Combination of a liquid fibrin sealant with sheet-type hemostatic agents: Experimental evaluation in partial nephrectomy animal model.

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Abstract:

Liquid fibrin sealants, together with sheet-type hemostatic agents, have been used during partial nephrectomies to secure effective hemostasis at the suture site. Using animal kidneys, we investigated which hemostatic agent might adhere most effectively to the renal tissue and serve best as a bolster. Liquid fibrin sealant alone, or in combination with a sheet-type hemostat, such as collagen, gelatin or oxidized-cellulose hemostat, was applied to the cut surface of the kidney of anesthetized rabbits, and the differences in the degree of adherence to the kidney and resultant hemostatic efficacy were evaluated. Histological analyses were also carried out to compare the degree of adherence of each of the aforementioned hemostats to the kidney tissue. Fibrin sealant plus the collagen or gelatin hemostat was found to have a stronger hemostatic effect than fibrin sealant applied alone or fibrin sealant plus oxidized-cellulose hemostat. The histological investigation showed that the fibrin sealant adhered well to kidney tissue when it was applied with the collagen or gelatin hemostat, showing the advantage of combining these two materials for achieving effective hemostasis. Fibrin sealant used in combination with the collagen or gelatin hemostat was the most suitable for obtaining a reinforced hemostatic effect at the suture site in a partial nephrectomy animal model.