



Counter Incision is a Safe and Effective Method for Alternative Reservoir Placement during Inflatable Penile Prosthesis Surgery

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Disclosures

DG, SW, EC, BN, SH: none

AL: Consultant, speaker, and preceptor for Boston Scientific and Coloplast

Background

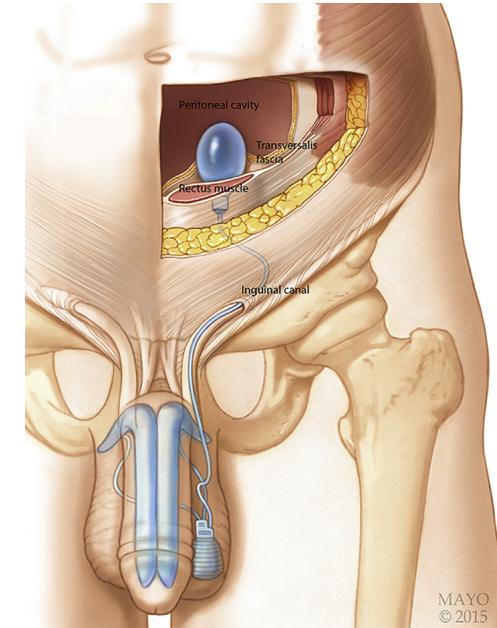
- Alternative IPP reservoir locations avoid serious complications in high risk patients¹
 - Ex. Prior RALP, inguinal hernia repair
- Iliac vein and bladder only 2-4 cm from external inguinal ring²



1. Morey, Allen F., Christopher A. Cefalu, and Steven J. Hudak. "High Submuscular Placement of Urologic Prosthetic Balloons and Reservoirs via Transscrotal Approach." *The Journal of Sexual Medicine* 10, no. 2 (2013): 603–10. <https://doi.org/10.1111/jsm.12000>.
2. Clavell-Hernández, Jonathan, Anuj Shah, and Run Wang. "Non-Infectious Reservoir-Related Complications During and After Penile Prosthesis Placement." *Sexual Medicine Reviews* 7, no. 3 (July 2019): 521–29. <https://doi.org/10.1016/j.sxmr.2018.12.005>.
3. Henry Gerard, Carrion Rafael, Bella Anthony, Karpman Edward, Christine Brian, Jennerman Caroline, and Kramer Andrew. "1858 Pertinent Anatomical Measurements of the Retropubic Space: A Guide for Inflatable Penile Prosthesis Reservoir Placement Shows That the External Iliac Vein Is Much Closer than Thought." *Journal of Urology* 187, no. 4S (April 1, 2012): e751–e751. <https://doi.org/10.1016/j.juro.2012.02.1970>.
4. Image: Garber, B. B., and A. Morris. "Intravesical Penile Implant Reservoir: Case Report, Literature Review, and Strategies for Prevention." *International Journal of Impotence Research* 25, no. 2 (March 2013): 41–44. <https://doi.org/10.1038/ijir.2012.31>.

High Submuscular (HSM) placement

- HSM positioning through penoscrotal incision is commonly used by sub-specialists^{1,2}
 - Low volume implanters may not be familiar/comfortable
- Cadaver studies question technique's accuracy ³
 - 4/20 (20%) retro/pre/intraperitoneal
- Counter incision traditionally thought to increase morbidity



1. Morey, Allen F., Christopher A. Cefalu, and Steven J. Hudak. "High Submuscular Placement of Urologic Prosthetic Balloons and Reservoirs via Transscrotal Approach." *The Journal of Sexual Medicine* 10, no. 2 (2013): 603–10. <https://doi.org/10.1111/jsm.12000>.
2. Perito, Paul E., and Steven K. Wilson. "Traditional (Retroperitoneal) and Abdominal Wall (Ectopic) Reservoir Placement." *The Journal of Sexual Medicine* 8, no. 3 (2011): 656–59. <https://doi.org/10.1111/i.1743-6109.2011.02202.x>
3. Image: Ziegelmann, Matthew J., Boyd R. Viers, Derek J. Lomas, Mary E. Westerman, and Landon W. Trost. "Ectopic Penile Prosthesis Reservoir Placement: An Anatomic Cadaver Model of the High Submuscular Technique." *The Journal of Sexual Medicine* 13, no. 9 (2016): 1425–31. <https://doi.org/10.1016/j.jsxm.2016.06.012>.



Objectives

Compare safety profile of Counter Incision (CI) vs. single incision for IPP Reservoir placement

- Primary outcome: device infections requiring explant
- Secondary: total complications, non-operative complications



Methods

- Single institution retrospective case control study
 - 2013 to 2019
- Univariate comparison (chi squared)
 - 90-day total complications, device infections, hematoma, device malfunction, reservoir herniation
- Multivariate logistic regression of predictors for any complication and device infection
 - Covariates: age, smoking, diabetes, removal/replacement, counter incision, operative time



Surgical Technique – counter incision

- Lower quadrant inguinal incision (Left > Right)
- Dissection down to rectus fascia
- Fascia opened → submuscular space developed → reservoir placed anterior to transversalis fascia
- Tubing tunneled to penoscrotal incision

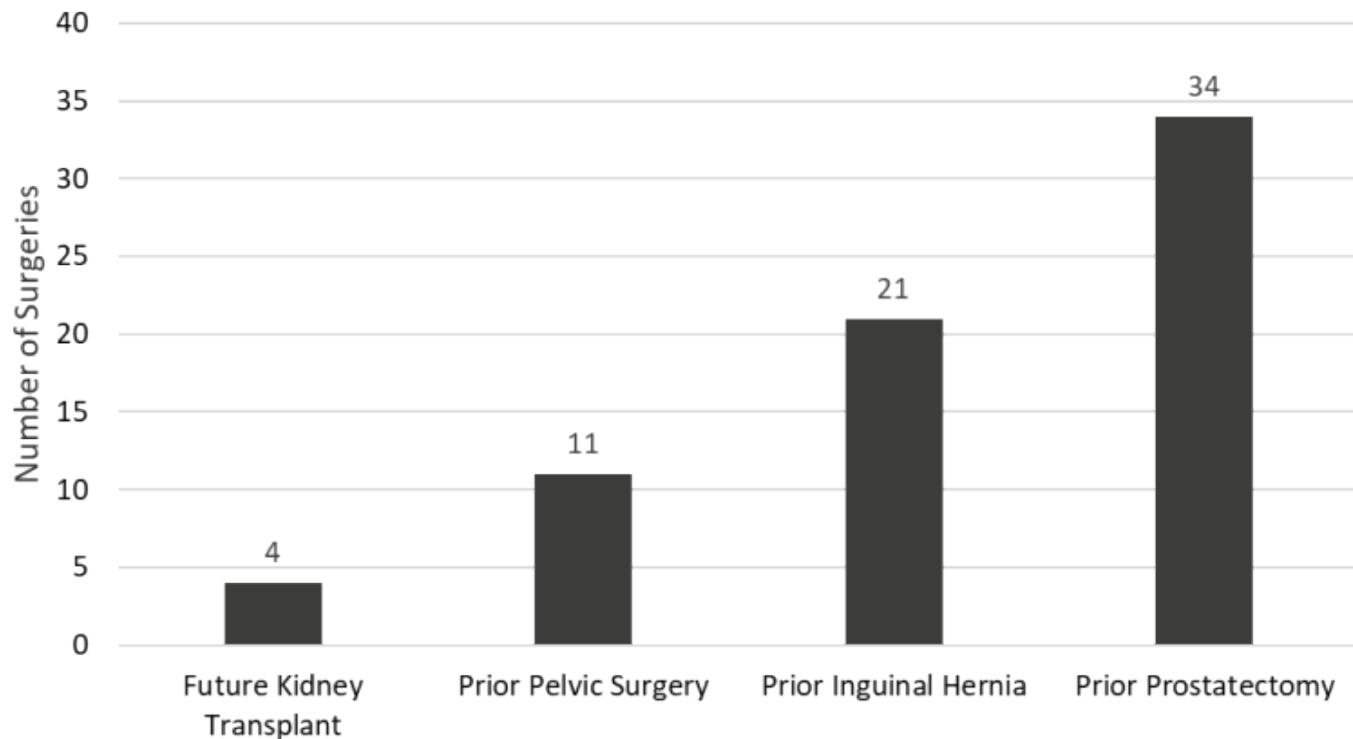


Cohort comparison

	Counter Incision (n=51)	No Counter incision (n=483)	p value
Age (med [IQR])	64.71 [56.30, 69.99]	65.42 [59.62, 70.34]	0.402
Race			0.816
White (%)	26 (51.0)	267 (55.3)	
African American (%)	21 (41.2)	172 (35.6)	
BMI (med [IQR])	27.00 [25.00, 30.00]	29.91 [27.00, 33.00]	0.002
Smoking			0.273
Current (%)	9 (18.0)	54 (11.3)	
Former (%)	20 (40.0)	233 (48.9)	
Never (%)	21 (42.0)	189 (39.7)	
CCI (med, [IQR])	3.50 [2.75, 5.00]	4.00 [2.00, 5.00]	0.871
Diabetes (%)	13 (25.5)	198 (41.0)	0.045
Prior XRT (%)	10 (19.6)	66 (13.7)	0.345
Prior RALP/RRP (%)	31 (60.0)	134 (27.7)	0.001
Prior cystectomy (%)	0 (0.0)	0 (0.0)	NA
Total number of implants (med, IQR)	2.00 [1.00, 2.50]	1.00 [1.00, 2.00]	0.004



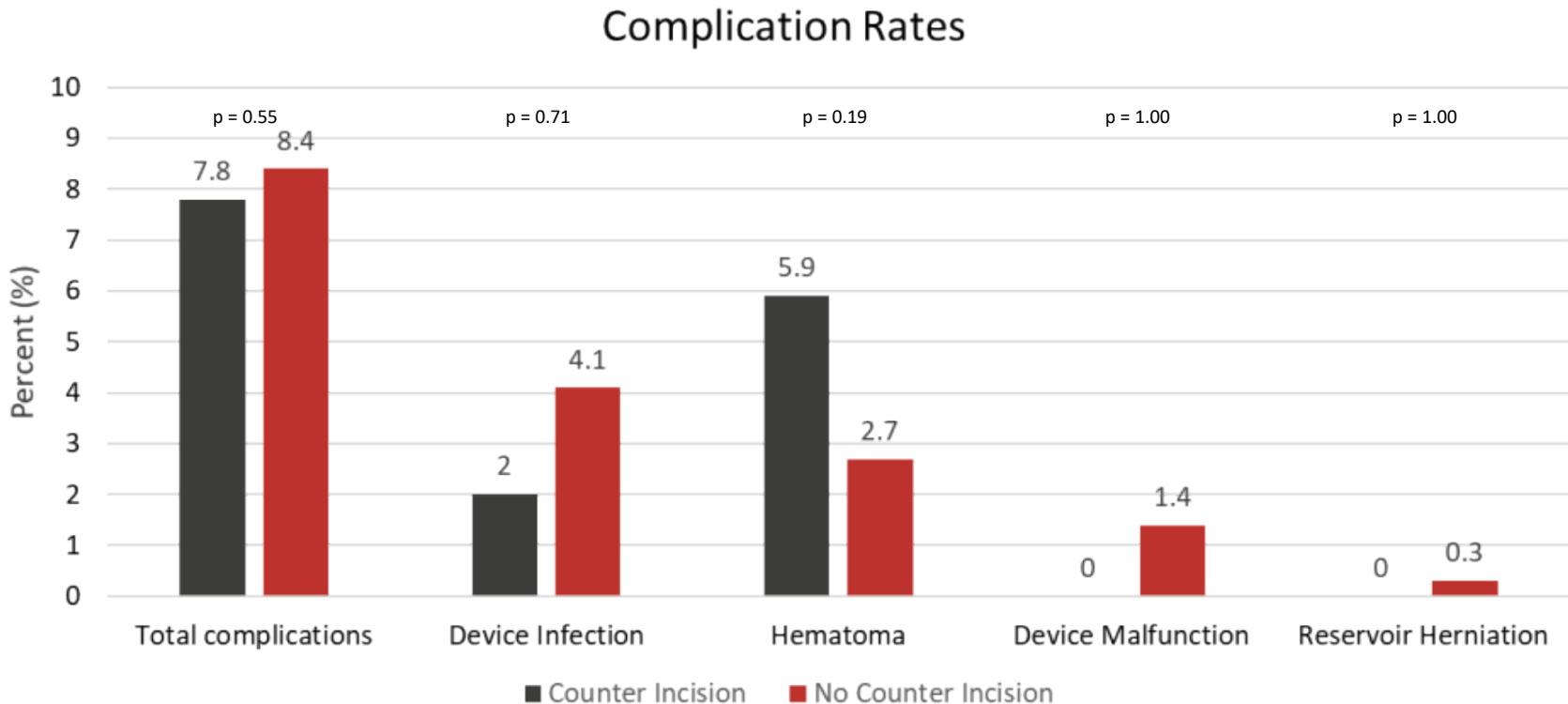
Reasons for Counter Incision





Surgical Details

	Counter Incision (n=51)	No Counter incision (n=483)	p value
Remove replace	23 (45.1)	101 (20.9)	<0.001
Approach			
Penoscrotal	48 (96.0)	420 (88.4)	0.548
Infrapubic	1 (2.0)	38 (8.0)	
Subcoronal	0 (0.0)	1 (0.2)	
Prosthesis Model			
Coloplast Titan	26 (52.0)	249 (52.9)	0.41
AMS 700 CXR	1 (2.0)	7 (1.5)	
AMS 700 LGX	10 (20.0)	62 (13.2)	
AMS 700 CX	13 (26.0)	153 (32.5)	
Conceal reservoir (AMS devices only)	13 (54.2)	43 (19.4)	0.024
Mean Operative time (minutes, [IQR])	74.00 [66.50, 88.50]	57.00 [51.00, 69.00]	<0.001





Complications – Multivariate

	Any complication		Device Infection	
	OR [95% CI]	p value	OR [95% CI]	p value
Age	0.979 [0.952, 1.010]	0.167	0.9739 [0.933, 1.027]	0.258
Smoking				
Never	1.0 (referent)	0.872	1.0 (referent)	0.617
Former	0.912 [0.314, 3.089]		0.6705 [0.151, 3.844]	
Current	1.050 [0.371, 3.489]		0.2144 [0.026, 1.475]	
Diabetes	1.340 [0.655, 2.732]	0.418	1.4347 [0.392, 5.338]	0.578
Remove and Replace	1.251 [0.414, 3.529]	0.680	0.6468 [0.069, 4.109]	0.670
Counter Incision	1.752 [0.607, 4.540]	0.269	0.7143 [0.035, 4.776]	0.770
Operative Time	1.003 [0.986, 1.018]	0.696	1.0120 [0.989, 1.036]	0.261



Conclusions

- Counter Incision is a safe and effective method for submuscular reservoir placement
 - No increase in complications despite longer operative time and high-risk cohort
- Increases prostate cancer survivors' access to 3-piece IPP



References

1. Morey, Allen F., Christopher A. Cefalu, and Steven J. Hudak. "High Submuscular Placement of Urologic Prosthetic Balloons and Reservoirs via Transscrotal Approach." *The Journal of Sexual Medicine* 10, no. 2 (2013): 603–10. <https://doi.org/10.1111/jsm.12000>.
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6. Ziegelmann, Matthew J., Boyd R. Viers, Derek J. Lomas, Mary E. Westerman, and Landon W. Trost. "Ectopic Penile Prosthesis Reservoir Placement: An Anatomic Cadaver Model of the High Submuscular Technique." *The Journal of Sexual Medicine* 13, no. 9 (2016): 1425–31. <https://doi.org/10.1016/j.jsxm.2016.06.012>.