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Introduction & Objectives: Renal cell carcinoma accounts for approximately 3% of malignancies in adults. Nephron sparing surgery is nowadays the gold standard treatment for renal masses smaller than 7 cm, particularly, in patients with a solitary kidney or chronic kidney disease. Minimally invasive approaches showed less intra-operative blood loss, less length of stay and less post-operative pain comparing to conventional surgery. However, the feasibility of this minimally invasive approach, robotic or laparoscopic, is limited by patient anatomy, tumor features and surgeon’s experience. Our aim is to present a video of a robotic partial nephrectomy and pyeloplasty for a hilar cystic tumor where surgeon expertise has proven to be crucial to the feasibility of the surgery in an effective and safe way.

Materials & Methods: A video recording of a robotic partial nephrectomy performed in March 2021 in our institution.

Results: A 64-year-old male, with a history of hypertension, ischemic cardiomyopathy and chronic kidney disease stage was incidentally diagnosed with a hilar Bosniak IV cyst with 44 mm on the left kidney. Pre-operative serum creatinine was 2.1 mg/dL and normalized glomerular filtration rate was 38.5mL. Tumor location immediately below the left renal pedicle and posterior to renal pelvis limited its access and excision. Then, decision was made to proceed with section of renal pelvis at ureteropelvic junction to safely detach and excise the renal mass. Selective closure of renal calyces and bleeding vessels was done. An hemostatic agent (Floseal) was applied on tumor bed. Afterwards, pyeloplasty was performed with two running sutures with 4-0 monocryl with anterograde placement of a ureteral stent. Warm ischemia time was 28 minutes and intraoperative bleeding registered was 100 mL. The postoperative course was uneventful. Histology confirmed an RCC, papilar subtype, grade 3 (WHO/ISUP), pT1bR0. Ureteral stent was removed 6 weeks after surgery. The patient is on his 5th month of follow-up, asymptomatic with a serum creatinine of 2.4 mg/dL.

Conclusions: Minimally invasive approaches, either laparoscopic or robotic, showed similar perioperative complication rates and shorter hospitalization comparing to open surgery. Additionally, robotic surgery registered less warm ischemia time versus laparoscopic approach. Despite the long learning curve, the increasing experience of surgeons allows to perform this technique in situations with a high level of complexity, without prejudice of the oncological or functional results, with low complication rates.