

Currently there are so many fiber reinforced composite posts in the market. Some products are factory silanated but some products are not. Should I use silane for surface treatment of fiber reinforced composite posts?

from Dr. Jeong-Jin Yoon
(Grutugi dental clinic)

Fiber reinforced composite post (FRC-post) consists of reinforcing fibers such as glass fiber or quartz fiber embedded in the surrounding resin matrix. The matrix resin, rather than the reinforcing fibers, is exposed on the surface of FRC-posts. As you know new composite resin or resin cement cannot bond well with polymerized old composite material because fully polymerized composite material does not have the potential to be bonded chemically with new composite material. To bond new un-polymerized composite material to polymerized composite material we need surface treatment of polymerized composite before bonding. Therefore you can presume that for better adhesion of FRC-post you need some kinds of surface treatment on the post. You can use silane application, mechanical preparation using sandblast and surface roughening using coarse diamond bur.

Silane application is a simple and easy procedure. Since silane has been widely used in ceramic bonding, you don't have to purchase any special solutions for the surface treatment of FRC-posts. In the study of Magni *et al.*, silane application improved the bond strength between FRC-posts and resin luting agents.¹ Because of this advantage in bonding, some manufacturers pre-treat FRC-post surface with silane. The manufacturers claim that dentist do not have to use silane because of FRC-post has already been silanated at the factory. But in some products, additional chairside silane application improved the bonding strength between FRC-post and resin cement even though the FRC-post was factory silanated.² Silane application to FRC-post may be advisable unless there is further evidence that silane has no effect to the adhesion of FRC-post.

Silane treatment of FRC-post is important for better adhesion and careful manipulation of the treated surface is also important. Surface of the post may be contaminated during the try-in procedure of FRC-post into the root canal to determine the length of insertion and tight gripping of the post with fingers to cut it to desired length. FRC-post should be cleaned after try-in and cutting, whether it is factory silanated or not. You can use air drying after scrubbing with alcohol sponge for surface cleaning and then apply silane and dry. After surface cleaning and silane application you should handle FRC-posts like composite resin material. Do not hold or touch them with fingers and manipulate them with clean instruments.

Kyung-Mo Cho
(Gangneung-Wonju National University)

References

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