

Transvaginal Natural Orifice Transluminal Endoscopic Surgery (NOTES) Nephrectomy: Our Experience

Introduction and Objective: The feasibility of hybrid transvaginal natural orifice transluminal endoscopic surgery nephrectomy (HTNN) has already been demonstrated. However, pure transvaginal NOTES nephrectomy (PTNN) has been limited to animal experiments with only one report of its use in humans. We will describe our initial experience with the HTNN and stepwise transition toward PTNN in female patients.

Materials and Methods: Between May 2010 and January 2011, 40 HTNNs and 2 PTNNs were performed in 42 patients in our center. In our initial 33 procedures, HTNNs were performed using a conventional 10-mm 30° laparoscope by vaginal access and the assistance of two additional umbilical trocars. In the subsequent 4 procedures, a 5-mm 0° flexible laparoscope was introduced through a umbilical trocar and a TriPort was inserted through a transvaginal incision. In the latter 3 procedures, all the laparoscopic instruments were introduced through the transvaginal TriPort. However, the 3 procedures were aborted due to the limitation of the length of laparoscopic instruments. Transient umbilical assistance was necessary at the end of the procedures. In the last 2 procedures, two successful PTNN were performed using the extra-long curved laproscopic instruments. The standard laparoscopic transperitoneal nephrectomy technique was performed. The intact specimen was extracted transvaginally.

Results: Thirty-nine HTNNs and 2 PTNNs clinical cases were successfully accomplished. One patient with right renal carcinoma, who underwent HTNN, was converted to open surgical approach because of uncontrolled bleeding for injury of the inferior vena cava. The mean operative time was 143 minutes (range 100 to 260). The mean estimated blood loss was 180 mL (range 50 to 600). The mean time for patients to resume full ambulation and oral diet was 1.2 days (range 1 to 2) and 2.4 days (range 2 to 3), respectively, and the mean postoperative hospitalization stay was 7.4 days (range 4 to 10).

Conclusions: HTNN is a feasible and safe surgical option for both benign and malignant diseases of the kidney in appropriate female patients. PTNN is technically challenging but may be feasibly and safely performed. Existing instruments need improving for the development of HTNN or PTNN.