A novel method for retrograde ureteric stent insertion during laparoscopic ureterolithotomy without radiological guidance
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Introduction: With the advent of minimally invasive percutaneous nephrolithotomy, flexible endoscopic instruments and improvement in shockwave lithotripsy, the role of laparoscopic ureterolithotomy (LU) has changed significantly over the past decade. However, LU remains an option for patients with hard stone core or large impacted upper ureteric stone not well treated by minimally invasive methods. LU has also been shown in small series to have the highest stone free rate when comparing to extracorporeal shockwave lithotripsy (SWL) in the management of upper ureteric stone of >1 cm. In addition, LU has shown to have shorter hospitalisation, shorter convalescence and better analgesic profile compared with open ureterolithotomy. Various methods of intraoperative ureteric stent insertion during laparoscopic ureterolithotomy have been described previously but without any consensus on safety or efficacy. Key to the operation is the laparoscopic insertion of ureteric stent into a small ureteric incision which may be technically challenging. Slippage of the guidewire or stent occurs commonly during adjustment and prolonged adjustment cause trauma to the ureteric incision. Migration of the stent occurs frequently during removal of the safety guidewire as well. Retrograde insertion of ureteric stent prior to LU reduces transperitoneal adjustment during LU but requires intraoperative radiological support, that adds to the logistical and time requirement. We present a video presentation on a novel method for retrograde placement of ureteric stent in patients undergoing transperitoneal LU without the need for intraoperative radiological guidance.

Materials and Methods: Prior to laparoscopy, rigid cystoscopy is performed and the urethra length from the bladder neck to the glans penis is measured using the cystoscopy sheath. Ureteric catheterisation is performed and advanced to the level of obstruction using rigid cystoscopy under sterile conditions. The urethral length is marked on the ureteric stent pusher and the patient is positioned and lateralised. Transperitoneal LU is performed in lateral decubitus position depending on site. After stone removal, the ureteric catheter is exchanged for guide wire and the ureteric stent is advanced across the ureteric defect under direct vision to the appropriate stent pusher marking and ureteral closure is performed. A retrospective review was performed for patients who underwent retrograde stent insertion and its viability assessed. In our initial series, all patients were kept for around 4 days to observe for post operative complications.

Result: A review of 4 patients who underwent LU and retrograde ureteric stenting in 2014 was performed. Stent placement was performed with minimal transperitoneal manipulation. Mean operative time was 211(195-210) minutes. All patients had drain output of less than 100mls on post operative day 1. No additional procedures were required for stent adjustments. There were no significant (Clavien-Dindo grade 3) complications using this method across different surgeons. Patients had removal of ureteric stent at outpatient cystoscopy.

Conclusion: Retrograde ureteric stent insertion during laparoscopic ureterolithotomy is feasible, reproducible and safe.

Conflict of interest: No competing financial interests exist.

References: