

## Is the Connective Tissue Graft Still the Gold Standard Approach for Root Coverage?

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Gingival recession is characterized by the exposure of the tooth root surface due to the migration of the apical gingival margin tissue relative to the cement enamel junction [1,2]. Plaque-induced inflammation and toothbrush trauma have been proposed as etiologic factors [3,4], even though this point still needs elucidation [5].

Diverse surgical techniques were proposed for the treatment of the gingival recessions. Preferably, treatment options should be based on systematic, unbiased, and objective evaluations of the literature [6].

A previous systematic review showed that the connective tissue graft (CTG) plus coronally advanced flap (CAF) is considered the gold standard technique in treatment of gingival recessions [7,8].

A possible hypothesis to explain the clinical efficacy of CTG may be related with the specific healing model of the procedure. In fact, the high stability of the wound over CTG is associated with graft vascularization originated from both the periodontal plexus and the overlying flap leading to a complete blood supply for the graft after 2 weeks [9].

However, CTG has a number of disadvantages: a secondary harvesting surgery for donor tissue is required; increased morbidity may be associated with the donor surgery; and a limited amount of donor tissue is available, limiting the number of defect sites treated per patient visit [10,11].

To overcome such limitations, and in order to increase the effectiveness of root coverage techniques, other approaches have been proposed such as: Acellular Dermal Matrix (ADM), Xenogeneic Collagen Matrix (XCM), Enamel Matrix Derivative (EMD) and Platelet Rich Fibrin (PRF) in combination with coronally advanced flap (CAF).

Clinical decline and knowledge about the effectiveness of these new techniques remain very limited, more studies are needed [12].

### Acellular Dermal Matrix (ADM)

ADM has been introduced as an alternative to CTG in mucogingival surgery [6]. ADM is a dermal allograft processed to extract cell components and the epidermis, while maintaining the collagenous scaffolding (Alloderm®) [13].

### Xenogeneic Collagen Matrix (XCM)

The use of XCM (Mucograft®) in the treatment of gingival recession has shown promising results and thought to be a suitable substitute to the more common autogenous graft harvesting for mucogingival surgical procedures [14]. This resorbable, three dimensional matrix is made up of pure types I and III collagen without cross-linking or chemical treatment [15,16].

### Enamel Matrix Derivative (EMD)

EMD (Emdogain®), which induces acellular cementum formation during tooth development, and eruption, has been developed as a clinical treatment to promote periodontal regeneration. It is derived from embryonal enamel of porcine origin, based on the high degree of homology between porcine and human enamel proteins [17].

### Platelet Rich Fibrin (PRF)

PRF is prepared from the patient's blood and can be used as membrane for root coverage [18]. PRF is defined as an autologous platelet and leukocyte enriched fibrin biomaterial [19].

The clinical efficacy of alternatives procedures, Acellular Dermal Matrix (ADM), Xenogeneic Collagen Matrix (XCM), Enamel Matrix Derivative (EMD) and Platelet Rich Fibrin (PRF), compared to conventional procedures in the treatment of localized gingival recessions has been studied in a systematic review [20].

Main results can be summarized in:

- Subepithelial connective tissue grafts is still considered the gold standard procedure in the treatment of Miller Class I and II recession-type defects
- AMD increases the effectiveness of the CAF. However, the comparison between ADM and GTC was affected by uncertainty.
- XCM does not improve root coverage compared to conventional procedures, however it improves the gain in keratinized tissue. So XCM seems to be very useful when the aim is to create keratinized tissue

- EMD increases the effectiveness of the CAF. However, the comparison between EMD and GTC was affected by uncertainty.
- PRF studies have reported contradictory results, other studies will be required. Furthermore, a standardized protocol for the preparation of PRF membranes should be followed.

CAF+CTG, CAF+EMD, and CAF+CM can be considered very effective combination techniques for treating gingival recessions. Further studies are needed to properly assess the effectiveness of procedures alternative to CAF+CTG.

This communication is a part of a work, for more informations please refer to : Amine K, et al. "Alternatives to connective tissue graft in the treatment of localized gingival recessions: A systematic review". *Journal of Stomatology, Oral and Maxillofacial Surgery* (2017).

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