



Gingival recession: should we be worried about the future?

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Gingival recession is a common clinical finding that typically does not cause problems for the patient but can be the source of some frustration for clinicians as to whether or not its presence necessitates treatment. Before tackling this question further, it's useful to review the aetiology of gingival recession, as this will influence the subsequent management.

1. *Physical trauma*: the most frequent cause is overaggressive tooth brushing. Trauma can also result from piercings, especially of the tongue and the lower lip.
2. *Tooth position*: teeth that are crowded/misaligned or have received orthodontics resulting in the tooth/root being in a more labial/buccal position are more prone to recession.
3. *Gingival biotype*: This refers to the nature of the gingival tissues; patients with a thin gingival biotype are more prone to recession. Patients with thin gingival biotypes often have less attached gingival tissue, further increasing their susceptibility. High frenum attachment/muscle pull can also play a role in predisposing an area to recession.^{1,2}
4. *Periodontal disease*: Inflammation associated with gingivitis can render the marginal gingiva more delicate making it more susceptible to trauma (typically tooth brushing) and hence recession. Recession is also associated with Acute Necrotizing Ulcerative Gingivitis (ANUG). Periodontitis can result in damage to the underlying bone and subsequent recession of the gingival tissues. This typically results in more generalised gingival recession.
5. *Iatrogenic factors* such as periodontal therapy, orthodontics,³ food impaction, open contacts or poor restorative margins at the free gingival margin.⁴

In most cases, gingival recession is a slowly progressive condition that takes a number of months or years to present clinically. It is generally more common with age but not necessarily caused by aging per se. Gingival recession may result in tooth sensitivity (dentine hypersensitivity) due to root surface exposure, poor aesthetics, increased risk for root caries or in advanced cases, chronic inflammation resulting in irritation and discomfort for the patient. In many cases, these symptoms may necessitate treatment.

improve their oral hygiene through home-care, combined with regular professional cleaning involving scaling and prophylaxis. If the recession is related to a piercing, its removal should be recommended. When tooth misalignment is a contributing factor, appropriate consideration to orthodontic correction should also be considered. It is important to always identify the cause of the gingival recession before contemplating its surgical correction.

Where gingival recession is only slight and the cause has been identified and

Table 1. Millers classification of the severity of gingival recession

Class	Degree of recession	Likely success for root coverage following surgery
Class I	Recession does not extend to the mucogingival junction and there is not loss of interdental bone.	90-100%
Class II	Recession extends beyond the mucogingival junction with no loss of interdental bone.	90-100%
Class III	Recession is associated with interdental proximal bone and one proximal root surface.	50-60%
Class IV	There is mesial and distal proximal bone loss and exposure of one or more proximal root surfaces. The interdental papillae are at the same level as the facial recession.	Less than 10%

Adapted from Miller⁶

Management

Treatment of gingival recession should always start with identifying the cause. For example, the most common cause, over-brushing, should be addressed by advising patients to use a soft/medium toothbrush, to use toothpaste sparingly or change to a less abrasive dentifrice (i.e. gel paste) and to use the appropriate brushing technique (i.e. Modified Bass technique). Where poor plaque control is a contributing factor, patients should be educated on how to

managed to prevent ongoing damage to the marginal gingiva, surgical correction is often not required, provided that the recession does not progress over time. The only way of determining progression is to monitor clinical attachment levels over subsequent recall appointments. Accurate clinical attachment level charting (pocket depths and recession) and clinical photographs provide an ideal means of monitoring gingival recession over time. If the patient is on annual



Figure 1. Pre-operative view of buccal recession on 14.

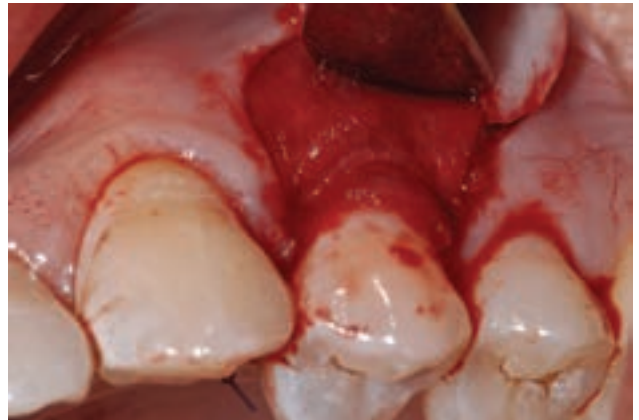


Figure 2. Intra-operative view showing Mucograft in position over the exposed root surface prior to repositioning of the gingival flap. The Mucograft absorbs the bleeding from the operative site.



Figure 3. Coronally advanced flap to get primary closure over the Mucograft. Closure with 6-0 monofilament nylon suture.



Figure 4. Post-operative view 3 months after surgery showing excellent root surface coverage of the 14.

recalls and progression is noted, cause-related therapy should be reviewed and surgical correction considered.

Where gingival recession defects are more severe, surgical correction using Mucogingival plastic surgical techniques such as gingival grafting may be undertaken. The severity of gingival recession is perhaps best defined by Millers classification⁵ (Table 1). Class I-II recession defects generally respond predictably to surgical correction, with a high probability of root coverage.

Surgical correction of recession may be recommended if the area is of aesthetic concern, if there is chronic irritation caused by loss of keratinised attached gingival tissues or significant dentine hypersensitivity. The objectives of gingival grafting are firstly, to provide a degree of root coverage and secondly, to

enhance the amount of keratinised attached gingival tissue around the tooth. While the latter of these two objectives is very predictable, the amount of root surface coverage can be variable depending on the severity of the recession defect. The deeper and wider the recession defect, the more difficult it is to achieve 100% root coverage. A deep but narrow recession defect is somewhat more predictable. Gingival recession interdentially (i.e. loss of interdental papilla) cannot be repaired with gingival grafting. It is not possible to regenerate facial gingival tissue higher than the height of the interdental tissues.

Grafting options to be considered include the following:

- *Free-gingival graft (FGG)*: A technique that has largely been superseded by the Connective tissue graft. Free-gingival grafting left the patient with a large

painful raw patch on their palate, which had to heal by secondary intention. These grafts also generally had poor colour match as they retained the surface characteristics of the palatal mucosa. Finally, the graft survival was often compromised by the fact that this on-lay soft tissue graft only had blood supply from its under surface.

- *Connective tissue graft (CTG)*: The CTG is the most frequently used treatment for the management of gingival recession today. It has a number of advantages over the FGG including: very small donor site on the palate, which consists of a small incision, which is sutured and heals by primary intention. Higher graft survival due to dual blood supply as the graft is placed into a recipient site that is a split thickness 'pouch' providing perfusion to

both sides of the graft. Excellent gingival tissue colour match is also a hallmark of the CTG making it ideal for high aesthetic cases.⁶ In recent years, there have been several variations relating to the surgical technique, most notably the addition of a tunnel preparation at the graft recipient site to reduce the extent of the surgical field and improve wound healing.^{7,8}

- **Guided Tissue Regeneration (GTR):** This technique is used infrequently these days but was popular during the 1990's. This technique used barrier membranes such as Gore-Tex (Teflon) and resorbable membranes (Type II collagen) and a coronally repositioned flap to try and regenerate labial bone, periodontal ligament attachment and gingival coverage.⁹ It is very technique sensitive and susceptible to post-operative complications, such as wound dehiscence, resulting in compromised root coverage. The added cost of the materials involved further reduced the appeal of this technique, with the results achievable not significantly better than those using more conventional techniques such as CTG or a coronally repositioned flap alone.¹⁰
- **Acellular dermal matrix (Alloderm®):** The use of Alloderm for repair of gingival recession has been well documented in the periodontal literature by a few authors and was popular during the 1990's.¹¹ Studies suggested that the use of acellular dermal matrix was effective at gaining root surface coverage and increasing the keratinized gingiva.¹² Patients are not always willing to choose this surgical treatment option, which may be related to the fact that it is an allograft donor skin material.
- **Coronally repositioned flap or horizontal pedicle flap:** These are used infrequently for the treatment of gingival recession. The main problem is the availability of adequate keratinised attached gingival tissue either above or lateral to the tooth with the recession. The horizontal pedicle flap can also increase the risk of recession on the adjacent tooth.
- **Mucograft:** This is a recent innovation from Geistlich and makes use of a custom designed collagen matrix (porcine collagen) and coronally repositioning of the gingiva to gain root surface coverage. It has the advantage of not needing a

palatal donor site therefore reducing postoperative discomfort for the patient as well as reducing the surgical time required to complete the procedure.¹³ The use of Mucograft is ideally suited to sites where there is still some residual keratinised gingiva apical to the area of recession. This technique is well suited in cases of moderate recession. The cases illustrated in Figures 1-4 show the type of clinical case ideally suited to the use of Mucograft in the repair of localised buccal recession on tooth 14.

While there are a number of different clinical techniques that can be used to repair areas of gingival recession, the connective tissue graft would have to be the most commonly employed technique. Careful case selection is important to ensure a successful treatment outcome. Surgical repair is generally contraindicated in patients who are cigarette smokers or who display poor oral hygiene/patient compliance due to the higher risk of post-operative complications such as infection and graft failure.

Summary

Gingival recession is a common clinical observation and typically identified by the general dental practitioner or dental hygienist in the first instance. It is at this time that the underlying aetiology of the recession should be investigated and addressed and preventative measures adopted. Maintaining good oral hygiene and using the appropriate oral hygiene aids and cleaning techniques should be reviewed. Patients with recession should always be made aware of the possibility that such areas can be surgically repaired. However, if the recession is only slight and is not painful or unsightly to the patient, surgical correction may not always be indicated. Such patients should however be monitored to ensure that the recession is not progressive in nature. In cases where the recession is more significant, with little attached gingival tissue remaining, causing aesthetic concerns or ongoing problems with dentine hypersensitivity, surgical correction should be recommended. Due to the highly specialised nature of mucogingival surgery and the fact that root coverage procedures are very technique sensitive, patients that require surgical correction of recession defects should ideally be referred to a periodontist for management.

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