Biocompatibility in vitro between fascia fibroblasts and fibrin glue. [Chinese]

Authors: Xin P.-C., Guo Q.-Y., Li J., Zhao D.-W., Yang S.

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Abstract:

BACKGROUND: Fibrin glue is a natural biodegradable scaffold, which can be used for tissue-engineered scaffolds, and is increasingly used as seed cell carrier for tissue engineering repair. OBJECTIVE: To investigate the biocompatibility in vitro of rabbit fascia fibroblasts and fibrin glue. METHODS: Tissue explants adherent method was used to culture fibroblasts from subcutaneous deep fascia tissue of New Zealand white rabbits. The fibroblasts could be passaged with trypsin digestion method. Suspension of passage four fibroblasts was co-cultured with fibrin glue. Morphology and proliferation of fibroblasts on the surface of fibrin glue were dynamically observed under the inverted phase contrast microscope. At 5 days after co-culture, fibroblasts were identified by immunofluorescence staining under the laser scanning confocal microscope. The fibroblast growth and adhesion were observed under the scanning electron microscope. RESULTS AND CONCLUSION: There was no significant difference in fibroblast morphology between co-culture fibroblasts and pure culture fibroblasts with inverted phase contrast microscope. Scanning electron microscope demonstrated that fibroblasts fully extended in fibrin glue surface, and showed a good adhesion between the "pseudopodium" and fibrin glue, and secreted matrix material. It is clear that the fibrin glue did not alter the morphologic features of fibroblasts. Laser scanning confocal microscope revealed that fibroblasts were positive for vimentin. These verified that properties of fibroblasts did not change after they were seeded in fibrin glue surface and did not be induced to differentiate. There is a very good biocompatibility between fascia fibroblasts and fibrin glue in vitro.