

Effect of fibrin glue on collagen deposition after autologous fascia grafting in rabbit vocal folds.

Authors: Scapini F., Ferraz Da Silva L.F., Tsuji D.H., Dolhnikoff M., Sennes L.U.

Publication Date: 2011

Abstract:

Objectives: Fibrin glue (FG) is a reaction product of fibrinogen and thrombin that forms a fibrin clot responsible for tissue adhesion. However, FG and its components may interfere with wound healing by interacting with cytokines such as transforming growth factor-beta (TGF-beta). The objective of this study was to investigate the effect of FG on collagen deposition after fascia grafting in the vocal folds of rabbits. Methods: Eighteen rabbits underwent autologous fascia grafting in both vocal folds, and the left side was fixed with FG. Each animal was painlessly sacrificed after 7, 30, or 90 days. The larynx was removed, and the vocal folds were prepared for histomorphometric analysis by picrosirius red staining to evaluate collagen deposition around the graft. Results: There was a significant increase in collagen density around the grafts at 90 days in the vocal folds that were fixed with FG ($p = 0.0102$) compared with the control vocal folds. Conclusions: Application of FG altered collagen deposition around the fascia grafts, leading to significantly increased collagen density after 90 days. Differences found in the composition of the extracellular matrix in later stages of the healing process are a result of changes that occur in the beginning of this process. Therapeutic interventions, such as the use of FG and/or its components, performed in the early stages of wound healing may interfere with the complex interactions of fibroblasts, inflammatory cells, and cytokines (especially TGF-beta), thereby modulating the healing process. © 2011 Annals Publishing Company. All rights reserved.