was significantly lower in the MMC group ($P = 0.021$), and occurred 1 year after the operation.

**Conclusion:** The adjuvant use of transurethral intraluminal injection of MMC at the time of visual urethroplasty for short bulbar urethral strictures is a safe and highly effective procedure in reducing the stricture recurrence rate and in delaying the time for such recurrence.

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[16] Hydro-dissection and optical hydro-dissection ultrasonography guided percutaneous nephrolithotomy

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**Objective:** To report our experience of hydro-dissection ultrasonography (US)-guided percutaneous nephrolithotomy (HU-PCNL) used to facilitate entry to the pelvi-calyceal system (PCS) and optical HU-PCNL (OHU-PCNL) to visualise tissue layers during PCS entry. Both HU-PCNL and OHU-PCNL are used for difficult cases of renal stones that are not candidates for classical PCNL by use of US guidance, e.g. in obese patients, horseshoe kidney, ectopic pelvic kidney, transplanted kidney, and lower calyx stones covered by colon; and used in ectopic pelvic kidney PCNL to avoid abdominal organs injury. OHU-PCNL visualises the stone directly at the moment of entry to the PCS then passes the infundibulum, enters the pelvis, and allows selection of the optimum side for guidewire insertion. OHU-PCNL avoids colonic injury and if the needle perforates the colon it can be seen allowing removal of the needle and a change in direction.

**Methods:** Between January 2016 to October 2017, 30 patients underwent HU-PCNL with a mean (range) age of 36.4 (3–67) years (13 female, 17 male). Two patients had horseshoe kidneys, one patient had a transplanted kidney, one patient had a single kidney, and two patients had malrotated kidneys. In all, seven patients underwent OHU-PCNL with a mean (range) age of 39.7 (30–50) years (three female, four male), one patient had a left ectopic pelvic kidney.

**Results:** Five patients had renal stones (stone size 15–40 mm), one of which had a left ectopic pelvic kidney. The mean operation time was 90 min, four patients were in prone position and one in supine position due to an ectopic pelvic kidney, the mean age was 39.2 years. In four males and one female, the mean (range) operation time was 94 (60–180) min, and there were no abdominal organs injury or blood transfusions. The patients were admitted for only 1 day, except for the patient with the pelvic ectopic kidney who was admitted for 3 days.

**Conclusion:** OHU-PCNL is a safe novel method used in difficult cases of renal stones, especially in ectopic pelvic kidneys to prevent and allow early diagnosis of bowel injury. OHU-PCNL can avoid colonic injury and allow tangential entrance to the PCS.

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[17] Correlation of renal scarring to urinary tract infections and vesico-ureteric reflux in children

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**Objective:** To study the association between the grade of reflux and urinary tract infections (UTIs) and renal scarring at the first clinical presentation of patients who underwent anti-reflux surgery.

**Methods:** Between 2010 and 2017, 150 patients (194 renal units) who underwent anti-reflux surgery, had dimercaptosuccinic acid (DMSA) renal scans preoperatively (retrospective study). The patients were classified into non-scar and scar groups according to the DMSA scan results. Moreover, cases were classified into afebrile UTI, febrile UTI, and antenatal hydronephrosis (ANH) according to the mode of presentation. We correlated the mode of presentation and the grade of reflux to the presence/absence of renal scars in both groups. Grading of reflux was (I–V) according to the International Reflux Study Committee 1987.

**Results:** The mean follow-up was 45 months. The mode of presentation was afebrile, febrile UTIs and ANH in (50, 14) (20, 46) and (10, 10) in the non-scar and scar groups, respectively. Of the 20 patients who presented with ANH, 10 (50%) had scars. The mode of clinical presentation was correlated to the presence of renal scarring and its degree. The scar group had significantly higher grades of vesico-ureteric reflux than the non-scar group; grades I–II [40 patients, 50 units vs eight patients, 10 units], grade III [24 patients, 28 units vs 30 patients, 40 units] and grade IV–V [16 patients, 22 units vs 32 patients, 44 units] for the non-scar vs scar groups, respectively ($P = 0.005$).

**Conclusion:** Renal scarring is linked to higher grades of reflux and UTIs. We advocate proper investigations of infants who have UTIs with or without fever for early detection of reflux.

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