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Initial experience with 50 laparoendoscopic single site surgeries using a homemade, single port device at a single center

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Purpose: We report our technique of and initial experience with 50 patients who underwent laparoendoscopic single site surgery using a homemade single port device at a single institution.
Materials and Methods: Between December 2008 and August 2009 we performed 50 laparoendoscopic single site surgeries using the Alexis wound retractor, which was inserted at the umbilical incision. A homemade single port device was made by fixing a size 7 1/2 surgical glove to the retractor outer ring and securing the glove fingers to the end of 3 or 4 trocars with a tie and a rubber band. A prospective study was performed in 50 patients to evaluate outcomes.
Results: Of 50 patients 34 underwent conventional laparoendoscopic single site surgery, including radical and simple nephrectomy, and cyst decortication in 8 each, nephroureterectomy in 3, partial nephrectomy and adrenalectomy in 2 each, and partial cystectomy, ureterectomy and ureterolithotomy in 1 each, while 16 underwent robotic laparoendoscopic single site surgery, including partial nephrectomy in 11, nephroureterectomy in 3, and simple and radical nephrectomy in 1 each. Mean patient age was 52 years, mean body mass index was 23.4 kg/m(2), mean operative time was 201 minutes and mean estimated blood loss was 201 ml. Four intraoperative complications occurred, including 2 bowel serosal tears, diaphragm partial tearing and conversion to open radical nephrectomy. One case of postoperative bleeding was managed by transfusion. Surgical margins were negative in the 13 patients who underwent partial nephrectomy. Mean hospital stay was 4.5 days (range 1 to 16).
Conclusions: Our homemade single port device is cost-effective, provides adequate range of motion and is more flexible in port placement for laparoendoscopic single site surgery than the current multichannel port.

Editorial Comment

After the first laparoscopic nephrectomy performed many years ago, laparoscopic urological surgery has evolved. Recently, laparoendoscopic single site surgery has been developed allowing experienced surgeons to investigate new applications and feasibility of a new minimally invasive surgical approach. The clinical advantages are not clear yet and the platforms and instruments are not optimally developed. One of the major challenges is the entry portal that could allow the utilization of a small incision to permit all different laparoscopic maneuvers, as well as the insertion of robotic and/or laparoscopic instrumentation. The authors of this report should be congratulated for the creativity and high level of minimally surgery understanding for developing an easy access device with everyday use components (surgical gloves and laparoscopic ports). This idea may allow industry to mature this initial idea to an effective device.

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