

Video Session 1
NOTES AND LESS IN RENAL SURGERY
Saturday, 17 April, 14.15-15.45, Amsterdam Room

V1 **GASLESS TWO PORT ACCESS TOTAL NEPHROURETERECTOMY: MIES TOTAL NEPHROURETERECTOMY**

Saito K., Kihara K., Kawakami S., Fujii Y., Masuda H., Koga F.
Tokyo Medical and Dental University, Dept. of Urology, Tokyo, Japan

Introduction & Objectives: To introduce gasless two port access total nephroureterectomy, which achieve minimum invasiveness without injury peritoneum, without trocar port, without patient's selection and at low equipment cost. This operation, designated as MIES (minimum incision endoscopic surgery) total nephroureterectomy in Japan, have been developed since 1998, was certified as advanced surgery by Japanese government in 2006, and covered by the Japanese universal insurance system from April, 2008.

Material & Methods: This operation is performed with a two port-approach: a flank port (4 – 6 cm) near the tip 12th rib for isolation of the kidney and proximal ureter, and a paramedian port (approximately 3 cm) for that of the distal ureter at lower abdomen. All instruments which were reusable were inserted through a port of two for each isolation. The size of the port is tailored to the patient's needs. This operation is performed as following order. 1) The kidney and proximal ureter were isolated via a flank port in the flank position. 2) Rotating the table to the semi-oblique position. 3) The distal ureter is isolated with bladder cuff via a paramedian port. 4) The kidney and whole ureter were extracted en bloc through a flank port. 5) A remained paramedian port was used for drainage. Before closing the wound, the operative field was washed with a large amount of saline so that prophylactic antibiotics were not used. A large working space was made extraperitoneally by separating the anatomical plane through the port. The peritoneum is kept intact during the operation. The endoscope is inserted through the port and the operator also obtains stereo-vision and panoramic vision through the port. Recent consecutive 50 cases (2005-2009) operated by 13 surgeons in our hospital are evaluated.

Results: In the recent consecutive 50 cases, the average operative time, estimated blood loss and blood transfusion were 321 minutes, 430 ml and 6%, respectively. In the 10 cases operated on by a high volume surgeon, operative time, blood loss and blood transfusion values were 280 min, 195ml and 0%, respectively. Complications and surgical site infection were 4% (two case of pneumonia and post operative bleeding) and 6%, respectively. Median days to oral feeding, walking (> 100 m) and possible discharge were 1, 1 and 3 days, respectively. 3-year cause-specific survival rate was 85 %.

Conclusions: Our gasless, two port access total nephroureterectomy (MIES total nephroureterectomy) is minimally invasive, curative, safe and a cost-effective operation. This carbon free eco-surgery is friendly to the global environment.

V2 **HYBRID NOTES TRANSVAGINAL NEPHRECTOMY**

Sotelo R.¹, De Andrade R.¹, Fernandez G.¹, Garza R.¹, Ramirez D.¹, Giedelman C.¹, Di Grazia E.¹, Carmona O.¹, Canes D.², Aron M.³, Desai M.³, Gill I.³

¹Instituto Medico la Floresta, Dept. of Urology, Caracas, Venezuela, ²Lahey Clinic Medical Centre, Dept. of Urology, Burlington, United States of America, ³University of Southern California, Dept. of Urology, Los Angeles, United States of America

Introduction & Objectives: Pure NOTES (Natural Orifice Transluminal Endoscopic Surgery) transvaginal radical nephrectomy has been performed only in cadavers and animal models because of technical difficulties in humans. Few cases of hybrid NOTES transvaginal radical nephrectomy (using 2 extraumbilical abdominal ports) have been reported with success in humans. In this video we present a hybrid transvaginal NOTES radical nephrectomy using transvaginal trocars (multi-channel in one case, single 12mm trocar in the others), and a transumbilical multi-channel single port.

Material & Methods: Transvaginal radical nephrectomy was performed in three patients with left sided kidney tumours in two and one right side. Triports (Advanced Surgical Concepts, Dublin, Ireland) were inserted in the umbilicus, and the vagina in case 1. For the second and third case, presence of the uterus allowed space for a transvaginal conventional 10mm bariatric trocar and one umbilicus Triport (Advanced Surgical Concepts, Dublin, Ireland) Visualization was performed interchangeably from umbilical and transvaginal views using the 5 mm flexible-tip endoeye camera (Olympus, Tokyo, Japan). Dissection, using straight or bent instruments, was performed predominantly transvaginally with the exception of hilar dissection and control. Specimen extraction was accomplished by the vagina access by an extended colpotomy.

Results: Mean operative time was 155 minutes (range 220 to 95 minutes) and mean estimated blood loss was 250 cc. The patients had an uneventful postoperative course and were discharged 2 days after the procedure in case 1 and 2, and the case 3 was discharged 6 days. The first case was complicated by abscess in the renal fossa requiring percutaneous drainage. The second case no had complications, in

the third case it was necessary conversion to laparoscopy because scar tissue was found around the kidney due inflammation. Pathology revealed clear cell carcinoma of 6.5 cm in with no local infiltration in one patient, and chromophobe in the second case and the third case was revealed kidney atrophy.

Conclusions: Pure NOTES transvaginal nephrectomy is still technically demanding because of the absence of adequate instruments and surgical expertise in performing a safe and effective dissection. However our hybrid transvaginal technique assisted by a umbilical single port is an appealing alternative to further reduce morbidity, obtain a virtually scarless outcome, and safely develop increasingly complex transvaginal dissection techniques.

V3 **TRANSVAGINAL NOTES-ASSISTED LAPAROSCOPIC LIVING DONOR NEPHRECTOMY**

Alcaraz A., Peri L., Musquera M., Piqueras M., Ribal M.J.
Hospital Clinic, Dept. of Urology, Barcelona, Spain

Introduction & Objectives: We present the first transvaginal NOTES-assisted laparoscopic living donor nephrectomy performed in Europe.

Material & Methods: This is a 42 years old kidney living donor female to his brother. No clinical history of interest. Two eutocic deliveries. Vascular computerized tomography (CT) scan showed symmetric kidneys without abdominal abnormalities. Bilateral single renal artery and vein were objectivated, so the left kidney was chosen for extraction. On physical examination the vagina was caomplaisant enough for a kidney to pass through it. For this reason, a transvaginal approach was decided. The patient was placed in right lateral lumbotomy with a modified lithotomy position. A first transumbilical 12mm port is placed for the camera. A second 12mm port is placed in left iliac fossa and a 5 mm port next to the ribs. Finally a third 12 mm port is placed in the Douglas pouch through the vagina. The transvaginal port is used for the assistance of instruments during different moments of the surgery. Once the kidney and vascular pedicle are dissected, an endobag device is placed through the vagina hole. When the kidney is placed inside the bag, the metallic ring permits to apply a gentle traction on the vessels to perform a safety section. Two Hemo-locks are placed in the proximal ends of the artery and vein. The kidney is removed through the vagina with the bag and a careful transfer to the surgery bench will avoid any infection from vaginal bacteria.

Results: The operative time was 240 minutes with an estimated blood loss of 200cc. No intra or post-operative complication occurred. The warm ischemia time was 4 minutes and 55 seconds and the hospital stay 3 days.

Conclusions: Laparoscopic transvaginal approach for living donor nephrectomy is a feasible and save procedure that provide good cosmetics results and quick recovery.

V4 **GASLESS SINGLE PORT ACCESS ULTRASOUND-GUIDED CLAMPLESS PARTIAL NEPHRECTOMY: MIES PARTIAL NEPHRECTOMY**

Kihara K.¹, Tushima T.², Kawakami S.¹, Fujii Y.¹, Masuda H.¹, Koga F.¹, Saito K.¹
¹Tokyo Medical and Dental University, Dept. of Urology, Tokyo, Japan, ²Nho Okayama Medical Center, Dept. of Urology, Okayama, Japan

Introduction & Objectives: To introduce gasless single port access partial nephrectomy which is performed without renal ischemia, under ultrasound navigation, without injury to the peritoneum and at low equipment cost. This operation, designated MIES (minimum incision endoscopic surgery) partial nephrectomy in Japan, has been developed in our department since the late 1990s, was certified as advanced surgery by the Japanese government in 2006 and became covered by the Japanese universal health insurance system in 2008.

Material & Methods: All instruments including an endoscope, most of which are reusable, are inserted through a single port. Procedures are performed without clamping the renal vessels and navigated with ultrasound. The outline of this operation is as follows: First, a single port, approximately 4-6 cm in the major axis depending on the size or site of the tumor, is made at the tip of the 12th rib. Second, through the port, the Gerota's fascia is separated to make a large working space extraperitoneally. Third, the surface of the kidney around the tumor is exposed sufficient for coagulation and the normal tissue around the tumor is coagulated and transected with an ultrasonic coagulator in single or in combination with a microwave tissue coagulator. The coagulated normal tissue is shaped like a pedicle of the tumor and the pedicle is tied with a thread to pull the tumor up. The normal tissue beneath the tumor is carefully coagulated and transected under ultrasound navigation. Lastly, the tumor is removed and its margin is evaluated. The surface of the bed remaining after removing the tumor in the kidney is coagulated with argon laser, if necessary, and confirmed to be bloodless. Finally the perinephric fat is repaired to cover the kidney defect. Before closing the wound, the operative field is washed with a large amount of saline so that prophylactic antibiotics are not used.

Results: In the recent consecutive 66 cases, operative time, blood loss and blood transfusion were 182 minutes (median), 130 ml (median) and 0 case, respectively. The main complication observed was urine leakage of 4 patients, all of which were spontaneously cured. Surgical site infection was not observed in any cases in spite of not using prophylactic antibiotics. Days to oral feeding, walking and possible discharge were 1, 2 and 4 post operative days (median), respectively. No local recurrence has been observed up to now. Decrease of estimated glomerular