

Treatment of isolated small renal stones leads to resolution of symptoms and should be routinely offered to patients:  
Prospective outcomes from a university hospital.  
PD07-09

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# Introduction

Treatment of small renal stones (<10mm) and the symptomatic value it offers to patients is often debated.



## Guidelines (symptomatic stones):

AUA: <10mm: offer SWL or URS

EAU: same as AUA

NICE: Offer SWL

- Consider URS: if there are contraindications for SWL or if a previous course of SWL has failed or because of anatomical reasons, SWL is not indicated

# Objectives

Analyse prospective surgical outcomes for treatment of small renal stones:

Primary endpoint:

- Symptom resolution

Secondary endpoints:

- Stone-free rate (SFR)
- Operative time
- Day-case rate
- Post-operative stenting

# Methods



Prospective study



All patients who underwent URS for isolated small renal stones  $\leq 10\text{mm}$  over a 7-year period between March 2012 and June 2018 at a university teaching hospital were included.

# Results

N=109	Stone Size		P value
	≤7mm (n=72)	8-10mm (n=37)	
Side (%)			N/A
Right	48.6% (n= 53)	14.7% (n=16)	
Left	17.4% (n=19)	19.3%(n=21)	
Stone Location (%)			N/A
Upper pole	6.4% (n=7)	1.8% (n=2)	
Middle pole	11.0% (n=12)	2.8% (n=3)	
Lower Pole	32.11% (n=35)	18.3% (n=20)	
Renal pelvis	16.51% (n=18)	11.0% (n=12)	
Pre-operative Stenting (%)	16.7% (n=12)	13.5% (n=5)	0.67 (χ <sup>2</sup> )
Pre-operative Creatinine, umol/L (median)	74	78.5	0.56 (Mann-Whitney U test)

## Primary endpoint results

Primary Symptom	Resolution of symptom		P value (FET)	Overall symptom resolution
	≤7mm (n=72)	8-10mm (n=37)		
Pain (n=68)	46/50 (92.6%)	17/18 (94.4%)	1.0	92.6%
UTI (n=28)			0.63	85.7%
Haematuria (n=13)	14/17 (82.4%)	10/11 (90.9%)	1.0	100%
	5/5 (100%)	8/8 (100%)		

# Secondary endpoint results

	Stone size (mm)		P value (test)
	≤7mm (n=72)	8-10mm (n=37)	
Access sheath (%)	42.03%	50.0%	0.44 (χ <sup>2</sup> )
Post-URS Stenting (%)	92.1% (n=67)	100% (n=37)	0.10 (χ <sup>2</sup> )
Complications (%)	2.8% (n=2)	2.7% (n=1)	0.20 (χ <sup>2</sup> )
Clavien-Dindo I	1 (stent pain)	/	
Clavien-Dindo II	1 (Urosepsis)	1 (Urosepsis)	
Clavien-Dindo III	/	/	
Clavien-Dindo IV	/	/	
Mean Operative time (mins) ± SD, range	33.07 (±15.78, 10-76)	55.91 (±21.41, 8-112)	0.001 (Independent t test)
Day-case, n (%)	77.8%	56.8%	0.022 (χ <sup>2</sup> )
Stone-free rate (%)	97.2% (n=70)	83.7% (n=31)	0.017 (FET)
Follow-up time (months)	5.17	4.94	0.34 (Independent T test)
Symptom Recurrence (%)	1.4% (n=1)	2.7 % (n=1)	1.0 (FET)

# Limitations

Relatively short follow-up period.

XR KUB as follow-up imaging

No validated instrument to assess symptom resolution



## Conclusion

- Ureteroscopic treatment of isolated small renal stones is **safe** and leads to **complete resolution** of preoperative symptoms in **majority** of patients.