Low Cost Training Tool for Robotic TAPP Inguinal Hernia Repair
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OBJECTIVE
1. Transabdominal Pre-peritoneal (TAPP) repair using the robotic platform is gaining increasing acceptance as it is easier than the laparoscopic technique.
2. Needs a curriculum and training model for safe introduction into clinical practice.
3. We thus developed a low cost, realistic inanimate training model for training residents and novices.

MODEL AND PRELIMINARY RESULTS
1. Model designed using commercially available materials made for the purpose of simulation training. Cost per model is estimated to be $200-250, with most components being reusable.
2. The Da Vinci Si platform was used. A zero degree camera and two robotic arms were used. Three robotic instruments were used for the procedure – hot shears, large needle driver and cadie grasper. Model was mounted in laparoscopic box.
3. Landmarks aiding dissection in the model included medial umbilical ligament, inferior epigastric vessels, femoral vessels and the pectineal ligament.
4. Peritoneal flap was created from the Anterior Superior Iliac Spine till the Cooper's ligament. Blunt dissection was used to separate the peritoneum from underlying fibrofatty tissue.
5. Hernia was reduced from the indirect defect and reduced from the cord structures using blunt dissection.
6. Self fixating mesh placed so as to cover the direct, indirect and the femoral defects.
7. Peritoneal flap closed over the mesh using running suture so that no mesh was exposed.

CONCLUSIONS
1. A combination of GOALS-GH and GEARs will be used for assessment of trainees. The model incorporates all aspects of the validated GOALS-GH assessment.
2. The procedure was completed in an average time of 25 min by experts, which did not include docking time.
3. All participants have reported the model to be very realistic.
4. This model will help bridge the gap of training and assessment of surgeons facilitating safe introduction of this procedure into clinical surgery.