Liquid antiadhesive agents for intraperitoneal hernia repair procedures: Artiss compared to CoSeal and Adept in an IPOM rat model.

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Abstract:

Background: Adhesion formation remains an important issue in hernia surgery. Liquid agents were developed for easy and versatile application, especially in laparoscopy. The aim of this study was to compare the antiadhesive effect of fibrin sealant (FS, Artiss), Icodextrin (ID, Adept) and Polyethylene glycol (PEG, CoSeal) alone and in combination and to evaluate the resulting effect on tissue integration of the mesh. Methods: A total of 56 Sprague-Dawley rats were operated in open IPOM technique. A middleweight polypropylene mesh of 2 x 2 cm size was implanted and covered with 1: FS, 2: ID, 3: PEG, 4: FS + ID, 5: FS + PEG, 6: PEG + ID, 7: control group, uncovered mesh (n = 8 per treatment/control). Observation period was 30 days. Macroscopic and histological evaluation was performed. Results: Severe adhesions were found in group 2 (ID), group 6 (PEG + ID) and the controls. Best results were achieved with FS alone or FS + ID. Mesh integration in the treatment groups was reduced in comparison with the control group. This is a new finding possibly relevant for the outcome of intraperitoneal mesh repair. Group 6 (PEG + ID) showed an impairment of tissue integration with <50 % of the mesh surface in seven samples. Conclusion: FS alone and in combination with ID yielded excellent adhesion prevention. ID alone did not show significant adhesion prevention after 30 days. Tissue integration of FS-covered meshes was superior to ID or PEG alone or combined. PEG did show adhesion prevention comparable to FS but evoked impaired tissue integration. So Artiss is

among the most potent antiadhesive agents in IPOM repair.