Antifibrinolyfic additives to fibrin glue for laparoscopic wound closure in urinary tract.

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Publication Date: 1999

Abstract:

Background and Objectives: Fibrinolytic activity of urine may rapidly degrade fibrin glue used in the urinary tract, thereby limiting tissue adhesion. The goals of this study were to verify the ability of antifibrinolytic agents to delay the degradation of fibrin glue in the urinary tract and to assess the results of this delay on subsequent wound healing. Materials and Methods: In 25 domestic pigs, a 3.5-cm incision in the urinary bladder was left open (N = 6) or closed laparoscopically with fibrin glue alone (N = 6), fibrin glue containing aprotinin 5000 KIU/mL (N = 6), or fibrin glue containing aprotinin 2500 KIU/mL with (N = 4) or without (N = 3) aminocaproic acid 12.5 mg/mL. At harvest 7 days later, the bladder was tested for leakage. Histologic features were scored by a pathologist blinded to the closure method. Results: There were no significant differences among the groups in the amount of leakage at harvest. Significant fibrin glue material in the wound was noted more often in the pigs treated with fibrin glue plus aprotinin (7 of 13) than in the fibrin glue-only group (0 of 6; P = 0.04). The presence of significant fibrin material in the wound correlated well with absence of granulation tissue (P < 0.001), such that granulation tissue bridging the wound edges was found more often in the fibrin glue-only group (6 of 6) than in the groups treated with fibrin glue plus aprotinin (4 of 13; P = 0.01). Conclusions: Although aprotinin +/- aminocaproic acid did delay the degradation of fibrin glue used to close a bladder wound, it was associated with inhibition of granulation tissue in the glued wound. These findings suggest that aprotinin alone and aprotinin plus aminocaproic acid are not useful additives to fibrin glue used for wound closure in the urinary tract.