

Sutureless colon anastomosis with fibrin glue in the rat.

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Abstract:

The only technique available for creating an intestinal anastomosis without tissue strangulation is gluing. Theoretically, this could lead to a higher hydroxyproline content and greater mechanical strength than in a sutured anastomosis. To test the hypothesis, 83 rats underwent left colon resection and inverted primary anastomosis with either one layer of sutures (NG group) or fibrin glue (FG group). Seven-day FG anastomoses showed less adhesions ($P = .02$) but one subclinical leakage and a further radiologic one, compared with a greater amount of adhesions but no leakages in the NG group. The mean bursting pressures (mmHg) in the FG and NG groups, respectively, were 25 ± 20 (SD) and 63 ± 23 (N.S.) 30 minutes after surgery, 107 ± 33 and 115 ± 30 after one day, 81 ± 31 and 133 ± 26 ($P < .001$) after four days, and 161 ± 36 and 175 ± 24 after seven days. The somewhat earlier rise in hydroxyproline content in the glued anastomoses did not lead to significant intergroup differences. The glued anastomoses were thus weak during the critical lag period of healing. Also, by preventing adhesion formation, the glue may reduce the extra blood supply from perianastomotic vessels. The outcomes might have differed more under demanding experimental or clinical situations.