



1. A female patient presented for treatment with exposed root surfaces and cervical fillings in the second quadrant. She reported hypersensitivity of the teeth. In the present case, the multiple gingival recessions were covered with the modified, coronally advanced tunnel and the acellular dermal collagen matrix (NovoMatrix).



2. After light scaling of the exposed root surfaces, which served to remove any biofilm present, intrasulcular incisions were made in the recession area, and all the buccal soft tissue – the gingiva and the mobile mucosa – was detached within the context of a mucoperiosteal flap using special tunnelling instruments and mobilized beyond the mucogingival border.

Indication: Recession coverage

Product: NovoMatrix®

Multiple recession coverage with an acellular dermal matrix

» Exposure of the root surface due to recession of the margo gingivae apical to the enamel-cement junction (ECJ) is defined as gingival recession. Gingival recession can occur in an isolated or generalized manner, regardless of age, in individuals with both good and suboptimal oral hygiene [71, 72]. This can make oral hygiene more difficult and thus promote periodontal inflammation (for example gingivitis) or the development of root caries. In many cases, recession impairs esthetic appearance and can even lead to increased hypersensitivity of the tooth neck. Therefore, the primary indications for the treatment of gingival recession are to improve oral hygiene options and esthetics – in individual cases also to treat tooth neck hypersensitivity. ~ Prof. Dr. Anton Sculean, M.Sc.

From a biological and clinical point of view, the treatment of multiple recessions is particularly challenging, as these involve very wide surfaces (dentin or root cementum) that are not perfused and where stabilization of the blood coagulum and the wound is usually very difficult.

The modified coronally advanced tunnel (MCAT) represents an innovative surgical technique for covering single and multiple recessions [73-75]. Due to mucoperiosteal preparation, this minimizes the risk of flap perforation or flap necrosis, a complication that can occur particularly at sites with a very thin soft tissue. By avoiding vertical incisions and incisions of the papillae, this ensures adequate blood supply to the mucoperiosteal flap. Coronal, tension-free advancement of the tunnel allows complete or partial coverage of soft-tissue grafts and thus improves their nutrition and chances of survival. Results from clinical trials have demonstrated that MCAT is a promising option for covering multiple recessions.

However, harvesting subepithelial connective tissue grafts is associated with increased patient morbidity. In addition, the potential for harvesting sufficient tissue is limited as a result of anatomical factors. Sensitivity disturbances at the harvesting

sites have even been described in individual cases. To avoid the problem of tissue harvesting from the palate, various tissue substitute materials have been introduced. Most importantly, collagen matrices offer clinical advantages as they can absorb and serve as a reservoir for growth factors from the wound. In addition, they can stabilize the blood coagulum and virtually act as a guide for cells from the wound environment [76, 28, 29, 30]. Collagen matrices are also suitable for covering recessions on teeth when appropriately indicated [77]. Recent results from in vitro studies have shown that a hydrogenated dermal matrix (NovoMatrix) delivers growth factors to the wound over a period of 13 days. In addition, this matrix has a positive effect on the migration and proliferation of fibroblasts and osteoblasts, thereby indirectly influencing the release of growth factors from these cells. First clinical results have shown that the hydrogenated collagen matrix not only has a positive effect on wound healing, but is also easy to use in clinical practice [28-30].



3. The undermined, prepared, buccal, papillary soft tissue, in combination with the split flap preparation extending beyond the mucogingival border, allow the dermal matrix to be threaded into the tunnel, its coverage and the coronal advancement of the mobilized soft-tissue complex. Protruding fibres were detached from the inside of the flap during preparation using a scalpel or sharp curette.



4. The prehydrated NovoMatrix was cut to the size of the area to be covered and placed in saline solution to wash out the phosphate buffer solution in which the matrix is supplied.



5. The matrix was then threaded into the tunnel using mattress sutures. With the aid of a blunt instrument and simultaneous pulling of the sutures, the matrix was carefully inserted and positioned in the tunnel over the widest recession defect.



6. The close-up already clearly illustrates the thickening of the soft tissue as well as the exact positioning of the matrix, which can be covered atraumatically by the mobilized soft tissue, using wrap-around sutures.



7. Using a suturing technique modified to the tunnelling technique, the soft tissue was advanced coronally, focusing on matrix coverage as well as recession coverage. Coronal advancement was approximately 1.5 to 2 mm coronal to the cement-enamel junction to compensate for any postoperative retraction of the tissue.



8. Postoperative healing proceeded without complications. After six months, good thickening and almost complete coverage of most recessions were observed. Worth mentioning is the natural colour of the soft tissue and, from a clinical perspective, the good handling of this collagen matrix.