



Comparison of self-locking versus non-self-locking percutaneous nephrostomy for long-term urinary diversion in malignant ureteric obstruction

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Objective

- Retrospective cohort study in a single institution (Queen Elizabeth Hospital)
- To compare the efficacy and complications between self-locking percutaneous nephrostomy (PCN) with non-self-locking catheters in patients with malignant ureteric obstruction

Patients & Methods

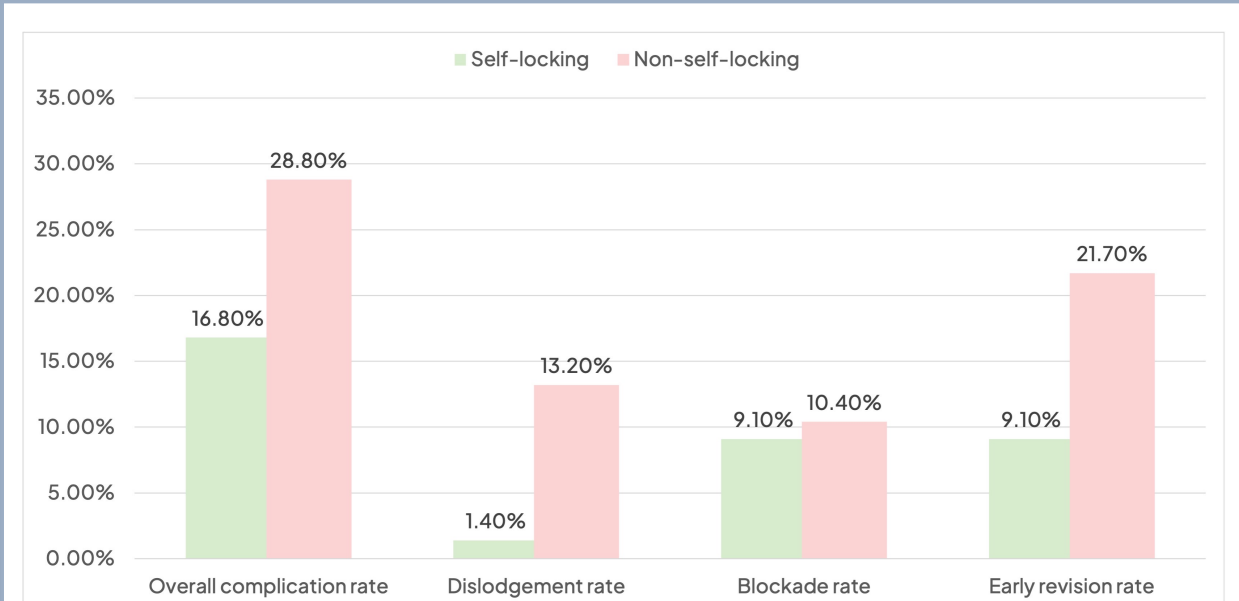
- Malignant ureteric obstruction for long-term urinary diversion by unilateral or bilateral PCN for palliative intent
- Between January 2019 – May 2022
- Outcomes of interest:
 - Primary outcomes: overall complication rate, dislodgement rate, reintervention rate
 - Secondary outcomes: emergency readmission rate and cost-effectiveness

Results

- Total 355 procedures (212 non-self-locking and 143 self-locking catheters) in 65 patients were included
- No difference in baseline characteristics between two groups
- Comparison of primary outcomes:
 - ↓ complication rate (16.8% vs 28.8%, $p=0.009$)
 - ↓ dislodgement rate (1.4% vs 13.2%, $p=0.000$)
 - ↓ need for early catheter revision (9.1% vs 21.7%, $p=0.002$)

Summary of post-procedural outcomes

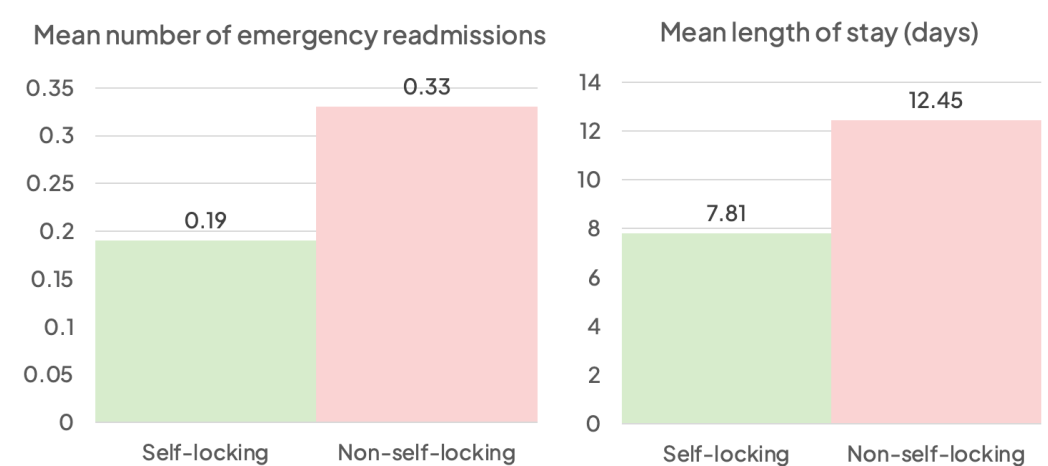
Complication	Self-locking (%)	Non-self-locking (%)	P-value
Overall complications	24 (16.8%)	61 (28.8%)	0.009
Specific complications			
Blockade	13 (9.1%)	22 (10.4%)	0.371
Dislodgement	2 (1.4%)	28 (13.2%)	0.000
Sepsis	6 (4.2%)	7 (3.3%)	0.666
Bleeding	3 (2.1%)	3 (0.8%)	0.662
PCN site infection	0 (0%)	1 (0.5%)	0.411
Re-intervention			
Early revision	13 (9.1%)	46 (21.7%)	0.002



- Comparison of secondary outcomes:
 - ↓ mean number of emergency readmissions (0.19 vs 0.33, $p=0.046$)
 - ↓ mean length of stay during readmissions (7.81 vs 12.45, $p=0.033$)
 - ↓ estimated cost associated with each catheter (\$56980.8 vs \$83596.0)

Summary of emergency readmissions

	Self-locking	Non-self-locking	P-value
Mean number of emergency readmissions	0.19	0.33	0.046
Mean length of stay during emergency readmissions (days)	7.81	12.45	0.033



Estimated cost-effectiveness per catheter (\$ HKD, corrected to nearest \$0.1)

	Unit cost per catheter	Average cost of early revision per catheter	Average cost of emergency readmission per catheter	Total cost per catheter
Self-locking	400.0	9.1% x 400 = 36.4	7.81 (days) x 7240 = 56544.4	56980.8
Non-self-locking	288.0	21.7% x 288 = 62.5	11.498 (days) x 7240 = 83245.5	83596.0
Net cost	+112.0	-26.1	-26701.1	-26615.2

Conclusion

Self-locking PCN is safe and effective in the population of malignant ureteric obstruction requiring long-term urinary diversion. It may also have superiority over non-self-locking catheters with its lower complication and reintervention rates, potentially lower cost and possible improvement in patients' quality of life.

