

# Clinical Sheet

## COMBINED USE OF CONNECTIVE GRAFT AND HETEROLOGOUS COLLAGEN MATRIX IN THE TREATMENT OF MULTIPLE RECESSIONS

Collagen matrix supporting keratinized tissue in the treatment of multiple recessions on 7 elements.



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Gingival recession is caused by displacement of the gingival margin in an apical direction relative to the amelo-cement junction, resulting in exposure of the root surface: this condition can lead to dentinal hypersensitivity, increased risk of carious and noncarious lesions, bacterial plaque accumulation, and aesthetic discomfort.

One of the most effective surgical techniques in the treatment of gingival recessions, even multiple ones, is the coronal repositioning flap: the success of the technique, however, depends on the amount of keratinized tissue present apically to the lesions, which is responsible for the stability of the flap itself and the clot, during the healing process.

If the keratinized tissue is less than 3mm, two possibilities are foreshadowed: if the size is  $\leq 1$ mm, it is necessary to support the flap with a connective graft; if the keratinized tissue is between 1.5 and 3mm, it is sufficient to provide stability to the flap, but not to the underlying clot.

In the latter case, the use of a three-dimensional collagen matrix can compensate for the instability of the clot: the matrix acts as a sponge, absorbing the blood and keeping its volume constant so that it can mature into connective tissue.

## Materials

A three-dimensional collagen matrix of equine origin (XC Collagen® Xenomatrix®, BCG-XC50, Bioteck Spa, Italy) of size 15 x 30 x 4 mm was used for grafting. This matrix is made from tendons of equine origin by an advanced process of extraction and subsequent freeze-drying of the collagen. The resulting product is subsequently sterilized by beta-ray irradiation at 25 kGy. The matrix acts as a scaffold for cell colonization of the patient's connective tissue.

Xenomatrix® is applied dry and hydrates with blood at the recipient site. Stabilization can be done by simple sutures, avoiding exerting tension.

The matrix is hemostatic and adheres effectively to exposed tissues, a fact that makes it particularly easy to place *in situ*.

In addition to the treatment of gingival recessions, Xenomatrix® also finds use in socket preservation surgeries.



**Fig. 1** – Clinical examination - frontal view: presence of multiple recessions and noncarious cervical lesions on elements 21-22.



**Fig. 2** – Detail of the envelope flap disconnection (front view).



**Fig. 3** – Intact three-dimensional equine-derived collagen matrix (XC Collagen® Xenomatrix®, BCG-XC50, Bioteck Spa, Italy) before being used for grafting.



**Fig. 4** – Placement of the connective graft (positions 11 and 21) and Xenomatrix® (position 13), stabilized with pga 8/0 sutures.

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## Results

The clinical case concerned a 41-year-old patient, a nonsmoker in excellent health, who complained of aesthetic discomfort due to the presence of multiple recessions at the level of the upper arch and a root dyschromia at the level of a premolar, together with increased dentinal sensitivity. Clinical examination showed the presence of lesions classifiable as RT1<sup>1,2</sup> on elements 21,22,11,12,13,14,15. The finding of a small loss at the interproximal level of the papillary type did not result in a change of classification, as the interproximal CEJ was not identifiable distally and mesially at the level of the elements affected by the recessions.

The etiology was presumably attributable to a thin periodontal phenotype, aggravated by traumatic brushing; the patient also reported previous orthodontic therapy with expansion of the dental arches.

Based on the diagnostic and prognostic considerations, it was decided to intervene by covering the recessions and promoting tissue thickening to ensure long-term stability. In order to restore soft tissue health, the patient underwent

causal therapy, providing instructions for proper oral hygiene to avoid recurrence of brushing trauma.

From the surgical point of view, it was decided on a single surgery, involving a frontal approach, with coronal displacement of the flap on 21 and 22, and a lateral approach, with coronal displacement on elements 11-15, with tunneling of the incisive papilla<sup>3</sup>.

In order to stabilize the flap, connective grafting was used on 11 and 21; however, a three-dimensional collagen matrix was used on element 13 to stabilize the clot.

The patient was followed up in the following months up to one year after healing. The surgical outcome was optimal, both in terms of root coverage and aesthetic impact, achieving the highest score (10 points) of Root coverage Esthetic Score (RES)<sup>4</sup>.

1. Cairo et al., <https://doi.org/10.1902/jop.2010.100278> (2010)
2. Pini Prato et al., <https://doi.org/10.1902/jop.2010.090631> (2010)
3. Zucchelli et al. <https://doi.org/10.1902/jop.2000.71.9.1506> (2000)
4. Cairo et al, <https://doi.org/10.1902/jop.2009.080565> (2009)



**Fig. 5** – Suturing the envelope flap with pga 6/0 sling sutures.



**Fig. 6** – Healing of multiple gingival recessions at 5 months after surgery: note the excellent soft tissue status and root coverage achieved (frontal view).



**Fig. 7** – Healing of multiple gingival recessions 11-15 at 1 year after surgery: note how regeneration performed with Xenomatrix<sup>®</sup> (element 13) is comparable to that achieved with connective (element 11).



**Fig. 8** – Healing of multiple gingival recessions 21-22 at 1 year after surgery: note the excellent maintenance of root coverage achieved.



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