

Use of fibrin glue in hepatic trauma.

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Abstract:

We evaluated the efficacy and safety of fibrin glue (FG) made with highly concentrated human fibrinogen and clotting factors in achieving hemostasis of superficial and deep hepatic injuries. Experimentally produced hepatic injuries were produced in 12 adult mongrel dogs and hemostatically sealed with FG. Half of the dogs each received two penetrating hepatic injuries consisting of a large laceration and a deep stab wound through the liver; the remaining dogs underwent resection of a large segment of the left lobe of the liver. Hemostasis was achieved by applying FG into and over the bleeding wounds; hepatic arterial occlusion was not used. Complete hemostasis was achieved in all animals before skin closure. One dog from each group was re-explored and the liver specimens harvested for gross and microscopic examination at postoperative intervals of 12 hours, 24 hours, and 2, 3, 6, and 8 weeks. There were no cases of intra-abdominal infection, abscess formation, or bile fistulae. Histologic examination demonstrated a thickened capsule containing fibrous connective tissue and neovascular proliferation; there were no signs of local or systemic toxicity. One dog died on postoperative day 1 from rebleeding from the hepatic injury; all other dogs survived without complications. We conclude that FG provides effective hemostasis of superficial and deep hepatic injuries, and has good systemic and local compatibility. Its use in surgery for hepatic trauma may lead to less intraoperative blood loss and transfusion requirements, as well as a reduced need for major hepatic resection to control hemorrhage.