



CONSERVATIVE TREATMENT TO IMPROVE FUNCTION AND ESTHETICS

Pre-restorative orthodontics and soft-tissue management enable placement of virtually no-prep veneers

By Amanda Seay, DDS

PATIENTS TURN TO US for professional advice regarding treatment that aligns with their best interests. As dental professionals, our role is to offer patients solutions that meet their esthetic goals while ensuring that the treatment provided does not pose additional risks. Challenges can arise when patients are hesitant to undergo recommended treatments, forcing us to decide whether or not to accommodate their wishes in another manner, even if it involves removing more tooth structure, compromising tooth integrity, altering the bonding substrate, or impacting the long-term predictability of the results.

The patient in this case report expressed concerns about the thinning and wearing down of her anterior teeth as well as erosive lesions on the cervical necks, which had previously been bonded with composites (Figure 1 through Figure 4). Her desire was to prevent the occurrence of further wear while enhancing her smile through restorative dentistry. Because she had an edge-to-edge bite, retroclined maxillary teeth, and collapsed buccal corridors, addressing this case without orthodontics would necessitate opening the vertical dimension, which would lead to the treatment of more teeth and involve preparation designs to wrap porcelain over occlusal surfaces



Fig 1. Pretreatment full face patient portrait. **Fig 2.** Pretreatment full smile photograph displaying retroclined maxillary teeth and collapsed buccal corridors.

and functioning cusps, resulting in further reduction of tooth structure.

The patient agreed to undergo pre-restorative orthodontics with clear aligner therapy to establish the correct functional position and allow for veneers with virtually no preparation. The orthodontic plan took the desired thickness of the restorative material into consideration, ensuring an additive approach (Figure 5 and Figure 6). After uprighting the teeth and managing their spacing in accordance with the intended smile design, the patient underwent a 3-month retention period, during which time records were acquired, a smile wax-up was completed (Figure 7), and she whitened her teeth.

Although restoration primarily focuses on white esthetics, or those of the teeth, it is crucial to consider pink esthetics and address the gingiva and the lips framing the smile. The patient in this case had generally pleasing gingival heights; however, slight crown lengthening was required for the premolars, and the gingival scallops of the maxillary anterior teeth were opened to alleviate the narrowness of their cervical necks (Figure 8 and Figure 9). The soft tissue alteration was performed on the same day, and the bone alteration was completed after placement of the provisional restorations (Figure 10 through Figure 14).

Following an evaluation of the patient's tissue health and approval of the smile design, records were sent to the laboratory for the fabrication of the final porcelain veneers. In the laboratory, the case was mounted on an articulator (Panadent). A bleach-shaded lithium disilicate ingot (GC Initial® LiSi MT, GC America) was selected for pressing. Pressed restorations were only facially cut back to maintain core strength all the way to the incisal areas. After a wash bake, porcelain (GC Initial LiSi, GC America) was layered in shades CT-21, EOP-2, EOP Booster, TM-01, TM-03, E57, CLF, and EI-12. After contouring, the restorations were stained and glazed at a slightly lower temperature than what is recommended, and hand polished. The final restorations, which were seated two at a time under rubber dam isolation, met the patient's expectations and improved her function while respectfully conserving her tooth structure (Figure 15 through Figure 20).

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Fig 3 and 4. Pretreatment right and left lateral smile photographs showing the tight anterior relationship. **Fig 5.** Full face patient portrait acquired after the completion of clear aligner treatment (Invisalign®, Align Technology) but before the restorative treatment was performed. **Fig 6.** Full smile photograph acquired after the completion of clear aligner treatment but before the restorative treatment demonstrating how the teeth have been uprighted, the buccal corridors are fuller, and there is now room in the anterior to lengthen the teeth. **Fig 7.** Analog wax-up of the smile design of teeth Nos. 4 through 13 (designed by Myung Joo Shin at Synergy Ceramics). **Fig 8.** Retracted maxillary view showing how spaces were created not only to allow room for proper function but also to achieve better width/length proportions with the restorations. **Fig 9.** Tissue recontouring and crown lengthening were performed to achieve ideal gingival scalloping and heights, and the teeth were barely prepared, which resulted in an all-enamel substrate and bright color. **Fig 10.** Provisional restorations (Luxatemp [Bleach Light], DMG America) were placed to permit assessment of the new tooth and tissue alterations in the smile. **Fig 11 and 12.** Right and left lateral smile photographs of the provisional restorations. **Fig 13.** Retracted maxillary view of the provisional restorations. The tissue health as well as the papilla heights, gingival scallop, and gingival zeniths were carefully assessed. **Fig 14.** Full face patient portrait of the provisional restorations to evaluate dentofacial esthetics. **Fig 15.** The final restorations were delivered two teeth at a time under rubber dam isolation (Dental Dam [heavy gauge], Nic Tone; Brinker Clamps, Coltene). **Fig 16.** Posttreatment full smile photograph demonstrating a longer, fuller smile with proper function. **Fig 17 and 18.** Posttreatment right and left lateral smile photographs. **Fig 19.** Posttreatment retracted maxillary view. **Fig 20.** Posttreatment full face patient portrait.