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Toscana URologia

Indicazione alle tecniche chirurgiche di Prostatectomia: Open, Laparoscopica e Laparoscopica Robot-assisted

Dr Graziano Vignolini

Chirurgia urologica robotica, mininvasiva e dei trapianti renali
AOU-Careggi

INDICATIONS FOR RADICAL PROSTATECTOMY

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European Association of Urology

Platinum Priority – Review – Prostate Cancer
Editorial by Peter C. Albertsen on pp. 365–367 of this issue

Best Practices in Robot-assisted Radical Prostatectomy: Recommendations of the Pasadena Consensus Panel

Francesco Montorsi[a,], Timothy G. Wilson[b], Raymond C. Rosen[c], Thomas E. Ahlering[d], Walter Artibani[e], Peter R. Carroll[f], Anthony Costello[g], James A. Eastham[h], Vincenzo Ficarra[i], Giorgio Guazzoni[j], Mani Menon[k], Giacomo Novara[i], Vipul R. Patel[l], Jens-Uwe Stolzenburg[m], Henk Van der Poel[n], Hein Van Poppel[o], Alexandre Mottrie[p]*

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Table 1 – Indications for radical prostatectomy according to international guidelines

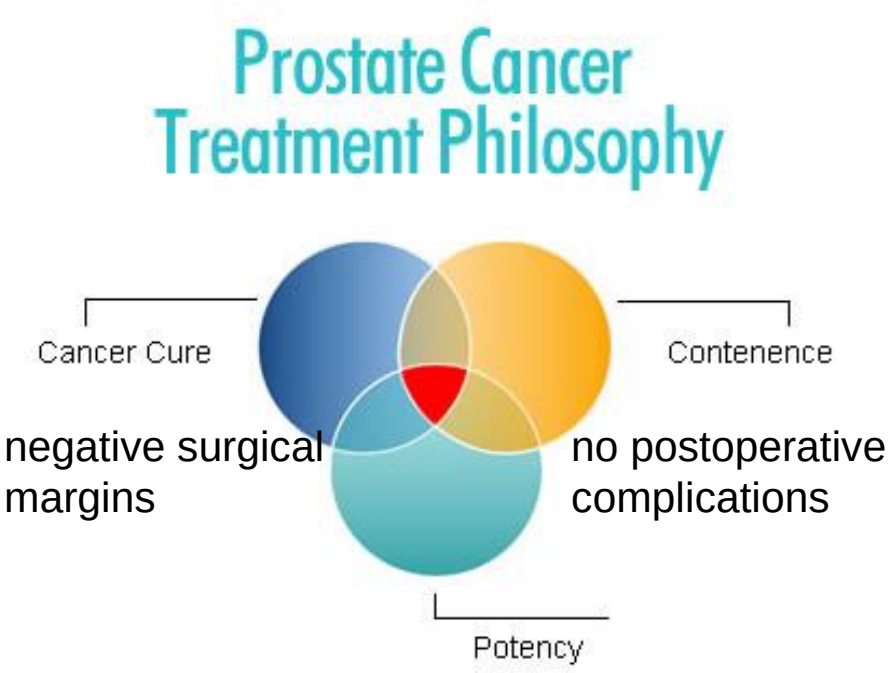
American Urological Association, 2007 [20]	European Association of Urology, 2011 [34]	National Comprehensive Cancer Network, 2011 [15]
Low-risk localized PCa Intermediate-risk localized PCa High-risk localized PCa	Low- and intermediate-risk localized PCa and a life expectancy >10 yr Patients with stage T1a disease and a life expectancy >15 yr or GS 7 Selected patients with low-volume high-risk localized PCa Highly selected patients with very high-risk localized PCa (cT3b–T4 N0 or any T N1) in the context of multimodal treatment	Very low-risk cancer (T1c, GS ≤6, PSA <10, <3 positive prostate biopsy cores, ≤50% cancer in any core) and life expectancy >20 yr Low- and intermediate-risk patients with life expectancy survival >10 yr High-risk and very high-risk (T3b–4) patients

PCa = prostate cancer; GS = Gleason score; PSA = prostate-specific antigen.

Recommendation
No definitive recommendation can be provided for specific preventive or dietary measures to reduce the risk of developing prostate cancer.

Table 4.2.2: EAU risk groups for biochemical recurrence of localised and locally advanced prostate cancer

Definition			
Low-risk	**Intermediate-risk**	**High-risk**	
PSA < 10 ng/mL and GS < 7 (ISUP Grade 1) and cT1-2a	PSA 10-20 ng/mL or GS 7 (ISUP Grade 2/3) or cT2b	PSA > 20 ng/mL or GS > 7 (ISUP Grade 4/5) or cT2c	any PSA any GS cT3-4 or cN+ Any ISUP Grade
Localised			**Locally advanced**



European Urology

European Urology 44 (2003) 656–660

Combined Reporting of Cancer Control and Functional Results of Radical Prostatectomy☆

Laurent Salomon[a,*], Fabien Saint[a], Aristotelis G. Anastasiadis[b], Philippe Sebe[a], Dominique Chopin[a], Clément-Claude Abbou[a]

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TRIFECTA: a score to jointly evaluate and report cancer control and functional results

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Platinum Priority – Prostate Cancer

Editorial by James A. Eastham and Peter T. Scardino on pp. 708–709 of this issue

Pentafecta: A New Concept for Reporting Outcomes of Robot-Assisted Laparoscopic Radical Prostatectomy

Vipul R. Patel[a,], Ananthakrishnan Sivaraman[a], Rafael F. Coelho[a,b,c], Sanket Chauhan[a], Kenneth J. Palmer[a], Marcelo A. Orvieto[a], Ignacio Camacho[a], Geoff Coughlin[a], Bernardo Rocco[a,d]*

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PENTAFECTA: A more comprehensive approach for reporting prostate surgery outcomes

NEGATIVE SURGICAL MARGINS

LOW RATE OF COMPLICATIONS

NO BIOCHEMICAL RECURRENCE

ROBOT ASSISTED RADICAL PROSTATECTOMY

CONTINENCE

POTENCY

RISK FACTORS FOR URINARY INCONTINENCE FOLLOWING RADICAL PROSTATECTOMY

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Best Practices in Robot-assisted Radical Prostatectomy: Recommendations of the Pasadena Consensus Panel

Francesco Montorsi[a,], Timothy G. Wilson[b], Raymond C. Rosen[c], Thomas E. Ahlering[d], Walter Artibani[e], Peter R. Carroll[f], Anthony Costello[g], James A. Eastham[h], Vincenzo Ficarra[i], Giorgio Guazzoni[j], Mani Menon[k], Giacomo Novara[i], Vipul R. Patel[l], Jens-Uwe Stolzenburg[m], Henk Van der Poel[n], Hein Van Poppel[o], Alexandre Mottrie[p]*

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Table 7 – Risk factors for urinary incontinence following robot-assisted radical prostatectomy

Increased age
Obesity [81]
Short membranous urethral length on both preoperative and postoperative endorectal magnetic resonance imaging [97]
Postprostatectomy anastomotic strictures [98]
Low institutional and/or surgeon caseload [99]
Neurovascular bundles not preserved [100]
Bladder neck injured or not preserved [101]
Large prostate [102]

CONTINENCE

A recent prospective, controlled, nonrandomised trial on **2431** patients undergoing prostatectomy in 14 centres using RALP or RRP.

Table 1b – Urinary incontinence measured by various definitions as reported by patients 12 mo after surgery

Definition of urinary incontinence	Open surgery, *n* (%)	Robot-assisted surgery, *n* (%)	Adjusted A, OR (95% CI) *	Adjusted B, OR (95% CI) †	Adjusted C, OR (95% CI) ‡
Change of pad § at least once per 24 h (primary end point)	144 (20)	366 (21)	1.21 (0.96–1.54)	1.24 (0.96–1.60)	1.31 (1.01–1.70)
Not pad free § and not leakage free	399 (56)	978 (57)	1.14 (0.94–1.37)	1.18 (0.96–1.44)	1.20 (0.98–1.47)
Urinary leakage daytime	252 (35)	606 (35)	1.13 (0.93–1.38)	1.16 (0.94–1.44)	1.19 (0.96–1.48)
Any urinary leakage daytime	367 (51)	902 (52)	1.14 (0.95–1.38)	1.16 (0.95–1.42)	1.19 (0.97–1.45)
Do you have urinary leakage?	117 (17)	310 (18)	1.28 (0.99–1.65)	1.32 (1.00–1.73)	1.38 (1.05–1.83)
Urinary discomfort	261 (37)	592 (35)	0.96 (0.79–1.17)	0.95 (0.77–1.17)	0.98 (0.79–1.21)

CI = confidence interval; OR = odds ratio.
Information on unadjusted risk and ORs is available in Supplementary Table 2.
* Adjusted A: adjusted for age at surgery, inguinal hernia, abdominal surgery, diabetes, pulmonary disease, mental disorder, prostate weight.
† Adjusted B: adjusted for same as A plus all four preoperative tumour factors.
‡ Adjusted C: adjusted for same as A plus B plus degree of neurovascular bundle preservation.
§ To determine use of protective measure against urinary leakage (eg, pads), patients were asked, "How many times do you change pad, diaper or other sanitary protection during a typical 24 hours?" The following responses were available: "Not applicable, I do not use pad, diaper or a sanitary protection," "Less than once per 24 hours," "About once per 24 hours," "About two to three times per 24 hours," "About four to five times per 24 hours," or "About six times or more per 24 hours" [24].

At 12 months the continence functional outcomes were similar between Patients treated with RALP and ORP

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Platinum Priority – Review – Prostate Cancer
Editorial by Peter C. Albertsen on pp. 365–367 of this issue

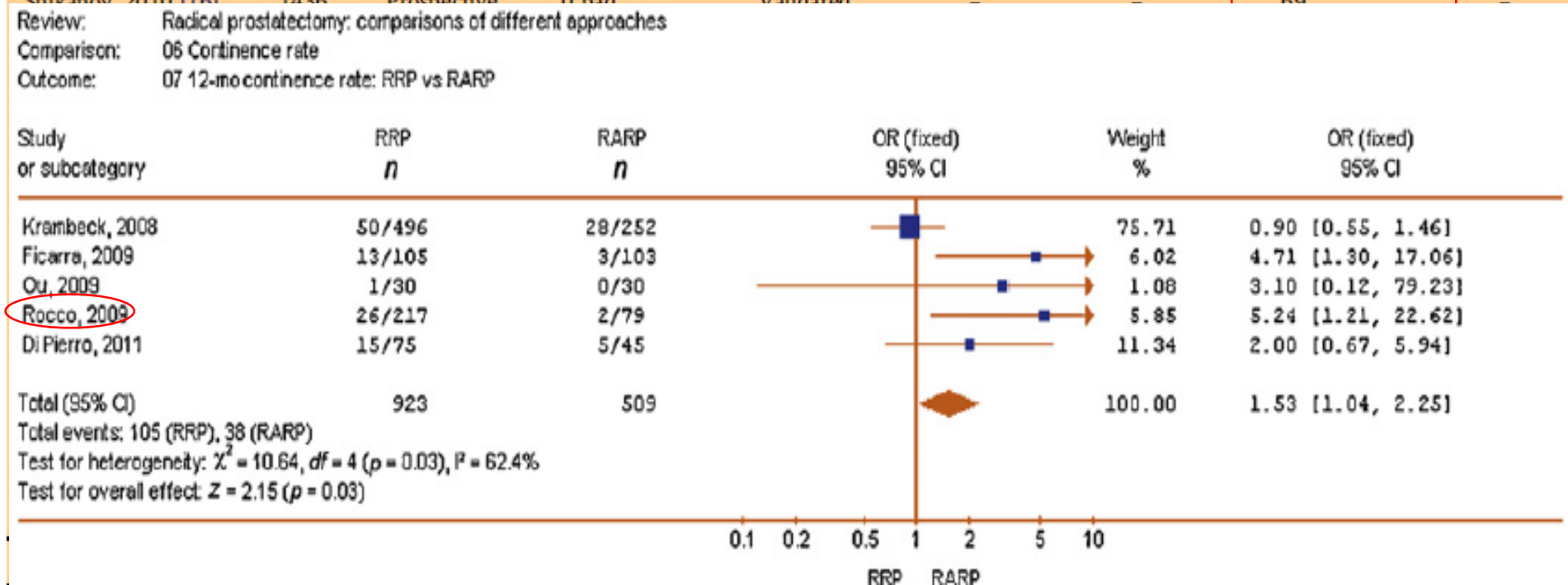
EUROPEAN UROLOGY 62 (2012) 405–417

Systematic Review and Meta-analysis of Studies Reporting Urinary Continence Recovery After Robot-assisted Radical Prostatectomy

Vincenzo Ficarra[a,b,], Giacomo Novara[a], Raymond C. Rosen[c], Walter Artibani[d], Peter R. Carroll[e], Anthony Costello[f], Mani Menon[g], Francesco Montorsi[h], Vipul R. Patel[i], Jens-Uwe Stolzenburg[j], Henk Van der Poel[k], Timothy G. Wilson[l], Filiberto Zattoni[a], Alexandre Mottrie[b]*

Table 1 – Urinary continence rates reported in the robot-assisted radical prostatectomy series including <100 cases and published between 2008 and 2011

First author	Cases	Study design	Continence definition	Data collection	Urinary continence rates, %			
					3 mo	6 mo	12 mo	24–36 mo
Finley, 2009 [13]	666	Prospective case series	0 pad	Validated questionnaire	69	–	–	–
Lee, 2010 [14]	107	Prospective case series	0 pad	Not reported	–	–	91	–
Novara, 2010 [15]	308	Prospective case series	0 pad	Validated questionnaire	–	–	90	–
Shikanov, 2010 [16]	1436	Prospective	0 pad	Validated	–	–	69	–



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EUROPEAN UROLOGY 62 (2012) 405–417

Table 7 – Studies comparing urinary continence recovery after robot-assisted radical prostatectomy or laparoscopic radical prostatectomy

First author	Cases, *n*	Study design	Continence definition	Data collection	Urinary continence recovery, %	
					6 mo	12 mo
Asimakopoulos, 2011 [51]	LRP, 64 RARP, 52	RCT	0 pad	Interview	– 	83 94
Joseph, 2005 [12]	LRP, 50 RARP, 50	Historical control	0 pad	Interview	92 90	–
Lee, 2009 [52]	LRP, 31 RARP, 21	Retrospective, contemporary series	0–1 safety pad	Institutional questionnaire	81 81	–
Park, 2011 [53]	LRP, 62 RARP, 44	Retrospective, contemporary series	0–1 safety pad	Interview	76 93	95 94
Caballero, 2008 [49]	LRP, 70 RARP, 60	Historical control	0 pad	Unspecified	64 40	–
Cho, 2009 [54]	LRP, 60 RARP, 60	Historical control	0–1 safety pad	Interview	71 93	100 100
Hakimi, 2009 [55]	LRP, 75 RARP, 75	Historical control	0 pad	Unspecified	– 	9 93
Trabulsi, 2010 [56]	LRP, 45 RARP, 205	Historical control	0–1 safety pad	Unspecified	71 91	82 94

LRP = laparoscopic radical prostatectomy; RARP = robot-assisted radical prostatectomy; RCT = randomized controlled trial.

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Prostate Cancer

Five-year Outcomes for a Prospective Randomised Controlled Trial Comparing Laparoscopic and Robot-assisted Radical Prostatectomy

Francesco Porpiglia[*], Cristian Fiori, Riccardo Bertolo, Matteo Manfredi, Fabrizio Mele, Enrico Checcucci, Stefano De Luca, Roberto Passera, Roberto Mario Scarpa

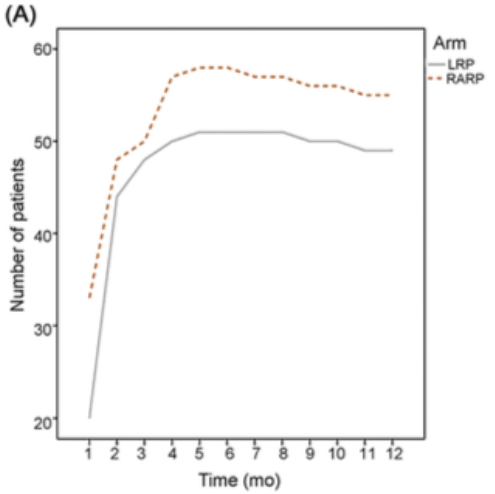


Table 2 – Continence and potency rates at single time points overall and by arm, and repeated-measures multivariate logistic regression results

	All patients (*n* = 120)	LRP (*n* = 60)	RARP (*n* = 60)	OR (95% CI)	*p* value
Continence					
Model intercept				0.55 (0.34–0.90)	0.018
Continence at 1 mo	53/120 (44.2%)	20/60 (33.3%)	33/60 (55.0%)	1.00	
Continence at 3 mo	92/120 (76.7%)	44/60 (73.3%)	48/60 (80.0%)	4.41 (2.82–6.89)	<0.001
Continence at 6 mo	98/119 (82.4%)	48/59 (81.4%)	50/60 (83.3%)	6.10 (3.66–10.15)	<0.001
Continence at 12 mo	107/120 (89.2%)	50/60 (83.3%)	57/60 (95.0%)	11.01 (5.96–20.34)	<0.001
Continence at 18 mo	109/120 (90.8%)	51/60 (85.0%)	58/60 (96.7%)	13.28 (6.89–25.59)	<0.001
Continence at 24 mo	109/120 (90.8%)	51/60 (85.0%)	58/60 (96.7%)	13.18 (6.90–25.19)	<0.001
Continence at 30 mo	108/119 (90.8%)	51/60 (85.0%)	57/59 (96.6%)	13.09 (6.89–24.85)	<0.001
Continence at 36 mo	108/118 (90.8%)	51/59 (86.4%)	57/59 (96.6%)	14.49 (7.42–28.33)	<0.001
Continence at 42 mo	106/116 (91.4%)	50/58 (86.2%)	56/58 (96.6%)	14.36 (7.38–27.91)	<0.001
Continence at 48 mo	106/116 (91.4%)	50/58 (86.2%)	56/58 (96.6%)	14.24 (7.36–27.56)	<0.001
Continence at 54 mo	104/115 (90.4%)	49/58 (84.5%)	55/57 (96.5%)	12.65 (6.78–23.62)	<0.001
Continence at 60 mo	104/115 (90.4%)	49/58 (84.5%)	55/57 (96.5%)	12.56 (6.75–23.39)	<0.001
Arm (RARP vs LRP)				2.47 (1.15–5.31)	0.021

EAU Guidelines on Robotic and Single-site Surgery in Urology

Axel S. Merseburger[a,*], *Thomas R.W. Herrmann*[a], *Shahrokh F. Shariat*[b], *Iason Kyriazis*[c], *Udo Nagele*[d], *Olivier Traxer*[e], *Evangelos N. Liatsikos*[c]

Table 5 – Conclusions and recommendations on incontinence outcomes of robot-assisted radical prostatectomy

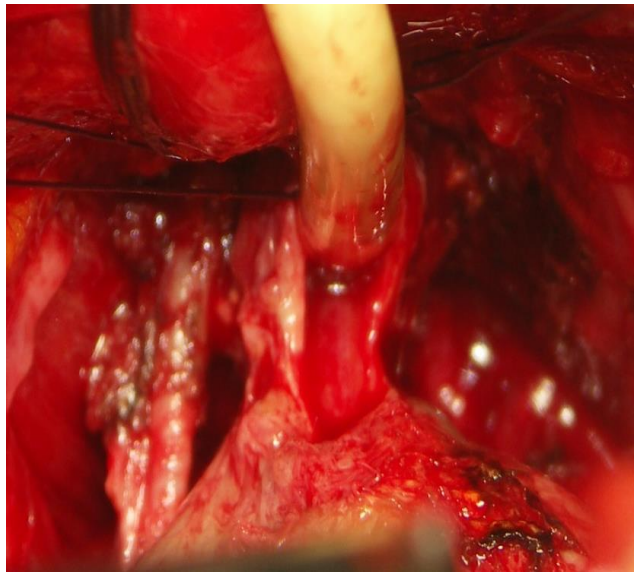
Conclusions	LE
RARP for localized prostate cancer is a surgical approach offering high continence rates, at least comparable to ORP and LRP.	2a
Experienced robotic surgeons achieve good early continence results.	3b
There is a trend towards faster recovery of continence after RARP in comparison with ORP and LRP.	3b
Recommendations	**GR**
To achieve better early continence results, the use of robotic technique is recommended.*	C

GR = grade of recommendation; LE = level of evidence; LRP = laparoscopic radical prostatectomy; ORP = open radical prostatectomy; RARP = robot-assisted radical prostatectomy.

* Robotic surgery does not improve oncologic outcomes; surgical expertise does.

OUR FUNCTIONAL RESULTS 2010 J – 2016 D

URINARY CONTINENCE (zero pad)	Open (1)	Robot (2)	P
1° month	239/523 (45.7%)	1100/1688 (65.2 %)	**0.0041**
3° month	392/502 (78.1 %)	831/1006 (82.6 %)	0.062
6° month	425/489 (86.9 %)	816/921 (88.5 %)	0.542
12° month	413/450 (91.7 %)	811/858 (94.5 %)	0.359



NEGATIVE SURGICAL MARGINS

LOW RATE OF COMPLICATIONS

NO BIOCHEMICAL RECURRENCE

ROBOT ASSISTED RADICAL PROSTATECTOMY

CONTINENCE

POTENCY

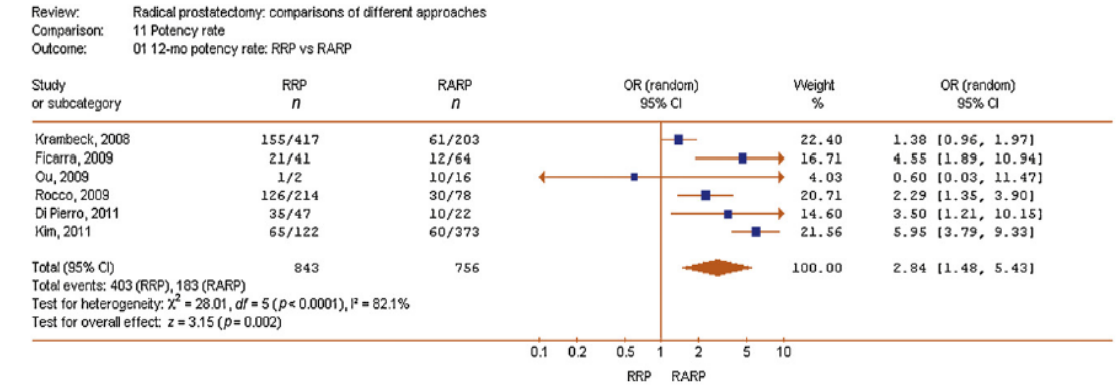


Fig. 2 – Cumulative analyses of 12-mo potency rates following robot-assisted radical prostatectomy or retropubic radical prostatectomy. CI = confidence interval; OR = odds ratio; RARP = robot-assisted radical prostatectomy; RRP = retropubic radical prostatectomy.

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Platinum Priority – Review – Prostate Cancer
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Systematic Review and Meta-analysis of Studies Reporting Potency Rates After Robot-assisted Radical Prostatectomy

Vincenzo Ficarra[a,b,], Giacomo Novara[a], Thomas E. Ahlering[c], Anthony Costello[d], James A. Eastham[e], Markus Graefen[f], Giorgio Guazzoni[g], Mani Menon[h], Alexandre Mottrie[b], Vipul R. Patel[i], Henk Van der Poel[j], Raymond C. Rosen[k], Ashutosh K. Tewari[l], Timothy G. Wilson[m], Filiberto Zattoni[a], Francesco Montorsi[g]*

POTENCY

Table 4 – Studies comparing potency recovery after robot-assisted radical prostatectomy or retropubic radical prostatectomy

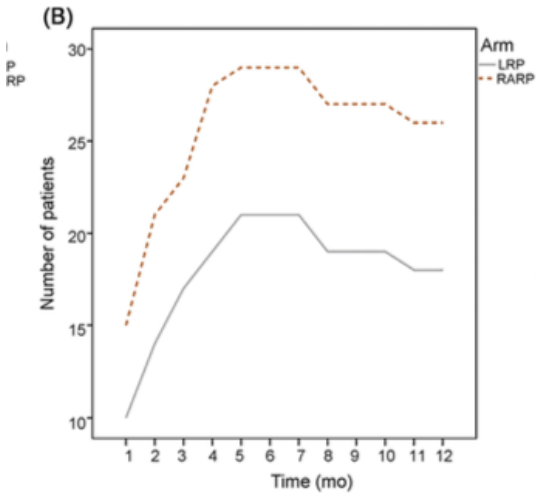
Level of evidence	First author	Cases, n	Patient characteristics (RARP)	Surgical aspects (RARP)	Study design	Potency definition	Data collection	12 mo, %	24 mo, %
3	Tewari, 2003 [17]	RRP (100) RARP (200)	–	–	Prospective comparison	Presence of erection	Interview	Median: 440 d Median: 180 d	
3	Ficarra, 2009 [42]	RRP (41) RARP (64)	Mean age: 61 yr Preoperatively potent Bilateral NS	Intrafascial Clipless (monopolar dissection)	Prospective comparison	SHIM >17	Validated questionnaire	49 81	–
3	Di Pierro, 2011 [43]	RRP (47) RARP (22)	Mean age: 62 yr Preoperatively potent Bilateral NS	Interfascial Athermal	Prospective comparison	ESI	Institutional questionnaire	26 55	–
3	Kim, 2011 [44]	RRP (122) RARP (373)	Mean age: 64 yr Preoperatively potent Mono/bilateral NS	Athermal dissection	Prospective comparison	ESI	Validated questionnaire	28 57	47 84
4	Krambeck, 2009 [45]	RRP (417) RARP (203)	Mean age: 61 yr Preoperatively potent Mono/bilateral NS	Interfascial Clipless (monopolar cautery)	Retrospective, contemporary series	ESI	Institutional questionnaire	63 70	–
4	Rocco, 2009 [46]	RRP (214) RARP (78)	Mean age: 63 yr Preoperatively potent	Athermal dissection	Historical control	ESI	Interview	41 61	–
4	Ou, 2009 [47]	RRP (2) RARP (16)	Mean age: 67 yr Preoperatively potent Mono/bilatateral NS	Athermal dissection	Retrospective contemporary series	ESI	Unspecified	50 60	–

ESI = erection sufficient for intercourse; NS = nerve sparing; RARP = robot-assisted radical prostatectomy; RRP = retropubic radical prostatectomy; SHIM = Sexual Health Inventory for Men.

The cumulative analysis of available comparative studies demonstrates significant advantages in **favor of RARP** in comparison with RRP.

Five-year Outcomes for a Prospective Randomised Controlled Trial Comparing Laparoscopic and Robot-assisted Radical Prostatectomy

Francesco Porpiglia *, *Cristian Fiori, Riccardo Bertolo, Matteo Manfredi, Fabrizio Mele, Enrico Checcucci, Stefano De Luca, Roberto Passera, Roberto Mario Scarpa*



riencing recovery of (A) urinary continence and (B) potency.
prostatectomy.

Table 2 – Continence and potency rates at single time points overall and by arm, and repeated-measures multivariate logistic regression results

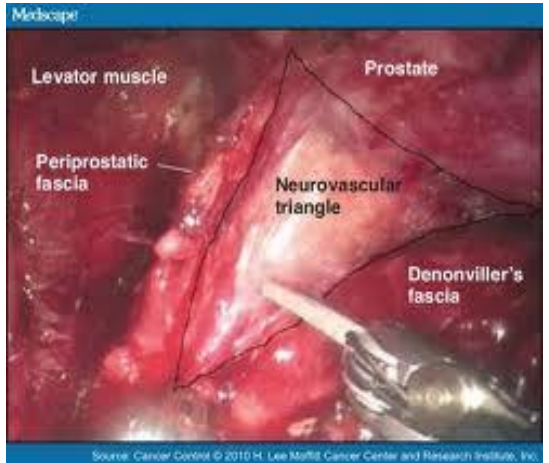
	All patients (n = 120)	LRP (n = 60)	RARP (n = 60)	OR (95% CI)	p value
Potency					
Model intercept				0.34 (0.18–0.65)	0.001
Potency at 1 mo	25/70 (35.7%)	10/35 (28.6%)	15/35 (42.9%)	1.00	
Potency at 3 mo	35/70 (50.0%)	14/35 (40.0%)	21/35 (60.0%)	1.84 (1.29–2.63)	0.001
Potency at 6 mo	40/70 (57.1%)	17/35 (48.6%)	23/35 (65.7%)	2.47 (1.62–3.78)	<0.001
Potency at 12 mo	47/70 (67.1%)	19/35 (54.3%)	28/35 (80.0%)	3.86 (2.29–6.52)	<0.001
Potency at 18 mo	50/70 (71.4%)	21/35 (60.0%)	29/35 (82.9%)	4.80 (2.78–8.27)	<0.001
Potency at 24 mo	50/70 (71.4%)	21/35 (60.0%)	29/35 (82.9%)	4.82 (2.80–8.30)	<0.001
Potency at 30 mo	50/70 (71.4%)	21/35 (60.0%)	29/35 (82.9%)	4.84 (2.81–8.33)	<0.001
Potency at 36 mo	46/70 (65.7%)	19/35 (54.3%)	27/35 (77.1%)	3.68 (2.03–6.68)	<0.001
Potency at 42 mo	46/70 (65.7%)	19/35 (54.3%)	27/35 (77.1%)	3.70 (2.04–6.70)	<0.001
Potency at 48 mo	46/70 (65.7%)	19/35 (54.3%)	27/35 (77.1%)	3.71 (2.05–6.72)	<0.001
Potency at 54 mo	44/70 (62.9%)	18/35 (51.4%)	26/35 (74.3%)	3.27 (1.79–5.95)	<0.001
Potency at 60 mo	44/70 (62.9%)	18/35 (51.4%)	26/35 (74.3%)	3.27 (1.85–5.79)	<0.001
Arm (RARP vs LRP)	–			2.35 (1.10–5.03)	0.028

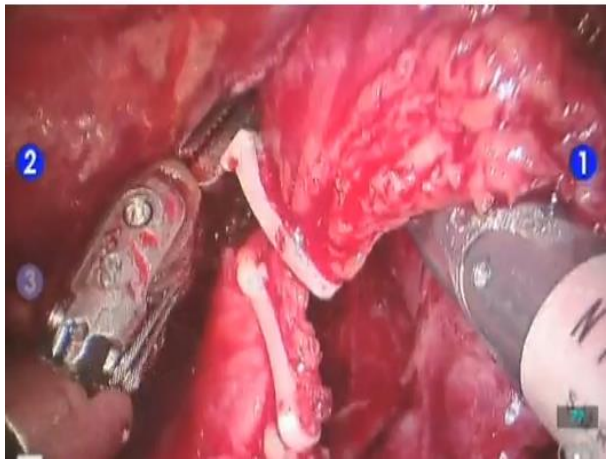
HR = hazard ratio; CI = confidence interval; RARP = robot-assisted radical prostatectomy; LRP = laparascopic radical prostatectomy.

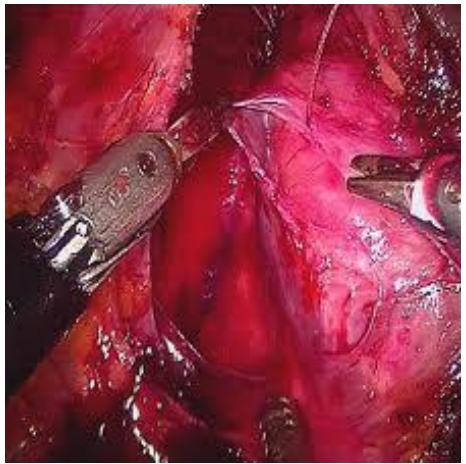
OUR FUNCTIONAL RESULTS

2010 J – 2016 D

	Open (1)	RALP (2)	P
NS Bilateral 6 – months potency rate:	181/489 (37%) **138/181 (76.2%)**	658/921 (71.4%) **510/651 (78.2%)**	**0.14**
NS Monolateral 6 – months potency rate:	131/489 (26,8%) **55/131 (42.0%)**	177/921 (19.2%) **108/177 (61.0%)**	**0.032**







NEGATIVE SURGICAL MARGINS

LOW RATE OF COMPLICATIONS

NO BIOCHEMICAL RECURRENCE

ROBOT ASSISTED RADICAL PROSTATECTOMY

CONTINENCE

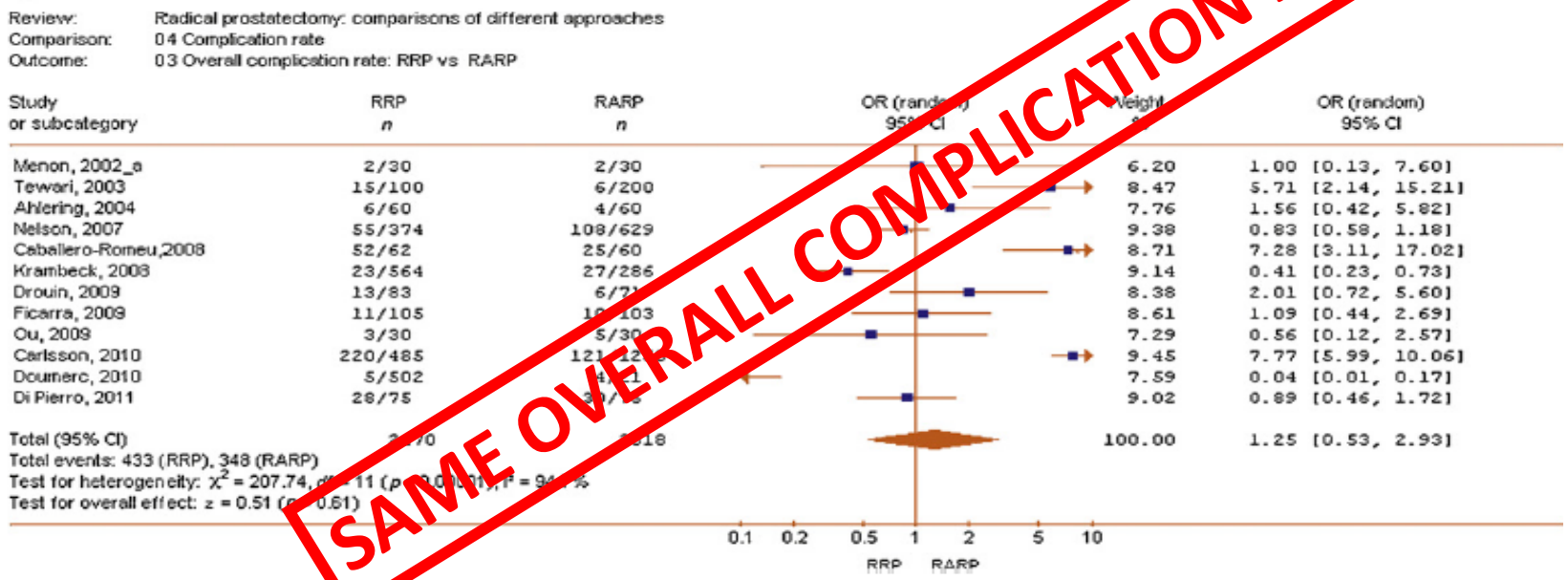
POTENCY

COMPLICATIONS

Table 9 – Perioperative parameters and complication rates after retropubic radical prostatectomy and robot-assisted radical prostatectomy

Level of evidence	First author	Cases	Operative time, min, median/mean	Blood loss, ml, median/mean	Transfusion rate, %	Catheterization duration, d (range)	In-hospital stay, d (range)	Overall complication rate, %
3	Ficarra, 2009 [64]	105 RRP	135	500	14	6	7	13
		103 RARP	185	300	2	5	6	10
	Carlsson, 2010 [65]	485 RRP	–	–	–	–	–	45
		1253 RARP						10
	Doumerc, 2010 [66]	502 RRP	148 (75–330)	–	2	7.9 (6–20)	5.5 (3–10)	1
		212 RARP	192 (119–525)		1	6.3 (6–21)	2.8 (2–7)	2
	Kordan, 2010 [67]	414 RRP	–	450 (300–600)	3.4	–	–	–
		830 RARP		100 (50–200)	0.8			
	Di Pierro, 2011 [68]	75 RRP	253 ± 41	–	3	–	–	37
		75 RARP	330 ± 54		0			40
4	Caballero-Romeu, 2008 [69]	62 RRP	210 (160–240)	1500 (1200–2000)	81	22 (19–26)	8 (7–9)	84
		60 RARP	210 (158–240)	400 (213–500)	11	12 (11–14)	5 (4–6)	42
	Drouin, 2009 [70]	83 RRP	208 ± 76	821 ± 582	10	14.7	7	16
		71 RARP	199 ± 36	310 ± 205	6	8.1	4.4	8
	Ou, 2009 [71]	30 RRP	213 ± 37	912 ± 370	60	9.2 ± 2.8	8.4 ± 2.2	10
		30 RARP	205 ± 102	314 ± 284	13	7.7 ± 2	7.3 ± 2.3	17
	Rocco, 2009 [72]	240 RRP	160	800	–	7	6	–
		120 RARP	215	200		6	3	
	Breyer, 2010 [73]	695 RRP	–	–	8	–	–	–
		293 RARP			1			
	Lo, 2010 [74]	20 RRP	289 ± 64	–	65	18 ± 7	17	–
		20 RARP	306 ± 85		5	12 ± 7	8 ± 6	
	Truesdale, 2010 [75]	217 RRP	204 ± 33	904 ± 615	–	–	–	–
		99 RARP	153 ± 51	160 ± 105				

RARP = robot-assisted radical prostatectomy; RRP = retropubic radical prostatectomy.



SAME OVERALL COMPLICATION RATE

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REDUCED BLOOD LOSS

Review: Radical prostatectomy: comparisons of different approaches
Comparison: 02 Blood loss
Outcome: 03 Blood loss: RRP vs RARP

Study or subcategory	n	RRP Mean (SD)	n	RARP Mean (SD)	WMD (random) 95% CI	Weight %	WMD (random) 95% CI
Farnham, 2006	103	664.00 (417.00)	176	191.00 (134.00)		27.27	473.00 [390.07, 555.93]
Drouin, 2009	83	821.00 (582.00)	71	310.00 (205.00)		23.95	511.00 [377.02, 644.98]
Ou, 2009	30	912.00 (370.00)	30	314.00 (284.00)		21.59	598.00 [431.09, 764.91]
Truesdale, 2010	217	904.00 (615.00)	99	160.00 (105.00)		27.19	744.00 [659.60, 828.40]
Total (95% CI)	433		376			100.00	582.77 [435.25, 730.29]

Test for heterogeneity: $\chi^2 = 21.76$, $df = 3$ ($p < 0.0001$), $I^2 = 86.2\%$
Test for overall effect: $z = 7.74$ ($p < 0.00001$)

−1000 −500 0 500 1000
RRP RARP

REDUCED TRANSFUSION RATE

Review: Radical prostatectomy: comparisons of different approaches
Comparison: 03 Transfusion rate
Outcome: 03 Transfusion rate: RRP vs RARP

Study or subcategory	RRP n	RARP n	OR (random) 95% CI	Weight %	OR (random) 95% CI
Menon,2002_b	5/30	2/30		7.11	2.80 [0.50, 15.73]
Tewari, 2003	67/100	0/200		4.29	807.99 [48.84, 13367.04]
Ahlering, 2004	1/60	0/60		3.57	3.05 [0.12, 76.39]
Farnham, 2006	3/103	1/176		5.49	5.25 [0.54, 51.15]
Caballero-Romeu,2008	50/62	7/60		9.64	31.55 [11.50, 86.54]
Krambeck, 2008	77/564	15/286		11.03	2.86 [1.61, 5.07]
Drouin, 2009	8/83	4/71		8.79	1.79 [0.51, 6.20]
Ficarra, 2009	15/105	2/103		7.87	8.42 [1.87, 37.82]
Ou, 2009	18/30	4/30		8.66	9.75 [2.71, 35.11]
Breyer, 2010	54/695	1/293		6.30	24.60 [3.39, 178.68]
Doumerc, 2010	10/502	2/212		7.78	2.13 [0.46, 9.82]
Kordan, 2010	14/414	7/830		9.97	4.12 [1.65, 10.28]
Lo, 2010	13/20	1/20		5.66	35.29 [3.87, 321.93]
Di Pierro, 2011	2/75	0/75		3.84	5.14 [0.24, 108.81]
Total (95% CI)	2843	2446		100.00	7.55 [3.65, 15.64]

Total events: 337 (RRP), 46 (RARP)
Test for heterogeneity: $\chi^2 = 45.01$, $df = 13$ ($p < 0.0001$), $I^2 = 71.1\%$
Test for overall effect: $z = 5.44$ ($p < 0.00001$)

0.01 0.1 1 10 100
RRP RARP

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OUR PERIOPERATIVE COMPLICATIONS

2010 J – 2016 D

Perioperative complications (INTRA + POST)	OPEN (1)	ROBOT (2)	*P*
Conversion to open	-	3/1198 (0,1%)	-
Bleeding requiring transfusion	18/523 (3,4%)	15/1688 (0,9%)	0.04
Bleeding requiring reintervention	3/523 (0,6%)	3/1688(0,17%)	-
Infections	18/523 (3,4%)	67/1688 (4,0%)	0.55
Drain leakage for urine fistula *	18/523 (3,4%)	25/1688 (1,4%)	0.5
Reintervention for urine fistula	0	0	-
Lymphoceles	39/523 (9,2%)	219/1688 (13,3%)	0.1
Thrombosis/Embolisms	6/523 (1,1%)	20/1688(1,2%)	0.74
Bowel lesions (suture)	4/523 (0,7%)	5/1688 (0,29%)	0.65

* Ratio drainage creatinine/serum creatinine ≥ 2

NEGATIVE SURGICAL MARGINS

LOW RATE OF COMPLICATIONS

NO BIOCHEMICAL RECURRENCE

ROBOT ASSISTED RADICAL PROSTATECTOMY

CONTINENCE

POTENCY

SURGICAL MARGINS

EUROPEAN UROLOGY 62 (2012) 1–15

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European Association of Urology

Platinum Priority – Review – Prostate Cancer
Editorial by Quoc-Dien Trinh, Khurshid R. Ghani and Mani Menon on pp. 16–18 of this issue

Positive Surgical Margin and Perioperative Complication Rates of Primary Surgical Treatments for Prostate Cancer: A Systematic Review and Meta-Analysis Comparing Retropubic, Laparoscopic, and Robotic Prostatectomy

Ashutosh Tewari[a,], Prasanna Sooriakumaran[a,b], Daniel A. Bloch[c], Usha Seshadri-Kreaden[d], April E. Hebert[d], Peter Wiklund[b]*

Table 4 – Primary outcomes: comparison of positive surgical margin and overall complication rates

Primary outcome	Unadjusted estimates						Propensity-adjusted estimates					
	Weighted averages			Unadjusted *p* value			Adjusted differences[a]			Adjusted *p* value		
	ORP	LRP	RALP	ORP vs LRP	ORP vs RALP	LRP vs RALP	ORP minus LRP	ORP minus RALP	LRP minus RALP	ORP vs LRP	ORP vs RALP	LRP vs RALP
PSM rate												
Overall PSM, %												
Cohorts (patients), *n*	61 (47 103)	81 (33 180)	73 (28 950)	0.007*	<0.0001*	<0.0001*	2.24	0.29	3.02	0.13	0.79	0.002*
Mean (SD)	24.2 (9.8)	20.4 (5.0)	16.2 (5.6)				−0.7 to 5.2	−1.9 to 2.4	1.1–5.0			
95% CI	21.7–26.6	19.3–21.5	14.9–17.5									
pT2 PSM, %												
Cohorts (patients), *n*	61 (47 103)	81 (33 180)	73 (28 950)	0.004*	<0.0001*	0.002*	0.15	0.17	2.54	0.57	0.86	0.01*
Mean (SD)	16.6 (8.8)	13.0 (4.4)	10.7 (4.7)				−1.7 to 2.0	−1.7 to 2.0	0.5–4.6			
95% CI	14.4–18.8	12.0–14.0	9.7–11.7									
pT3 PSM, %												
Cohorts (patients), *n*	61 (47 103)	81 (33 180)	73 (28 950)	0.16	0.016*	0.10	−2.97	−3.91	3.34	0.07	0.03	0.05
Mean (SD)	42.6 (14.4)	39.7 (8.8)	37.2 (10.2)				−6.2 to 0.2	−7.3 to −0.5	0.05–6.6			
95% CI	39.0–46.2	37.8–41.6	34.7–39.5									
Complication rates												
Total intraoperative												
Cohorts (patients), *n*	39 (16 647)	57 (16 389)	42 (14 309)	0.79	0.0005*	<0.0001*	−0.32	1.15	1.10	0.93	<0.0001*	<0.0001*
Mean (SD)	1.5 (1.6)	1.6 (1.9)	0.4 (0.5)				−1.0 to 0.4	0.7–1.6	0.7–1.5			
95% CI	1.0–2.0	1.1–2.1	0.4–0.7									
Total perioperative												
Cohorts (patients), *n*	39 (16 647)	57 (16 389)	42 (14 309)	0.0008*	<0.0001*	0.04*	5.24	13.76	6.74	0.08	<0.0001*	0.002*
Mean (SD)	17.9 (9.1)	11.1 (9.6)	7.8 (6.3)				−0.7 to 11.1	9.5–18.0	2.6–10.9			
95% CI	15.0–20.8	8.6–13.6	5.9–9.7									

ORP = open retropubic radical prostatectomy; LRP = laparoscopic radical prostatectomy; RALP = robot-assisted laparoscopic radical prostatectomy; PSM = positive surgical margin; SD = standard deviation; CI = confidence interval; pT2 = organ-confined cancer (not including pT0); pT3 = non–organ-confined cancer (not including pT4).

[a] Overall PSM values were adjusted for preoperative Gleason score, preoperative PSA, and pathologic stage; the pT2 and pT3 PSM values were adjusted for preoperative Gleason and preoperative PSA; complication rates were adjusted for age, BMI, preoperative Gleason score, preoperative PSA, and pathologic stage.

* Significant at 5% level after adjusting for multiple comparisons (Hochberg correction).

The meta-analysis demonstrates that RALP is at least equivalent to ORP or LRP in terms of margin rates

SURGICAL MARGINS

Table 3 – Positive surgical margin stratified by pathological stage in robot-assisted radical prostatectomy series including >100 cases published between 2008 and 2011

First author	Institution	Cases, *n*	Study design	Sampling protocol	Pathologic stage, %				PSM rate, %			
					pT2	pT3a	pT3b	pT4	pT2	pT3a	pT3b	pT4
Park, 2008 [27]	Yonsei University College of Medicine, Seoul, Korea	200	Unclear	Not reported	81		19		27		50	
Liss, 2008 [28]	University of California, Irvine, Irvine, CA, USA	216	Retrospective case series	5-mm section	69		31		5		40	
Patel, 2008 [29]	Global Robotic Institute, Celebration, FL, USA	1500	Prospective case series	3-mm section	78.5	14	6	1.5	4	34		40
Carlucci, 2009 [31]	Mount Sinai Medical Center, New York, NY, USA	700	Prospective case series	Not reported	84	11	5	0	10	40	57	–
Davis, 2010 [32]	University of Texas MD Anderson Cancer Center, Houston, TX, USA	178	Prospective case series	Not reported	79	16	4	1	7	29		–
Ficarra, 2009 [33]	University of Padua, Padua, Italy	322	Prospective case series	5-mm section,	61	33		6	11	35		16
Jaffe, 2009 [34]	Montsouris, Paris, France	293	Prospective case series	Not reported	76	15	9	–	23	16	13	–
Murphy, 2009 [36]	Melbourne, Australia	400	Prospective case series	3- to 4-mm section	70	25	4.8	0.2	10	42		–
Shikanov, 2009 [38]	University of Chicago, Chicago, IL, USA	1398	Prospective case series	3-mm section	79	16	5	–	11	41		–
Coelho 2010 [39]	Global Robotic Institute, Celebration, FL, USA	876	Prospective case series	Whole mount, 4-mm section	81		18	1	7	34		75
Hong, 2010 [47]	George Washington University, Washington, DC, USA	469	Retrospective case series	Not reported	80		20		20	40		–
Lasser, 2010 [40]	Warren Alpert Medical School at Brown University, Providence, RI, USA	239	Prospective case series	Not reported	72	5	3	–	14.5	50		–
Patel, 2011 [46]	Multi–institutional	8095	Retrospective case series	Whole mount, 4- to 5-mm section	77	16	6	1	9	33	48	49
Overall PSM									9 (4–23)	37 (29–50)		50 (40–75)

PSM = positive surgical margin.
All studies are level 4 evidence.

Table 4 – Location of positive surgical margin in robot-assisted radical prostatectomy series including >100 cases published between 2008 and 2011

First author	Institution	Cases, *n*	Study design	Sampling protocol	Pathological stage, %				Location PSM, %				
					pT2	pT3a	pT3b	pT4	Apex	Anterior	Bladder neck	Posterolateral	Multifocal
Patel, 2008 [29]	Global Robotic Institute, Celebration, FL, USA	1500	Prospective case series	3-mm section	78.5	14	6	1.5	2	–	1	3.3	2
Carlucci, 2009 [31]	Mount Sinai Medical Center, New York, NY, USA	700	Prospective case series	Not reported	84	11	5	0	1	1	1	6	–
Ficarra, 2009 [33]	Univeristy of Padua, Padua, Italy	322	Prospective case series	5-mm section,	61	33		6	7	2	–	21	9
Shikanov, 2009 [38]	University of Chicago, IL, USA	1398	Prospective case series	3-mm section	79	16	5	–	5	0.2	1	8	2
Coelho 2010 [39]	Global Robotic Institute, Celebration, FL, USA	876	Prospective case series	Whole mount, 4-mm section	81		18	1	4	–	1	4	2
Tewari, 2010 [43]	Weill Cornell Medical College, New York, NY, USA	1340	Prospective case series	Not reported	84		16		–	–	–	2	–
Patel, 2011 [46]	Multi–institutional	8095	Retrospective case series	Whole mount, 4- to 5-mm section	77	16	6	1	6	–	2	5	2
Overall PSM									5 (1–7)	0.6 (0.2–2)	1.6 (1–2)	2.6 (2–21)	2.2 (2–9)

PSM = positive surgical margin.
All studies are level 4 evidence.

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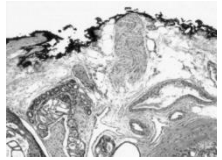
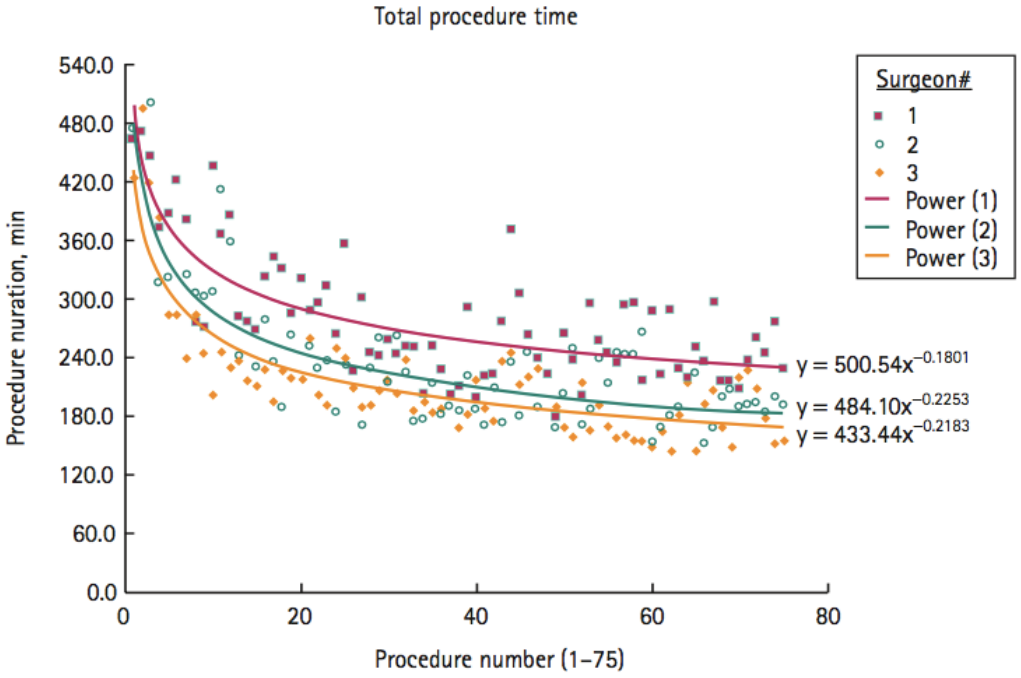
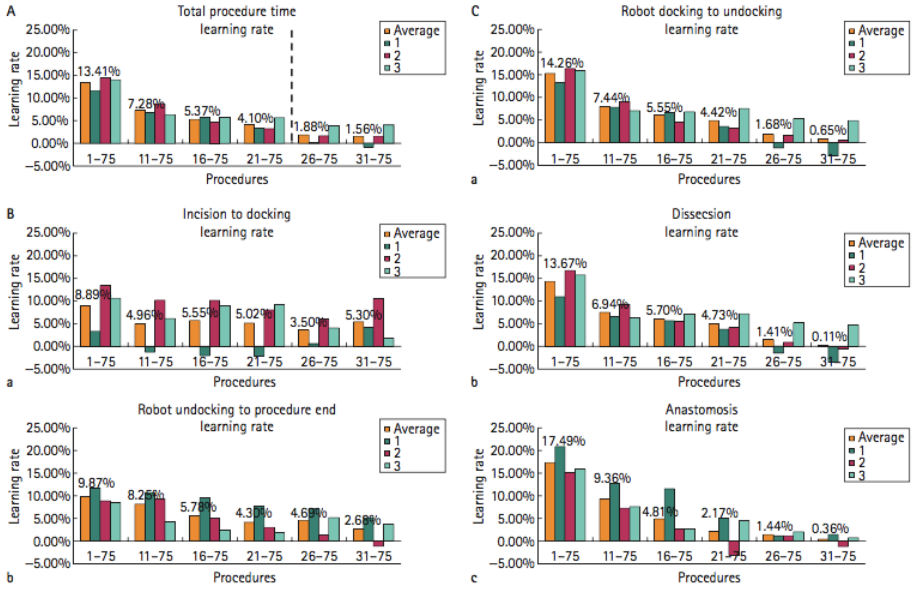
OUR SURGICAL MARGINS



Positive surgical margins	Open (1)	Robot (2)	P
Overall	76/523 (14.5%)	271/1688 (16.1%)	0.62

Learning curve RALP





World J Urol
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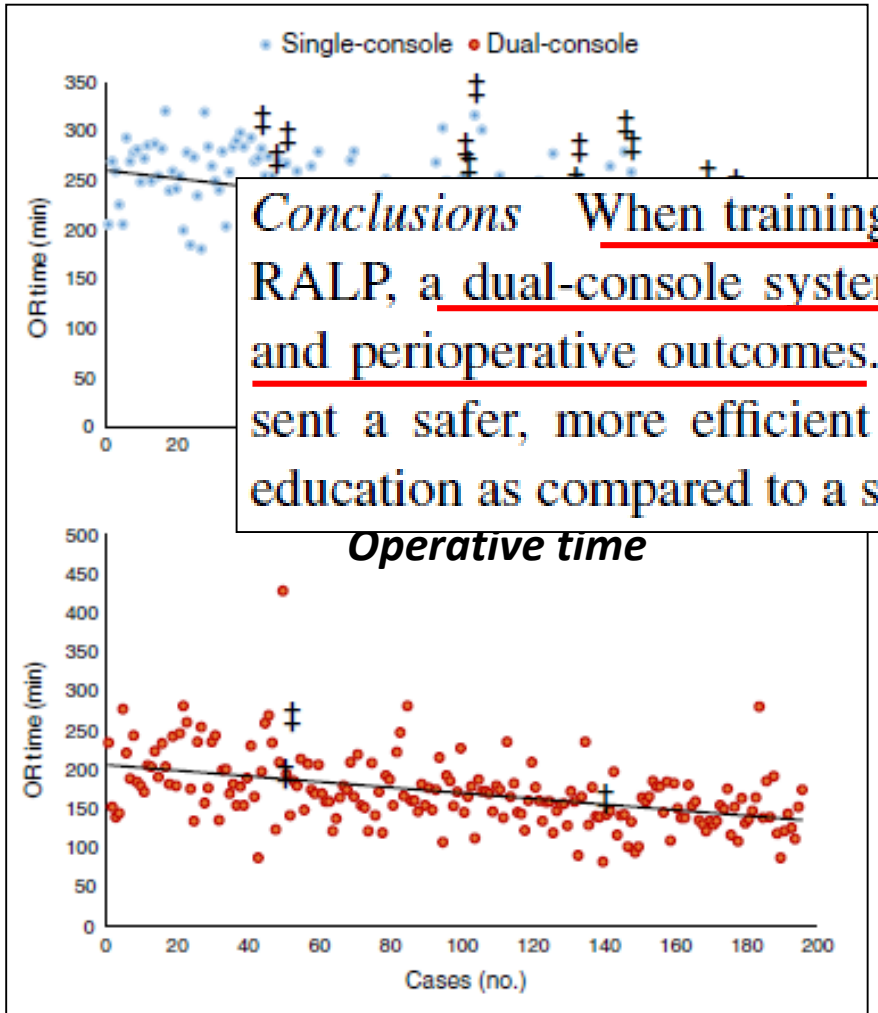
ORIGINAL ARTICLE

Single- versus dual-console robot-assisted radical prostatectomy: impact on intraoperative and postoperative outcomes in a teaching institution

Monica S. C. Morgan · Nabeel A. Shakir · Maurilio Garcia-Gil · Asim Ozayar · Jeffrey C. Gahan · Justin I. Friedlander · Claus G. Roehrborn · Jeffrey A. Cadeddu

Tra 381 pazienti, 185 e 196 sono stati sottoposti a RALP eseguita da specializzandi rispettivamente con singola o doppia consolle



Operative time

Conclusions When training resident surgeons to perform RALP, a dual-console system may improve intraoperative and perioperative outcomes. The dual-console may represent a safer, more efficient modality for robotic surgical education as compared to a single-console system.

Variables		Single-console	Dual-console	*p* value
Operative time [min (mean ± SD)]		222 ± 43	171 ± 44	**<0.0001**
Estimated blood loss [mL (mean ± SD)]		377 ± 248	329 ± 232	0.07
Surgical margins				
Positive (%)		35 (18.9 %)	32 (16.3 %)	0.57
Length [mm (mean ± SD)]		3.7 ± 4.1	2.9 ± 3.5	0.19
Functional and oncologic outcomes				
Biochemical recurrence (%)		33 (17.8 %)	22 (11.2 %)	0.08
Postoperative erectile dysfunction		38 (20.5 %)	46 (23.5 %)	0.54
Patients using pads at 1 year postoperatively (%)		32 (17.3 %)	48 (24.5 %)	0.11
			2.1 ± 2.2	0.52
			3 (1.5 %)	**<0.0001**
			2 (1.0 %)	
			2	
			0	
			0	
			0	
			1 (0.5 %)	
			0	
			13 (6.6 %)	**0.03**
			2 (1.0 %)	**0.003**
Anastomotic leakage	1d	5 (2.7 %)	1 (0.5 %)	
Bladder neck contracture	3b	4 (2.2 %)	1 (0.5 %)	
Bleeding requiring transfusion	2	3 (1.6 %)	1 (0.5 %)	
Calculus formed around clip	3b	2 (1.1 %)	0	
Deep vein thrombosis	2	1 (0.5 %)	0	
Ileus	2	3 (1.6 %)	2 (1.0 %)	
Incisional hernia	3b	3 (1.6 %)	1 (0.5 %)	
Neuropraxia	2	1 (0.5 %)	1 (0.5 %)	
Renal failure, dialysis	4a	3 (1.6 %)	0	
Urosepsis	4b	1 (0.5 %)	0	
Urinary retention	1d	0	4 (2.0 %)	
Wound infection	2	0	2 (1.0 %)	
Composite complications (%)		32 (17.3 %)	15 (7.7 %)	**0.005**

The Surgical Learning Curve for Prostate Cancer Control After Radical Prostatectomy

Andrew J. Vickers, Fernando J. Bianco, Angel M. Serio, James A. Eastham, Deborah Schrag, Eric A. Klein, Alwyn M. Reuther, Michael W. Kattan, J. Edson Pontes, Peter T. Scardino

Open

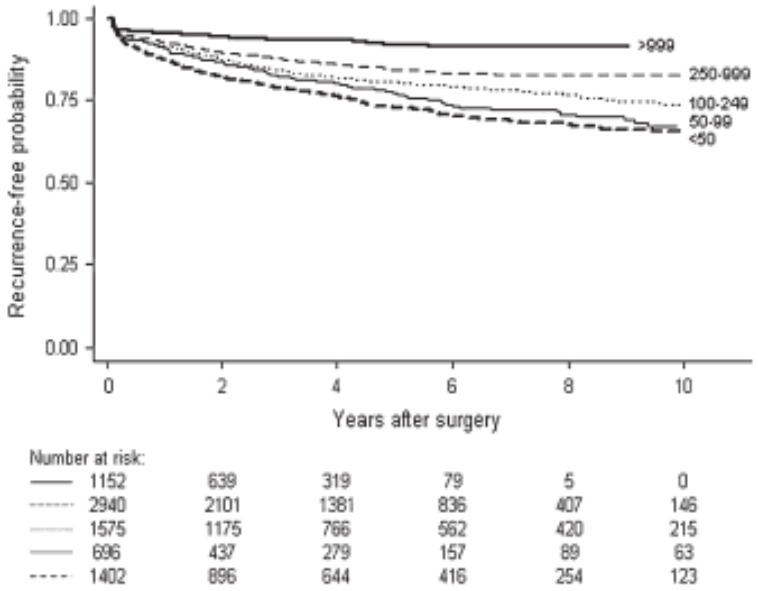


Fig. 1. Probability of freedom from biochemical recurrence after radical prostatectomy. The data are stratified by surgeon experience (i.e., the number of prior surgeries) at the time of the patient's radical prostatectomy, shown as numbers next to each curve.

Learning curve of minimally invasive radical prostatectomy: Comprehensive evaluation and cumulative summation analysis of oncological outcomes

Arjun Sivaraman, M.D.[a], Rafael Sanchez-Salas, M.D.[a,*], Dominique Prapotnich, M.D.[a], Kaixin Yu[b], Fabien Olivier[b], Fernando P. Secin, M.D.[c], Eric Barret, M.D.[a], Marc Galiano, M.D.[a], François Rozet, M.D.[a], Xavier Cathelineau, M.D.[a]

LRP RALP

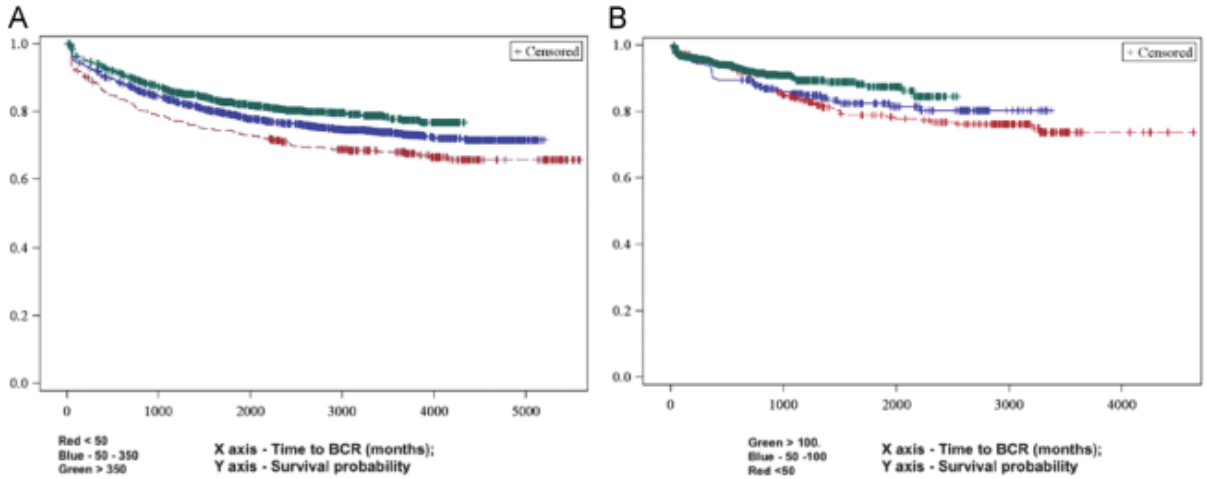
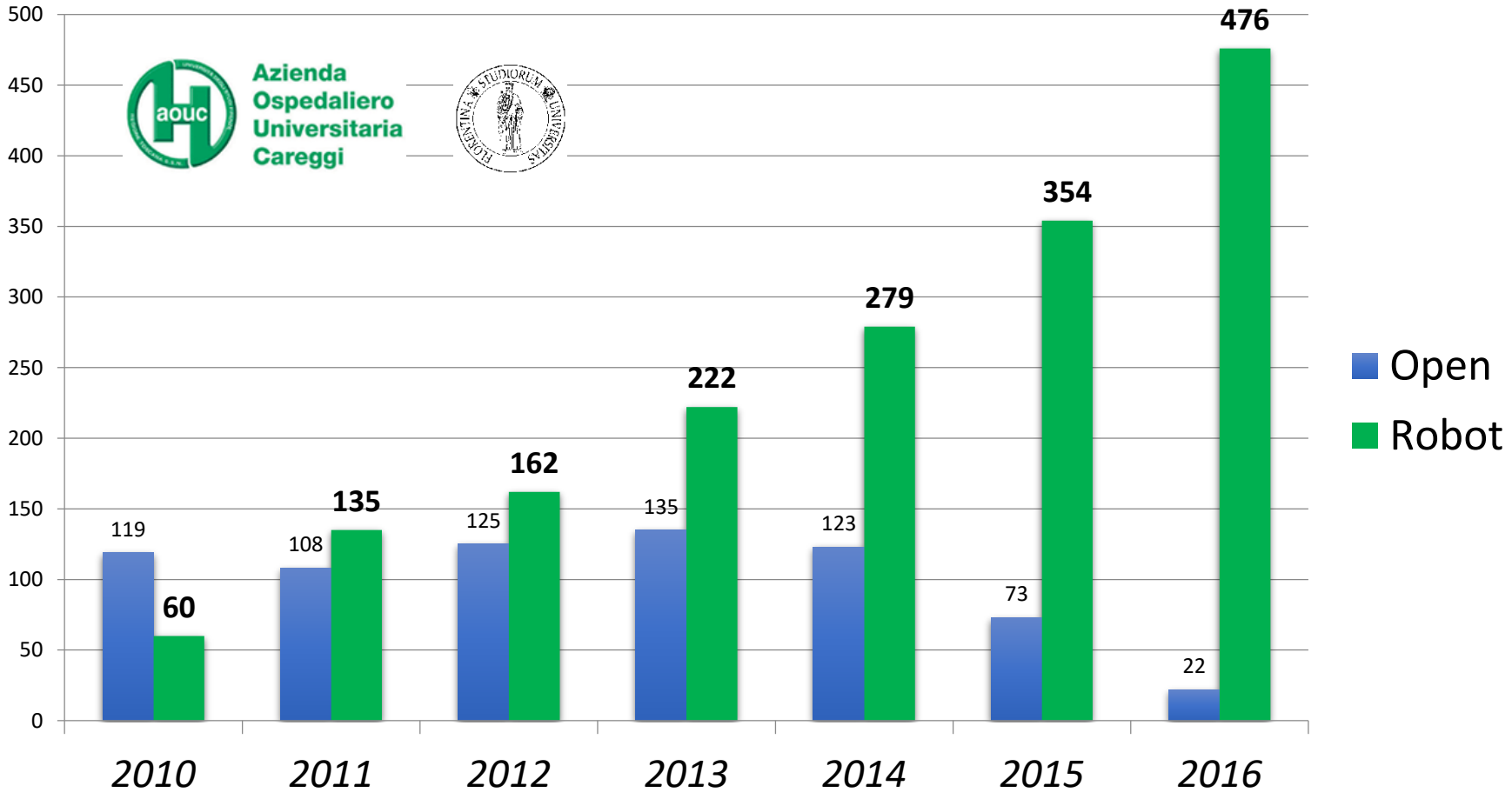


Fig. 2. Comparision of BCRFS after LRP (A) and RARP (B). BCRFS = BCR-free survival. (Color version of figure is available online.)

Prostatectomie radicali



Conclusioni

- Ralp sembra avere risultati migliori sulla continenza precoce o comunque entro 1 anno dall'intervento
- Ralp ha indici di recupero della potenza sessuale migliori rispetto a ORP e LRP
- Le tecniche mininvasive hanno un indice di sanguinamento generalmente ridotto rispetto alla tecnica open
- La curva di apprendimento per Ralp è inferiore alla tecnica open e ancor più per la tecnica laparoscopica (utilizzo della doppia console)
- Le caratteristiche del sistema da Vinci (visione 3D, endo-wrist…) rendono la prostatectomia una procedura riproducibile e con maggior omogeneizzazione dei risultati.

L'esperienza del chirurgo svolge un ruolo fondamentale nei risultati sia funzionali che oncologici