

Use of fibrin-based sealants and gelatin-matrix hemostats in laparoscopic liver surgery. [Review]

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Abstract:

BACKGROUND: During surgery, liver tissue is particularly prone to bleeding which can be difficult to control, especially in patients with liver disease-associated coagulopathy. Topical sealants and hemostats can enhance clot formation and wound healing, and can be useful for controlling or preventing troublesome bleeding during surgical interventions where conventional methods of hemostasis are inadequate.

METHODS: An extensive customized literature search was conducted using medical reference databases to identify publications related to the use of potential agents in laparoscopic liver surgery. Citations from these articles were also used. Details of the authors' own experience in this area is also included.

RESULTS: Routine use of fibrin-based sealants in open liver surgery now seems to be widespread. Data from several large prospective randomized controlled clinical trials have indicated that application of fibrin-based sealants to the cut liver surface during hepatectomy does provide some benefit in terms of a shorter time to hemostasis and a reduction in postoperative drainage fluid, even when compared with argon beam coagulation. Another trial found no additional benefit of fibrin sealants when applied after coagulation of the cut liver surface. A prospective, uncontrolled study found that application of the flowable gelatin matrix-based hemostat Floseal provided rapid effective control of mild-to-severe bleeding during surgical removal of primary or metastatic liver tumors, even

in those with cirrhosis. Some of these topical hemostatic agents are already being used on a routine basis by many surgeons performing laparoscopic liver surgery. Although there are no randomized clinical trials, there are several anecdotal or case reports of their effective use during laparoscopic liver surgery.

CONCLUSIONS: On the basis of current evidence of using hemostats and sealants in open liver surgery, there is potential of developing these strategies in laparoscopic liver surgery.