Training of a standardized natural orifice transluminal endoscopic surgery cholecystectomy using an ex vivo training unit.

The endoscopic-laparoscopic interdisciplinary training entity (ELITE) is one of the first training models for the training of natural orifice transluminal endoscopic surgery (NOTES) and conventional laparoscopic and endoscopic skills. The current study was designed to assess whether the effect of surgical simulation with an ex vivo training unit is relevant to surgical practice in the operating room and who, in particular, might benefit from this training. A group of 30 participants (gastroenterologists, laparoscopists, and novices) performed a standardized NOTES cholecystectomy via a trans-sigmoidal approach. Fifteen participants performed the cholecystectomy following training with ELITE and 15 participants performed the procedures without previous training. The parameters studied were task times, quality and safety of the surgical procedure, and subjective evaluation of the ELITE trainer as a teaching model. During the training courses all participants showed a significant learning curve, with a total time needed on the first pass of 32 minutes vs. 18 minutes for the fourth pass (P < 0.001). For the cholecystectomy in the pig model, participants with prior training needed less time to complete the procedure than participants without training. In the group without training, more complications/difficulties occurred than in the group with prior training (16 vs.
8). The video analyses by two independent NOTES experts showed an inter-rater validity of 1.0. Subjective evaluation showed that participants considered ELITE to be a suitable and recommendable simulator for NOTES. The ELITE model is suitable for training in the NOTES cholecystectomy procedure. This type of simulator training leads to fewer intraoperative complications.

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