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### Extending the utilization of the da Vinci® robotic surgical system to pyelolithotomy

Percutaneous Nephrolithotripsy (PCNL) is considered the standard treatment for large kidney stone (>2 cm) and large stone burden. However, and in certain patients, the technique can be challenging and fails. We utilized the da Vinci® surgical robotic system to remove kidney stone in certain circumstances. Robotic assisted laparoscopic pyelolithotomy (RALPL) was performed at our institute to treat large kidney stones (>2 cm) in morbidly obese patient (BMI >35), patients with skeletal deformity that prevent percutaneous access to the kidney or positioning for the access, and after PCNL failure. We also performed RALPL whenever the robotic system was used for other purpose like pyeloplasty, partial nephrectomy, ureteral reconstruction on the same kidney. RALPL allowed us to utilize other endoscopic instruments to achieve high rate of stone clearance. Seventeen patients underwent RALPL at our institute including 19 renal units. Average BMI in all patients was 38.5 kg/m<sup>2</sup> (range 17.7-61.4 kg/m<sup>2</sup>) and all had prior abdominal surgeries. The indication for RALPL was morbid obesity (n=8, mean BMI 56.4 kg/m<sup>2</sup>), need for concurrent renal surgery (n=3), severe contractures limiting positioning for retrograde endoscopic or percutaneous nephrolithotripsy (n=2), symptomatic calyceal diverticular stone with failed endoscopic approach (n=2) and patient preference over percutaneous nephrolithotripsy after failed PCNL (n=2). Patients had a mean of 2.3 stones and total stone volume of 16.5 cm<sup>3</sup> (range 0.7-75 cm<sup>3</sup>) per kidney. Average blood loss was 57.8 mL and mean operative time was 180 minutes. Mean hospital stay was 3.5 days. Mean follow-up was 54 days and 91 % of patients were rendered stone free.

### Biography

Mohamad Waseem Salkini is an Associate Professor of Urology and Chief of Urologic Oncology. He is also a Director of Simulation and Robotic Surgery Program at West Virginia University. He earned his MD from Damascus University in 1998, and completed Urology Residency Program in 2003 at Damascus University. He was fellow with Heidelberg University and University of Cincinnati for the years 2003-2004 and 2007-2009 respectively. He served as Research Fellow with University of Arizona from 2004-2007.

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