Transient protection of incomplete colonic anastomoses with fibrin sealant: An experimental study in the rat.

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Abstract:

Fibrin glue has been used as a protective seal in normal and high-risk anastomoses to prevent leakage. The influence of fibrin adhesive on the healing colonic anastomosis in a control and high-risk model was tested. Resection and anastomosis of the left colon was performed in rats. In group Ia an end-to-end anastomosis was constructed with 12 7-O polypropylene sutures; in group Ib the anastomosis was sealed with fibrin adhesive. In group II an incomplete anastomosis was constructed with only 4 sutures at 90degree, therefore potentially leaking. In group IIb additional sealing with fibrin glue was performed. On Days 2, 4, and 7 body weight, adhesion formation, anastomotic bursting pressure, and collagen concentration were measured. The results showed increased adhesion formation after fibrin sealing. The anastomotic bursting pressure of incomplete anastomoses showed a significant increase after sealing on Day 2 only; on Day 4 and 7 no differences were found. Sealing of control anastomoses caused lower bursting pressures on Day 4. Collagen concentration is significantly reduced after fibrin sealing of normal anastomoses. We conclude that fibrin sealing of control anastomoses inhibits wound healing. Incomplete anastomoses are temporarily protected by fibrin glue sealing. Finally, fibrin sealing of the colon wound does not prevent adhesion formation.