Radicular denudations, commonly called “gingival recession,” may be localized or generalized. They may be located vestibularly or coronally, and they may affect both the root surface and the gingiva. Some authors speak about periodontal recession (Martin) owing to bone involvement (dehiscence) and the resulting destruction of the periodontal ligament and involvement of the cementum (Gumand and Caffesse, 1977) which accompany “retreat” of the gingiva. There are only rare cases in which these denudations are complicated by the existence of periodontal pouches (Liu and Salt 1980).

Etiology

The etiopathogenic origin of these recessions is still being discussed today:

- Some consider them to be physiological.
- Others tend to support a multiple etiologies.
- The literature has many articles on this subject (Gumand and Caffesse, Falahalgere and Fissure, Bengali et coll., etc.).

The following etiologic factors should be taken into consideration:

- Incorrect brushing may cause simple or multiple recessions.
- Gingival hyperplasia
- Excessive connective tissue
- Dental extractions and some parodontal tissues that did not undergo any loss.
- Shelton and Atkins report that covering the recession constitutes one of the major reasons for the recession and possible tooth loss. Radicular denudations, but not nonsurgical, are distinguishable lingually and at the papilla.

Methods—Since 1956, several methods for covering periodontal denudations have been proposed:

1926 For the first time, Norberg introduces the strip positioned coronally to correct problems due to gingival recession.
1956 Grupe and Warren propose a laterally displaced flap. This method is valid if the donor site can offer adequate gingival tissues and has a thick keratinized tissue (left uncovered). There is a large risk of creating a defect at the donor site.
1964 Milson and Corn use an edentulous crest as a donor site thanks to a partial-thickness pediculated flap. Stallf enlen uses a total-thickness flap.
1966 Grupe modifies the 1956 technique in order to leave uncovered bone.
1967 Mallet uses the keratinized gingiva from the papilla to cover denuded roots.
1968 Lehman and Atkins use the gingival graft (“free”) to attempt to cover radicular denudations, but with limited results. They are followed by:
- Sugarman 1969
- Milson and Staf llen 1970
- Corn 1975
- Vandersall 1974
- Ward 1974
- Livingstone 1975
- Douglas 1976
- Martin 1986
- Borgatti (total graft) 1990

At this point (1990), Sullivan and Atkins insist on the fact that covering the recession is done by “hindging.”
1968 Glickman describes the double papilla.
1978 Brustein introduces the pediculated graft positioned coronally. This is followed by variants by:
- Restrepo 1975
- Tenenbaum 1980
- Da Costa Noble 1985
- Alverdissen 1988
- Blanc 1991
1990 Harvey obtains covering in two steps:
- Creation of keratinized gingiva, wait 6 months;
- Coronal translation flap.
1971 Hyon first proposes creating or augmenting the keratinized gingiva; the lateral translation flap is performed one month later.
1972 Eneichik uses a gingival tissue graft to increase the height of keratinized gingiva by Edel.
1975 Improvement in Harvey’s technique by Berninouin, yielding 99.76% predictable covering (according to the author).

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Table 1. Possibilities:

- No attached gingiva (Ericsson and Lindhe 1984), but this factor is not unanimously supported.
- Dentin–alveolar disharmony with fenestrations, bony dehiscence and bulging roots.
- Tooth/bone relationship (Maynard and Wilson 1980) with four possibilities:
  1) Thick alveolar bone and thin gingiva,
  2) Thick alveolar bone and thin gingiva,
  3) Thin alveolar bone and thick gingiva,
  4) Thin alveolar bone and thin gingiva (which constitute a predisposition to the formation of recessions).
- Sites and mode of tooth eruption.

Finally, some cases remain unexplained (17% according to Beford 1990).

Classification of Gingival Recessions

The various classifications proposed are based on the morphology of the lesions or on the possibilities of covering the lesions:

1) Class I: recessions that are deep (greater than 5 mm) and wide (greater than 5 mm).
2) Class II: superficial, wide recessions.
3) Class III: deep, narrow recessions.
4) Class IV: superficial, narrow recessions.

Benép et coll. (1985) describe three forms, relating to the covering prognosis:
- Poor prognosis for covering.
- Favorable prognosis.
- Good prognosis for covering.

Miller F.D. (1989) makes a distinction between four classes of this classification, which is mentioned most often, simultaneously into takes into account anatomic criteria and therapeutic possibilities.

Desmot and DETENNE (1989) conducted a comparison between Miller’s classification (1985) and that of Sullivan and Atkins (1985).

Class I: Recessions that do not reach the mucogingival line with proximal parodontal tissues that did not undergo any loss.
- Superficial recession, wide or narrow, as per Sullivan and Atkins.
- 100% covering possible.

Class II: Recessions that reaches or extends beyond the mucogingival line with proximal parodontal tissues that did not undergo any loss.
- Deep recession that is wide or narrow, as per Sullivan and Atkins.
- 100% covering possible.

Class III: Recessions that reaches or extends beyond the mucogingival line with proximal parodontal tissues that had minor interdental tissue or severe malposition of one or more teeth.
- Partial covering possible.

Class IV: Recessions that reaches or extends beyond the mucogingival line with proximal parodontal tissues that had severe interdental lesions or significant malposition of one or more teeth.
- Chances for covering difficult to predict.

Matter proposes creeping incision, which these denudations are accompanied by destruction of the dentin which constitutes a predisposition to the formation of recessions.

Justifications

The four viewpoints set forth by Matter in 1982 are as follows:

1) The recession is not treated if there is no sensitivity, inflammation, hygiene problems or esthetic desire.
2) A later recession is prevented by the use of keratinized gingiva (before orthodontic treatment, for example).

Fig. 1: Individualization of the two papillae starting from adjacent tissues.
Fig. 2: Fitting the conjunctive tissue graft.
Fig. 3: Suturing the covering flap onto the connective tissue.
Fig. 4: Suturing the covering flap onto the connective tissue.
Fig. 5: Removal of sutures at 10 days.
Fig. 6: Healing at 2 months.
Fig. 7: Tissue maturation at 12 months.
Table 1.
Clinical Case 2: Raetzke’s technique
The amalgam filling was removed and the cavity was leveled with the diamond drill and then treated with the application of tetracycline hydrochloride.

Clinical Case 3: Variant of Langer’s technique proposed by Raphaël Serfaty in 1986 (without discharge incision at the connective tissue covering flap).

Clinical Case 4: Another clinical case with the variant of Langer’s technique.

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Table 2.

<table>
<thead>
<tr>
<th>Donor site</th>
<th>Receiver site</th>
<th>Benefits</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raetzke 1985: connective tissue graft placed under an envelope flap</td>
<td>• partial thickness flap is detached beyond the muco-gingival line, starting from the sulcus</td>
<td>• minimal surgery</td>
<td>• wide, deep recessions</td>
</tr>
<tr>
<td>• two incisions, 1 mm from the epithelial level, towards the bone</td>
<td>• treatment of the radicular surface with plastic</td>
<td>• isolated recessions</td>
<td>• isolated denudations</td>
</tr>
<tr>
<td>• the graft epithelium may be left in the undermined zone under the envelope flap</td>
<td>• suturing of the graft covering the denudations</td>
<td>• deep grafts</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
<tr>
<td>Langer 1985: connective tissue graft placed under a partial-thickness flap placed coronally</td>
<td>• flap suture on the attached connective tissue graft</td>
<td>• excellent esthetic results</td>
<td>• wide, isolated or multiple denudations</td>
</tr>
<tr>
<td>• a first epithelial-connective tissue flap is dissected in the mesiodistal direction</td>
<td>• compression, surgical dressing</td>
<td>• multiple radicular denudations</td>
<td>• narrow, deep recessions</td>
</tr>
<tr>
<td>• two discharge incisions perpendicular to the previous determination of the length of the tissue to be taken</td>
<td>• combines the benefit of gingival graft and pediculated flap</td>
<td>• donor site inadequate for lateral translation</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
<tr>
<td>• the connective tissue graft is taken with a 1.5 to 2 mm long, band of epithelium</td>
<td>• The connective tissue ensures good covering thickness</td>
<td>• wide, isolated or multiple denudations</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
<tr>
<td>• the epithelial-connective tissue flap is sutured and compressed, thus covering the donor site</td>
<td>• stable results</td>
<td>• multiple radicular denudations at M. S. with no keratinized gingiva</td>
<td>• wide, isolated or multiple denudations</td>
</tr>
<tr>
<td>Nelson 1997: connective tissue graft placed under a double, full thickness papilla, placed coronally</td>
<td>• donor site inadequate for lateral translation</td>
<td>• demudation near an edentulous crest to be filled in</td>
<td>• isolated denudations</td>
</tr>
<tr>
<td>• same conditions as above but here, the band of epithelial tissue is not kept</td>
<td>• compression, surgical dressing</td>
<td>• multiple denudations, in this case, the double papilla allows other papillae to be shifted towards the different recessions</td>
<td>• wide, isolated or multiple denudations</td>
</tr>
<tr>
<td>• treatment of the radicular surface</td>
<td>• same benefits as above</td>
<td>• donor site inadequate for lateral translation</td>
<td>• wide, isolated or multiple denudations</td>
</tr>
<tr>
<td>• a total thickness flap is raised, leaving the papilla and the outline of the adjacent teeth intact</td>
<td>• here, the double papilla ensures complete covering of the graft above the recession</td>
<td>• donor site inadequate for lateral translation</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
<tr>
<td>• the flap reaches on either side of the recession to cover a papilla</td>
<td>• the connective tissue serves the recession and all of the bleeding connective tissue</td>
<td>• donor site inadequate for lateral translation</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
<tr>
<td>• the double papilla is sutured on the connective tissue at the site of the recession</td>
<td>• compression, surgical dressing</td>
<td>• donor site inadequate for lateral translation</td>
<td>• donor site inadequate for lateral translation</td>
</tr>
</tbody>
</table>

Table 1.

5) An existing recession is stabilized with a view to eliminating pressure caused by frenula, adhesions or muscles.

4) An attempt is made to cover the recession.

Admittedly, our therapeutic viewpoint comes from Matter’s proposals, but for us, it is clear that covering can be justified under other circumstances:

• to eliminate some fillings,
• to improve the aesthetic appearance of some reconstructions (especially at the maxilla),
• to reduce the possibility of cartes,
• to compensate for thin mucosa in the presence of the persistence of some degree of inflammation, additional corrective surgery will be indicated (Ericsson 1984).

Methods
(Revised Table 1)

Protocols
Three protocols with a view to covering radicular denudations using buried connective tissue grafts (BCTG) will be described: Baertke (1985), Langer and Langer (1985) and Nelson (1987) (Table 2).

Discussion
1) The graft
This may be taken from the palate, in the internal part of a thick flap, at the level of a crest or a tuberosity.
Its thickness should be between 0.5 to 1 mm in order to obtain a better esthetic result (confirmed by Harris 1992).
The connective tissue grafts soften proliferate and give us results that frequently exceed our expectations.

2) Treatment of the radicular surface

There is no description of an exact method for treating radicular surfaces to obtain covering of the denuded area.

A gentle mechanical surface is performed, completed by chemical treatment based on triacylhydrolized phosphoric acid followed by drying the surface, thereby the healing process when it is contaminated by blood or saliva. Thus the connective tissue graft becomes biologically compatible with reattachment.

Why is tetracycline used?
• it has an antibacterial activity (Baker 1983),
• it promotes adhesion of the fibroblasts and the development of epithelial cells (Tettavano 1986),
• it prevents the attachment and migration of the attachment (Matter 1979),
• it has a persistent effect,
• it has an antibacterial activity

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