

MP 15-03: Nephrostomy Tubes Placed Prior to Percutaneous Renal Stone Surgery Are Practical for Obtaining Access– An Analysis of the Utility of the Pre-Existing Nephrostomy Tubes at a Single Institution

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Background:

- Renal access in percutaneous nephrolithotomy may be obtained via a pre-existing nephrostomy tube (NT) tract, but emergently placed NTs are not always ideal for subsequent surgery.

Objective:

- We sought to compare the usability of emergently and non-emergently placed NTs.

Patients/Methods:

- Retrospective review of UCSD subjects with indwelling NT undergoing percutaneous renal surgery between Jan 2016 and Oct 2018.
- Primary outcome* was the usability of NT tract for dilation and instrumentation and was a composite of “usable” and “partially usable” tracts.

Table 1 : Peri-Operative Variables by NT Indication

Variables	Overall, n=65	Emergently, n=35	Non-emergently, n=30	p-value
Days from NT to PCNL, mean (SD)	Mean 46 (53) Median 27	62 (62)	26 (33)	<0.01
PCNL Laterality	34 R, 31 L	18 R, 17 L	16 R, 14 L	0.88
# Access Tracts	56x1, 9x2	33x1, 2x2	23x1, 7x2	0.04
Used for dilation?	34 used (52%)	18 used (51%)	16 used (53%)	0.13
Partially used?	3 partial (5%) 28 not used (43%)	0 partial (0%) 17 not used (49%)	3 partial (10%) 11 not used (37%)	
Used for dilation (Used +Partial)	37 (57%), difference in usability rates of +12 %	18 (51%)	19 (63%)	0.34 (95% CI difference -13% to +37%)
NT Location Primary	4 upper (6%) 24 mid (37%) 37 lower (57%)	2 upper (6%) 16 mid (46%) 17 lower (49%)	2 upper (7%) 8 mid (27%) 20 lower (67%)	0.28
PCNL Location Primary	19 upper (29%) 15 mid (23%) 31 lower (48%)	10 upper (29%) 9 mid (26%) 16 lower (46%)	9 upper (30%) 6 mid (20%) 15 lower (50%)	0.86
NT Placed by IR or Urology	43 IR (66%) 22 Uro (33%)	35 IR (100%) 0 Uro	8 IR (26%) 22 Uro (73%)	<0.01

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Results:

- There was no significant difference between emergent vs. non-emergent groups in tract usability, location of NTs, or location of ultimate PCNL access.
- There was no difference in stone location between those NT tracts deemed usable, partially usable, or unusable.
- The need for subsequent upper pole access for completion of PCNL occurred in 57% of unusable NT tracts, 33% of partially usable NT tracts, and 6% of usable of NT tracts.

Conclusions:

- Pre-existing NT, regardless of indication for placement, served as sufficient PCNL access tracts in over half of recorded cases.
- Contrary to recently published reports, the utility of pre-existing NT appears to vary among health systems.
- Other variables, including the desired location of PCNL appear to directly influence the likelihood of NT tract usability.

Table 2: Peri-Operative Variables by Tract Usability

Variables	Usable NT, n=34	Partially Usable NT, n=3	Unusable NT, n=28	p-value
Days from NT to PCNL, mean (SD)	50.8 (54.4)	2.0 (0)	42.1 (53.5)	0.42
# Access Tracts	33x1, 1x2	0x1, 3x2	23x1, 5x2	<0.01
Placed Emergently?, n, (%)	18 (53%)	0 (0%)	17 (61%)	0.13
NT Location pre-operative	3 upper (9%) 12 mid (35%) 19 lower (56%)	0 upper 0 mid 3 lower (100%)	1 upper (4%) 12 mid (43%) 15 lower (54%)	0.51
Ultimate access location for PCNL	2 upper (6%) 11 mid (32%) 21 lower (62%)	1 upper (33%) 0 mid (0) 2 lower (67%)	16 upper (57%) 4 mid (14%) 8 lower (29%)	<0.01
Secondary access location for PCNL, if multiple dilated and used	1 upper 0 mid 0 lower 0 uk	1 upper 0 mid 1 lower 1 uk	0 upper 2 mid 3 lower 0 uk	n/a
NT Placed by IR or Uro	22 IR (65%) 12 Uro (35%)	0 IR 3 Uro (100%)	21 IR (75%) 7 Uro (25%)	0.03
Stone Location (if present) Renal, UPJ/ Ureter, or Both	14 Renal (50%) 7 upj/ureter (25%) 7 both (25%)	2 Renal (67%) 0 upj/ureter 1 both (33%)	17 Renal (61%) 2 upj/ureter (7%) 9 both (32%)	0.40