Peri-implant soft tissue recessions

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Introduction

A beautiful aesthetic result is difficult to obtain with implants in the anterior areas. Both the alignment of the gingival margin and the presence of papillae are essential elements in resolving aesthetic implant problems to achieve an harmonious smile. These two soft tissue entities, however, are closely related to the patient’s biotype and to the quality/quantity of underlying structural alveolar bone.

The peri-implant gingiva, particularly if it is narrow, with a thin-scaled biotype, inevitably retracts six months after the abutment connection and restoration, owing to the reformation of the biologic space (Small and Turnon, 2000).

The process of soft and hard tissue healing must be understood and incorporated into a carefully coordinated sequence of therapy. It is also important to identify complications and clinical mistakes and their implications on the final aesthetic outcome (Saadoun et al, 1999).

How, then, should soft tissue recession (bone and gingiva) around an implant be prevented or treated?

Prevention of peri-implant recession

Marginal bone loss of 1 mm in the first year following the abutment connection, followed by loss of 0.2 mm per year, were among the criteria defined for implant success (Albrektsson et al, 1986). Saving a few tenths of a millimetre of bone around an implant does not increase the longevity of the implant, and should be done only for aesthetic reasons. To prevent or to decrease peri-implant bone resorption and consequent gingival recession, following implant restorations in the anterior zone, several strategies have been suggested, which are explained in detail in the following points.

1) Implant design and diameter

The design of the collar of the implant should stabilize the crestal bone by bringing the roughened surface right up to the platform, and the threads/microgrooves as close as possible to the platform, with no divergence of the collar walls.

2) Placement of the implant

The thread position of the implant determines the effective level of remodeling after loading, and this is perhaps even more important than the position of the implant abutment microgap. (Rompen et al., 2005).

Placement of the implant platform 1.5-2 mm above the bone, helps to minimize bone loss as the biological space around the implants is established on the collar (Lezly Miller, 2005).

3) Flap design

On healed site the limited flap design minimizes interproximal bone and papilla loss. Many flap design have been described for healed sites, some raising the total interproximal papilla with suture incision around adjacent teeth, others using mid-crestal palatal crest incision with sulcular envelope flap and, finally, tissue punch flap recommended in large amount of keratinized gingiva.

4) Flapless approach

Flapless approach using tissue punch procedure has many advantages: less trauma to the bone and disturbances to the soft tissue stability, reduction of pain and oedema, and less post surgical information.

5) Abutment and restoration

Therefore, if immediately post extraction implant placement is indicated, the osteotomy must be performed against the palatal wall to prevent any damage to the remaining (and usually thin) buccal cortical bone (Testori, 2003).

5) Connective osseous grafts

An autogenous bone and xenograft with a membrane is used to gain buccal thickness knowing that bone resorption/gingival recession always occurs after extraction/implant placement.

Gingival biotype plays an important role in determining tissue levels achieved around implants. A thin biotype is generally more susceptible to peri-implant recession, induced by the resorption of a thin labial cortical plate. The use of osseous and connective grafts converts a thin gingival biotype into a thick gingiva (Mathews, 2000), which can enhance gingival marginal stability and simplify tissue management during the restorative treatment phase.

6) Abutment and restoration

Optimal aesthetics will be promoted if the final abutment is installed at the time of implant placement, and left in place undisturbed, throughout the final restorative phase, avoiding disturbance of bone and soft tissue architecture.