Polyglycolic acid and fibrin glue can be used as a serosa membrane substitute to close serosal defects.

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Abstract:

Purpose. Recently, a new sealing technique using a polyglycolic acid felt and fibrin glue (PGA felt sealant) has been developed to close dural or pleural defects in neurosurgery and thoracic surgery. Our purpose was to evaluate whether the PGA felt sealant would be safe and effective for closure of the gastrointestinal serosal mural defect in the digestive tract surgery. Method. We prepared an artificial gastrointestinal mural defect and artificial digestive fluids of pH 7.0 or pH 3.0. We measured the rupture pressure to compare the durability between the PGA felt sealant and fibrin glue sealant. On the basis of the experimental results, we performed an initial trial for the PGA felt sealant for suture reinforcement of gastrocutaneous fistula closure. Results. The PGA felt sealant and the fibrin glue sealant withstood pressure of over 300 and 107+/-13 mmHg in the pH 7.0 fluid, and 282+/-12 and 72+/-9 mmHg in the pH 3.0 fluid, respectively. In the clinical case, the patient could begin an oral intake 2 weeks after the fistula closure. Conclusion. We concluded that the PGA felt sealant was suitable as a serosa membrane substitute to close fistulas accompanied with a mural defect.