Efficacy of fibrin glue and polyglactin acid sheet for pig liver resection model.

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Abstract:

Aim: Fibrin glue is commonly used to prevent bile leakage and bleeding after hepatectomy in clinical cases. Recently, several liver centers try to use polyglactin acid sheet for preventing bile leakage and bleeding in Japan. However, there is no evidence of its efficacy and safety when applied to cut liver surface after surgery. Therefore we evaluated the efficacy of fibrin glue and polyglactin acid sheet using pig liver resection model. Materials and Methods: A chevron incision was performed under general anesthesia, followed by the left hemi-hepatectomy (approximately 40%), using pig liver. Pigs were subsequently allocated randomly into 2 groups (n = 5 in both); in group A, a fibrin glue (Bolheal) with polyglactin acid sheet (Neoveil) was applied to the cut surface and in group B only Bolheal was applied. After one month, we evaluated histological findings and incidence of biloma or infl ammatory change at the cut surface. Results: All of the 5 pigs in group A had fibrotic capsulated cavity at the cut surface. Inside of those cavities included necrotic liver tissues, Bolheal, and peace of Neoveil with bile juice. Histologically, Neoveil and Bolheal remained in the fibrotic tissue in normal liver tissue. In group B, only one pig had abscess at cut surface. Other four pigs showed no histological problems; Bolheal was completely integrated into the normal liver parenchyma. Conclusion: Bolheal was very effective for liver cut surface in this experimental study. Neoveil should not be applied for cut surface.