

Adhesion of fibrin sealant to freeze-dried morselized bone promoting osteogenesis. [Chinese]

Authors: Guan C.-Y., Wang J.-F., Zhang Y.-G.

Publication Date: 2004

Abstract:

Aim: To observe the modeling ability and histological course of osteogenesis by modeling the contained bone defects in rabbit lateral condyles of femur and transplanting fibrin sealant(FS) to the freeze-dried morselized bone (MB), so as to discuss the effects of FS on the osteogenesis of freeze-dried MB during contained bone graft. **Methods:** Forty-eight adult New Zealand rabbits were used as donors. The cavities with 10 mm in depth and 5 mm in diameter were drilled in the lateral condyles of bilateral femurs. The animals were randomly divided into four groups: FS + MB group (transplanted with the adhesion of FS to MB), MB group (transplanted only with MB), FS group (transplanted only with FS) and blank control group. At 1, 2, 4 and 8 weeks after operation, X-ray radiation, histological observation and hitomorphological analysis were performed in the four groups. **Results:** On the 1st, 2nd and 4th week, compared with the MB group, a great number of euphotic zones with low density around the bone-transplanted zone were found. With naked eye: scattered granules were observed in MB group, while good osteogenesis was observed in FS + MB group 1-2 weeks after the specimens were dissected. By the histological observation, plenty of lymphocytes and weaker immunoreaction were not found in FS group, and bone defects and repair were faster in the FS + MB group than in the MB group. Osteogenesis in the FS + MB group was faster than that in MB group, and area ratio of new-repaired bones in the FS + MB group was higher than that in the other groups with the hitomorphological analysis. There was significant difference between the FS + MB group and the MB group ($P < 0.01$). **Conclusion:** FS can enhance the remodeling ability of MB, promote the stability of MB after being filled, accelerate the course of vascularization among bone

granules and improve the osteogenesis ability to freeze and dry the bone granules.