Embryonic Natural Orifice Transumbilical Endoscopic Surgery for Pyelolithotomy and Ureterolithotomy

Introduction and Objective: To evaluate the embryonic natural orifice transumbilical endoscopic surgery (E-NOTES) for pyelolithotomy and ureterolithotomy.
Materials and Methods: A total of 30 patients with renal pelvic or ureteral calculi underwent E-NOTES on 33 sides. Of them 12 were women and 18 were men. The mean age was 46.2 years (range 16 to 71 years). The calculi were found on left side in 12 cases, on right side in 15, and on both sides in 3. The calculi were 12 to 30 mm in diameters. Renal pelvic calculi occurred in 2 cases, upper ureteral calculi in 28. In these patients, 4 patients had experienced unsuccessful extracorporeal shock wave lithotripsy (ESWL), 1 unsuccessful ureterolithotripsy (URL), 1 ureteral perforation during URL. Under general anesthesia, the patients were positioned in lateral decubitus with affected side elevated. Three 5- mm trocars were inserted into the abdomen cavity at the medial margin of umbilicus. The method for pyelolithotomy and ureterolithotomy was same as the standard laparoscopy.
Results: All procedures were successfully performed, and the stones were successfully removed once time. The unilateral operative time was between 60 and 145 min with a mean of 75 min. The bilateral operative time was 205, 160, and 150 min, respectively. The intraoperative mean estimated blood loss was 30 ml (range 15 to 45 ml). There was no major complication during perioperation. The drainage at the umbilicus was removed after postoperative day 3 to 4. The hospital stay was from 5 to 7 days. During the follow-up (6 to 16 months), the incision at the umbilicus was not obvious, and no recurrent calculus and ureterostenosis was found.
Conclusions: The E-NOTES for pyelolithotomy and ureterolithotomy was safe, feasible and cosmetic. It is worth selecting the method to treat renal pelvic or ureteral calculus.