Cementation may finish the procedure, but it also starts the life of the restoration.

All indirect restorations must be cemented for final delivery into the mouth. It also begins the clinical lifecycle of the restoration. How can you ensure the best outcome? You have to know your cements. Read more

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CaulkTalk: Ask Dr. Sridhar

Q. Can I use silane to bond to zirconia?

Q. How can I minimize the adverse effects of salivary contamination during adhesive resin cementation?

Q. Do all-in-one universal adhesives require a separate primer as many indicate the use of just one bottle for all bonding needs?

See Answers

Have your own question? Contact Us

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Get beautifully strong restorations with Calibra Cement. Learn More
Cementation of All-Ceramic Indirect Dental Restorations: A strong finish or just the beginning?

By: Jason H. Goodchild, DMD

All-ceramic indirect techniques are widely accepted for their ability to provide esthetics and longevity for the dental prosthesis. The question remains, how to cement the fabricated restoration to the tooth? The primary factor that is likely to determine the success of the restoration is the choice of cement. If the cement is not compatible then the restoration may fail. The importance of selecting a suitable adhesive cement is critical. This clinical practice is still understood. With the advent of new adhesive cements, this critical factor is essential. Adhesive cements are available in different types, materials, and characteristics, which can be classified into two categories: light-cured glass ionomer cements and etch-and-rinse adhesive cements. Each type of cement has its own advantages and disadvantages.

Steps for cementation:

1. The restoration is contoured to fit the prepared tooth.
2. The adhesive cement is applied to the preparation and the restoration.
3. The restoration is seated on the tooth.
4. The excess cement is removed, and the post-cure is performed.

Table 1: All-ceramic material examples

<table>
<thead>
<tr>
<th>Material</th>
<th>Adhesive Cement</th>
<th>Other Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-ceramic</td>
<td>Light-cured glass ionomer cement</td>
<td>Bonding to metal substrates</td>
</tr>
<tr>
<td>All-ceramic</td>
<td>Etch-and-rinse adhesive cement</td>
<td>Bonding to porcelain substrates</td>
</tr>
</tbody>
</table>

Table 2: Table of recommended cements and adhesives

<table>
<thead>
<tr>
<th>Material</th>
<th>Recommended Use</th>
<th>Other Uses</th>
</tr>
</thead>
<tbody>
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<td>All-ceramic</td>
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References

Ask Dr. Sridhar

Dr. Sridhar Janyavula takes on a few questions about bonding.

Q. Can I use silane to bond to zirconia?

A. Silane provides chemical adhesion by bonding to the glass (silica) in ceramic materials (like feldspatic porcelain and lithium disilicate crowns). Zirconia has no silica in it for silane to bond to. Hence, silane is mostly used on glass ceramic crowns. However, silane can be used on zirconia crowns only after abrading the intaglio surface of the crown with CoJet sand. CoJet sand is silica coated alumina particles. Air abrading the zirconia surface with CoJet sand for 30 seconds, followed by silane application results in a chemical bond of the adhesive to zirconia (in addition to the micromechanical bond).

Q. How can I minimize the adverse effects of salivary contamination during adhesive resin cementation?

A. In a total or self-etch adhesive system, when the tooth is contaminated with saliva, blotting the surface dry and re-applying the primer can significantly recover lost bond strength. Complete drying of the surface should be avoided. On the ceramic surface, rinsing, drying and re-priming (with silane for glass ceramics or metal primer for zirconia) results in the recovery of bond strength.1

Q. Do all-in-one universal adhesives require a separate primer as many indicate the use of just one bottle for all bonding needs?

A. Although some all-in-one adhesives claim to have primers that bond to glass ceramics (e.g. lithium disilicate), recent data suggests that the separate application of silane primer can provide more reliable and durable bond strength at the crown and cement interface.