



Feasibility of Robot - assisted Segmental Ureterectomy and Ureteroureterostomy in Patient with High Medical Comorbidity

Ali Abdel Raheem ¹, Atalla Alatawi ², Dae Keun Kim ³, Abulhasan Sheikh ², Koon Ho Rha ²

¹ Department of Urology, Tanta University Medical School, Egypt; ² Department of Urology and Urological Science Institute, Yonsei University College of Medicine, Seoul, South Korea; ³ Department of Urology, CHA Seoul Station Medical Center, CHA University Medical School, Seoul, Republic of Korea

ABSTRACT

Introduction and objectives: Nephroureterectomy remains the gold standard treatment option for upper tract tumors. However, segmental ureterectomy may be another option in patients with single kidney, borderline renal function or high medical comorbidities. The aim of this video is to assess the feasibility of robotic surgery as a minimally invasive technique in treatment of a high comorbid patient with ureteric tumor.

Materials and Methods: Eighty-year old male patient, with a medical history of chronic hypertensive and uncontrolled Diabetes Mellitus, was referred to our department for treatment of ureteric tumor. Patient underwent robot-assisted radical prostatectomy 5 years ago. Patient's Charlson comorbidity index score was 9. Computed tomography showed a 2.5cm right ureteral luminal filling enhancing lesion at lower part of upper 1/3 ureter. We performed diagnostic flexible cystoscopy under local anesthesia to exclude associated lower urinary tract carcinoma, and bladder wash was negative for malignancy. Under general anesthesia patient underwent diagnostic flexible ureteroscopy to confirm mass location, and a retrograde pyelography to rule out additional tumors on the right collecting system. Then, the patient was placed in the full lateral flank position without Table flexion. Ports placement were inserted as follow: a "12mm" optical trocar at pararectal line superior and lateral to umbilicus, two "8mm" robotic trocars cranial and caudal to optical trocar (8cm distance), a "8mm" robotic trocar towards anterior superior ischial spine, and a "12mm" assistant trocar was inserted between umbilicus and pubic bone. The surgical steps are shown in the video.

Results: The procedure was performed easily. The total operative time and consol time were 100 and 60 minutes, respectively. Blood loss was 50ml. No reported intraoperative or postoperative complications. Notably, we took full precautions in case of intraoperative failure to complete the procedure successfully, nephroureterectomy was our second option. Postoperative serum creatinine was 1.2mg/dL and length of hospital stay was 2 days. The frozen biopsy showed that the tumor was resected with safe proximal and distal surgical margins. Final histopathology revealed high grade (G3) urothelial carcinoma (pT3), measures (1.3x1.2x0.2cm), associated with carcinoma in situ.

Conclusion: We affirm that robotic segmental ureterectomy and ureteroureterostomy could be offered safely as a minimally invasive treatment for patients with ureteric tumors and high-risk medical comorbidities. It provides excellent perioperative outcomes and early oncological safety with regard to surgical margins.

ARTICLE INFO

Available at: http://www.int brazjurol.com.br/pdf/aop/video/2016-0026-Raheem_et_al.mp4
Int Braz J Urol. 2016; 42 (Video #X): XXX-X

Submitted for publication:
January 12, 2016

Accepted after revision:
March 14, 2016

Correspondence address:

Koon Ho Rha, MD
Department of Urology and
Urological Science Institute,
Severance Hospital, Yonsei
University College of Medicine,
50 Yonsei-ro, Seodaemun-gu,
Seoul, 120-752, Korea
Fax: + 82 2 312-2538
E-mail: khrha@yuhs.ac

EDITORIAL COMMENT: FEASIBILITY OF ROBOT - ASSISTED SEGMENTAL URETERECTOMY AND URETEROURETEROSTOMY IN PATIENT WITH HIGH MEDICAL COMORBIDITY

Alejandro R. Rodriguez ¹

¹ *Department of Urology and Urology Oncology, Samaritan Medical Center, Watertown, New York, USA*

In this video Mello et al. (1), demonstrate the case of a Robot assisted segmental ureterectomy for a patient with a solitary kidney with high medical co-morbidities that had a single localized ureteral lesion consistent with a urothelial neoplasm.

The surgical team carefully diagnosed and staged the ureteral tumor. A formal cystoscopy, bladder washing cytologies, retrograde pyelogram and ureteroscopy was performed to verify that this tumor was localized, single and that there were no other concomitant pathology such as carcinoma in situ of the upper collecting system.

Nephroureterectomy remains the gold standard for the surgical management of upper tract transitional cell carcinoma; However, recently, minimally invasive approaches including endourological (for non invasive disease) as well as laparoscopic or robotic assisted for segmental resections of the distal ureter with ureteral reimplantation has been reported with great oncological and clinical outcomes (for non invasive and invasive disease).

The authors clearly follow oncological principles of resection and anastomosis of clean ureteral margins. They demonstrate the importance of clipping the ureter above and below the tumor with a clear margin of resection. This will prevent spillage of neoplastic cells into the peritoneal cavity, preventing peritoneal carcinomatosis. In this case, the ureters were anastomosed without tension and the patient profitted from a less morbid approach to deal with a single ureteral tumor.

The final pathology revealed a pT3 high grade urothelial carcinoma with associated carcinoma in situ. The prognosis of these cases is poor, but the option of local control in a patient with high medical co-morbidities and a solitary kidney is clearly evident. Finally, we congratulate the authors for such a great demonstration of a Robotic assisted segmental resection of the ureter for a clinically localized ureteral tumor

REFERENCES

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*Alejandro R. Rodriguez, MD
Department of Urology and Urology Oncology,
Director of Robotics and Minimally Invasive Surgery
Samaritan Medical Center, Watertown, New York, USA
830 Washington St, Watertown, NY 13601, USA
Telephone: +1 315 785-4000
E-mail: armbkdd@yahoo.com*