



# CHARLOTTE PERIO

Periodontics ♦ Implantology

# Perio News

... this newsletter represents our opinion about current periodontal technologies / procedures...

## Gingival Grafting with Allograft

In the Summer 2011 Perio News issue, *Soft Tissue Grafting Overview*, the etiology of gingival recession, rationale for root coverage, and root coverage predictability were reviewed. Cases were shown illustrating connective and free gingival tissue grafts. Allografts such as Puros Dermis and Alloderm were mentioned, but not discussed in detail. This issue, Winter 2012, will focus on allografts including benefits, factors influencing success, expected soft tissue outcomes, and different therapeutic uses/goals.

### What is an Allograft?

An allograft is a graft of tissue obtained from a source other than the recipient that is of the same species (human). Allografts used for gingival grafting are typically an acellular dermal matrix that has been processed to eliminate bacteria and viruses along with tissue antigens and cells to avoid infection, disease transmission, and host rejection.

The graft tissue acts like a scaffold on which new host cells and tissue will develop creating the desired surgical outcome (stable connective tissue attachment). The allograft itself may be partially or totally resorbed as the newly developed tissue remodels and matures.

### Benefits of an Allograft

The benefits of utilizing an allograft for gingival grafting are essentially two-fold:

- First, use of the allograft eliminates the need for a second surgical site (typically the hard palate) as a source of the harvested donor tissue.
- Second, allograft tissue is readily available and in large supply thereby negating concerns of limited tissue available from the palate. This is especially important when treating patients with generalized recession where large amounts of donor tissue are needed.

### Xenograft

In addition to human sources of tissue, animal tissue can also be used in the treatment of specific mucogingival defects. As with allografts, xenografts undergo extensive treatment and sterilization to eliminate bacteria and viruses as well as tissue antigens. Our office has been participating in ongoing clinical research with Harvard School of Dental Medicine regarding the use of a porcine collagen matrix (Mucograft®) for treatment of gingival recession. The early results of this research look promising. Look for more information regarding this study in the dental literature as well as upcoming newsletters.



## Factors Influencing Root Coverage

The allograft is avascular and blood supply to the graft is essential for survival and incorporation into the host tissue. This process takes several weeks and preserving the revascularization of the graft is critical to success. Therefore, achieving primary closure over the graft is paramount and early exposure can lead to graft failure.

The factors influencing the success of allografts are similar to those for connective and free gingival grafts with a couple of exceptions:

1. **Pre-surgical tissue quality:** amount of keratinized and attached tissue(s): Having at least a thin band of keratinized and/or attached tissue provides more resilient tissue for suturing which is helpful in achieving and maintaining primary closure.

2. **Primary closure necessary:** since an allograft is avascular, the blood vessels from the surrounding tissues need more time to penetrate and incorporate this tissue. If primary closure is achieved, tissue incorporation and ideal healing can be achieved. However, early exposure of the allograft can lead to tissue failure, additional recovery time, and need for regrafting.

## Expected Allograft Tissue Outcomes

Allografts can achieve root coverage via attachment, can achieve good esthetic color harmony (since it is completely covered up), and can increase tissue thickness and resiliency. However, since this tissue will not influence or change the covering superficial/overlying tissue characteristics, it will not create keratinized tissues. This factor is important especially if only mucosal tissue exists at the recipient site(s).

Although this tissue can be predictable (not always 100% due to the recession characteristics), key factors for success include patient selection and setting realistic expectations.

### Case 1—Maxillary Arch



**Pre-op**

Generalized recession  
Good keratinized/attached gingiva  
Good interproximal bone heights and papillae



**12 weeks post-op**

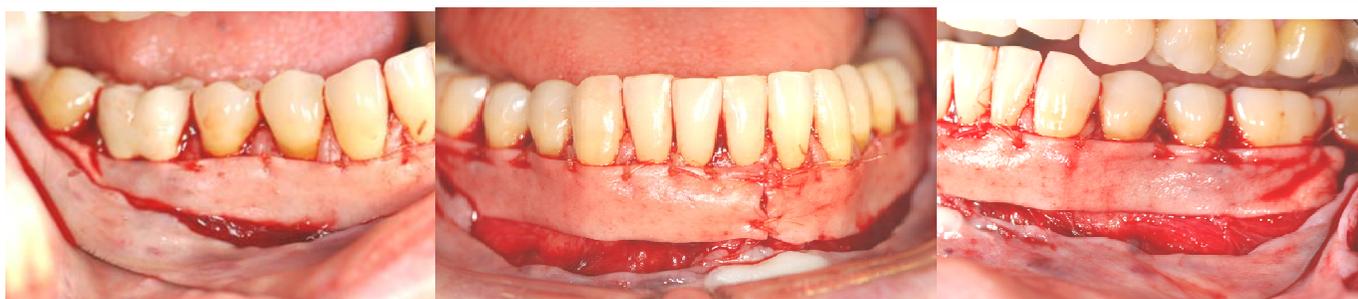
Excellent root coverage and attachment  
No change in amount of keratinized gingiva

## Case 2—Maxillary Incisors/Canines & Mandibular Arch



**Pre-op**

Generalized recession with a band of keratinized/attached gingiva. Excellent interproximal bone and soft tissue heights. Free gingival graft previously completed on #23-24.



**Alloderm graft on mandibular teeth #18—31**

Coronally positioned flap to achieve primary closure. Alloderm secured at each interproximal site; interproximal tissues are preserved for secure suturing and maintenance of tissue height.



**12 weeks post-op**

Excellent root coverage and no loss of interproximal soft tissues #6-11 and #18-31. No change in surface characteristics (no increase in keratinized gingiva).

## ***Therapeutic Uses / Goals***

Identifying the surgical goals is important when selecting the type of tissue grafting procedure. Allografts can be used for most but not all cases as listed below. Surgical goals along with the recommended tissue graft type include (**CTG**: Connective Tissue Graft; **FGG**: Free Gingival Graft):

	<b>Allograft</b>	<b>CTG</b>	<b>FGG</b>
<b>Root Coverage:</b>	YES	YES	YES (Limited)
<b>Color Harmony:</b>	YES	YES	<b>NO</b>
<b>Increased tissue thickness:</b>	YES	YES	YES
<b>Increased keratinized / attached gingiva:</b>	<b>NO</b>	YES	YES
<b>Eliminate frenum pull:</b>	<b>NO</b>	<b>NO</b>	YES
<b>Vestibular extension / Significant vestibular pull:</b>	<b>NO</b>	<b>NO</b>	YES

## ***Conclusions***

Allografts avoid the need for a donor site (palate) and provides an “unlimited” quantity of tissue for generalized recession treatments. This tissue can be used for root coverage in esthetic areas. Since complete coverage is paramount, areas with a frenum and/or vestibular pull are often contraindicated due to increased likelihood of exposure. Maintaining primary closure allows these blood vessels to penetrate and incorporate this avascular graft.

Connective tissue, free gingival, and allograft gingival grafting techniques are all performed in our office with high levels of success. These graft procedures are all technique sensitive and attention to surgical protocol is paramount to achieving predictable outcomes.

Determining the optimal surgical approach depends on an understanding of the benefits and limitations of the different tissue options and how they heal at the recipient site. Careful evaluation of the recipient site, along with an appreciation of the desired goals, help to establish which graft material and technique will produce the best results.

**Please call or email if you have questions or comments. We appreciate your feedback and will be happy to discuss in further detail any thoughts or questions you may have.**

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