

Experimental use of crosslinked gelatin glue for arterial hemostasis in cardiovascular surgery.

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Abstract:

BACKGROUND: Anastomotic needle hole bleeding is a frequently encountered problem in cardiovascular surgeries. **OBJECTIVE:** To examine the feasibility of crosslinked gelatin glue as an anastomotic needle hole sealant in comparison with fibrin glue. **METHODS:** The in vitro burst water pressures were measured for gelatin and fibrin glue sealed needle holes of expanded polytetrafluoroethylene (ePTFE) or collagen coated woven polyester grafts. For in vivo investigations, abdominal aorta-ePTFE graft anastomoses of heparinized beagle dogs were sealed by gelatin or fibrin glue and hemostatic efficacy was judged. The implanted sites were re-examined 4 weeks postoperatively. **RESULTS:** The in vitro burst water pressures of gelatin glue sealed needle holes of both grafts were higher than those sealed by fibrin glue. For in vivo canine studies, hemostasis was successful for all gelatin glue applied suture lines, but not two out of three fibrin glue treated sites when 3-0 polypropylene suture was employed. Although adhesions of surrounding tissues were intense for all sites 4 weeks postoperatively, inflammation was more severe for the fibrin glue group compared to those of gelatin glue. **CONCLUSIONS:** Gelatin glue was found to be an effective and safe sealant for accomplishing hemostasis of anastomotic needle holes of vascular grafts.

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