

COMPOSITE AND ROOT SURFACES

The primary reasons for placing composite on a root surface are to repair caries, rebuild lost structure from abrasion lesions, or control tooth sensitivity.

Well placed composites on root surfaces are difficult to achieve. There are several reasons for this.

1. First is proximity to the gingival margin, which is not only a physical impedance, but at the attachment, gingival crevicular fluid is being extruded constantly to help clear any trapped debris. Composite placement requires a dry surface, and physically restricting the gingiva as well as the fluid can be difficult if not impossible.
2. Proximity to the gingiva also significantly limits access for achieving a smooth finished composite margin, which can become a trap for plaque accumulation and cause caries.
3. The root surface itself is made of a thin layer of cementum and quickly becomes dentin, which does not allow a strong bond of composite the same way that enamel can. This can allow for leakage where bacteria can reach and then be protected from oral hygiene methods because of the surrounding composite.

Composite too far apically on the root making gingival margins grossly uneven can cause gingival irritation and difficulty maintaining good oral hygiene and increase the risk for caries and further recession.

MAGICAL CONNECTIVE TISSUE

In the world of periodontics, our use of the word **connective tissue** refers to the sub-epithelial tissue in and around the hard palate, not the superficial free grafts that everyone finds horribly uncomfortable. Sub-epithelial tissue is primarily used for transplantation to other areas in the mouth for various purposes. The high vascularity of the tissue allows for it to survive in areas where other tissues, like cadaver donor tissue, may fail.



Connective Graft

Besides vascularity, success is also determined by the density of the palatal donor tissue. The more fibrous dense tissue there is, the better the tissue thickening, and the more successful the procedure will be in terms of achieving the desired goals, and maintaining those goals long term. If root coverage is the goal, which was the first use of connective tissue grafting as described by Langer and Langer in 1985, then the thicker the tissue is, the more resistant it will be to future recession and root exposure which can be caused by damage from hard foods, aggressive brushing or abrasive toothpastes.

Additionally, connective tissue can replace the need for composite on the root surfaces to treat shallow caries or abrasion lesions, or to reduce the amount of root surface composite even if it extends relatively apically onto the root surface.

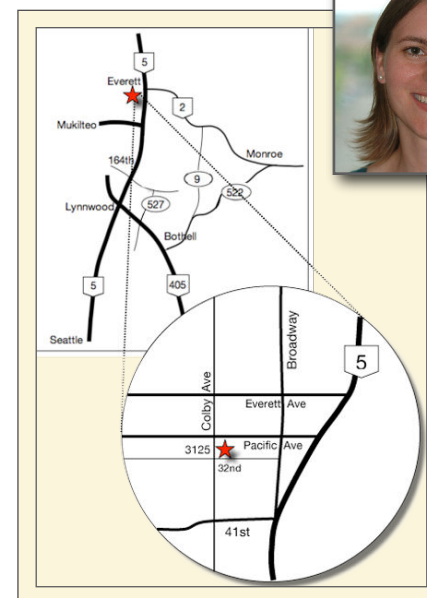
This issue of **ProbeTips** will illustrate several cases using connective tissue to cover shallow root caries or replace apical root extensions of composite.

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PROBE TIPS

A QUARTERLY PERIODONTAL NEWSLETTER

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GINGIVAL GRAFTS TO REDUCE COMPOSITE APICAL EXTENSIONS

The cases below illustrate situations where composites are placed further apically on a root surface causing irritation to the gingiva or allowing for additional caries. In many cases, the more coronal composite is left in tact, and a 'CEJ' is created in the composite where the CEJ would typically be located for the soft tissue to rest against. Surgical exposure allows for proper adjustment of any overhanging margins, and provides re-exposure of any covered dentin that the connective tissue graft can re-attach to.



In this case, the frenum is also addressed which was placing tension on the gingival margin further aggravating the gingival area which may have been the cause of root exposure or caries.



Here, the prominent root surface was also reduced at the same time the apical composite was removed, keeping the coronal composite in tact.



Besides addressing abrasion on #10 and root composite on #11, additional cosmetic benefit is achieved by leveling gingival margins with the contralateral side.



In this instance, hygiene is improved by preventing the aggressive flossing the patient was performing on #12 to keep the extra exposed surface area clean.



GINGIVAL GRAFTS TO CONTROL CARIES

The next cases below illustrate situations where either caries has undermined existing composites or caries are just frankly extending significantly onto the root surface. In some instances, connective tissue only is used to treat the caries as shown on the main front panel, in other instances the more coronal composite is left in tact and a 'CEJ' is created as explained above, and other times a combination of restorations placed at the time of surgery with connective tissue grafting is used.



Recurrent caries has begun beneath the apical margin of the existing composites. They are shallow, so the caries has been reduced with a high speed, and a CEJ created, and connective tissue placed under the flap and coronally positioned onto the exposed dentin that the connective tissue will reattach to leaving a shallow probing.



Caries here has been treated with connective tissue only on tooth #28, and on #29 with a combination of coronal flowable composite recreating a CEJ placed at time of gingival grafting apically after reducing the root caries down to clean dentin so the connective tissue can attach.



Caries in this case are too deep to be treated with soft tissue grafting only. Geristore was used to treat the root surfaces (the soft tissue will tolerate Geristore subgingivally better than composite) as well as coronally at the time of gingival grafting. Later, the restorative dentist can replace the more coronal Geristore and stained enamel with better matching composite.



Finally, 20 YEAR recall on shallow caries treated with connective tissue only. Stained but solid dentin present.

