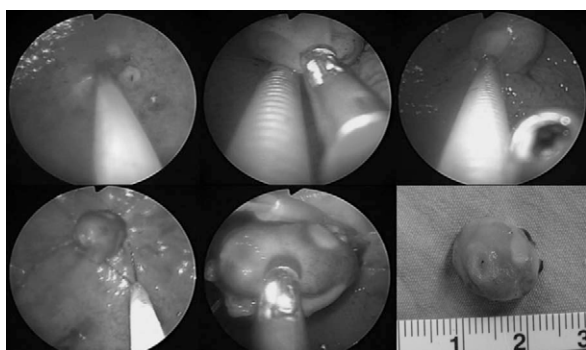


1490**TRANSURETHRAL PURE NOTES PARTIAL CYSTECTOMY: EXPERIENCE IN ACUTE AND CHRONIC PORCINE MODELS**

Mark D Sawyer*, Edward E Cherullo, Steve Schomisch, Lee E Ponsky, Cleveland, OH

INTRODUCTION AND OBJECTIVE: Natural Orifice Transluminal Endoscopic Surgery (NOTES) is a new minimally invasive modality that is being adapted to urologic procedures. Sites previously used for access have included stomach, vagina, bladder and intestines. Our technique for transurethral NOTES full-thickness partial cystectomy is described including bladder closure in an acute and chronic porcine model.

METHODS: A 22 French rigid cystoscope is inserted into the bladder of a 50 kg female pig with CO₂ insufflation. For the chronic animals, the bladder is marked with bovie in a four quadrant technique as a target lesion. With an endoscopic loop device through one channel and a grasping device through the other channel, the targeted area of the bladder is excised with wire cautery and the full-thickness specimen is removed with the scope via the urethra. The defect is re-approximated with endoscopic clips.



RESULTS: Transurethral NOTES partial cystectomy was achieved using standard endoscopic equipment in a porcine model. Transurethral NOTES partial cystectomy was successful in acute (n=2) and chronic (n=2) models. In our chronic animals. Operative time for the two chronic animals was 151 minutes and 123 minutes respectively including bladder closure with endoscopic clips. Both specimens contained all four markings. There were no operative or post-operative complications. The first animal was sacrificed on day 21 (1/3 clips remained attached). Necropsy on the second animal was on day 14 (5/5 attached). There was no leakage on cystograms and good gross healing.

CONCLUSIONS: NOTES partial cystectomy could reduce morbidity of conventional methods of partial cystectomy. Transurethral NOTES may be the least invasive method possible for partial cystectomy but could have limitations such as inability to obtain lymph node samples and inability to visualize adjacent structures. Further investigation is required to assess safety, efficacy, tissue margins and adequate bladder healing.

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1491**SINGLE PORT - SINGLE SURGEON ROBOTIC ASSISTED LAPAROSCOPIC UROLOGIC SURGERY**

Sebastien Crouzet*, Georges Pascal-Haber, Wesley M White, Raj K Goel, Kazumi Kamoi, Monish Aron, Inderbir S Gill, Jihad H Kaouk, Cleveland, OH

INTRODUCTION AND OBJECTIVES: We present our initial operative experience in which single port robotic-assisted reconstructive and extirpative urologic surgery was performed by a single surgeon.

METHODS: A pilot study was performed on male farm pigs to determine the feasibility and safety of single port, single-surgeon urologic surgery. Under general anesthesia, all pigs were placed in the flank position and a 2cm umbilical incision was made through which a

single port was placed and pneumoperitoneum achieved. An operative laparoscope was introduced and securely held employing a novel small robot with foot and/or voice control. Using articulating instruments, each pig underwent bilateral reconstructive and extirpative renal surgery. Salient intraoperative and postmortem data were recorded. Results were analyzed statistically to determine if outcomes improved with surgeon experience.

RESULTS: Five male farm pigs underwent bilateral partial nephrectomy and bilateral pyeloplasty prior to undergoing completion bilateral radical nephrectomy. No intraoperative complications were encountered and there was no need for additional port placement. Mean operative times for partial nephrectomy, pyeloplasty, and nephrectomy were 120 minutes (100-150 minutes), 110 minutes (range 95-130 minutes), and 20 minutes (15-30 minutes), respectively. Mean estimated blood loss for all procedures was 240mL (range 200-280mL). When analyzed statistically, there was a trend towards improved outcomes with increasing surgeon experience ($p = 0.08$).

CONCLUSIONS: Use of a novel minirobot attached to the operating table as a camera holder may facilitate single port surgery and enable one surgeon to perform an entire procedure with flexibility and ease of movement.

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1492**A MULTI-INSTITUTIONAL COMPARISON OF ROBOTIC PARTIAL NEPHRECTOMY AND LAPAROSCOPIC PARTIAL NEPHRECTOMY**

Agnes J Wang*, Saint Louis, MO; Craig G Rogers, Detroit, MI; Lori M Dulabon, New York, NY; Sam B Bhayani, Saint Louis, MO; Manish N Patel, Detroit, MI; Michael E Lipkin, New York, NY; Brian M Benway, Saint Louis, MO; Michael D Stifelman, New York, NY

INTRODUCTION AND OBJECTIVES: Robotic partial nephrectomy (RPN) is an emerging technique which may be an alternative to open or laparoscopic partial nephrectomy (LPN) for the treatment of small renal neoplasia. In this multi-institutional study, we retrospectively compare the outcomes of nearly 250 patients undergoing LPN or RPN.

METHODS: Between 2004 and 2008, 247 consecutive robotic or laparoscopic partial nephrectomies were performed by three minimally-invasive surgeons at three academic institutions. Similar surgical techniques and renorrhaphy were used between institutions and between cohorts. Perioperative and clinicopathological data were reviewed retrospectively and statistically analyzed.

RESULTS: A total of 129 RPNs and 118 LPNs were identified. RPN and LPN groups were statistically equivalent in terms of age (mean 59.2 years for both groups), BMI (29.8 vs. 28.5), ASA classification (2.3 vs. 2.4), radiographic tumor size (2.9 cm vs. 2.6 cm), and detection of renal cell carcinoma (67% vs. 75%) respectively. Comparison of operative data for RPN and LPN revealed no significant differences in overall operative time (189 min vs. 174 min), collecting system entry (47% vs. 54%), pathological tumor size (2.8 cm vs. 2.5 cm), and positive margin rate (3.9% vs. 1%), respectively. Intraoperative blood loss was significantly less for RPN compared to LPN (155 mL vs. 196 mL, $p=0.03$); warm ischemia times were significantly shorter in the RPN group (19.7 min vs. 28.4 min, $p<0.0001$); and length of hospital stay was also shorter in the RPN cohort (2.4 days vs. 2.9 days, $p<0.0001$). There were no intraoperative complications during RPN and one intraoperative adrenal injury during LPN. Postoperative complication rates were similar for RPN and LPN (8.6% vs. 10.2%).

CONCLUSIONS: RPN has several similar operative characteristics and outcomes compared to LPN. However, in the hands of experienced laparoscopic surgeons, RPN appears to be associated with lower intraoperative blood loss, shorter hospitalization, and reduced warm ischemia times. Further prospective randomized studies are needed to validate these findings.

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