Anastomotic sealing with a fibrin-coated collagen patch in small-diameter bowel.

Authors: Chmelnik M, Lasch L, Weih S, Wink E, Romero P, Holland-Cunz S

Publication Date: 2011

Abstract:

PURPOSE: The aim of this study was to evaluate the complication rates and inflammatory response in TachoSilTM-sealed small-diameter anastomoses with conventional and reduced suture number as a model for neonatal bowel surgery.

METHODS: Ileo-ileal anastomoses were performed in 73 rats. In the control group, the anastomosis was accomplished with the conventional technique, using nine interrupted sutures. In the other groups with nine, six, and three interrupted sutures, the anastomotic line was additionally sealed with a fibrin-coated collagen patch (TachoSilTM). The rats were sacrificed on days 0, 2, and 10. Clinical and functional parameters included the rates of ileus, insufficiency and death, operating time, adhesions, bursting pressure, and preanastomotic dilatation. The histological examination of the anastomoses concentrated on assessing the inflammatory cell infiltration of the TachoSilTM patch and the intestinal wall.

RESULTS: Severe preanastomotic dilatation was observed in additionally sealed ileo-ileal anastomoses with conventional suture number and high complication rates (ileus, perforation, death) occurred in additionally sealed anastomoses with reduced suture number. We found a massive microabscess-forming inflammation in additionally sealed anastomoses. Inflammatory cell infiltration was highest in the collagen layer of the sealing patch ($p<0.05$ vs. fibrin layer of the sealing patch and vs. intestinal wall).

CONCLUSIONS: As a result of our findings, additional sealing of small-diameter intestinal anastomoses with TachoSilTM cannot be recommended.