

# **Usefulness of a new gelatin glue sealant system for dural closure in a rat durotomy model.**

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## **Abstract:**

Watertight dural closure is imperative after neurosurgical procedures, because inadequately treated leakage of cerebrospinal fluid (CSF) can have serious consequences. We used a rat durotomy model to test the usefulness of a new gelatin glue as a dural sealant in a rat model of transdural CSF leakage. All rats were randomly divided into one of the following three treatment groups: no application (control group: N = 18), application of fibrin glue (fibrin glue group: N = 18), and application of the new gelatin glue (new gelatin glue group: N = 18). The craniotomy side was re-opened, and CSF leakage was checked and recorded at 1, 7, and 28 days postoperatively. The new gelatin glue was adequate for stopping CSF leakage; no leakage was observed at postoperative days 1 or 7, and leakage was observed in only one rat at postoperative day 28. This result was statistically significant when compared to the control group ( $P = 0.002$ ,  $P = 0.015$ ,  $P = 0.015$ , respectively). The pathologic score of the new gelatin group was not different from that of the control or fibrin glue groups. We conclude that our new gelatin glue provides effective watertight closure 1, 7, and 28 days after operation in the rat durotomy model.