Suprapubic-Assisted Embryonic Natural Orifice Transumbilical Endoscopic Surgery (E-NOTES) for Pyelolithotomy and Ureterolithotomy with Report of 50 Cases

Introduction and Objective: To describe the suprapubic-assisted embryonic natural orifice transumbilical endoscopic surgery (SAE-NOTES) for pyelolithotomy and ureterolithotomy, and evaluate its feasibility, safety and efficacy.
Materials and Methods: Fifty patients, including 31 males and 19 females, with renal pelvic or ureteral calculi, were subjected to SAE-NOTES in our center. The mean age was 41.3 years (range 18 to 67 years). The calculi were found on left side in 18 cases, on right side in 25, and on both sides in 7. The calculi were 13 to 35 mm in diameters. Renal pelvic calculi occurred in 4 cases, upper ureteral calculi in 46. Under general anesthesia, the patients were positioned in lateral decubitus with affected side elevated. One 5- and 10-mm trocars were inserted at the umbilical edge. A 10-or 5-mm trocar was inserted into abdominal cavity below the ipsilateral pubic hairline. The method for pyelolithotomy and ureterolithotomy was same as the standard laparoscopy, under direct vision achieved by a 10-mm conventional 30°or 5-mm flexible-tip 0°laparoscope placed through the trocar below the pubic hairline.
Results: All procedures were successfully performed, and the stones were successfully removed once time. The unilateral operative time was between 45 and 145 min with a mean of 70 min. The bilateral operative time was 100 and 160min, respectively. The intraoperative mean estimated blood loss was 40 ml (range 20 to 60 ml). There was no major complication during perioperation. The drainage below the pubic hairline was removed after postoperative day 3 to 4. The hospital stay was from 5 to 7 days. During the follow-up (3 to 20 months), the incision at the umbilicus was not obvious, and no recurrent calculus and ureterostenosis was found. The scar below the pubic hairline was not detectable because of the covering of the pubic hairs.
Conclusion:SAE-NOTES for pyelolithotomy and ureterolithotomy appears to be feasible, safe and effective. It would not only decrease the difficulty of operation, but can also lead to improved cosmetic results.