

Full-arch reconstruction integrating three different cements

A case study by Dr. Carlos Eduardo Sabrosa, DDS, MSD, DScD featuring 3M™ Dental Cements



In my own dental practice, three different cements are stocked.

3M™ RelyX™ U200 Self-Adhesive Resin Cement is the luting material of choice for retentive restorations such as crowns and bridges made of zirconia, lithium disilicate or metal.

For cementation of PFM or zirconia crowns or bridges, 3M™ RelyX™ Luting 2 Resin Modified Glass Ionomer Cement is preferred.

When the success of the restoration lies on the adhesive properties of the cement and those restorations need a strong chemical bond, they are bonded with 3M™ RelyX™ Ultimate Adhesive Resin Cement and 3M™ Single Bond Universal Adhesive. Even laminate veneers with a thickness of over 0.5 mm are bonded with this material combination.

Very thin veneers can be luted with 3M™ RelyX™ Veneer Cement. In the following patient case, three different cements were used for different indications in the upper arch.



Fig. 1: Initial situation. The patient presented in our practice primarily due to the loss of an implant in the mandible that had been placed a short time ago.



Fig. 2: The dental examination revealed that the patient had multiple inadequate restorations in both arches that needed to be replaced. The maxillary restorative treatment is described here.



Fig. 3: Radiograph of the initial situation. The treatment plan for the maxilla included the placement of implants with patient specific two-piece 3M™ Lava™ Plus Zirconia abutments in the regions of the right lateral incisor and second premolar and the fabrication of twelve single crowns and two laminate veneers.



Fig. 4: Situation after removal of the old three-unit bridge and crown in the anterior area. It is evident that secondary caries had to be excavated and some teeth needed endodontic treatment.



Fig. 5: Impression taken with 3M™ Impregum™ Garant™ L DuoSoft™ and 3M™ Impregum™ Penta™ H DuoSoft™ Polyether Impression Material.



Fig. 6: Occlusal view of the maxilla after successful healing of the implants and removal of the temporaries. Endodontic treatment had been carried out where necessary and the corresponding teeth have received a composite build-up, combined with a fiber post in some cases. Teeth that were not endodontically treated were just built up with a low shrink composite resin.

Full-arch reconstruction integrating three different cements cont.



Fig. 7: Sandblasting of the two piece abutment made from a build-up of 3M[™] Lava[™] Plus Zirconia cemented to a titanium interface in order to create a microretentive surface for cementation of the crowns. Etching with hydrofluoric acid is not effective with zirconia due to the low amount of glass in the material.



Fig. 8: Occlusal view of the maxillary teeth with the screw-retained abutments in place. All teeth are ready for the final precision impression.



Fig. 9: Finished restorations on the stone model: Twelve 3M[™] Lava[™] Plus High Translucency Zirconia Crowns and two laminate veneers made of lithium disilicate (IPS e.max[®] Press, Ivoclar Vivadent) are shown.



Fig. 10: Situation after cleaning of all teeth in the maxilla with an oil-free pumice paste for removal of any temporary cement residues, thorough rinsing with water and drying.

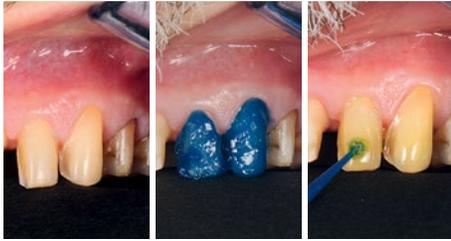


Fig. 11: Adhesive pretreatment of the left lateral incisor and canine. After enamel etching with phosphoric acid, 3M[™] Single Bond Universal Adhesive is applied, rubbed in for 20 seconds and air-dried until the solvent has evaporated completely.

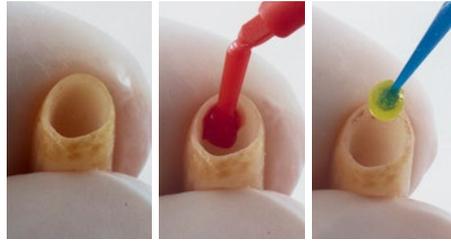


Fig. 12: Hydrofluoric acid is applied to the lithium disilicate veneer restorations and removed after 20 seconds, followed by cleaning in an ultra-sonic bath for five minutes. Then, 3M[™] Single Bond Universal Adhesive is applied and used as a ceramic primer.



Fig. 13: The self-adhesive resin cement (3M[™] RelyX[™] U200 Self-Adhesive Resin Cement) is used for the crowns on natural teeth, the resin modified glass ionomer cement (3M[™] RelyX[™] Luting 2 Resin Modified Glass Ionomer Cement) for the cementation of crowns on implant abutments and the dual-cure adhesive resin cement (3M[™] RelyX[™] Ultimate Adhesive Resin Cement) for the veneers.



Fig. 14: Final radiograph.



Fig. 15: Treatment result.

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Before using the products described, please refer to the instructions for use provided with the product packages.

The featured 3M product may be known with an alternative name in different regions.

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