MP15-09: Displacing Stones from the Lower Pole during Retrograde Intrarenal Surgery (RIRS) – Improved Stone Free Rates or a Waste of Time?

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INTRODUCTION:

- Renal stones located in the lower pole (LP) are more difficult to access & fragment, more likely to cause ureteroscope damage, and more likely to result in residual fragments (RF).
- To improve the stone free rate and cause less damage to the ureteroscope, some urologists will displace a LP stone to a more accessible part of the kidney.
- Although some have advocated using this technique of displacement, its benefit has not been definitively demonstrated on stone clearance and other treatment parameters.
- Retrospective work has shown that a higher success rate can be obtained with displacement into a more accessible calix before treatment when treating lower pole calculi 1 to 2cm.[1]
- We sought to prospectively compare the effect of stone fragmentation *in situ* versus fragmentation after displacing the stone on stone clearance in patients with LP stones.

METHODS:

- In this IRB approved prospective, randomized study, patients were included if they had stones solely in the LP, a total stone burden of 7-15 mm, and no anatomic kidney abnormalities or pre-existing ureteral stents.
- After providing informed consent, patients were randomized into the *in situ* or displacement group prior to the procedure.
- There were no specific differences between the two groups other than displacing the stone, and it was left up to the discretion of the surgeon whether or not to dilate the ureter or place an access sheath.

RESULTS:

Table 1. Demographic and Clinical Characteristics of Patients

	In situ (n=29)	Displaced (n=39)	P-value
Age	57.0 (45.0, 69.0)	62.0 (56.0, 70.0)	0.075
Sex			
Female	21 (72.4%)	22 (56.4%)	0.200
Male	8 (27.6%)	17 (43.6%)	
BMI, kg/m^2	28.5 (24.4, 33.3)	28.7 (24.0, 34.2)	0.800
ASA			
1	3 (10.3%)	1 (2.6%)	0.054
2	24 (82.8%)	26 (69.2%)	
3	2 (6.9%)	11 (28.2%)	
Access Sheath	6 (21.4%)	17 (43.6%)	0.060
Post-op Stent	15 (51.7%)	27 (69.2%)	0.140
Stone Free	24 (82.8%)	38 (97.4%)	**0.035**
Laser Energy, kJ	0.70 (0.3, 3.1)	3.6 (0.4, 9.4)	**0.049**
Operative Time, min	53.0 (43.0, 65.0)	77.5 (63.0, 119.0)	**0.005**
Number of Stones	3.0 (1.0, 4.0)	2.0 (1.0, 5.0)	0.8
Stone Burden, mm	10.0 (9.0, 14.0)	13.0 (10.0, 20.0)	0.058

Continuous data were analyzed with the Mann-Whitney U test and are presented as Median (IQR). Categorical data were analyzed with the Pearson's Chi^2 and are presented as *n* (%)

CONCLUSION:

- Displacing LP stones may require more OR time, but does improve stone free rates when compared to patients who are treated in situ.
- Increased OR time may be due to the time it takes to displace the stone or may be due to time needed for more complete stone fragment removal