Effects of fibrin glue and growth factors released from platelets on abdominal hernia repair with a resorbable PGA mesh: Experimental study.

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Abstract:

Introduction. The purpose of this study was to investigate if the strength and quality of an abdominal wall repair with a resorbable PGA (polyglycolic acid) mesh can be improved by fibrin glue or releasates from platelets. Materials and methods. An abdominal wall defect in the rat was repaired using a PGA mesh in a sublay technique (CG) alone and either with additional fibrin glue (FG) or with platelet releasates (REL). Endpoints were clinical herniation pressure and hydroxyproline concentration (HP) as well as number of fibroblasts and collagen fibers at 7, 14, and 90 days after implantation. Results. In both experimental groups (REL and FG) higher herniation pressures, hydroxyproline contents, and number of fibroblasts/collagen fibers were found at all times of measurement compared to the CG. The PGA mesh alone showed a significant lack of stability after 14 days which can be compensated for by the investigated components. Significant differences ($P < 0.05$) were observed regarding the herniation pressure (REL vs CG at 7 and 14 days; FG vs CG at 14 days) and the number of collagen fibers (REL vs CG at 14 days). Conclusions. These results suggest that the quality of a PGA mesh repair can be improved by application of fibrin glue or platelet releasates in the described experimental setting.