Thick or thin veneers?

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Ceramic veneers have had an amazing effect on dentistry since their introduction more than 20 years ago. Ceramic veneers are estimated to be responsible for about one-third of the revenue of the entire U.S. dental laboratory industry (B. Napier, coexecutive director, National Association of Dental Laboratories, oral communication, Aug. 7, 2008). There has been controversy about whether such widespread and frequent use of veneers can be justified or whether other, more conservative modes of treatment could have been used instead in many cases. Some of the alternative procedures are orthodontics, vital tooth whitening, incisal recontouring, gingival recontouring and combinations of these techniques.

In any event, ceramic veneers are extremely popular. Patients are requesting them, dentists are promoting them and millions of ceramic veneers are being placed on a routine basis.

Opinions differ as to whether tooth preparations for veneers should be minimal, without significant enamel reduction; moderate, involving the removal of as much as one-half of the enamel; or relatively deeply cut, usually extending into dentin. The preponderance of opinion, research and suggestions in the literature support either minimal or moderate enamel removal, with the tooth preparations remaining primarily in enamel.[1-12] I strongly agree with those conclusions, after having placed thousands of veneers myself. A major remaining question relative to enamel removal for veneers is how much enamel should be removed, if any.

In this column, I discuss the advantages and disadvantages of slight or no enamel removal for so-called no-preparation veneers in relation to veneers with tooth preparations involving moderate enamel removal.

NO-PREPARATION VENEERS: ADVANTAGES AND DISADVANTAGES

The no-preparation ceramic veneer concept is not new. More than 20 years ago, the technique was promoted by Den-Mat (Santa Maria, Calif.). Although some dentists adopted the no-preparation concept at that time, most dentists started their venture into ceramic veneers by using tooth preparations that, while moderately cut, still left enamel to which to bond the ceramic veneers. The popularity of veneers continued to increase, and they now are included in the clinical repertoire of most

general dentists and prosthodontists.

In the last few years, the no-preparation concept again received major emphasis, initiated by Den-Mat with the brand name Lumineers. As a result of the no-preparation concept, other dental laboratories have welcomed the new veneer orientation by promoting their own brands of these thin veneers. The typical advertised thickness of no-preparation veneers is 0.3 millimeters. This thickness is a fraction of that of conventional veneers made for moderately prepared teeth, which range from about 0.3 mm in some tooth locations to about 1.0 mm on the incisal or occlusal edges.

What are the apparent advantages and disadvantages of no-preparation veneers? I will enumerate them below.

ADVANTAGES OF NO-PREPARATION CERAMIC VENEERS

No anesthesia required. Because only a small amount of enamel or no enamel is removed, these veneers can be placed without anesthesia, although some dentists still administer anesthetic to ensure patients' comfort during the procedure.

Less patient fear. Patients fear the procedure significantly less when they learn that anesthesia delivery and tooth cutting are not mandatory for no-preparation veneers.

Patients' appreciation of conservative tooth preparations. Thin veneers require minimal or no enamel removal, which patients view as a strong positive characteristic and which often leads to their acceptance of the concept.

Possibility of reversal. No-preparation veneers are reversible, although it is seldom that any patient wants to return to the appearance of his or her preoperative smile. This characteristic makes redoing the veneers relatively easy some years in the future when they have to be replaced.

DISADVANTAGES OF NO-PREPARATION CERAMIC VENEERS

Overcontoured appearance. Because no-preparation veneers require minimal or no enamel removal, the teeth treated with these veneers are larger than they were in their natural state. The result is that the veneered teeth often have a bucktoothed appearance. However, some patients prefer to have teeth larger and longer than their natural teeth, thus potentially nullifying this apparent disadvantage (at least for those patients).

Possible need for more veneers. If the clinician is contemplating veneering only a few teeth with no-preparation veneers, producing an appearance that is harmonious with the patient's smile may require placing veneers on more teeth than those actually needing the veneers. The numerous veneers decrease what would have been a bucktoothed appearance of only a few treated teeth. As an example, if two central incisors require veneering, often the clinician will place four to 10 veneers to provide a harmonious appearance.

Opaque, monotone appearance. Often, thin veneers cannot cover discolored teeth without producing an opaque, monotone effect. Because of the minimal thickness of no-preparation veneers, it is difficult to cover objectionably dark teeth without the use of relatively opaque cements.

Limited translucence. The minimal thickness of no-preparation veneers limits the clinician's ability to produce translucence in the veneers' incisal edges, as compared with thicker veneers requiring moderate-depth tooth preparations.

Margins not visible to the technician. If teeth are not prepared, the technician may have difficulty determining where to end the veneers, unlike when teeth are prepared for moderately thick veneers on which the margins are distinctly visible.

Possible overcontouring of margins. When margins of the tooth preparation are not visible to the technician, the ceramic must end on a nonprepared portion of the tooth. Because ceramic cannot easily be fired or pressed to a thickness much less than 0.3 mm, there is a tendency to overcontour the junction between the unprepared tooth structure and the ceramic. The ridge thus formed requires postseating finishing by the clinician.

Possible inadvertent alteration of occlusion. If the incisal or occlusal edges of the teeth are not prepared, there is a potential for extending the incisal or occlusal edges farther than the patient's occlusion can tolerate. Fracture of the overextended ceramic then becomes a potential postoperative problem.

INDICATIONS FOR NO-PREPARATION VENEERS

Although no-preparation veneers do have disadvantages, when are they indicated?

Small teeth. When teeth appear to be small for the

patient's body size, and building them up to a fuller appearance appears to be logical, no-preparation veneers are indicated if the occlusion will permit the anatomical change. An obvious example of this condition is "peg" lateral incisors, for which tooth preparation seldom is necessary before placement of ceramic veneers.

Anterior teeth with diastemas. If teeth are not too full in appearance and the patient has numerous diastemas, no-preparation veneers are a logical restorative choice. The other popular and successful conservative technique for diastemas is the addition of small interproximal restorations. However, these add-on restorations may not have the same homogeneous tooth color as do the no-preparation veneers.

Teeth in lingual version. Teeth sometimes are inclined lingually, producing an unpleasant, unnatural appearance. It is simple to correct this appearance by restoring the teeth with no-preparation veneers into a normal relationship. In these situations, occlusal interferences are seldom a challenge.

Combinations of the above. If any or all of the preceding conditions are present in combination, no-preparation veneers may be indicated.

Patient's desire for a change in teeth's appearance. Some patients desire to have their teeth made fuller in appearance and also to have the anterior teeth made longer. These changes pose an ethical dilemma for a dentist. He or she should present the patient with all of the alternatives for treatment, including no treatment at all, and should state in clear terms the disadvantages of placing veneers. After this educational session, the decision about placing veneers purely for esthetic reasons should be made conjointly by the patient and the dentist.

A desire for color upgrade. Patients should be informed of the difficulty of covering the color of discolored teeth with no-preparation veneers without producing an opaque appearance. However, no-preparation veneers often are successful in these situations, especially if the patient does not need significant translucence in the incisal or occlusal edges.

SUMMARY

There is no question that no-preparation veneers are popular, that they satisfy patients and that they serve their function well. In some situations, other modes of treatment—such as tooth whitening, orthodontics, incisal recontouring, gingival recontouring, a combination of the preceding procedures or placement of veneers requiring conventional tooth preparation—may be more acceptable than no-preparation veneers. All patients considering any form of ceramic veneers should undergo a complete work-up for a diagnostic study, should be educated about all of the alternatives for veneers and should be asked to sign an informed consent form stating that all treatment alternatives have been presented to them.

In view of the stated advantages and disadvantages of no-preparation veneers, it is apparent that these veneers are not for everybody. However, there are some patients in every practice for whom no-preparation veneers are indicated. ■

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