



# Shake the Dust Off Your Retraction Procedure

by Gary Alex, DMD

Most dentists have a preferred “go-to” protocol when it comes to tissue retraction. Techniques include the use of single or double retraction cord, use of chemical astringents such as aluminum chloride, tissue ablation by laser or electrosurgery, and the use of expanding foams and pastes that are injected around the preparation. Ideal tissue retraction does not just expose the preparation margin but some of the unprepared tooth structure apical to the margin (Fig. 1). Depending on the specific clinical situation, some techniques might work better than others and I believe it is an advantage for dentists to understand and be proficient in a number of different tissue retraction techniques.

## The Classic Option: Retraction Cord

When used correctly, and in the appropriate clinical situation, both single and double retraction cord techniques can be very successful (Fig. 2). I usually soak the cord in an aluminum chloride solution prior to placement. The cord is soaked and then wiped dry with cotton gauze (so it is not too wet), then placed with a serrated cord-packing instrument (Ultradent). As a general rule, I use cord for all-ceramic crown restorations such as Lava Zirconia crowns (sometimes a single-cord and sometimes a double-cord technique). In a typical preparation, I place a distinct chamfer margin at or slightly below the free gingival margin on the buccal and interproximal, while the chamfer margin on the lingual is typically at or above the free gingival margin. Preparation margins placed above the free gingival margin usually do not require any retraction, which is a huge clinical advantage – one I take advantage of whenever possible – when aesthetics and/or retention are not an issue. In this scenario, retraction might be needed only on the buccal and interproximal of the preparation. In some cases I will use aluminum chloride retraction paste in addition to the retraction cord. This can be helpful in the event of spot bleeding as the paste can be applied only to the areas that need extra hemostasis. Disadvantages of cord include placement time, especially with multiple preparations, patient discomfort, and the possibility of gingival recession and marginal exposure if the connective tissue attachment is damaged.<sup>1</sup>

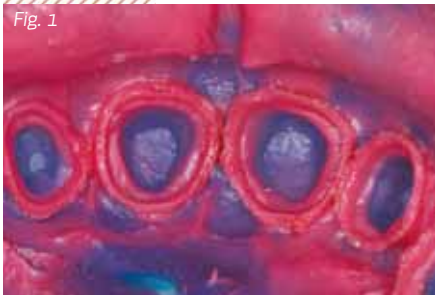


Fig. 1: An example of a good impression where tooth structure apical to the preparation margin has been clearly recorded (material used was 3M ESPE Impregum/Permadyne).



Fig. 2: Excellent tissue retraction is possible with retraction cord. In this case, the cord was soaked with an aluminum chloride solution prior to placement.

## Advantages of Retraction Paste

Just as there are preparations that are well suited for use with retraction cord, there are also cases where an aluminum chloride astringent retraction paste has advantages. For example, I find aluminum chloride paste very useful for preparations with shoulder-bevel margins. I prefer these preparations in posterior teeth when retention is an issue (ferrule effect afforded by bevels) and sometimes when placing cast gold and PFM crowns. With shoulder/bevel preparations, the bevel is typically placed below the free gingival margin and bleeding is sometimes an issue.

1. S. Phatale, P.P. Marwar, G. Byakod, S. B. Lagdive, J. V. Kalburge, *Effect of retraction on gingival health: A histopathological study*, J Ind Soc Periodontology 2011 14(1): 35-39

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*Figs. 3-7: The use of the 3M ESPE Retraction Capsule in conjunction with a Comprecap for excellent tissue management and retraction for single unit anterior all-ceramic crown.*

The use of aluminum chloride, especially in conjunction with ROEKO Comprecap compression caps, can be very effective in controlling bleeding and providing tissue retraction. The compression caps are available in a number of sizes to fit over the prep and help force the aluminum chloride paste into the sulcus. They also give patients something to gently bite down on while the retraction paste takes effect.

An additional advantage of retraction paste is that it requires less technical skill to properly apply than retraction cord and can be taught and delegated easily to dental assistants. On the downside, aluminum chloride interferes with the chemical setting process of both polyether and vinyl-polysiloxane impression materials. It is *very* important for dentists to *thoroughly* wash off residual retraction paste prior to placing impression materials.

### Customizing the Retraction Paste Technique

Perhaps the best-known aluminum chloride paste material for tissue retraction is Exspasyl (Kerr Dental). One drawback of this product is that it is designed to be used with a rather expensive specific dispensing syringe. Some dentists also find that the material has a thicker viscosity than they would prefer. A new aluminum chloride paste from 3M ESPE (Retraction Capsule) has recently been introduced. This product employs a 15 percent aluminum chloride paste that is dispensed from single-use compules making it very practical in terms of asepsis (use one compule and throw it out). Unlike competitive products, the capsules fit easily into most composite dispensing guns eliminating the need to purchase a separate dedicated dispenser. The compules are designed with a unique, long, thin, plastic dispensing tip that allows it to be inserted directly into the sulcus and a very fine bead of material to be placed (Figs. 3-7). Although not recommended by the manufacturer, I find that the length of the dispensing tip can also be adjusted by simply cutting the nozzle to the desired length. This also enlarges the inner diameter of the dispensing tip increasing flow of material (somewhat analogous to cutting back on a caulking gun dispensing tip), which may be desirable in some clinical situations. The viscosity of the material can also be altered to some degree by refrigeration prior to use (thicker viscosity) or by placing the compule in a cup of warm water for a few minutes prior to use (thinner viscosity).

### Review Your Options to Improve Your Results

The bottom line is that many viable options for tissue retraction exist. It is up to dentists to familiarize themselves with these options, become proficient with the materials and techniques, and then select the one that is most appropriate for the specific clinical situation. ■

#### Author's Bio

**Dr. Gary Alex** graduated from Tufts University Dental School in 1981 and continues to enhance his dental education by completing numerous hours of continuing education with an emphasis on occlusion, adhesion, comprehensive dentistry, materials and aesthetics. An international researcher and lecturer, Dr. Alex is an accredited member of the American Academy of Cosmetic Dentistry, International Association of Dental Research, American Equilibration Society and is co-director of the Long Island Center for Dental Esthetic and Occlusion. Dr. Alex maintains a practice in Huntington, New York that is geared toward comprehensive prosthetic and cosmetic dentistry.

