



Splinted Incisal Edge Reconstruction with Semi-Permanent Crown Shells

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Introduction

On occasion, a patient undergoing a longer-term orthodontic, endodontic or dental implant treatment will have their request for a temporary restoration denied because the provisional is not durable enough to last until the treatment's completion. Recently, however, the introduction of a semi-permanent crown and bridge material designed to last up to five years has made it possible for such request to be granted.

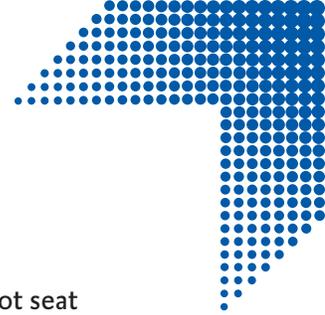
Case Report

A 43-year-old woman presented with aesthetic concerns in the anterior segment as a result of excessive gingival display. She had been diagnosed with a hypermobile lip, minor dental alveolar extrusion, and vertical maxillary excess. Review of her condition suggested solutions of Botox to combat the hypermobile lip, orthodontic intrusion to improve free gingival margins, and orthognathic surgery to eliminate the vertical maxillary excess. However, because the patient was adamantly opposed to orthognathic surgery, it was decided instead to over-intrude the maxillary anterior segment to raise free gingival margins and restore incisal length with laminate veneers. This intrusion would allow an increase in incisal edge length without bringing the incisal edge too close to her lower lip.

Incisal wear had resulted in the maxillary centrals becoming as wide as they are long (Figure 1). It became clear that increasing the incisal edge length would require orthodontic intrusion, as simply increasing incisal edge length would not fit well in her smile. Additionally, the added length would interfere with her envelope of parafunction.

As intrusion occurred (Figure 2), the patient decided that she wanted to address the short incisal edges before the veneers were initiated. Until recently, it would not have been possible to accommodate this request, as no provisional restoration would have been able to last throughout the duration of the orthodontic treatment. However, with the advent of a new semi-permanent crown and bridge material (LuxaCrown, DMG), the patient's wishes could be realized.

First, the orthodontist removed the patient's orthodontic wires (Figure 3), after which an alginate impression was taken of the maxillary arch (Figures 4 and 5). This model was waxed to the ideal extending incisal edge length on the maxillary central and lateral incisors, and a stint of this wax-up was made from lab putty. LuxaCrown was then carefully placed inside the stint creating a shell of the maxillary incisors (Figure 6). A thin layer of LuxaCrown was maneuvered into the incisal and along the facial and lingual and allowed to cure (Figure 7). This created a thin shell that was hollow in the middle. Because of the shell's fragility, the stint was spread apart facially and lingually as the LuxaCrown shell was "teased" out of place. The LuxaCrown shell was trimmed so that it passively fit on top of the existing teeth in the desired position.



(It is critical to pay close attention to margin extension. If the margins are too long, the piece will not seat to the desired position; however, if the margins are too short there will not be a problem, as the shell will be filled with composite later.) After appropriate tooth preparation and bonding were accomplished, a packable composite was placed inside the LuxaCrown shell. The shell was then carefully positioned atop the teeth to the desired position and cured. Marginal discrepancies were filled with flowable add-on resin composite specially formulated for use with provisional materials (LuxaFlow, DMG), and contouring and polishing were completed (Figure 8.)

This case ended with a pleasant surprise. After the brackets were removed upon completion of the patient's orthodontic treatment, she was so pleased with the LuxaCrown incisal restorations that she elected to not have veneers placed.

Closing Comments

At the inception of this case, there was no intent to remedy the patient's short incisal edges prior to the completion of the orthodontic treatment or to forego the initiation of veneers following the completion of orthodontic treatment. Both of these spontaneous decisions were made possible by the fact that LuxaCrown semi-permanent restorations last up to five years. While the patient will eventually need to have these restorations replaced with veneers or permanent restorations, the durability of LuxaCrown should enable that replacement to be deferred for four years or more.



Figure 1: Pre-op image of patient



Figure 2: Patient with brackets and wires



Figure 3: Patient with wires removed



Figure 4: Facial view of impression of maxillary arch



Figure 5: Lingual view of impression of maxillary arch



Figure 6: Stent with LuxaCrown placed in incisors



Figure 7: LuxaCrown shells



Figure 8: Finished intermediate restoration



Author Bio

Dr. Michael Fling is a dentist, educator and author. While maintaining a private practice with an emphasis on aesthetic and restorative dentistry, he also serves as Associate Professor and Director in the Department of Advanced Restorative Dentistry at the Oklahoma University College of Dentistry. He delivers advanced dental education dental teams and technicians around the world. He has been named by Dentistry Today as one of the “Top Clinicians in Continuing Education” every year since 2005. A Pankey Scholar, he serves at the L.D. Pankey Institute as an Essentials Director and a member of the Board of Advisors.