

Pediatric Urology

High Recurrence Rate at 5-Year Followup in Children after Upper Urinary Tract Stone Surgery

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Abbreviations and Acronyms

KUB = x-ray of kidneys, ureters and bladder

PCNL = percutaneous nephrolithotomy

SWL = shock wave lithotripsy

URS = ureteroscopy

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Purpose: Pediatric urolithiasis has been treated with shock wave lithotripsy, ureteroscopy and percutaneous nephrolithotomy with high success rates during short-term followup. We studied our success rate and modifiable risk factors in patients with at least 5 years of followup postoperatively.

Materials and Methods: Retrospective chart review was performed for patients younger than 18 years who underwent upper tract stone surgery between 1999 and 2007, were stone-free afterward and had at least 5 years of followup. Recurrence rate, and anatomical and metabolic abnormalities were assessed.

Results: Of 60 eligible children 30 (33 kidneys) had at least 5 years of followup. Average patient age at surgery was 10 years, 17 patients were female and 20 kidneys had anatomical abnormalities. Overall recurrence rate at 5 years was

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- Journal of Urology published this study in february /2014. It is actually different from other study because it is unique in childhood study and have long-term follow up.
- The study from USA, sought to elucidate recurrence rates of pediatric urolithiasis after at least 5 years of postoperative follow up. They also sought to discover modifiable risk factors for stone recurrence.
- 60 patient younger than 18 year old, had undergone surgical modalities (included URS, SWL, PCNL) and been stone-free. But 30 of these remain in follow up (17 female, 13 male).
- The overall recurrence rate at 5 years was 55. There was no relationship between recurrence and patient age or gender. Of the stones 14 were renal and 19 were ureteral. A total of 13 kidney stones (93%) recurred, compared to 5 ureteral stones.
- The study shown that the lowest rate of recurrence was in patients undergoing URS, with higher rates after SWL and PCNL.

- Patients with abnormal anatomy had a 65% chance of recurrence within 5 years. In contrast, those with normal anatomy had a 38% chance of recurrence within 5 years.
- The anatomical abnormalities seen in their study were primarily hydronephrosis and vesicoureteral reflux. In the face of stasis tiny fragments that might otherwise pass spontaneously might well act as a nidus for recurrence.
- The study shown that it is important to look for metabolic abnormalities in children requiring surgery for urolithiasis. Because 5-year recurrence rate was %50 in those with metabolic abnormalities.
- They found a high recurrence rate in children with stones requiring surgical intervention, particularly those with abnormal anatomy.
- Study results suggest not only that surgeons should work to achieve stone-free status in these patients, but also that it is important to treat any modifiable factors, particularly metabolic abnormalities, aggressively.
- Of course, this finding should be confirmed in a larger multicenter study of recurrence rates.

Anatomical conditions

	No. Pts
Hydronephrosis	12
Vesicoureteral reflux	5
Prior pyeloplasty	4
Complex renal anatomy (horseshoe or crossed fused kidney)	5
Cerebral palsy	3
Prematurity (less than 32 wks)	3
Spina bifida/neurogenic bladder	3
Ureteral stricture	2
Treacher Collin syndrome	1