The impact of mesh fixation with a collagen-fibrin sealant in a murine ventral hernia model.

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Abstract:

INTRODUCTION: Pain and adhesions represent the challenge in hernia surgery. AIM: To investigate mesh fixation and adhesion prevention with a collagen-fibrin sealant. MATERIALS AND METHODS: Twenty-seven male Sprague-Dawley rats were operated twice, to create and repair 2 ventral hernias. Mesh fixation was with collagen-fibrin sealant on 1 side (group I), whereas an additional peritoneal suture was added in group II. On day 60 animals were killed and mesh migration, integration and number, grade and location of adhesions noted. RESULTS: Migration occurred in 12 (44.4%) in group 1 and 3 (11.1%) in group 2, P=0.023. Adhesions developed to 18 (33.3%) meshes. There was no difference in adhesion grade or area for mesh center or edge between the groups (P=0.735 and P=0.829, respectively). Median adhesion grade for mesh center was 1 and edge 3 (range, 0 to 4), P=0.005 and P=0.001, respectively. Granuloma formation was noted in 8 (18.6%) animals; only with suture-fixed mesh. CONCLUSIONS: Mesh fixation with fibrin sealant is not satisfactory, however, adhesion prevention seems to be; adhesions to the edge of the mesh are most severe.