Antón Juanilla M., Padilla Nieva J., Arruza Echevarria A.

Hospital Universitario Cruces, Dept. of Urology, Barakaldo, Spain

Introduction & Objectives: Duplex collecting system is a relatively common congenital abnormality, with a reported prevalence of 0.7–4%. Bilateral in 20% of cases, it is almost twice as common in females as males. Although this anomaly may be asymptomatic, it can be associated with recurrent urinary tract infections, flank pain, haematuria, urinary incontinence and obstruction. Most of the patients are diagnosed antenatally or in childhood. In symptomatic adults with poorly functioning moieties, the standard treatment is heminephrectomy. Traditionally, this procedure required flank incisions. But since 1993 when the first laparoscopic heminephrectomy for a duplex system was performed by Jordan and Winslow, minimally invasive approaches have become more common. After Patel reported in 2010 the first robot-assisted case to manage a congenital renal abnormality, more skilled surgeons have performed this surgery. With this video abstract, we would like to share our experience on a robot-assisted upper pole heminephrectomy in a patient with right duplex collecting system.

Materials & Methods: A 35 years female patient was admitted for right pyelonephritis. She referred several episodes of urinary tract infections and right flank pain. The ultrasound showed a right duplex collecting system with upper pole hydronephrosis and cortical atrophy. To complete the evaluation, a CT confirmed the presence of a complete duplication of renal collecting system and ureter, which ended in an ureterocele in the bladder. The lower pole had a preserved parenchyma. Patient underwent robot-assisted upper pole heminephrectomy. In left lateral position, 5 trocars were placed (robotic camera, two robotic ports and two assistant ports). Firstly, the white line of Toldt was incised, the colon was mobilized medially and both ureters of the duplicated system were identified. Then, the dilated upper pole ureter was dissected up to the renal pelvis. After, Gerota’s fascia was opened and hilum was dissected. Upper pole vessels were ligated selectively using Hemolock clips. A vascular clamp in the renal artery was used to ensure hemostasis during the excision of the upper pole. Once the sharp dissection along the atrophic cleavage plane was done, renorrhaphy in two layers was executed. Tachosil was placed to cover the defect. Finally, distal end of the upper pole ureter was ligated with a Hemolock clip and a retrieval bag was used to place the whole specimen.

Results: Operative time was 240 minutes and estimated blood loss <50mL. Postoperative estimated creatinine clearance was not different from preoperative values. Foley catheter was removed on day 1 and abdominal drain on day 2 as no urine leak was present. Patient was discharged after 72h without perioperative complications.

Conclusions: Robot-assisted management of duplex collecting system is an efficacious treatment modality. It results in symptom resolution and renal function preservation with low morbidity.