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ROBOTIC ANATROPHIC INCISION FOR NEPHRON SPARING SURGERY FOR COMPLETE INTRARENAL TUMOR IN THE RENAL SINUS

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INTRODUCTION AND OBJECTIVES: To present a robotic nephron-sparing approach for intrarenal sinus tumors, through the avascular Brodel's line, replicating the open conventional approach.

METHODS: In a female patient, we performed a robotic anatrophic nephron-sparing surgery for complete intrarenal tumor in the renal sinus through the avascular line.

RESULTS: The full procedure was performed with the robot-assisted approach. The operative time was 270 minutes, warm ischemia time was 25 minutes, estimated blood loss was 200 ml and hospital stay was 4 days. The pathology reported a renal clear cell carcinoma, Furhman grade 2 with negative resection margins of 0.7 mm. There were no intraoperative or postoperative complications during 6 months of follow-up.

CONCLUSIONS: The anatrophic incision for nephron- sparing surgery for complete intrarenal tumor in the renal sinus may be reproduced in a robotic fashion. This allows all the benefits of minimally invasive surgery with equal precision in selected patients. Prospective studies are required including a greater number of patients with long-term follow-up to assess the outcomes of this procedure, including its impact on glomerular function.

Source of Funding: None

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LAPAROSCOPIC NEPHROURETERECTOMY OF A FUNCTIONAL ATROPHIC KIDNEY IN A PATIENT WITH ECTOPIC URETER WITH COMPLETE URETERIC DUPLICITY

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INTRODUCTION AND OBJECTIVES: Complete pyeloureteral duplication is the most frequent congenital malformation of the upper urinary tract, with an incidence of 0,9% in non selected necropsy series. A duplex kidney associated with a poorly functioning upper-pole segment is commonly associated with incontinence, voiding dysfunction, and urinary tract infections. A standard treatment option for this condition is upper-pole heminephrectomy.

METHODS: We report the case of a 15 years old female who complained of mild urinary incontinence since childbirth. The CT-scan showed a bilateral ureteral duplicity, with a right functional atrophic superior kidney and an ectopic vaginal ureter. A laparoscopic resection of the superior atrophic kidney with part of the ureter was decided. Surgery started by placing the patient in left lateral decubitus and releasing the bowel adherences. After having released the colon, both ureters were identified. The pathologic ureter was dissected proximally in order to find the vascular pedicle. This ureter crossed below the main renal vein, so by dissecting it proximally we could get access to the atrophic parenchyma. Resection of this parenchyma was performed using scissors and hem-o-locks. After complete dissection of the atrophic kidney, by pulling from the ureter we could descend it until below the renal vein to completely release it. After that, , the distal ureter was dissected until its normal appearance was identified. It was clipped with hem-o-locks before section. The surgical specimen was removed through one of the 12mm trocar without the need of an endobag.

RESULTS: Surgical time was 120min and blood loss 200cc. The patient was discharged 3 days after surgery and the pathological analysis confirmed the absence of malignancies.

CONCLUSIONS: Laparoscopy can be used to treat some renal malformations, with good recovery of the patient and avoiding the need of an open approach.

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ROBOTIC PARTIAL NEPHRECTOMY USING SELECTIVE ARTERIAL CLAMPING WITH NEAR INFRARED FLUORESCENCE IMAGING IN PATIENTS WITH ABSOLUTE INDICATIONS

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INTRODUCTION AND OBJECTIVES: Near infrared fluorescence (NIRF) imaging is a technology with emerging application in urologic surgery as it provides anatomical and functional information in real time. We present our surgical technique of selective arterial clamping with NIRF imaging in patients with absolute indications.

METHODS: A retrospective cohort study was performed from April 2011 to October 2012 in prospectively maintained, institutional review board-approved database. We included all patients with absolute indications for partial nephrectomy in which successful selective clamping and NIRF imaging were utilized. Absolute indication for partial nephrectomy was defined as patients with bilateral renal tumors, a solitary kidney, or eGFR $<$ 45 min/1.73 min^2. Using a high definition recording system and iMovie software with narrative and annotative editing we created a video outlining this complex procedure. In this video we review our technique for selective clamping using NIRF imaging in a patient with a solitary kidney and a patient with multiple bilateral renal tumors.

RESULTS: Between April, 2011 to October, 2012 we performed 97 partial nephrectomies, of which 6 patients underwent a total of 10 selective clamping partial nephrectomies using NIRF imaging for absolute indications. This data is presented in Table 1 and Table 2.

CONCLUSIONS: This video presents our technique for selective arterial clamping in patients with absolute indications using intraoperative NIRF imaging. In our early experience this technique appears safe and effective in minimizing warm ischemia damage to the kidney as shown by an change in eGFR of only 2.8 ml/min per 1.73 m^2 and a percentage change of $<$10%.

Table 1. Demographics, perioperative characteristics, and outcomes

DEMOGRAPHIC	Median (IQR)
Age (years)	48.5 (16.0)
Male patients, no. (%)	4 (66.7)
BMI kg/m^2	28.6 (8.8)
ASA score	3.0 (0.5)
Solitary kidney, no. (%)	2 (33.3)
Preoperative creatinine, ml/dl	1.0 (0.63)
Preoperative eGFR, ml/min per 1.73 m^2	72.5 (24.1)
Tumor size, cm (radiographic)	3.5 (2.4)
INTRAOPERATIVE	
Operative time, min	207.0 (36.0)
Length of superselective dissection, min	23.5 (10.5)
Warm ischemia time, min	18.0 (8.3)
Estimated blood loss, ml	258.3 (220.8)
POSTOPERATIVE	
Length of stay, days	2.00 (0.0)
Postoperative creatinine, mg/dl	1.1 (0.6)
Change in creatinine, mg/dl	0.20 (0.08)
Postoperative eGFR, ml/min per 1.73 m^2	66.3 (24.7)
Change in eGFR, ml/min per 1.73 m^2	-2.8 (31.1)
Change in eGFR, percentage	-8.6 (17.1)