[23] Utilising the da Vinci® robotic surgical system to treat challenging urinary stones: West Virginia University experience

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Objective: To report our experience in utilising the Da Vinci® robotic surgical (Intuitive Surgical Inc., Sunnyvale, CA, USA) system to treat patients with challenging urinary stones (CUS).

Methods: We reviewed our prospectively collected data of patients who underwent robot-assisted stone surgery (RASS). We utilised the da Vinci to treat 21 patients with CUS at our institute. A CUS was defined as a stone that could not be treated or had failed attempts at treatment with traditional minimally invasive surgery such as extracorporeal shockwave lithotripsy, ureteroscopy, or percutaneous nephrolithotomy (PCNL).

Results: In all, 19 patients had RASS at our institute. The indications for robot-assisted laparoscopic pyeloplasty were: morbid obesity (eight patients, mean body mass index 56.4 kg/m²), need for concurrent renal surgery (five), severe contractures limiting positioning for retrograde endoscopic or percutaneous nephrolithotripsy (two), symptomatic calyceal diverticular stone with failed endoscopic approach (four), and after failed PCNL (two). Patients had an average of 2.3 stones and total stone volume of 16.5 mL measured by computed tomography (CT). The mean (range) blood loss was 57.8 (25–300) mL. The mean (range) operative time was 110 (50–180) min, with a mean (range) hospital stay of 2.5 (1–8) days. The mean follow-up was 54 days and 91% of patients were stone free on the follow-up CT. Four patients (4%) developed complications: one patient (5%) developed candidaemia, one patient (5%) developed urine leakage that necessitated prolonged stenting and catheterisation, and two patients (9%) developed wound infections.

Conclusion: The treatment of urolological stones can be challenging, RASS is a promising way to remove kidney stones with high stone-free rates. RASS should be considered as an option to replace open stone surgery.

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[24] The oncological outcome of robot-assisted partial nephrectomy in the treatment of renal cell carcinomas

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Objective: To report on our oncological outcomes of robot-assisted partial nephrectomy (RPN) in the treatment of renal cell carcinoma (RCC) by a single surgeon in a single institute, as RPN has an established role in the treatment of RCC with an oncological outcome comparable to open surgery.

Methods: We reviewed prospectively collected data of patients who underwent RPN with a final diagnosis of RCC. RPN was used routinely in the treatment of small renal masses (< 4 cm) and selectively in the treatment of larger masses (4–7 cm) at our institute. RPN was performed according to the standard protocol with a variable ischaemia time of 0–34 min. All the specimens were placed in an EndoCatch™ single-use specimen pouch.

Results: In all, 335 patients underwent RPN at our institute by a single surgeon, with RCC the final diagnosis in 269 patients (80.3%). All patients but two (0.74%) had a negative margin at the initial surgery. Nine patients (3.3%) had recurrence of the RCC with a different modality of recurrence. Two patients had trocar-site recurrence, two had loco-regional recurrence with infiltration of the disease in the perinephric fat and lymph nodes, three had recurrence of the disease at the resection margin, and two had a second primary tumour in the other kidney. On multi- and univariable analyses, the tumour grade (Grade > 3), tumour stage (T1b, or T3) and tumour size (> 4 cm) were associated with the likelihood of recurrence except trocar-site recurrence.

Conclusion: RPN offers excellent control of RCC as shown by a low risk of recurrence (3.3%). RPN should be considered as the treatment of choice whenever it is feasible. Larger tumours, higher stage and local invasion are surrogates for recurrence.

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[25] Urinary bladder repair after vesico-uterine fistulectomy and hysterectomy using ‘omentum wrap’: A novel technique

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Objective: To present a case of urinary bladder repair after vesico-uterine fistulectomy and hysterectomy using ‘omentum wrap’, as vesical fistulae, irrespective of their distal component, are a challenge for urologists and urogynaecologists alike. The complex nature of these fistulae and their repair has affected outcomes of the documented treatment modalities. In general, higher fistula origin and insertion, and prolonged presentation are indices of poorer outcomes of treatment.

Methods: We present the case of a 54-year-old multiparous woman who presented to our clinic with total urinary incontinence (UI). She has had a history of
use of vaginal pessaries and misdiagnosis with stress UI that had led to the performance of trans-obturator tape (TOT) insertion, unnecessarily. Post-TOT the patient’s UI worsened from occasional to total. Investigations initially showed vesico-vaginal fistula, but examination under anaesthesia by cystoscopy and hysteroscopy showed a large vesico-uterine fistula. Lower midline fistula repair was complicated by a chronically inflamed friable bladder on cystostomy and total abdominal hysterectomy after uterine transaction due to adherent uterine and anterior vaginal walls to the bladder. Bladder repair was augmented with omental flap interposition posteriorly to cover the fistula site, and omental flap wrapping superiorly, laterally and anteriorly to enhance its recovery. The patient had an uneventful postoperative recovery and follow-up cystography showed a small capacity bladder but no leakage.

Results: To our knowledge this is the first attempt of its kind to utilise an omental flap to support bladder repair in a wrapped fashion. The omentum is known for its extraordinary support mechanisms, mechanical and anti-inflammatory, and has been incorporated into many forms of repairs as a flap and graft. In what looked like a poor outcome bladder repair due to extremely inflamed tissue, the bladder healed completely in a short time.

Conclusion: Vesical fistulae are difficult entities to diagnose and treat. Incorporation of innovative surgical principles of repair from other experiences can improve outcomes of traditional procedures.

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[26] Failure of ureteric access sheath insertion in virgin ureters: a prospective cohort study
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Objective: To identify the failure rate of insertion of a ureteric access sheath (UAS) during primary flexible ureteroscopy (FURS), in order to improve preoperative patient’s counselling as well as identify patients who might benefit from pre-stenting FURS.

Methods: This is a single-surgeon single tertiary care centre prospective cohort study. All patients who underwent primary FURS for proximal ureteric or renal stones from November 2014 to May 2018 were included in the study. We used one type of UAS 10/12-F coaxial UAS from Rocamed. Data collected included: age, gender, body mass index (BMI), previous spontaneous passage of stones, and congenital anomalies. Descriptive analysis was done.

Results: The study included 128 patients and they all underwent primary FURS. In all, 73.4% (94 patients) were males, 26.6% (34) were females. The failure rate of primary UAS insertion was 11.7% (15 patients), the mean age of the failure group was 43.2 years and 14/15 were males. Six were obese with BMI of >30 kg/m² and six had a previous episode of spontaneous stone passage. None of the failed patients had anatomical abnormalities. In all, 113 patients (88.3%) had a successful primary FURS and insertion of a UAS. The mean age was 46.3 years and 27.4% (31 patients) were females. In all, 50.4% (57 patients) of the success group had previous episodes of spontaneous stone passage.

Conclusion: A very low failure rate was obtained in unstented patients. Female patients and patients with an episode of spontaneous stone passage were more likely to be accessed primarily. Our study helps the urologist to make an informed consent and facilitate the decision of pre-stenting in selected patients.

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[27] Safety of pre-intended en bloc renal pedicle control for laparoscopic nephrectomy
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Objective: To evaluate preoperatively intended en bloc renal pedicle control for laparoscopic nephrectomy in our hospital, as the safety and efficacy of en bloc renal pedicle control has been approved for laparoscopic nephrectomy but some authors do not advocate the generalised use of it.

Methods: We reviewed all laparoscopic nephrectomies that were carried out by two laparoscopic surgeons (from January 2015 until April 2017) who had a preoperative intention of en bloc renal pedicle control. By creating a window at the lower pole and another window at upper pole then using the Covidien Endo-GIA™ (45,60 mm vascular reload) to control the pedicle. We analysed patients’ demographic data, nephrectomy indication, intraoperative findings, and intra- and postoperative complications. Patients were followed-up with blood pressure measurements and for the presence or absence of any signs of hyperdynamic circulation. The analysis of data was done using SPSS® version 20 (SPSS Inc., IBM Corp., Armonk, NY, USA).

Results: We found 38 laparoscopic nephrectomies done for patients with mean (range) age 55.7 (18–94) years and mean (range) body mass index of 29.2 (17–41) kg/m². The indications for nephrectomy were variable: 22 patients (57.9%) for non-functioning kidney, 14 (36.8%) for renal tumours and two (5.2%) for ureteric tumours. There were 23 left nephrectomies and