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Platelet-Rich Fibrin Membrane, Regenerative Biomaterial for Root Coverage

Opinion

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Abstract

Platelet-rich fibrin in its membranous form can be used in the treatment of periodontal recession in combination with the coronal replacement flap, which leads to the regeneration of tissues lost by dystrophy with results in root coverage and gum width. inserted stable over time. With this bioproduct, the reconstruction of the cellular elements lost in these lesions is promoted.

Keywords: Platelet-rich fibrin membrane; Periodontal plastic surgery; Periodontal regeneration

Introduction

Periodontal recession is considered a dystrophic process of the periodontium caused by a nutritional disorder of the gingiva [1]. It has been defined as a slowly onset progressive and destructive disorder in which the gingiva lies apical to the cementoenamel junction and occasionally involves the mucogingival junction and alveolar mucosa [2].

The treatment of periodontal recession is aimed at achieving root coverage through various surgical techniques that try to return the original position of the gum [3]. These procedures have been classified as free and pedicled grafts and are included within periodontal plastic surgery [4].

Working on a denuded root is extremely complex and traditional procedures fail to regenerate the tissues lost due to dystrophy, so that parts of the results obtained in terms of percentage coverage and gain of attached gingiva are lost over time [5].

Periodontal plastic surgery has tried to find new treatment options that guarantee more stable results, which has been supported by regenerative medicine, specifically tissue engineering, through which the platelet-rich fibrin membrane can be obtained. . This membrane was described by the French Choukroun in 2001, and it is considered a second generation platelet concentrate that is obtained only from centrifuged blood and without additives [5,6].

The membranous form of platelet-rich fibrin can be combined with pedicled flaps, and specifically the coronal replacement flap is the ideal one for this association due to its characteristics, as it allows for toral coverage of the membrane, without tension, and also for correct vascularization of the site [5].

The platelet-rich fibrin membrane presents defined potentialities based on its biological and physical properties that guarantee a regeneration of tissues lost by dystrophy and therefore stable results [7].

The biological properties are determined by the content of said bioproduct in: stem cells, cytokines, leukocytes, platelets, adhesion molecules, etc. Specifically, during the platelet degranulation process, a group of growth factors are released that guarantee the stimulation of various biological processes such as fibroblastic proliferation, cell mitosis, cell division and differentiation, collagen synthesis, neoangiogenesis, and osteogenesis. Among these factors, the following stand out: the beta transformant, the vascular endothelial, the fibroblastic, the similar to insulin, etc. [5,7].

The physical properties determined by its three-dimensional structure, firm in fibrin, guarantee it to be cut, sutured and adapted to the sites. This membranous form allows it to be used as a membrane that promotes another form of regeneration, which, unlike guided tissue regeneration, is not expected only by the desmodontal cells, but rather the membrane itself provides cells prepared for the regeneration of the

injured site. Its physical properties allow it a duality of functions; Firstly, it isolates the epithelium and connective tissue, which have a more accelerated growth, and configures a space that serves as a scaffold for undifferentiated mesenchymal cells and those from the periodontal ligament that promote regeneration [5,7,8].

Conclusion

Platelet-rich fibrin in its membranous form offers potentialities that promote a true regenerative process and, when used in the therapy of periodontal recessions, guarantees regeneration from both the desmodontal cells and those provided by the platelet itself. biomaterial. The physical properties of the bioproduct make it possible to isolate the epithelium and connective tissue and configure an intrinsic space within its own structure that serves as scaffolding for the regeneration of lost tissue.

Conflict of Interests

The authors do not report conflict of interest

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