The differences in combining fibrin glue with various hemostasis agents for laparoscopic partial nephrectomies.

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Publication Date: 2010

Abstract:

Introduction: It is being reported now that more doctors are, in laparoscopic partial nephrectomies, doing surgeries to remove larger tumors using a combination of fibrin glue and one of the various hemostasis agents available. Purpose: This experiment was performed to document which combination of fibrin glue and one of three commonly used agents is most effective in hemostasis. Materials and Methods: 14 female rabbits were divided into 4 groups. Group1 (N=6) used only fibrin glue. Collagen material was added in Group 2 (N=8), gelatin material in Group 3 (N=8) and oxidized cellulose in Group 4 (N=6). After transecting the kidney and confirming bleeding, we clamped renal vessels. We put fibrin glue on the area and in Groups 2-4, we also pressed there for (Table presented) 1 minute with agents. After removing clamping, we observed for 3 minutes. If there was bleeding, we repeated procedure. We determined which method was most effective from the number of procedures needed. After fixing removed kidney, we made several thin sections and observed them microscopically. Results: The number of repetitions needed was significantly lower in Group 2 than Groups 1 and 4. Histologically, in Group 2, fibrin glue spread most uniformly into the area between the tissue and agent and also into agent fibers. In Group 4, little fibrin glue remained between tissue and the agent. Conclusions: Collagen materials are significantly more effective than oxidized cellulose. We suggest this is due to mild acid in oxidized cellulose reducing activity of thrombin. In laparoscopic partial nephrectomies, we should avoid using oxidized cellulose with fibrin glue.