

Robotic pyelolithotomy for staghorn nephrolithiasis during partial nephrectomy

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INTRODUCTION

Although the incidences of kidney cancer and urolithiasis are increasing (1, 2) the discovery of both pathologies in the same patient is uncommon. This video demonstrates the simultaneous management of a staghorn calculus and an ipsilateral renal mass using the robotic platform.

CASE

A 68-year-old woman was diagnosed with a 3.9cm left partial staghorn calculus and a 3.0x2.7cm left upper pole renal mass after an acute left flank pain episode. The patient had a history of hypertension, hyperlipidemia, coronary artery disease, asthma, hypothyroidism and obesity (BMI 39Kg/m²).

Intraoperatively after colon mobilization and hilum dissection, the Gerota's fascia was incised and the entire surface of the kidney was exposed. The ureter was carefully dissected up to the renal pelvis. Intraoperative ultrasound identified the stone location and delineated the tumor borders. A posterior pyelotomy was performed using cold scissors and the stone removed in its entirety.

A double J stent was inserted in an anterograde manner followed by the pyelotomy closure. The partial nephrectomy was then performed using our standard technique (3).

RESULTS

The operative time was 240 minutes and the estimated blood loss was 150ml. There were no intra or postoperative complications. Final histopathology showed a T1a renal cell carcinoma, clear cell papillary type with a negative surgical margin. The double J stent was removed after 4 weeks and the patient remains asymptomatic at 3 months postoperatively.

CONCLUSIONS

Simultaneous robotic pyelolithotomy and partial nephrectomy is a safe and feasible treatment for this uncommon presentation.

CONFLICT OF INTEREST

None declared.

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ARTICLE INFO

Available at: www.intbrazjurol.com.br/video-section/andrade_623_625/

Int Braz J Urol. 2016; 42 (Video #4): 623-5

Submitted for publication: May 23, 2015

Accepted after revision: July 07, 2015

EDITORIAL COMMENT

Simultaneous robot-assisted laparoscopic pyelolithotomy and partial nephrectomy is a reasonable approach for patients suffering from renal stones that are diagnosed with renal cancer (1). In this video, the authors presented a successful procedure for stone and tumor removal through the same surgical access (2-3). This minimally invasive surgery combines the advantages of a laparoscopic pyelolithotomy over a percutaneous nephrolithotomy (lower incidence of bleeding and higher stone-free rate) with the benefits of a robotic procedure for the treatment of a renal cancer (lower warm ischemia time). This surgical approach should be considered as an alternative when treating patients with this uncommon presentation.

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EDITORIAL COMMENT

Management of a kidney containing both an enhancing renal mass and a partial staghorn calculus presents several dilemmas. As an alternative to radical nephrectomy, most urologists would likely perform staged procedures typically involving percutaneous nephrolithotomy and partial nephrectomy. While robotic assisted partial nephrectomy is well accepted for management of the renal mass, robotic lithotomy is infrequently performed for the removal of large stones (1-3). This video by Andrade et al from the Cleveland Clinic nicely demonstrates a robotic pyelolithotomy for a large stone at the time of robotic partial nephrectomy. Though this may be an uncommon situation, the video clearly shows the feasibility and safety of this combined procedure, at least in expert hands. This case avoided multiple surgeries and allowed for complete stone removal and tumor resection while maintaining renal function.

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