Experimental study of a novel fibrin sealant for achieving haemostasis following partial hepatectomy.

Authors: Davidson B.R., Burnett S., Javed M.S., Seifalian A., Moore D., Doctor N.

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Abstract:

Background: Ensuring adequate haemostasis is a major difficulty in the field of liver surgery. This study aimed to evaluate a novel fibrin sealant (Vivostat), designed for autologous preparation, in a porcine model of partial hepatectomy. Methods: Thirty-six Large White Landrace pigs underwent partial left hepatectomy by finger fracture under portal vascular inflow occlusion. Animals were randomized to treatment of the resected surface with either fibrin sealant (Vivostat, n = 12) or regenerated oxidized cellulose gauze (Surgicel, n = 12), or were left untreated (controls, n = 12). Blood loss from the resection margin was measured at 2-min intervals for 10 min, and the time to haemostasis was recorded. Following complete haemostasis the animals recovered for 7 days. Results: Median (range) blood loss in the control group was 94.3 (17.3-467.0)g, and was significantly reduced with Vivostat (13.8 (5.5-150.9)g) and Surgicel (22.8 (5.8-67.3)g). Median (range) time to haemostasis in controls (31 (12-52)min) was also significantly reduced by Vivostat (8 (0-32)min) and Surgicel (10 (0-19) min) (both $P < 0.001$ versus controls, Kruskal-Wallis test). Conclusion: The novel fibrin sealant, Vivostat, is as effective as Surgicel cellulose gauze in achieving haemostasis after porcine partial hepatic lobectomy.