

The feasibility of FS mesh fixation by a transgastric approach - An important benefit in future NOTES procedures?.

Authors: Fortelny R.H., Petter-Puchner A.H., Gruber-Blum S., Mika K., Brand J., Keibl C., Glaser K.S., Redl H.

Publication Date: 2011

Abstract:

Background: Preserving the integrity of the abdominal wall is a major benefit in NOTES procedures. It may result in a decrease of postoperative (postOP) pain, infection, and port site hernia. This experimental study on intra-peritoneal onlay mesh (IPOM) repair was designed to apply meshes by a transgastric access (TGA) and to use a combination of transfascial sutures and fibrin sealant as fixation. Materials and Methods: Four abdominal wall defects were created by TGA under laparoscopic control in five nonsurvival and three survival pigs (4, 11, and 22 d observation period). Titanized polypropylene meshes were fixed transfascially by four polypropylene sutures using a "suture passer" device. Meshes were additionally fixed with 0.2 mL of fibrin sealant (FS) by an endoscopic application. TGA was closed with endoclips in the nonsurvival model and with laparoscopic suturing in survival pigs. Results: The three survival pigs were euthanized on the d 4, 11, and 22 postOP. The macroscopic evaluation revealed excellent integration of the meshes without signs of shrinkage, dislocation, or inflammation. Histology confirmed macroscopic findings. Conclusions: Our findings confirm that IPOM repair of ventral hernia in an experimental NOTES hybrid procedure is feasible. This study also demonstrates the technical feasibility and the potential advantages of FS mesh fixation to further reduce trauma to the abdominal wall following the key principles of the NOTES approach.© 2011 Published by Elsevier Inc. All rights reserved.