Hemostatic effect of new surgical glue in animal partial nephrectomy models.

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Abstract:

OBJECTIVE: To evaluate the hemostatic effect of newly developed medical adhesive in animal partial nephrectomy models.

MATERIALS AND METHODS: A total of 30 experimental rabbits were used in the first study. After clamping the renal vessels, partial nephrectomy was performed up to the opening of the calices. Bioglue was applied to the resection stumps using the new glue (group 1, n = 10) or fibrin glue (group 2, n = 10) for 2 minutes, and the blood loss was measured after unclamping the vessels. Simple unclamping without glue (group 3, n = 10) was also evaluated. For the second study, we used 9 dogs with blood pressure monitoring. After preparation similar to that for the first study, the new glue was applied in 3 dogs (group 4), fibrin glue in 3 dogs (group 5) and no glue in 3 dogs (group 6). Histologic evaluation was performed at 7 days and 1 month after surgery.

RESULTS: The mean blood loss was significantly less in group 1 (1.45 g) than in groups 2 (6.59 g) and 3 (19.77 g; P <.001 for both). It was also significantly less in group 4 (12.5 g) than in group 5 (182.5 g; P <.001). Group 4 maintained their initial blood pressure throughout the study, but a significant decrease was observed in group 5. No hematoma was observed at day 7.

CONCLUSION: The new glue showed acceptable hemostasis when applied to the resection stumps after partial nephrectomy in both the rabbit and the dog models. These findings indicate that it could

be useful for hemostasis after partial nephrectomy.