NOTES for the cardia: antireflux therapy via transluminal access.

Abstract:
The current standard for surgical antireflux therapy is laparoscopic Nissen fundoplication, but natural orifice transluminal endoscopic surgery (NOTES) enables even less invasive access to the peritoneal cavity. We therefore aimed to evaluate a NOTES approach to antireflux therapy. An animal study including 24 pigs (16 nonsurvival and eight survival). After the peritoneal cavity had been accessed via the rectosigmoid, the gastroesophageal junction (GEJ) was laid open using conventional endoscopic instruments. Thereafter, a transcutaneously introduced hook was used for tunneling and lifting of the distal esophagus. Finally, an antireflux ring was placed around the cardia. Animals were observed over 10 days in the survival series. Correct application of the prosthesis, adverse events as a result of the procedure, and bacterial contamination were evaluated by autopsy. The esophagogastric junction was strengthened by applying the ring prosthesis in 22 of 24 animals. Four bleeding episodes were observed, three of which were handled endoscopically. Correct placement of the prosthesis was accomplished in 21 of 22 animals. In the survival series, 1 pig died after transhiatal herniation of the stomach, and 1 pig suffered from peritonitis due to intraoperative contamination. In 7 of the 8 survival animals, no bacterial growth was noted by smear culture. The intervention had to be performed as a
hybrid NOTES procedure in all cases. Exposure of the GEJ and placement of an antireflux prosthesis via a hybrid NOTES procedure is feasible, despite some complications. This approach may be considered as a basis for optimization and further development of pure NOTES antireflux procedures.