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Editorial

Restorative Dentistry and Odontology

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Editorial

We have presented the case of a 33‑year‑old woman with dental fluorosis who wanted an esthetic ceramic veneer treatment. A digital smile design was created on a virtual patient, and a virtual diagnostic wax‑up was made. Based on the suggested ceramic material thickness, virtual teeth preparation was performed on the diagnostic wax‑up. A special‑teeth preparation template was then created digitally and fabricated using a stereolithographic technique. This template guided the teeth preparation using a special bur with a stopper. The veneers were fabricated by CAD/CAM and delivered good esthetics and function. The stereolithographic tooth reduction template helps realize digital restorative planning. It provides better control of the reduction depth of the labial and incisal preparation, making the operation simpler. The digital dental esthetic ceramic veneer treatment workflow described here using a stereolithographic template for teeth preparation helped with the accurate control of reduction depth for minimally invasive teeth preparation, making the operation simpler, which is a significant improvement over the previous methods. Three composite materials—Omnichroma [OM], Tetric EvoCeram [TE], and TPH Spectra ST [TS] were placed into occlusal preparations (5 mm diameter, 2 mm depth) on 15 bi‑layered acrylic teeth per each shade A2, B1, B2, C2, and D3. The composites were placed in a single increment and cured using Bluephase G2 light. The L*, a*, and b* readings were obtained using VITA Easy shade V for the teeth and restorations; mean ΔE00 values were calculated and assessed using two‑way analysis of variance with a test of simple effects with multiple comparisons for significance ($P < .05$). Three teeth were restored to anatomical form with each of the composites for the five shades and were subjectively graded by 30 evaluators as 1—best match, 2—intermediate, and 3—poorest match.

Shade matching is composite and shade‑dependent. Overall, TE matched the multiple shades better than the other two materials. Single and group shade composites displayed shade matching ability inferior to a multi‑shade composite material, which may limit their use in highly esthetic clinical situations. Clinical complications stemming from issues relating to esthetic integration can present a burden on the restorative team, often resulting in strenuous relationships among its members. The faithful imitation of the optical appearance of dental hard tissues with direct‑ and indirect restorations has been at the center of interest in a great number of publications from the realm of esthetic dentistry over the past 40 years. The present report describes a new approach to objective shade communication, by transcending the role of dental photography from its purely descriptive purpose to the level of quantification, thus abandoning the use of the established shading regimes and replacing them with a patient personal shade recipe based on the CIELAB color space instead. Objective shade communication is possible with the eLAB system by combining numeric shade quantification with dental photography. The eLAB system presents a viable alternative to the traditional approach to shade communication and shade matching in dentistry.

Ninety‑five samples of monolithic zirconia (MZ) (LuxaCam Zircon HT‑Plus) and lithium disilicate (LD) (IPS e.max CAD) were divided according to the response variables: Surface roughness and surface loss (n = 10), evaluated with optical profilometry; surface topography, with scanning electron microscopy SEM (n = 3); and biofilm deposition, with microbiological assay (n = 5). The evaluations were performed in three different time evaluations: (a) Sintered, (b) Glaze, and (c) Challenge (Erosion, Abrasion, and Erosion/Abrasion). Erosion consisted in immersing specimens in HCl solution, abrasion was performed with brushing machine, and erosion/abrasion consisted of a combination of the two previous protocols. Data were analyzed with parametric tests ($P < 0.05$). MZ glaze layer presented significantly higher surface roughness ($P = 0.00$), surface loss ($P = 0.03$), and biofilm deposition ($P = 0.00$) than LD. Abrasion and erosion/abrasion showed similar outcomes, generating significantly higher surface roughness ($P = 0.00$), surface loss ($P = 0.00$), and biofilm deposition ($P = 0.01$) than erosion. Glaze layer properties were altered by the challenges, with abrasion and erosion/abrasion generating higher surface roughness, surface loss, and biofilm deposition than erosion. A significant correlation was found between the surface roughness and biofilm deposition. The glaze layer is susceptible to challenges, especially to abrasion and erosion/abrasion, which generated greater surface roughness and surface loss than erosion. The greater surface roughness lead to a greater biofilm deposition on the glaze layer.

Dental blocks (n = 10/group) were randomly divided into COAL, COAL/RT, COAL/WT, CP, CP/RT, CP/WT, RT, WT, and CONT (without treatment). Simulated toothbrushing and whitening treatments were followed by colorimetric (ΔE00, L*, a*, b*), surface roughness (Ra), and enamel topography assays. ΔE00 was submitted to two‑way ANOVA and Tukey test. Color coordinates and Ra were tested with three‑way repeated measures ANOVA ($\alpha = 5\%$). COAL exhibited greater ΔE00 than CONT ($P = .048$), but it did not enhance ΔE00 promoted by RT or WT ($P > .05$). COAL alone increased Ra ($P < .001$) and altered enamel topography. COAL did not increase Ra caused by RT and WT ($P > .05$). CP exhibited the highest ΔE00 ($P < .05$), but it raised Ra and changed enamel topography to a less extent than COAL. Even though charcoal powder did not increase enamel Ra when combined with toothpastes, the topography was negatively impacted by COAL. Also, COAL was unable to enhance the color change of RT and WT, or reach the effectiveness of CP.