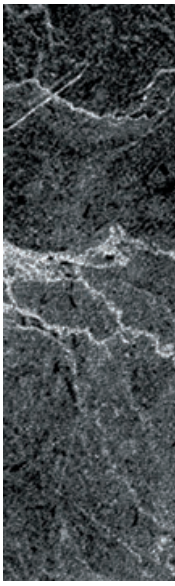

Perspectives

A BITTERSWEET SILVER ANNIVERSARY FOR THE BONDED PORCELAIN VENEER RESTORATION

The famous physicist Niels Bohr once said, "An expert is a man who has made all the mistakes which can be made in a narrow field." Based on this definition, I consider myself somewhat of an expert on the bonded porcelain veneer restoration. Twenty-five years ago, I read the classic articles written by Richard Simonsen and John Calamia[1,2] on a means to retain thin porcelain veneer shells to the surface of dental enamel with composite bonding. In 1983, I restored maxillary central incisors with porcelain veneer restorations for a female patient who had developmental enamel hypoplasia. A rotary diamond instrument was used to remove existing bonding and flatten the facial contours. My dental technician, Danny Materdomini (who had no prior experience at the time), fabricated the veneers using a platinum foil technique and a blend of body and opacious feldspathic porcelain. The etched restorations were luted to the etched teeth with a microfill composite, and the initial results amazed us all. The margins were supragingival, so the soft tissues looked pristine. These were the most lifelike restorations I had ever performed.

The Calamia and Simonsen articles[1,2] would eventually ignite a firestorm of interest in this new restorative technique. In a few short years, porcelain veneers had become enormously popular with a plethora of self-proclaimed experts (myself included) offering a wide array of continuing education courses to promote a diverse range of clinical philosophies and techniques. The interest by the profession was matched with an almost insatiable public demand for elective, esthetic changes utilizing veneers. An entire industry of dental materials and dental laboratory support evolved. Although I advocate this restoration when it is appropriately indicated, my attitude toward porcelain veneers has turned bittersweet in recent years. On the one hand, they originally represented a new paradigm; a conservative means of restoring the esthetics and function of teeth with porcelain. On the other hand, the economic incentives associated with the porcelain veneer "industry" have spawned disturbing trends, misleading information, and an unprecedented level of overtreatment in our profession.

The dental profession has a long, proud tradition of adopting technology and techniques to improve the quality of patient care. This is clearly illustrated by the evolution of minimally invasive dentistry. Innovative contributions by Michael Buonocore,[3] Ray Bowen,[4] Ronald Goldstein,[5] Richard Simonsen and Stallard,[6] and others, changed the landscape of restorative dentistry forever. Traditional tooth preparations, reciprocating walls, and frictional retention were replaced with micromechanical retention, resin tags, and composite bonding. Acid-etching and light-activated composite resin technology was appealing to patients as well. It could be performed without the removal of sound tooth structure and the need for local anesthesia, making it completely reversible and pain free. A disadvantage of composite bonding is that it required the operator to develop new artistic skills because restorations were sculpted intraorally. This made multiunit restorations challenging and time consuming.

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Furthermore, composite materials exposed to the oral cavity were prone to fractures and color changes requiring routine repair or replacement. The advent of the porcelain veneer restoration reduced some of the artistic demands on the operator and shifted it to the dental laboratory. Porcelain was less prone to color change and fracture, and the esthetic consistency in multiunit treatment was easier to manage with indirect restorations. Even though porcelain veneers had esthetic and functional advantages, a bonded porcelain veneer was not as conservative as a traditional composite bonding, whitening, microabrasion, or orthodontics.

It is unfortunate that some members of our profession misrepresent porcelain veneer restorations as if they were completely innocuous to the healthy dentition. Whether you subscribe to no tooth preparation, minimal tooth preparation, or an aggressive tooth reduction, porcelain veneers are not as conservative as other elective, esthetic treatment options. Furthermore, they do have a finite life span and will eventually fail. Research indicates that the most common mode of failure is cohesive fracture, but adhesive fracture, global debonding, and partial debonding (microleakage) also occur. A consistent research finding is that these restorations are more reliably retained to enamel than to dentin.[7,8] Because there is no means of provisional cementation for bonded veneers, correcting an esthetic outcome that did not meet a patient's expectations requires removal with rotary instrumentation and loss of additional enamel. Patients who have had veneer restorations replaced multiple times will often exhibit little, if any, enamel substrate. These individuals may report heightened or prolonged sensitivity and require root canal therapy on one or more teeth. It is not uncommon for patients with failed porcelain veneer restorations to eventually require complete coverage crowns, with the added risk factors and potential negative sequelae associated with complete coverage restorations.

It is likely that millions of veneers have been placed since 1982, and it is just as likely that the vast majority of dental practitioners place their patients' best interest ahead of their own. Nonetheless, the benefits of bonded porcelain veneers are promoted on television and print ads without disclosures about negative outcomes and risks. Patients ask for veneers by brand name, and weekend seminars promote the financial gains to be realized by providing these services in large numbers. A disturbing percentage of journal articles depict bonded veneers for restorative expediency, suggesting that the treatment plan was driven by what was best for the practitioner. How can "instant orthodontics" with veneers be considered minimally invasive? How can placing porcelain veneers on teenagers with slightly discolored teeth be considered appropriate? How can minimal chips on the maxillary central incisors indicate the need for 10 to 20 bonded veneers? Without question, the bonded porcelain veneer restoration has been a beneficial adjunct to our restorative armamentarium. However, our profession's ethical responsibilities include providing patients with appropriate options, benefits, risks, and alternatives before any treatment is initiated. If we fail to meet that professional obligation, then we violate the public's trust. Based on many of the journal articles and advertising on bonded porcelain veneer restorations, the disturbing trends referred to in this editorial show no sign of changing anytime soon.

Your thoughts and comments are welcome.

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