Fibrin glue for intraperitoneal laparoscopic mesh fixation: A comparative study in a swine model.

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Abstract:

Background: The classic method of mesh fixation in laparoscopic ventral hernia repair is transfascial sutures with tacks. This method has been associated with low recurrence rates, but yields significant morbidity from pain and bleeding. Fibrin glue has been used successfully in inguinal hernia repair with decreased incidence of chronic pain without an increase in recurrence rates, but its utility for laparoscopic ventral hernia repair is unknown. Our aim is to evaluate the efficacy of fibrin glue for laparoscopic mesh fixation to the anterior abdominal wall compared with other fixation methods. Methods: Four different laparoscopic mesh fixation methods were randomly assigned to midline positions along the abdominal wall of 12 female pigs and compared: (1) fibrin glue only (GO), (2) transfascial sutures with tacks (ST), (3) fibrin glue with tacks (GT), and (4) tacks only (TO). At 4 weeks post implantation, tensile strength, adhesions, migration, contraction, and buckling/folding were assessed using Kruskal-Wallis one-way analysis by ranks test. Results: There were no significant differences in tensile strength, adhesions or buckling/folding among the four fixation methods. A significant increase in mean migration (3.3 vs. 0.0 mm, $p = 0.03$) and percentage contraction (28% vs. 14%, $p = 0.02$) were identified in the GO group when compared with ST (see Table 3). Conclusions: Mesh fixation using fibrin glue has comparable tensile strength and adhesion rate to sutures with tacks in the swine model. Increased contraction and migration rates associated with fibrin glue alone may be an issue and warrants further study. On the other hand, the GT group showed similar biomechanical characteristics to the other groups and may represent a reasonable

alternative to the use of transfascial sutures.