# Cementation Procedures for Dental Implants

**The delivery process including cementation of the restoration is a critical part of the implant procedure. Questions often arise regarding cementation technique, as well as what type of cement to use. The literature is limited on this topic.**

## *Concerns:*

**The most common concern regarding cement retention of crowns and bridges in implant dentistry revolves around retrievability of the restoration. Historically implant restorations were screw retained to facilitate the clinician's ability to remove and repair the restoration. Complications of screw retained restorations include but are not limited to screw loosening, screw breakage, faulty occlusion, poor esthetics and higher laboratory costs.**

**There was a perceived difficulty in retrieving cement retained restorations. In addition, complications from cement left in the sulcus have been known to cause soft tissue irritation and loss around dental implants. These issues needed to be overcome before a move toward cement retained implant restorations would be considered state of the art, or standard of care.**

**Patients began to request more esthetic restorations, objecting to the look of an occlusal screw access hole. Further, correcting poor implant angulation with screw retained restorations proved to be a challenge. The advent of custom abutments allowed for the improvement of angles, esthetics, and the fit between abutments and implants. This encouraged restorative dentists to shift toward cemented restorations on implants.**

## *Restorative Design:*

**Implant restorative abutments need to be designed with a taper of 6 to 8 degrees for optimum retentive force. An abutment with 6 degrees of taper has a retentive force measured at 80gm/mm$^2$. As taper increases, retention decreases.**

**The abutment surface and the intaglio surface of the crown or bridge can be abraded to increase the adhesion of the cement to each surface. The increased surface area will enhance the retention of the restoration.**

**Margin placement is critical so that cement is not driven deeply into the sulcus. If the sulcus is deep, the crown can be vented lingually to allow relief of hydrolysis, and prevention of cement left below the tissue. Once the cement is set the access can be closed with composite resin. Ideally the margins should be between 1 to 2mm sub-gingival and follow the contours of the gingiva to facilitate clean up.**

## *Choice of Cement:*

**The perfect cement for implant restorations must balance the need for stability with the need for retrieval. Implant restorations need to be retrievable so that complications can be corrected and cases can be redesigned if need be. There are several cements available, some specifically marketed for implant restorations, and others commonly used in dentistry. Studies show that the most retentive of cements are the resin composite cements. These are the least retrievable of all. The most retrievable are the zinc oxide, non-eugenol cements. Other cements such as glass ionomers, poly carboxylate, and zinc phosphate cements fall between.**

**Choose cement that offers you a balance of retrievability and stability. If your patient has issues with retention, decrease the modifying agent used in the mix or use cement that has more retentive properties. Inform your patient that the restoration is cemented with a provisional luting agent to allow for repair if needed.**

**Examples of cement for implant restorations from weak to strong: Zone, ImProv, Tempbond NE, Nogenol, RelyX, ImplantCem, Temrex, Duralon, Panavia 21, Max Cem.**

## *Technique:*

**Be sure to isolate the abutment and keep the field dry before cementing the restoration. If the margin is more than 2mm subgingival, consider having the laboratory create a vent in the crown with a #2 round bur.**

**After the abutment has been torqued to place, cover the screw access hole with bite registration material such as Regisil. This is rigid enough to prevent screw loosening issues, keeps the screw clean, and is easy to remove if need be with an explorer tip.**

**Mix the cement with a releasing agent. Releasing agents are Vaseline, Polysporin, etc. Start with a 2/3 cement 1/3 releasing agent mixture. Thinly coat the intaglio surface of the crown or bridge. Be sure not to overload the restoration. Place the restoration with firm and steady pressure. Wipe the excess cement as the restoration hits the gingival margin. Allow the cement to initially set and clean the residual cement with an explorer, preferably made of titanium. Use radiopaque cement and radiograph the restoration after it has been cemented to verify that no cement is left in the sulcus, at the margin, or attached to the abutment. If the restoration was vented, close the access hole with composite resin.**

## *Retrieval:*

**Retrieval of the restoration is accomplished with the same techniques used to remove provisional restorations. GC makes a crown removing pliers with yellow rubber feet and Emory powder to grip porcelain. Ace surgical has a carbon tipped crown remover that**

**works well. The pneumatic crown remover by Cadco works well to remove fixed bridges or splinted restorations cemented on dental implants.**

**If unable to remove the restoration, simply create an occlusal access and unscrew the restoration.**

## (GC Pliers – Patterson Dental #3263191 -- $275)

### *References:*


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