



Hot or Cold: No Difference in Long-Term Potency Between Touch-Cautery and Athermal Suture-Ligation in Control of Pedicle During Robot-Assisted Radical Prostatectomy



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Introduction and Objective

An important outcome of robot-assisted radical prostatectomy (RARP) is preservation of sexual function. To that end, steps are taken to avoid thermal and traction injury the neurovascular bundles (NVBs) intimately associated with the prostate. After initial evidence suggesting standard desiccating electrocautery (bipolar) caused significant thermal injury to the NVBs, various athermal techniques have been offered to control the vascular pedicles, specifically clips. However, placing clips generally tracts on the NVBs. We previously published (in a porcine model) a reduction in thermal spread using non-desiccating versus desiccating thermal energy. [J Endo. 21(10): 10.1089/end.2007.9908.]

Herein, we present potency outcomes using a non-desiccating “cut and touch monopolar cautery” technique versus athermal suture-ligation.

Methods

Our prospectively maintained database was queried, selecting for all men undergoing RARP between 2007 and 2014. Men with preoperative **IIEF-5 16-25** were included. Men undergoing adjuvant therapies were excluded.

Irrigation was used to reduce thermal spread and improve visualization.

“Potency” was determined by two affirmative answers to “erectons firm enough for penetration,” and “erectons that are satisfactory.” Univariate and logistic regression analyses were used to determine independent effectors of potency recovery and whether touch-cautery was predictive of potency status.

Results – Descriptive Statistics

A total of 670 men undergoing RARP during the study period with appropriate follow up were included. Selection of ‘Touch’ cautery was technical based on “thick” prostatic pedicles, N=360. Thick pedicles do not suture easily, versus “thin” pedicles which are easy to suture ligate, N=302. Table 1 demonstrates the demographics characteristics compared between touch cautery and athermal techniques.

	Touch cautery (N=360)	Athermal (N= 302)	p-value
Age, mean (SD)	63 (7.3)	59 (6.8)	<0.005
Body Mass Index (kg/m ²)	27.2 (3.6)	26.7 (2.9)	0.03
Prostate weight (g)	57.2 (21.5)	50.4 (15.1)	<0.005
Preoperative PSA	5.7 (3)	6.0 (4.6)	0.43
Estimated Blood Loss (mL)	105.8 (35.6)	104.8 (27.7)	0.71
Preoperative IIEF-5	21.7 (3.4)	22.7 (2.8)	<0.005
GGG, no. (%)			0.270
1=3+3	88 (24.4)	81 (26.8)	
2=3+4	179 (49.7)	132 (43.7)	
3=4+3	70 (19.4)	61 (20.2)	
4=4+4	7 (2.0)	10 (3.3)	
5=9-10	16 (4.4)	18 (6.0)	
Nerve-sparing, no. (%)			0.001
Bilateral	270 (75)	257 (85)	
Unilateral	68 (19)	45 (15)	
None	20 (5.7)	1 (1)	

Results – Logistic Regression of Factors Affecting Potency

After adjustment, touch cautery did not impact potency recovery at a 15-24 month follow-up. For men of all ages with pre-op IIEF-5 16-25, at a median follow-up of 15 months, 57% and 52% recovered ESI in the touch cautery and athermal groups, respectively (p=0.508). Percent erection fullness was also similar between both groups (70% vs. 65%, p=0.060). IIEF-5 was high in both groups (14.5 and 12.9), given preoperative age and IIEF-5 distribution.

Parameter	SE	Z	p	OR	Lower	Upper
CONSTANT	1.70	2.84	0.094			
Age (cont.)	0.02	-0.07	0.000	0.93	0.90	0.96
BMI (kg/m ²) (cont.)	0.04	-0.08	0.015	0.92	0.86	0.98
Prostate Weight (cont)	0.01	-0.01	0.023	0.99	0.97	1.00
Preoperative IIEF-5 (cont)	0.04	0.02	0.000	1.20	1.12	1.29
GGG (8-10 vs. <8)	0.10	0.11	0.295	1.12	0.91	1.37
Nerve Sparing (no vs yes)	0.74	-1.07	0.147	0.35	0.08	1.46
Cautery (yes vs athermal)	0.22	-0.14	0.508	0.87	0.57	1.33

Conclusion

These findings are consistent with our previous experience in a porcine model. The heat capacity of applied ice cold irrigation reduced tissue temperatures to near physiologic levels within 4 seconds after monopolar cautery. [J Urol. 195(4): Abstract, MP 23-05, Page e262, 2016.]

Overall, the use of touch-cautery during dissection of the NVB does not impose any perceptible detriment to recovery of sexual function after RARP in men with preoperative IIEF-5 >15.