The effect of fibrin glue patch in an in vitro model of postdural puncture leakage.

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Abstract:

UNLABELLED: We studied the possibility of stopping a continuing transdural leakage with fibrin glue, a biologic adhesive, in an in vitro model. The model was made by sealing the bottom of a tube filled with saline to a height of 50 cm with a human lyophilized dural specimen. Dural punctures were performed with a 17-gauge Tuohy needle. The needle was then withdrawn, and 0.8 mL of fibrin glue was injected through the same needle to seal the defect. The column was refilled 3 min after sealing. The pressure in the intrathecal chamber was measured during the procedure. Macroscopic and microscopic histological studies of the dura and the fibrin plug were performed. In the five cases studied, the leak was sealed by the fibrin plug at closing pressures of 25-35 cm H2O, and no further leakage was detected after refilling. The dural specimens showed a fibrin glue plug stuck at the edges of the hole. We conclude that fibrin glue stops leakage of fluid from dural holes created by a 17-gauge Tuohy needle in an in vitro pressurized model.

IMPLICATIONS: We explored the possibility of repairing a cerebrospinal fluid leak produced by an accidental dural puncture during epidural anesthesia by percutaneously injecting tissue adhesive in vitro. This technique seems promising for the prophylaxis and treatment of the headache associated with this leakage but requires further study in vivo.