



MP22-16: Multi-Institutional Analysis of Perioperative Factors Associated with Failed Primary Ureteroscopy Without Prior Ureteral Stenting

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Objectives

- Ureteroscopy (URS) for treatment of nephrolithiasis is often attempted without a prior ureteral stent placement.
- When access to the stone fails, ureteral stenting is required for passive ureteral dilation in anticipation of a repeat URS in the future.
- In this study, we perform a multicenter analysis to identify patient or stone factors associated with failed unstented primary ureteroscopy (FURS).

Methods

- We reviewed all primary URS (rigid and flexible) for nephrolithiasis without prior ureteral stenting performed at two institutions, Rush University Medical Center, Chicago (2007-2016) and Washington University, St. Louis (2016).
- Failure defined as inability to approach stone for treatment
- Variables of interest in predicting failed primary URS include patient characteristics, stone characteristics, and prior stone surgery.
- Multivariate analysis was performed to identify significant factors associated with FURS.

Table: Comparison of Patient-Characteristics, Stone Surgical History, and Stone-Characteristics between Successful and Failed Primary Ureteroscopy Access

Variable	Successful Access (N=594)	Failed Access (N=40)	p-value
Age			0.696
Mean	54.2	55.2	
St. Dev.	15.4	15.9	
Sex			0.392
Female (279)	44.4%	37.5%	
Male (355)	55.6%	62.5%	
Prior Stone Procedure			0.197
No (416)	65.0%	75.0%	
Yes (218)	35.0%	25.0%	
Prior PCNL			0.713
No (602)	94.8%	97.5%	
Yes (32)	5.2%	2.5%	
Prior ESWL			0.414
No (574)	90.2%	95.0%	
Yes (60)	9.8%	5.0%	
Prior URS			0.571
No (439)	70.9%	68.6%	
Yes (195)	29.1%	31.4%	
Stone Laterality			0.646
Left (353)	55.9%	52.5%	
Right (248)	39.1%	40.0%	
Bilateral (33)	5.1%	7.5%	
Stone Laterality			0.456
Unilateral (601)	94.9%	92.5%	
Bilateral (33)	5.1%	7.5%	
URS: Total Stone Burden (mm)			0.452
Mean	9.5	9.1	
St. Dev.	5.8	5.7	
Stone Number			0.178
1 (381)	60.8%	50.0%	
2 or more (253)	39.2%	50.0%	

Results

- Failure rate for accessing the unstented ureter was 6.3% (40/634).
- Comparing successful URS (SURS) to FURS
 - No difference in patient sex (p = 0.33) or age (0.69).
 - No difference in prior stone surgery including PCNL (p = 0.71), ESWL (p = 0.41), and URS (p = 0.57)
 - No difference in stone laterality and total stone burden (mean 9.5 mm vs 9.1 mm respectively)
 - No difference in single vs multiple stones (p = 0.18).

Conclusion

- Failure of accessing stone during primary ureteroscopy can be hard to predict, but occurs in 6.3% of the time in our multi-institutional analysis.
- Having a prior stone surgery including PCNL, ESWL and URS does not affect the risk of having an unsuccessful primary ureteroscopy.

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