontic treatment was the crowding of the lower anterior teeth. Correction involved moderate shifting of tooth #20, #25, #27 and #28 toward the facial, along with mild facial movement of tooth #21, #22, #23, #24, #26 and #29.



Before-and-after animation of the patient's dentition shows how the orthodontic issues (upper image) were treatment planned for correction with aligners and composite attachments, resulting in the desired tooth movement by the end of treatment (bottom image).



Occlusal view of treatment plan animation shows final tooth positioning (white) vs. tooth positioning prior to alignment care (blue-ish grey).



The Dandy Chairside portal provides a preview of tooth movement as treatment progresses, serving as a valuable tool for both clinician evaluation and approval as well as patient buy-in. In this case, both the clinical team and the patient approved the treatment without changes to the initial proposal, and 17 sets of aligners were fabricated for use over an eight-month period.

Orthodontic Treatment with Aligners and Final Outcome

After our office received the aligners from Dandy, the patient returned to begin treatment. Composite attachments were placed to support the desired tooth movements using the template provided by the lab. This process involved etching and bonding the teeth, adding the composite to the template, seating it over the dentition, and allowing the material to set with a curing light.

Attachments were not placed on tooth #8 and #9 due to their restorations, and tooth #4 was excluded from treatment as it had been restored with an implant. In this case, interproximal reduction was not required to create space for tooth movement.

We provided the patient with four sets of aligners along with instructions for proper use and care. By dividing the aligners into phases—four two-month increments in this case—our team is able to bring the patient back in

for recall, monitor progress and patient compliance, and make sure teeth movement is progressing as expected.

The patient was very compliant with the treatment regimen, and at regular follow-up visits, tooth movement progressed exactly as planned. While minor refinements can be indicated in some cases, treatment here was completed with the original series of aligners, reflecting a highly predictable outcome.

At the final appointment, the patient was thrilled with the results. At a later visit, he shared that during his trip to Spain for his brother's wedding, he felt confident showing off his new smile and even received compliments from his mother, who said his teeth "look very nice." Notably, his oral hygiene has also improved, reflecting a strong, long-term commitment to maintaining his results.

After the aligners were produced by the dental lab, the patient returned to the office and was provided with the first four pairs. To support regular follow-up, monitor progress, and ensure compliance, the remaining 14 pairs were dispensed at recall visits scheduled every other month. Tooth movement progressed predictably, and no adjustments to the aligner treatment plan were ever necessary.





After eight months of aligner treatment, tooth #7 was successfully retroclined and tooth #10 was intruded, bringing both lateral incisors into alignment with the incisal plane.



The crowding issues with the patient's anterior teeth were completely resolved as a result of aligner therapy, giving the patient a level of confidence in his smile he hadn't experienced before.

Patient Before and After



DANDY'S TECHNOLOGY

As illustrated in this case study, partnering with Dandy for the full range of lab services—from crown and bridge to clear aligners—means every type of treatment is executed within a fully integrated, seamless digital ecosystem. This connected approach enables continuity across every phase of care, rather than treating each case type as a separate workflow. Powered by intuitive, assistive digital workflows and unified case management software, clinicians can review, approve, and secure patient buy-in before production begins—resulting in more predictable outcomes and a more consistent experience for both dentist and patient.

CONCLUSION AND BEST PRACTICES

One of the biggest advantages I've experienced in working with Dandy is having access to cohesive, efficient digital workflows across every type of treatment—from veneers and implants to dentures and aligners. Bringing everything into a unified digital ecosystem creates continuity across care, leading to more predictable outcomes as patients progress through treatment over time. These digital tools enable us to execute every case with greater precision and confidence.



ABOUT THE AUTHOR

Dr. Kenneth Han

Dr. Kenneth Han, a San Francisco native, returned to the Bay Area after earning his dental degree from NYU College of Dentistry. He practices comprehensive, minimally invasive dentistry with a strong focus on prevention, helping patients maintain long-term oral health and avoid disease before it starts. Notably, Dr. Han has remained cavity-free in his own permanent teeth—a standard he strives to help his patients achieve as well.

Dr. Han is particularly passionate about digital dentistry and modern clinical workflows, leveraging advanced technology to improve diagnostic accuracy, streamline treatment, and enhance the overall patient experience. His approach integrates caries management by risk assessment (CAMBRA) and extends to hospital dentistry, allowing him to provide thoughtful, data-driven care across a wide range of clinical settings.