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□1: [Surg Endosc.](#) 2009 Jun;23(6):1212-8. Epub 2009 Mar 5.  FULL-TEXT ARTICLE

## **Transgastric placement of biologic mesh to the anterior abdominal wall.**

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**BACKGROUND:** Incisional hernia repairs have a risk of wound complications that may be decreased using a natural orifice transluminal endoscopic surgery (NOTES) approach. The aim of this study was to determine the feasibility and safety of transgastric mesh placement to the anterior abdominal wall in a porcine model as a precursor to future studies of NOTES ventral hernia repair. **METHODS:** The procedure was done under sterile conditions with a double lumen endoscope using a plastic overtube. The endoscope was placed in the stomach preloaded with an overtube. Entrance of the endoscope and overtube into the peritoneal cavity was performed with the percutaneous endoscopic gastrostomy (PEG) technique. A 13 x 15 cm Surgisis Gold mesh with four corner sutures was delivered through the overtube. Transfascial suture passer and endoscopic grasper were used to externalize the sutures and attach the mesh to the anterior abdominal wall. The gastrotomy was closed with a transabdominal gastropexy. The pigs were sacrificed at 2 weeks. **RESULTS:** Mesh placement was performed in five pigs. Operative time was 215 min (standard deviation, SD 99 min). The most difficult portion of the procedure involved manipulating the gastric overtube, likely exposing the mesh to bacteria in the stomach. Culture-positive abscesses were present at the mesh in 3/5 animals. The mesh appeared intact in 4/5 animals; one of the infected meshes had delamination of 50% of the mesh. Adhesions to the mesh surface varied from 2% to 100%. At 2 weeks, median mesh size was 116 cm<sup>2</sup> (range 96-166 cm<sup>2</sup>) and median contraction was 41% (range 15-51%). Histologic evaluations demonstrated marked inflammation and fibrosis progressing into the mesh material. **CONCLUSIONS:** Totally endoscopic transgastric delivery and fixation of a biologic mesh to the anterior abdominal wall is feasible. Challenges remain in designing systems for mesh delivery that exclude gastric content. Once these problems can be surmounted NOTES ventral hernia repair may become an option in man.

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