

## OBJECTIVE

The aim of this study is to compare outcomes of miniaturized percutaneous nephrolithotomy (mPCNL) and flexible ureteroscopy (F-URS) at our tertiary institution. We assessed the safety of discharging patients undergoing mPCNL for the management of lower calyceal renal stones ≤2 cm on the same operative day

## PATIENTS AND METHODS

- A retrospective study of prospectively collected data from September 2018 to September 2019
- All patients underwent a preoperative evaluation using non-contrast helical computed tomography (CT) to determine hydronephrosis grade, stone burden and location
- mPCNL was performed using either a Storz (Germany) 16.5/17.5 Fr or F-URS
- Operative data included operative time, fluoroscopy time, intraoperative complications and the need for JJ stenting
- Patients were postoperatively discharged on the same day
- Postoperative complications were collected and assessed using the Clavien-Dindo system
- A non-contrast helical CT was ordered at 1 month to detect residual stones. A patient was defined as stone-free if residual stone fragments were ≤3mm.

## RESULTS

Parameter	Mini-PCNL 37 patients	F-URS 54 Patients	p-value
Age median (range)	58 y (32-70)	58y (30-83)	0.86
Side	Right n (%)	16 (43.2)	0.2
	Left n (%)	21 (56.8)	
Gender	Male n (%)	19 (51.4)	0.63
	Female n (%)	18 (48.6)	
Previous PCNL n (%)	6 (16.2)	6 (11.1)	0.48
Hydronephrosis	No or mild n (%)	19 (51.4)	<0.001
	Moderate or severe n (%)	18 (48.6)	
Stone burden median (range)	17 mm (10-20)	15mm (9-20)	0.12

Table 1 Patients' Characteristics and Preoperative Data

Parameter	Mini-PCNL	F-URS	p-value
Operation time median (range)	69 min (19-121)	88 min (29-157)	0.03
Fluoroscopic time median (range)	102 sec (49-424)	62 sec (15-247)	<0.001
Ureteral sheath n (%)	---	51 (94.4)	---
Intraoperative complications n (%)	0	0	---
JJ stent n (%)	12 (32.4)	50 (92.6)	<0.001
Perioperative Clavien-Dindo classification			
I n (%)	2 (5.4)	0	---
II n (%)	0	0	
III n (%)	1 (2.7)	0	
Hospital readmission n (%)	3 (8.1)	1 (1.9)	0.15
SFR (≤ 3mm) n (%)	28 (78.4)	41 (75.9)	0.98
Residual Stone (>3mm) n (%)	9 (21.6)	13 (24.1)	0.12
Size of residual stone median (range)	3mm (4-8)	3 mm (4-8)	0.29
Stone Composition			
Calcium Oxalate Monohydrate n (%)	10 (27)	22 (40.7)	0.66
Calcium Oxalate Dihydrate n (%)	9 (24.3)	8 (14.8)	
Calcium phosphate n (%)	1 (2.7)	2 (3.7)	
Urate n (%)	6 (16.3)	8 (14.8)	
Struvite n (%)	0	1 (1.9)	
Mixed n (%)	11 (29.7)	13 (24.1)	

Table 2. Intraoperative and Postoperative Data

## CONCLUSION

Ambulatory mini-PCNL is feasible, safe and has similar SFR to F-URS. Further prospective randomized trials are needed to confirm these results