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COMPARISON BETWEEN AUTOGENOUS REVERSED DERMIS AND SPLIT-THICKNESS SKIN GRAFTS RECONSTRUCTING ORAL MUCOSAL DEFECTS: CLINICAL, HISTOLOGICAL AND IMMUNOHISTOCHEMICAL EXPERIMENTAL STUDY

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Abstract

Eight adult male mongrel dogs were used in this study where reversed dermis (0.56 mm) and split-thickness skin grafts (0.56 mm) were used to reconstruct buccal mucosal defects 1X2 cm, clinical, histological and immunohistochemical assessment was done up to three months to define the optimum time of graft maturation, it was found that during the first month clinical and histological changes correlated well with complete epithelialization. Immunohistochemical investigation using tenascin proved that continuous histologic changes were found through the whole period of the study and became stable by the end of the third month.

Introduction

Split-thickness skin grafts, dermal grafts and reversed dermal grafts have been used in oral and maxillofacial surgery, with wide acceptance and increasing preference for dermal and reversed dermal grafts, these grafts have been used in preprosthetic surgery, reconstructive surgery, as interposition material in gap arthroplasty, and for repair and replacing of TMJ. disc. when used as a surface graft, reversed dermal grafts have been widely preferred for its great similarity to the neighboring oral mucosa[9,10,11,14,20,21]. Studies using skin and dermis have been done on clinical, histological and histochemical basis to show the behavior of the grafts since their transplantation to the recipient sites until healing[13-16], regarding the reversed dermis grafts this is the first study done on immunohistochemical basis to assess the full maturation of these grafts compared with split-thickness skin graft.

The basis for immunohistochemical study was by using the anti-tenascin antibody. What is tenascin? Tenascin is one of the extracellular matrix formed of glycoprotein[4]. It is of high molecular mass composed of six similar subunits joined together by disulphide bonds[15]. The precise biological function of tenascin-c is unknown, but different parts of the molecule have effects on cell adhesion and other cellular activities[19]

Lightner and Erickson (1990)[6], showed that tenascin association with embryonic tissues, tumors and wound healing suggested a role for tenascin in tissue growth and restructuring. Lightner (1994)[7], speculated that tenascin might enhance keratinocyte migration required for re-epithelialization. Virtanen (1993)[22], noticed that the transient expression of tenascin in the basement membrane and connective tissues of healing wounds would give this protein an important role in providing ideal condition for cell movement with the deposition and organization of other extracellular matrix glycoproteins during tissue repair. Zagzag et al. (1995)[23], expressed that the strong association of tenascin and vascular hyperplasia, suggested that tenascin could play a crucial role in angiogenesis.

In normal oral mucosa tenascin was seen to underlie the epithelium as a thin delicate band[8], the same distribution was found to occur in small intestinal villi of mouse[5]. Although many researches were done to show the correlation between tenascin and some organs grafts, as in liver grafts[2], and neural transplantation[12], Yet there were no studies done to correlate tensacin with intra-oral grafts. Hence the aim of this study is to define the optimum time for reversed dermal grafts and split-thickness skin grafts maturation through gross observation, histological and immunohistochemical assessment.

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