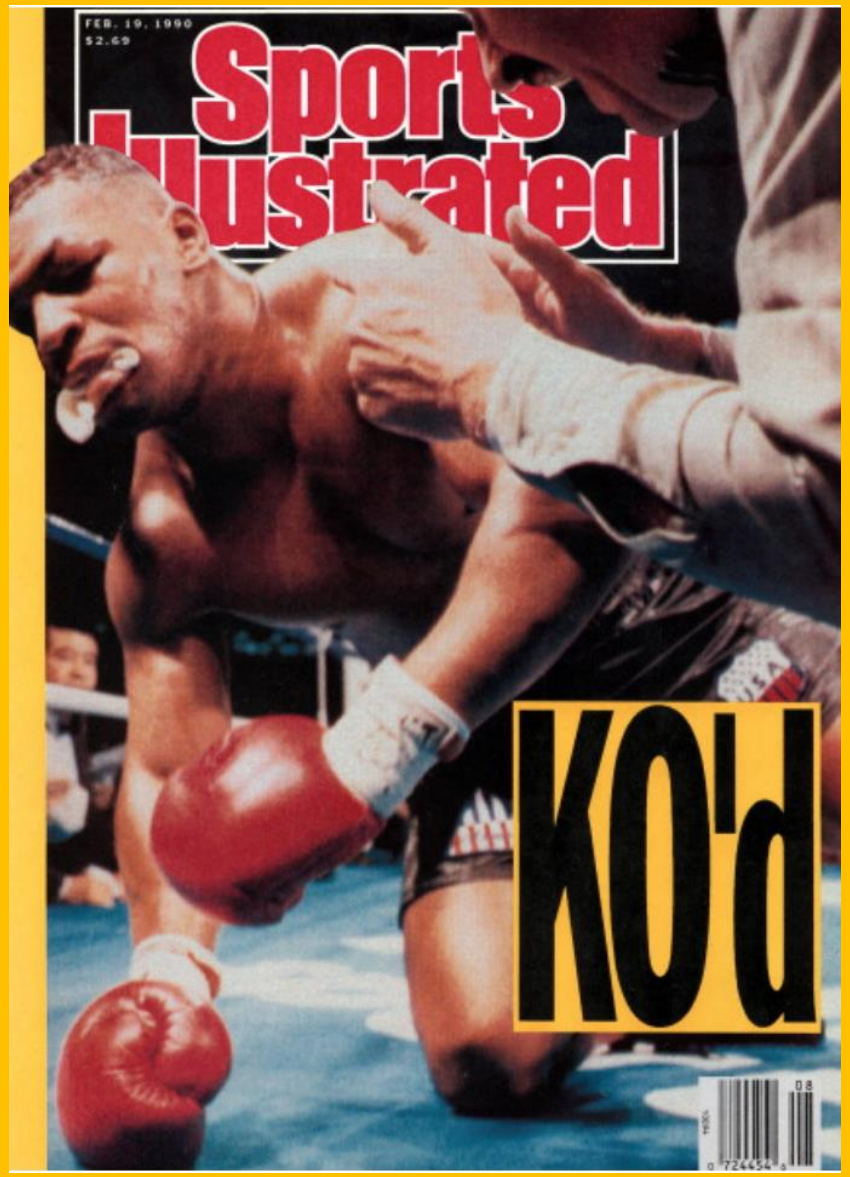
CROSSFIRE:
Comparing Salvage SBRT with Other Salvage Modalities
(Surgery, HIFU, Cryo, LDR, HDR)

Lee Richstone, MD, FACS, FRCS

Professor and Chair

Northwell Urology at Lenox Hill Hospital


FEB. 19, 1990
$2.69
Sports Illustrated
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No Disclosures – No Skin in The Game

- I do not perform CRYO
- I do not perform HIFU
- I do perform salvage RP (6/yr!)

All Salvage Therapies Underutilized

- Limited use of salvage therapies
  - Despite candidacy → 90-95% get ADT
  - Concerns over toxicity
  - Questions regarding efficacy
  - Challenges with patient selection
  - Lack of expertise/experience

- So, what is the “RIGHT THING”?

- Cancer Treatment Reviews 98 (2021) 102206*
- Kishan et al. Eur Urol 2020;77:201–8.**
- Agarwal et al; Cancer 2008;112:307-14***
- Eur Urol Open Sci. 2023;47:110-8****

HIT 'EM WITH SBRT

Not So Fast Mack…**The Data Just Isn't There Yet**

sSBRT

Salvage radical prostatectomy

Salvage cryotherapy

Salvage high intensity focused ultrasound

Salvage LDR brachytherapy

Salvage HDR brachytherapy

Salvage Surgery: It's Not Your Grandad's Radical!

- Open salvage radical prostatectomy
  - Continence → 50 %
  - Artificial sphincter → 25 percent
  - Stricture/contracture → 25%
  - Ureteral or rectal injury → 1-2%
- Not widely employed (0.5% of all RP)
  - Patients are rarely even given the option

Wenzel et al; Clinical Genitourinary Cancer 19, No 4 (2021 e255-263
Drobner et al; Cancers 15, No 14 (2023)

Contemporary Salvage Prostatectomy (sRALP)

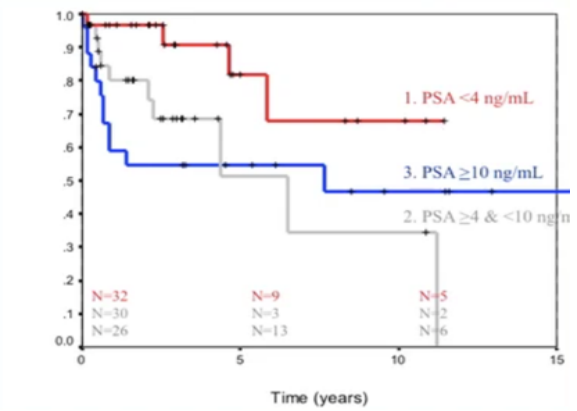
- **Improved Efficacy** of contemporary salvage RP
  - More accurate staging (MRI, PET)
  - Better patient selection
  - Robotic surgery: precision + vision

- **Reduced Morbidity** of contemporary salvage RP
  - Robotic technique – direct vision of rectal plane
  - Watertight vesicourethral anastomosis
  - Advanced continence sparing techniques

Candidates for Salvage Radical Prostatectomy (sRP)

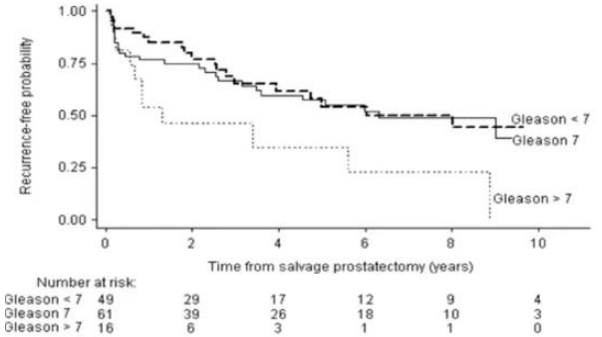
Well Selected Patients

- Initial disease: **GG2-3, T1-T3a, N0M0**
- Current status: **PSA ideally <4, certainly <10**
- Positive biopsy, MRI and PSMA/PET
- Life expectancy >10 years
- Limited toxicity from primary radiotherapy



Educated Patients

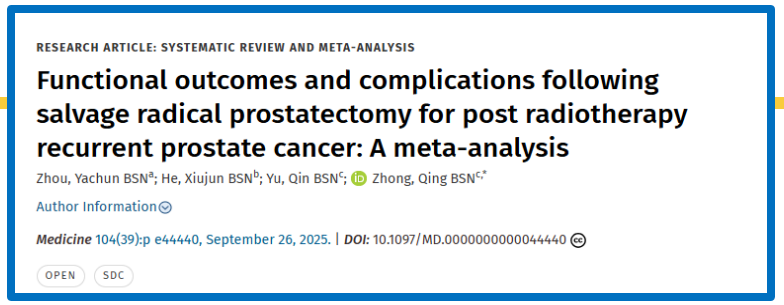
- Regarding competing risks/benefits
- Treatment aligned with their goals/values/emotions
- Many have decision regret and want extirpation in this context



Bianco et al; Int J Radiat Oncol Biol Phys, 2005;62(2):448-53
Paparel et al. Eur Urol 2009; 55:404-410

Reduced Morbidity Open vs. Robotic

- Multiple series >300 patients
  - 0.5% - 1.5% rectal injury
  - 0 – 5.9% stricture/contracture
  - 1.37% anastomotic leak
  - Transfusion <1%



RESEARCH ARTICLE: SYSTEMATIC REVIEW AND META-ANALYSIS

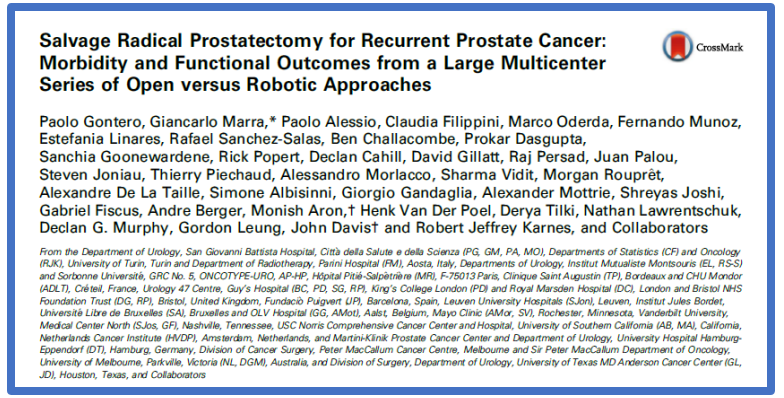
Functional outcomes and complications following salvage radical prostatectomy for post radiotherapy recurrent prostate cancer: A meta-analysis

Zhou, Yachun BSN[a]; He, Xiujun BSN[b]; Yu, Qin BSN[c]; Zhong, Qing BSN[c,*]

Author Information

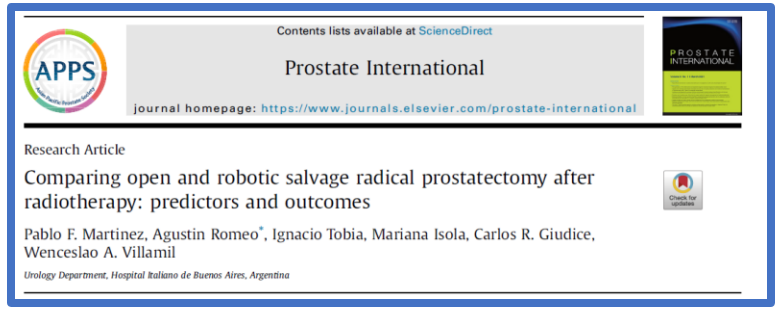
Medicine 104(39):p e44440, September 26, 2025. | DOI: 10.1097/MD.0000000000044440

OPEN SDC



Salvage Radical Prostatectomy for Recurrent Prostate Cancer: Morbidity and Functional Outcomes from a Large Multicenter Series of Open versus Robotic Approaches

Paolo Gontero, Giancarlo Marra,* Paolo Alessio, Claudia Filippini, Marco Oderda, Fernando Munoz, Estefania Linares, Rafael Sanchez-Salas, Ben Challacombe, Prokar Dasgupta, Sanchia Goonewardene, Rick Popert, Declan Cahill, David Gillatt, Raj Persad, Juan Palou, Steven Joniau, Thierry Piechaud, Alessandro Morlacco, Sharma Vidit, Morgan Rouprêt, Alexandre De La Taille, Simone Albisinni, Giorgio Gandaglia, Alexander Mottrie, Shreyas Joshi, Gabriel Fiscus, Andre Berger, Monish Aron,† Henk Van Der Poel, Derya Tilki, Nathan Lawrentschuk, Declan G. Murphy, Gordon Leung, John Davis† and Robert Jeffrey Karnes, and Collaborators



Contents lists available at ScienceDirect

Prostate International

journal homepage: https://www.journals.elsevier.com/prostate-international

Research Article

Comparing open and robotic salvage radical prostatectomy after radiotherapy: predictors and outcomes

Pablo F. Martinez, Agustin Romeo*, Ignacio Tobia, Mariana Isola, Carlos R. Giudice, Wenceslao A. Villamil

Urology Department, Hospital Italiano de Buenos Aires, Argentina

[19]. Gontero P, Marra G, Alessio P, et al. Salvage radical prostatectomy for recurrent prostate cancer: morbidity and functional outcomes from a large multicenter series of open versus robotic approaches. J Urol. 2019;202:725–31.

Cited Here | Google Scholar

Largest Single Series

- 257 post-radiation robotic prostatectomy
- Largest cohort of S-RARP reported
- Nearly 70% of patients with GG3

- **The 3-yr continence rate = 67%**
- **Biochemical recurrence free at 5 years = 65%**

journal homepage: www.europeanurology.com

European Association of Urology

Surgery in Motion

Outcomes of Salvage Robotic-assisted Radical Prostatectomy: High-volume Multicentric Data from the European Association of Urology Robotic Urology Section Scientific Working Group

Marcio Covas Moschovas [a,], Shady Saikali [a], Marco Sandri [b], Carlo Bravi [c], Ugo Falagario [d], Arjun Nathan [e], Justin Collins [e], Eleonora Balestrazzi [f], Gert de Naeyer [f], Ruben Groote [f,g], Maria Chiara Sighinolfi [h], Sophie Knipper [i], Markus Graefen [i], Randi Pose [i], Guillaume Ploussard [j,k], Hamza Idais [l], Hubert John [m], Angelo Mottaran [n], Riccardo Schiavina [n], Pietro Piazza [n], Eugenio Brunocilla [n], Alberto Breda [o], Bernardo Rocco [h], Nina N. Harke [l], Alexandre Mottrie [f,g], Senthil Nathan [e], Vipul Patel [a], Peter Wiklund [d]*

[a] *Adventhealth Global Robotics Institute, Kissimmee, FL, USA;* [b] *Big and Open Data Innovation Laboratory (BODaI-Lab) and Data Methods and Systems Statistical, Milan, Italy;* [c] *The Royal Marsden NHS Foundation Trust, London, UK;* [d] *Karolinska Institute, Stockholm, Sweden;* [e] *University College London Hospital (UCLH), London, UK;* [f] *Onze-Lieve-Vrouwziekenhuis (OLV), Aalst, Belgium;* [g] *Orsi Academy, Ghent, Belgium;* [h] *ASST Santi Paolo e Carlo, Milan, Italy;* [i] *Martini Klinik, Hamburg, Germany;* [j] *Clinique La Croix du Sud, Quint-Fonsegrives, France;* [k] *Institut Universitaire du Cancer-Oncopole, Toulouse, France;* [l] *Hannover Medical School, Hannover, Germany;* [m] *Kantonsspital Winterthur (KSW), Winterthur, Switzerland;* [n] *IRCCS Azienda Ospedaliero-Universitaria di Bologna, Bologna, Italy;* [o] *Fundacio Puigvert, Barcelona, Spain*

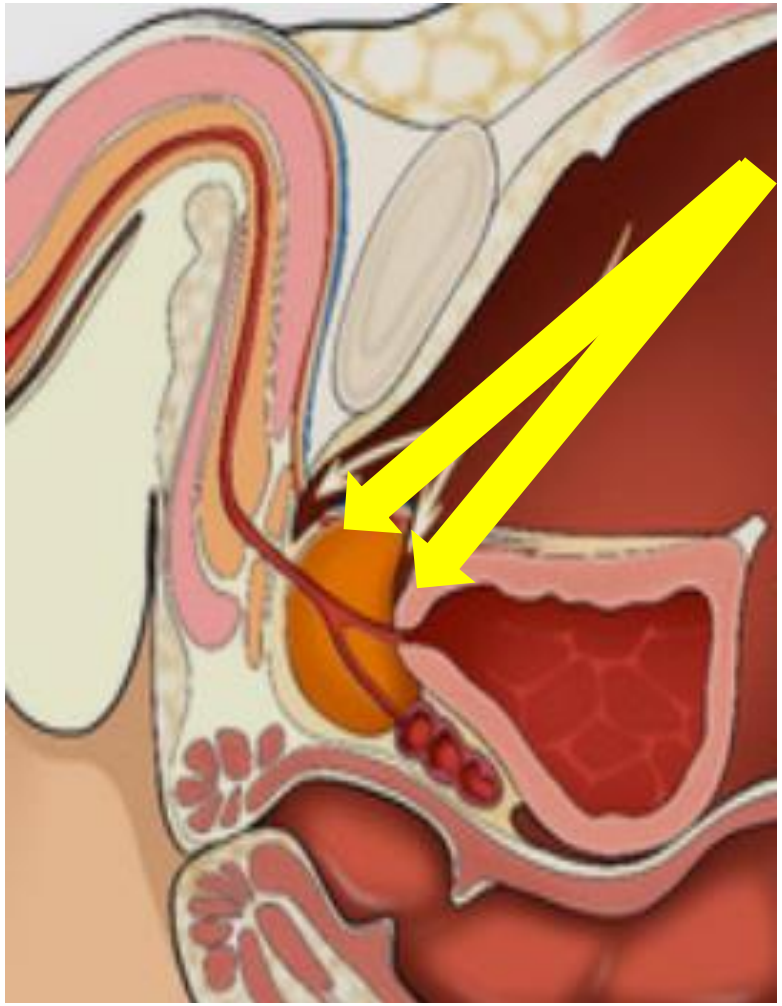
Largest robotic sRALP Series

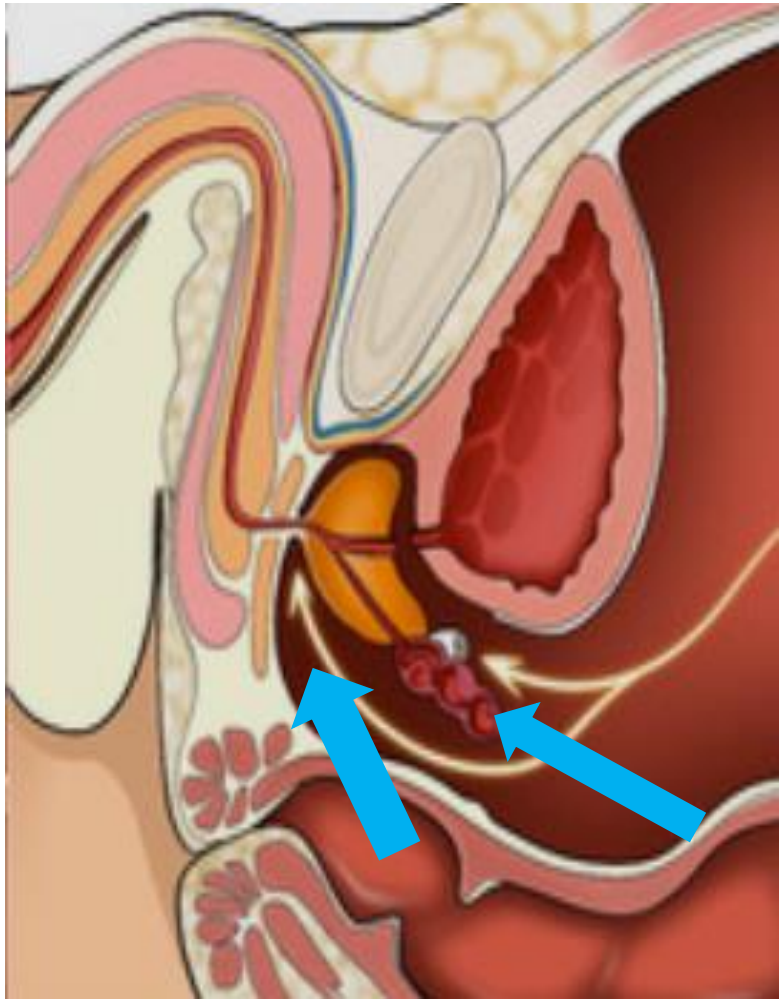
Parameters	Radiation therapy (*N* = 257)
EBL (ml)	100 (50–200)
Total operative time (min)	126 (113–150)
Lymph node dissection, *n* (%)	181 (70)
Nerve sparing degree, *n* (%)	
Full	7 (2.7)
Partial	176 (68)
None	23 (8.9)
NA	51 (20)
Intraoperative complications, *n* (%)	3 (1.2)

Parameters	Radiation therapy (*N* = 257)
Continence recovery	
Events (*n*)	177
Unadjusted hazard ratio	Reference
Adjusted hazard ratio	Reference
Rate at 36 mo (%)	67 (60–74)
Potency recovery	
Events (*n*)	48
Unadjusted hazard ratio	Reference
Adjusted hazard ratio	Reference
Rate at 36 mo (%)	15 (11–21)
Biochemical recurrence	
Events (*n*)	69
Unadjusted hazard ratio	Reference
Adjusted hazard ratio	Reference
Rate at 60 mo (%)	35 (28–43)
Overall survival	
Deaths (*n*)	11
Unadjusted hazard ratio	Reference
Rate at 60 mo (%)	95 (90–98)

Parameters	Radiation therapy (*N* = 257)
ISUP, *n* (%)	
1	3 (1.2)
2	50 (19)
3	63 (25)
4	27 (11)
5	88 (34)
NA	26 (10)
Pathological tumor stage pT, *n* (%)	
T2	105 (41)
T3a	66 (26)
T3b	83 (32)
T4	3 (1.2)
Pathological nodal stage pN, *n* (%)	
N0	215 (84)
N1	26 (10)
Nx	16 (6.2)
PSM total, *n* (%)	57 (22)
Postoperative complications in 90 d, *n* (%)	71 (28)
Clavien classification, *n* (%)	
0	160 (62)
1	81 (32)
2	11 (4.3)
≥3	5 (1.9)

Retzius Sparing for Salvage Prostatectomy





Nunes-Silva et al; Int Braz J Urol. 2021;47:1279-80

Retzius Sparing for Salvage Prostatectomy

- Small studies suggest great potential: 90-100% continence versus 44% for anterior approach

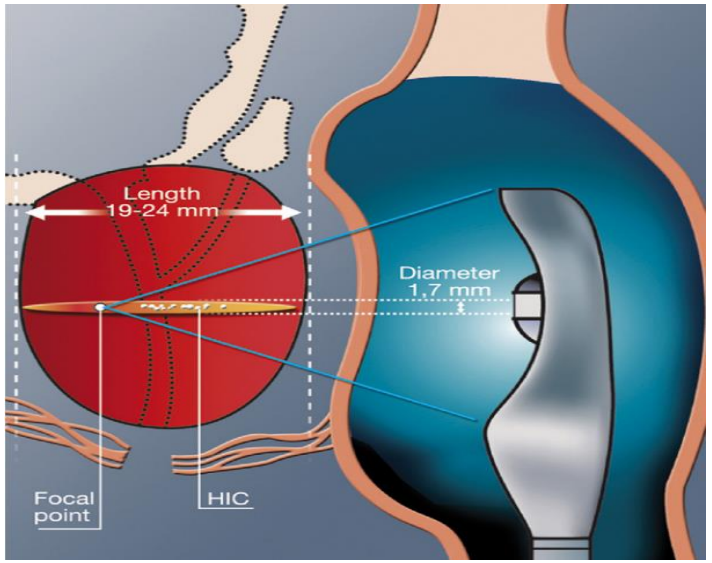
Author	Year	N. of patients	Primary Therapy	TOT/CT (minutes)	IOC (%)	EBL (mL)	POC (Clavien) In 90 days (%)	PSM (%)	Continence/ (%)	BCR (%)	MFU months
Nunes-Silva (27)	2021	*RS (12)	EBRT (10) BRC (2)	NA/138	0	81	8.3(Clv 3)	25	91.6	16.6	12
Madi et al.	2021	*RS (20)	BRC-4	NA/ 141	0	50	10 Clv 1-3	30	100	20	18

Nunes-Silva et al; Int Braz J Urol. 2021;47:1279-80


CORVETTE
EVOLUTION

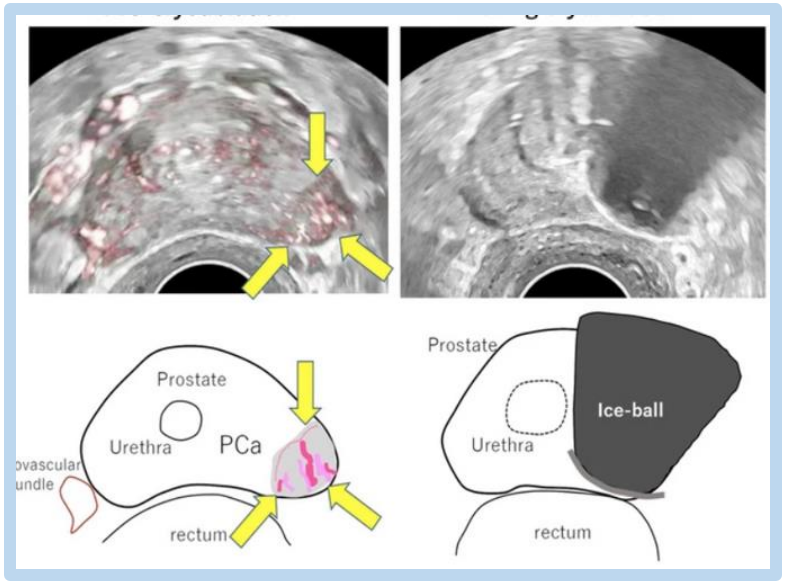
sHIFU and sCRYO

- Spinal or general anesthesia
- No needles
- Approximately 2-hour procedure
- Foley catheter 3-5 days



Murat, et al; European urology 55 (2009) 640–649

- Two freeze/thaw cycles
- Trans-perineal approach
- Single treatment ~ 45 minutes
- Real time intraoperative monitoring



J Med Ultrasonics **49**, 497–498 (2022)

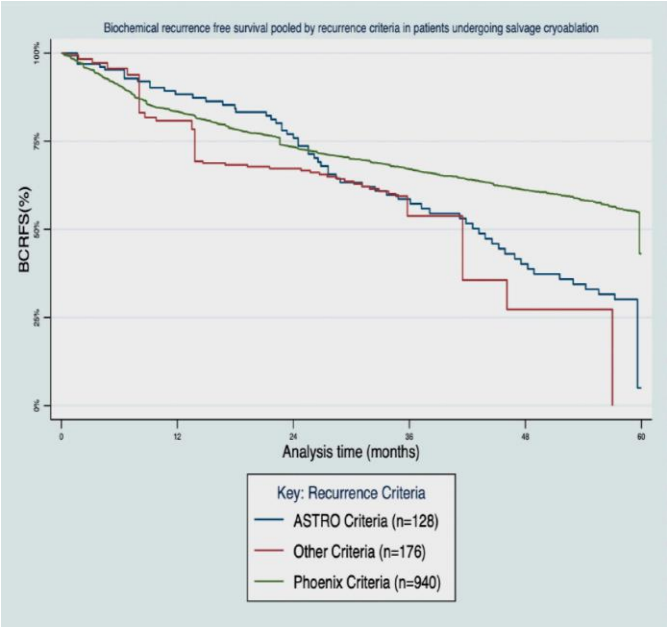
Historical sCRYO Data – Whole Gland

Review

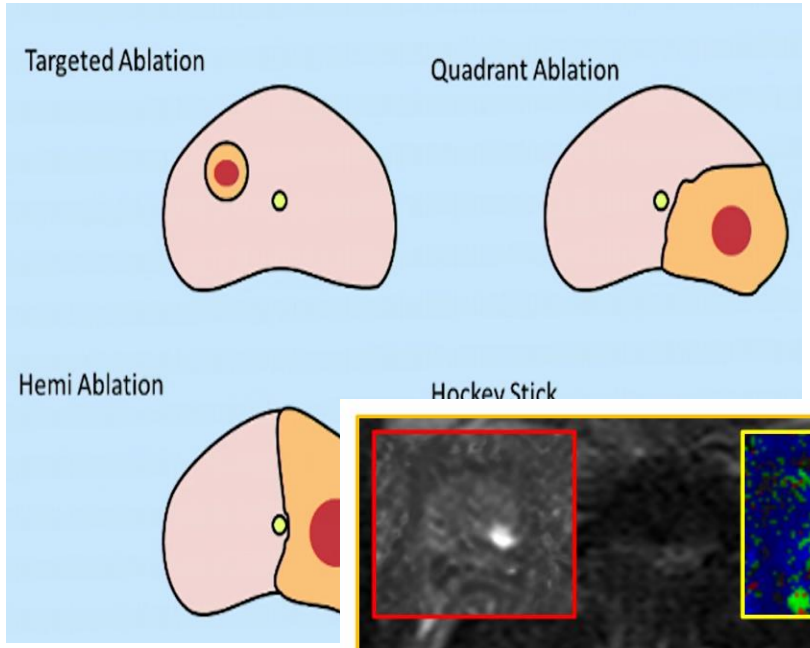
Salvage Cryoablation for Recurrent Prostate Cancer Following Radiation—A Comprehensive Review

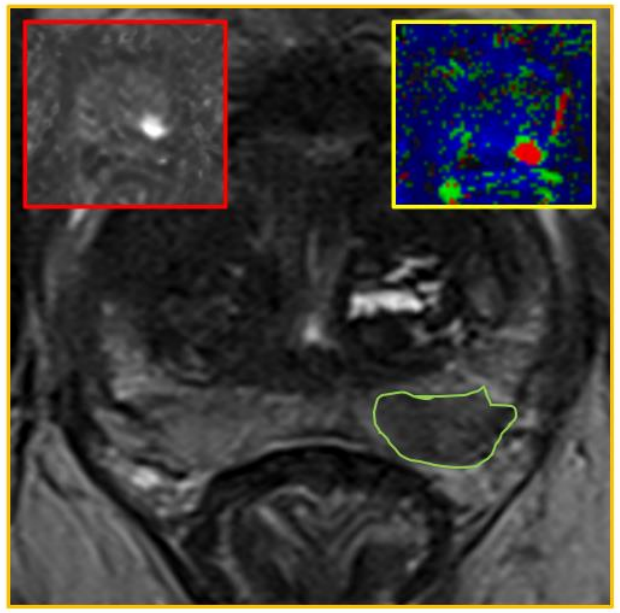
Harry Lee †, Sameer Thakker †, Kevin Pineault, James Wysock and Wei Phin Tan *

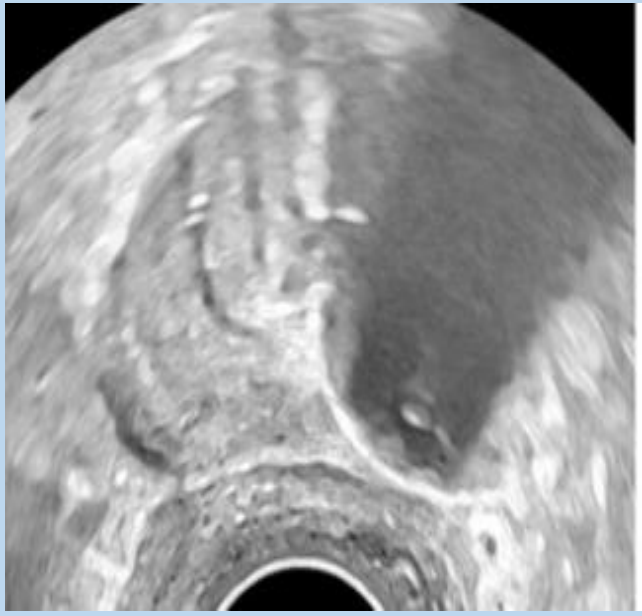
- **Long term** survival data & **large cohorts**
  - 13 studies with survival at least 5 years
  - 4 studies 10-year outcomes
- 5y BRFS/PFS ranged from 43.5 to 86%
- 10y BRFS/PFS was 35% → up to 79% ADT-free
- CSS ranged from 79-100% at 5 years and 79-92.5% at 10 years



Preferred Ablation Modality? *Tailored Cryo*







Polascik T; *25th Annual Southwest Prostate Cancer Symposium* 2021

Salvage Ablation for Radiation-Recurrent Localized Prostate Cancer: Clinical Outcomes and Recommendations - A Focal Therapy Society Best Practice Statement (7842 Patients)

Sriram Deivasigamani[1*]
Sudharshanan Balaji[1*]
Ardeshir R. Rastinehad[2]
Laurence Klotz[3]
Herbert Lepor[4]
Hashim U Ahmed[5]
Peter Pinto[6]
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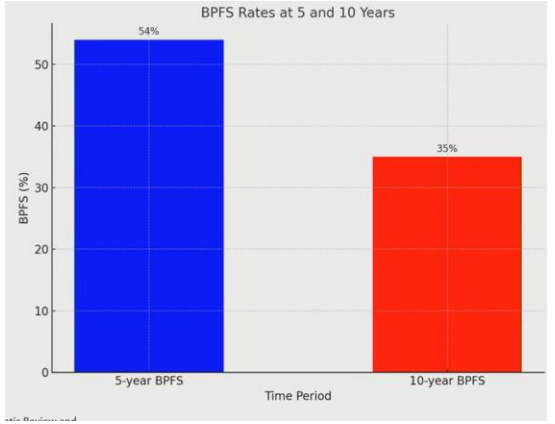
John Baust[72]
Victoria Y Bird[73]
Leila Ledbetter[1]
Margaret Graton[1]
Steve Canfield[74]
J.J.M.C.H. de la Rosette[69,75]
Rafael Sanchez Salas[76]
Thomas J Polascik[1#]

BIOCHEMICAL PROGRESSION FREE SURVIVAL (BPFS)

- WHOLE GLAND ABLATION
  - BPFS at 5- and 10- yrs for whole sCRYO was 58% and 35%
  - BPFS at 5- years for whole sHIFU at 5-years was 47%

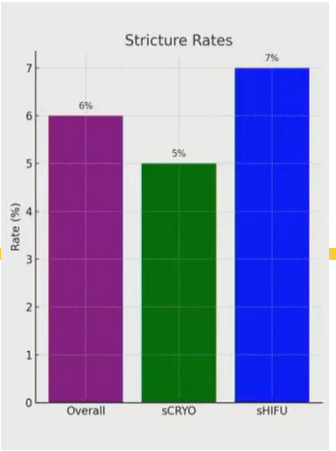


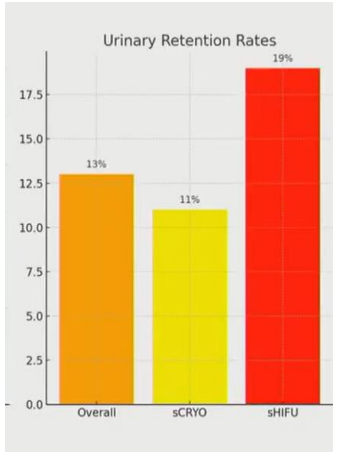
- PARTIAL GLAND ABLATION
  - **BPFS at 2- and 5-yrs for partial sCRYO was 77% and 50% (10-year 42%)**
  - BPFS at 2- years for partial sHIFU was 49-68%

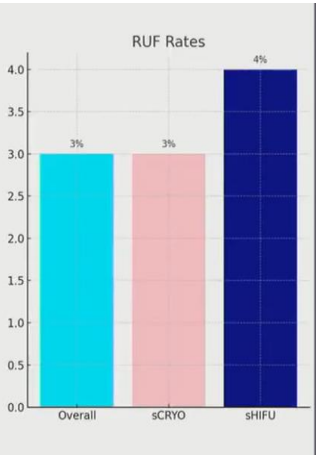
Deivasigamani S, Kotamarti S, Rastinehad AR et al: submitted

Partial Gland Ablation – Low Toxicity

- Morbidity
  - Severe (Grade ≥3) complications after whole-gland 6% and after partial gland 0%
  - Lower-grade toxicities more frequent but were inconsistently classified across studies.
- Stricture:
  - Whole gland - stricture rates were 6%: sCRYO 5% and sHIFU 7%
  - Partial gland - stricture rate = 3-8% for focal sCRYO and 5-14% for focal sHIFU
- Urinary Retention:
  - Whole gland - urinary retention rate of 13% of men (sCRYO 11% and sHIFU 19%)
  - Partial gland - urinary retention rate of 6%
  - Severe/grade 3 urinary retention requiring intervention 1.1% - 2.4%
- Recto-urethral Fistula (RUF):
  - Whole gland - fistula rates of 3% (3% for sCRYO and 4% sHIFU)
  - Partial gland - fistula rates of 3% for sCRYO and 2% sHIFU)







Deivasigamani S, Kotamarti S, Rastinehad AR et al: in press

Partial Gland Ablation - Low Toxicity

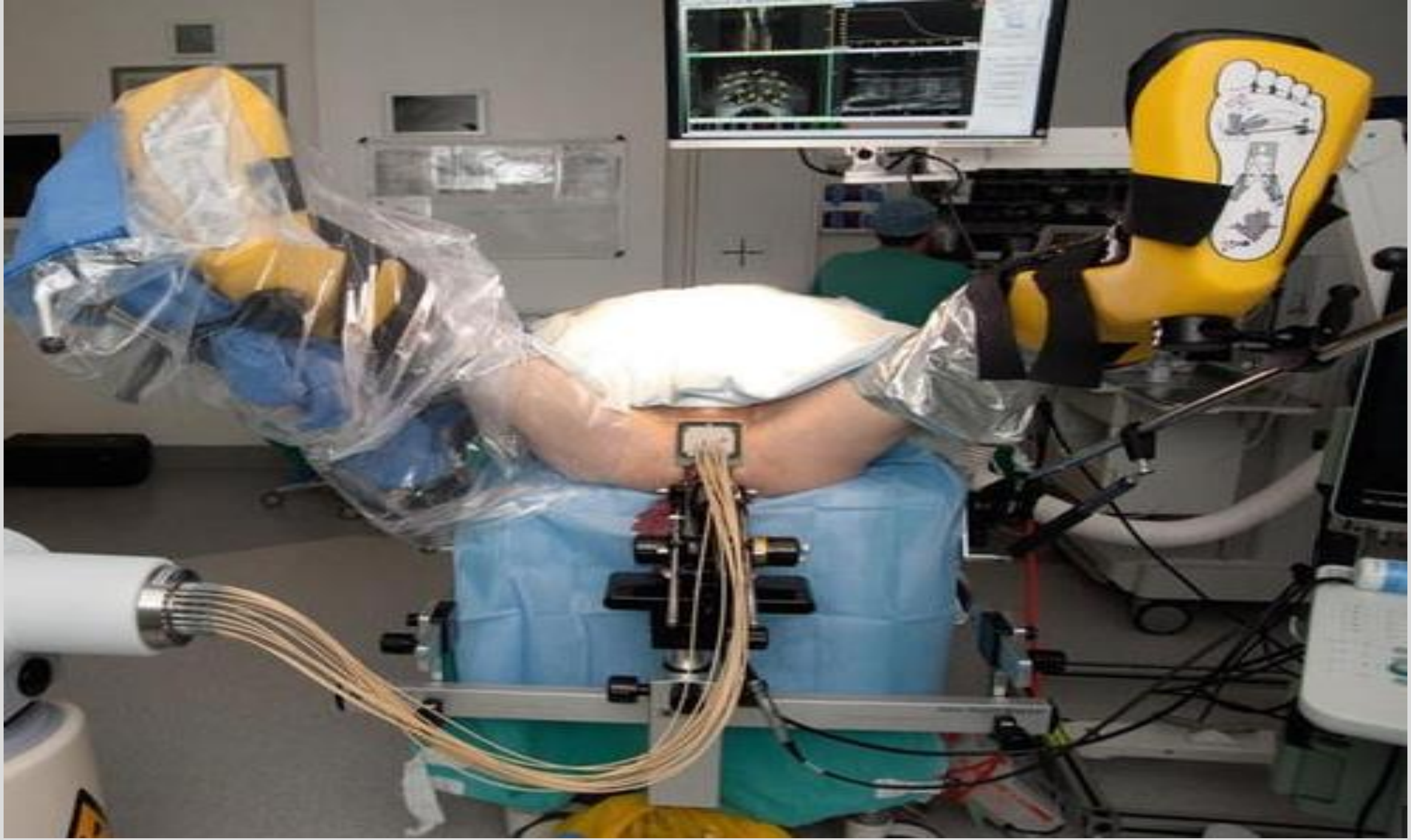
- Urinary Tract Infection:
  - Range from 3-11%
  - No grade 3 or severe UTIs were reported.
- Urethral sloughing
  - 3-15% in whole gland sCRYO and 8% in whole gland sHIFU
  - 2-3% in partial sCRYO and 8% in partial sHIFU
- Perineal pain
  - Ranging from (4-40%) for whole gland sCRYO and (4-31%) for partial sCRYO
- Hematuria
  - Whole gland sCRYO and sHIFU 4%
  - Partial sCRYO 7%

Deivasigamani S, Kotamarti S, Rastinehad AR et al: in press

Partial Gland Ablation – Excellent Functional Outcomes

- **Urinary Function/continence:**
  - **Whole** gland ablation: pad-free rate was ~80%
    - sCRYO 83%-97% > sHIFU 66%
  - **Partial** gland ablation: pad-free rate was ~90%
    - sCRYO 91% > sHIFU 64%-84%
- **Erectile Function:**
  - **Whole** gland ablation: Preserved EF for pre-salvage potent patients was 21%
  - **Partial** gland ablation: Preserved EF for pre-operatively potent patients 41%
    - sHIFU 58-64% > sCRYO 36%

Deivasigamani S, Kotamarti S, Rastinehad AR et al: in press



Are **YOU** Talkin'To **ME** About Brachytherapy?

Baumann et al; Brachytherapy 2017;16:291-298.

LDR = Efficacy/Toxicity = HDR

CLINICAL INVESTIGATION

Salvage Low-Dose-Rate Prostate Brachytherapy: Clinical Outcomes of a Phase 2 Trial for Local Recurrence after External Beam Radiation Therapy (NRG Oncology/RTOG 0526)

Juanita Crook, MD, FRCPC,* Joseph P. Rodgers, MS,† Thomas M. Pisansky, MD,‡ Edouard J. Trabulsi, MD,§ Mahul B. Amin, MD,‖ William Bice, PhD,¶ Gerard Morton, MD,# Albert D. Murtha, MD,** Eric Vigneault, MD, MSc,†† Joelle Helou, MD, MSc,†† Jeff M. Michalski, MD, MBA, FASTRO,‡‡ Mack Roach, IIIMD, FACR, FASTRO,§§ David Beyer, MD,¶¶ Ashesh B. Jani, MD, MSEE, FASTRO,## Eric M. Horwitz, MD, FABS, FASTRO,*** Adam Raben, MD,††† Stephanie Pugh, PhD,† and Howard Sandler, MD‡‡‡

BJUI

Salvage permanent perineal radioactive-seed implantation for treating recurrence of localized prostate adenocarcinoma after external beam radiotherapy

David S. Aaronson, Ichiro Yamasaki, Alexander Gottschalk, Joycelyn Speight, I-Chow Hsu, Barby Pickett, Mack Roach III and Katsuto Shinohara

Department of Urology, University of California, San Francisco, CA, USA

Accepted for publication 17 December 2008

Re-irradiation for salvage of prostate cancer failures
therapy

arshall

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BRACHYTHERAPY

Brachytherapy 7 (2008) 17–21

Salvage prostate brachytherapy for localized prostate cancer failure after external beam radiation therapy

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CLINICAL INVESTIGATION — Prostate

LONG-TERM OUTCOME AND TOXICITY OF SALVAGE BRACHYTHERAPY FOR LOCAL FAILURE AFTER INITIAL RADIOTHERAPY FOR PROSTATE CANCER

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Purpose: To describe long-term outcomes and toxicity after salvage brachytherapy (BT) for local failure after initial radiotherapy for prostate cancer.
Methods and Materials: Between 1994 and 2008, 37 men with local failure after initial prostate radiotherapy (32 external-beam radiation therapy [EBRT] and 5 BT) underwent salvage BT with ^{103}Pd or ^{125}I. Estimates of freedom from biochemical failure (FFbF, Phoenix definition) and cause-specific survival (CSS) were calculated using the Kaplan-Meier method. Toxicities were graded using CTCv3.0.
Results: Median follow-up was 86 months (range, 2–156). The median dose to 90% of the prostate volume was 122 Gy (range, 67–166). The 10-year FFbF and CSS were 54% and 96%, respectively. On univariate analysis, prostate-specific antigen (PSA) >10 ng/mL at initial diagnosis was significantly associated with FFbF ($p = 0.01$), and there were trends for both age <70 years ($p = 0.08$) and PSA <6 ng/mL ($p = 0.08$) at the time of salvage BT. On multivariate analysis, only presalvage PSA <6 ng/mL ($p = 0.046$) was significantly associated with improved FFbF. There were three Grade 3 toxicities and one Grade 4 toxicity. Pelvic lymph node dissection before salvage BT was the only variable significantly associated with Grade ≥2 toxicity ($p = 0.03$).
Conclusion: With a median follow-up of 86 months, salvage prostate BT was associated with a 10-year FFbF of 54% and CSS of 96%. Improved FFbF was associated with a presalvage PSA <6 ng/mL. Toxicity was worse in patients who had undergone pelvic lymph node dissection before salvage BT. Careful patient selection for salvage BT may result in improved outcomes and reduced toxicity. © 2010 Elsevier Inc.

Magnetic Resonance Image-guided Salvage Brachytherapy After Radiation in Select Men Who Initially Presented With Favorable-risk Prostate Cancer

A Prospective Phase 2 Study

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Anthony V. D'Amico, MD, PhD[1]
Clare M. Tempany, MD[3]
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BACKGROUND. The authors prospectively evaluated the late gastrointestinal (GI) and genitourinary (GU) toxicity and prostate-specific antigen (PSA) control of magnetic resonance imaging (MRI)-guided brachytherapy used as salvage for radiation therapy (RT) failure.
METHODS. From October 2000 to October 2005, 25 men with a rising PSA level and biopsy-proven, intraprostatic cancer at least 2 years after initial RT (external beam in 13 men and brachytherapy in 12 men) who had favorable clinical features (Gleason score ≤7, PSA <10 ng/mL, negative pelvic and bone imaging studies), received MRI-guided salvage brachytherapy to a minimum peripheral dose of 137 gray on a phase I/2 protocol. Estimates of toxicity and cancer control were calculated using the Kaplan-Meier method.
RESULTS. The median follow-up was 47 months. The 4-year estimate of grade 3 or 4 GI or GU toxicity was 30%, and 13% of patients required a colostomy and/or ureterostomy to repair a fistula. An interval <4.35 years between RT courses was associated with both outcomes with a hazard ratio of 12 (95% confidence interval [95% CI], 1.4–100; $P = .02$) for grade 3 or 4 toxicity and 25 (95% CI, 1.1–520; $P = .04$) for colostomy and/or ureterostomy. PSA control (nadir +2 definition) was 70% at 4 years.
CONCLUSIONS. The current results indicated that MRI-guided salvage brachytherapy in men who are selected based on presenting characteristics and postfailure PSA kinetics can achieve high PSA control rates, although complications requiring surgical intervention may occur in 10% to 15% of patients. Prospective randomized studies are needed to characterize the relative cancer control and toxicity after all forms of salvage local therapy. *Cancer* 2007;110:1405–02. © 2007 *American Cancer Society.*

KEYWORDS: salvage therapy, brachytherapy, magnetic resonance imaging, local neoplasm recurrence, prostate cancer, prostate-specific antigen.

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BRACHYTHERAPY

Brachytherapy 16 (2017) 291–298

Prostate

Salvage of locally recurrent prostate cancer after external beam radiation using reduced-dose brachytherapy with neoadjuvant plus adjuvant androgen deprivation

Brian C. Baumann[1,2,*,4], John C. Baumann[3,4], John P. Christodouleas[2], Edward Soffen[3]

Philadelphia, PA

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BRACHYTHERAPY

Brachytherapy 16 (2017) 1091–1098

Prostate

Salvage brachytherapy for recurrent prostate cancer after definitive radiation therapy: A comparison of low-dose-rate and high-dose-rate brachytherapy and the importance of prostate-specific antigen doubling time

Marisa A. Kollmeier[1,*], Sean McBride[1], Amandeep Taggar[1], Erik Anderson[1], Mary Lin[1], Xin Pei[1], Shi Weiji[2], Laszlo Voros[3], Gilad Cohen[3], Yoshiya Yamada[1], Michael J. Zelefsky[1]

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rrent Prostate Cancer After Previous Definitive Radiation Therapy: 5-Year Outcomes

Chien Peter Chen, MD, PhD,* Vivian Weinberg, PhD,† Katsuto Shinohara, MD,‡ Mack Roach, III, MD,§ Marc Nash, MD,§ Alexander Gottschalk, MD, PhD,§ Albert J. Chang, MD, PhD,§ and I-Chow Hsu, MD§

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A Phase II study of
treatment of locally
external beam radiotherapy

Yoshiya Yamada[1,*], Marisa A. Kollmeier[1], Xin Pei[1], Chu Cheng Kan[1], Gil'ad N. Cohen[2], Sherri M. Donat[3], Brett W. Cox[1], and Michael J. Zelefsky[1]

Advantages of HDR

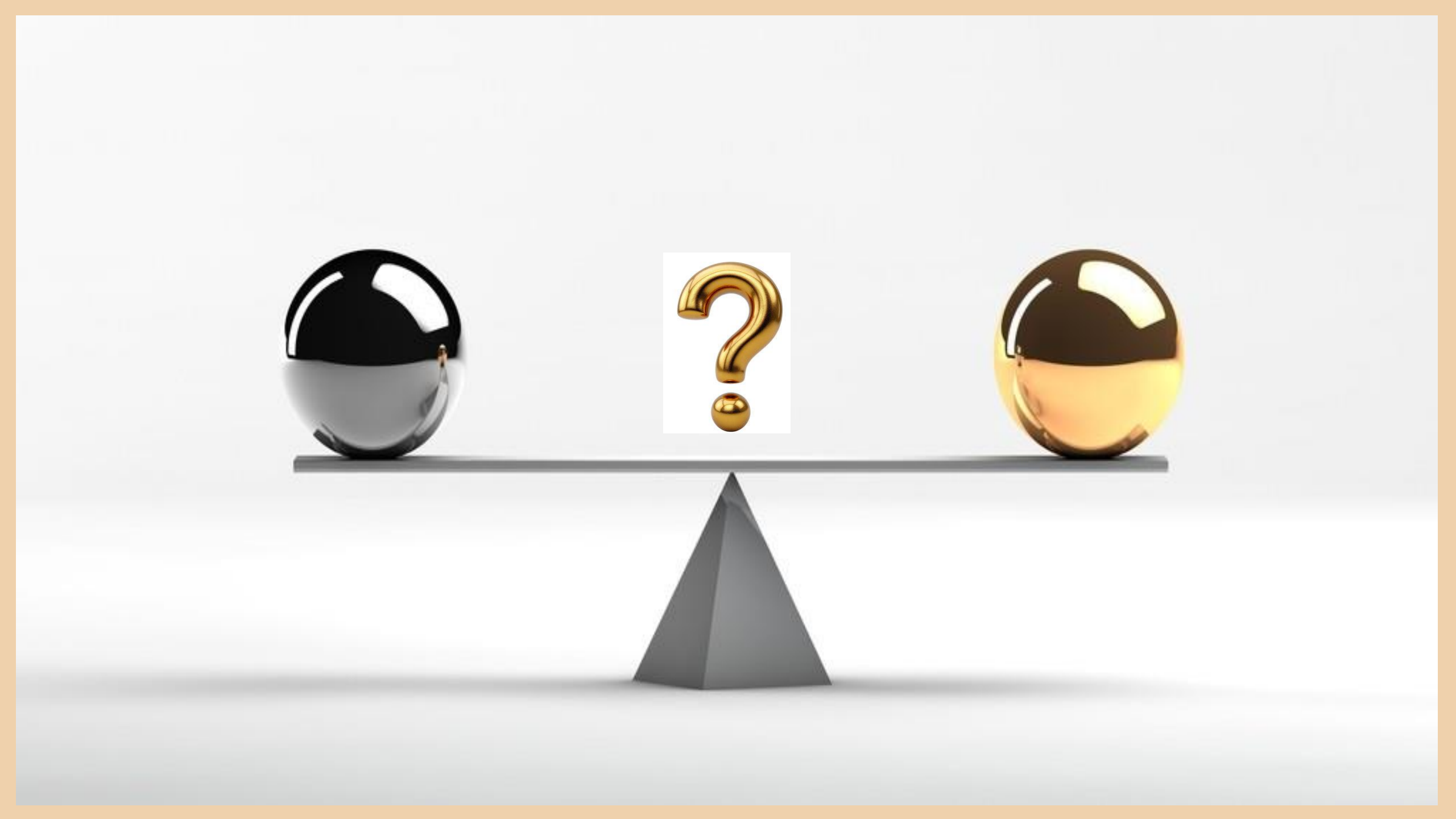
Less toxicity

Better dose shaping and focal control

Less urethral exposure

No seed migration


LDR/HDR HAS A LONGER TRACK RECORD, AND PROVEN EFFICACY AND SAFETY,



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European Association of Urology

Platinum Priority – Review – Prostate Cancer – Editor's Choice

Editorial by Jack Zheng and Juanita Crook on pp. 293–294 of this issue

A Systematic Review and Meta-analysis of Local Salvage Therapies After Radiotherapy for Prostate Cancer (MASTER)

Luca F. Valle [a,†], Eric J. Lehrer [b,†], Daniela Markovic [c], David Elashoff [c], Rebecca Levin-Epstein [a], R. Jeffery Karnes [d], Robert E. Reiter [e], Matthew Rettig [f,g], Jeremie Calais [h], Nicholas G. Nickols [a,i], Robert T. Dess [j], Daniel E. Spratt [j], Michael L. Steinberg [a], Paul L. Nguyen [k], Brian J. Davis [l], Nicholas G. Zaorsky [m], Amar U. Kishan [a,e,]*

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(Meta-analysis, heterogeneous cohorts, publication bias)

Comparison of Salvage Modalities: 2 and 5 year RFS

- Two-year RFS was significantly lower for HIFU
- **No other differences found for 2- or 5-yr RFS**

	2-yr RFS	5-yr RFS
Radical prostatectomy		
Adjusted percent[a] (95% CI)	72% (66–78%)	53% (46%–59%)
Odds ratio (95% CI)	1.0	1.0
p value	Reference	Reference
R^2 (%)	0.0	0.0
Cryotherapy		
Adjusted percent[a] (95% CI)	66% (59–72%)	57% (49–65%)
Odds ratio (95% CI)	0.74 (0.49–1.12)	1.20 (0.80–1.79)
p value	0.2	0.4
R^2 (%)	25	0.0
HIFU		
Adjusted percent[a] (95% CI)	52% (45%–59%)	46% (37%–55%)
Odds ratio (95% CI)	0.42 (0.28–0.64)	0.76 (0.48–1.21)
p value	<**0.001**	0.2
R^2 (%)	0.0	41
SBRT		
Adjusted percent[a] (95% CI)	58% (46–69%)	56% (37–73%)
Odds ratio (95% CI)	0.52 (0.30–0.93)	1.13 (0.50–2.58)
p value	0.03	0.8
R^2 (%)	55	4.2
HDR		
Adjusted percent[a] (95% CI)	77% (69–83%)	58% (52–64%)
Odds ratio (95% CI)	1.26 (0.77–2.09)	1.25 (0.88–1.78)
p value	0.4	0.2
R^2 (%)	0.0	91
LDR		
Adjusted percent[a] (95% CI)	79% (72–85%)	53% (43–63%)
Odds ratio (95% CI)	1.49 (0.89–2.50)	1.02 (0.63–1.67)
p value	0.13	0.9
R^2 (%)	4.3	5.2

Comparison of Salvage Modalities: Severe GU Toxicity

- HIFU highest rates of severe GU toxicity
- SBRT/HDR/LDR lowest severe GU toxicity
- Significant heterogeneity after accounting for covariates and limitations of study

	Severe GU toxicity (95% CI)
RP	21 (16–27)
Number of studies	43
Number of patients	1617
Heterogeneity (95% PI)	0.1–58
Cryotherapy	15 (10–22)
Number of studies	23
Number of patients	2618
Heterogeneity (95% PI)	0.0–48
HIFU	23 (17–29)
Number of studies	19
Number of patients	1737
Heterogeneity (95% PI)	4.2–49
SBRT	4.2 (0.8–9.1)
Number of studies	8
Number of patients	261
Heterogeneity (95% PI)	0.0–15
HDR	8.0 (5.1–11)
Number of studies	16
Number of patients	586
Heterogeneity (95% PI)	2.3–16
LDR	8.1 (4.3–13)
Number of studies	26
Number of patients	664
Heterogeneity (95% PI)	0.0–31

At The End of the Day, DATA MATTERS

Surgery

Cryoablation

HIFU

HDR brachytherapy

LDR brachytherapy

>

>

SBRT

If SBRT were better, wouldn't it outperform at least one of 5 techniques?

Data is too immature to predict final stature

THANK YOU

Lee Richstone, MD, FACS, FRCS

Professor and Chair

Northwell Urology at Lenox Hill Hospital

Rebuttal

Lee Richstone, MD, FACS, FRCS
Professor and Chair
Northwell Urology at Lenox Hill Hospital

I Will Concede: Early SBRT Data → Comparable Efficacy & Toxicity

	5-Year bPFS
SBRT	50-60%
Brachytherapy	50-60%
Radical Prostatectomy	50-60%
Cryotherapy	5-85%
HIFU	30-70%
TULSA	~50%

	Severe GU toxicity (95% CI)
RP	21 (16–27)
Number of studies	43
Number of patients	1617
Heterogeneity (95% PI)	0.1–58
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Contemporary sSBRT Showing **Equal** Outcomes to **Historical** Data

Retrospective studies of outdated techniques
Poorly selected patients
Lack modern imaging (MRI/PSMA)
Differing definitions of radio-recurrence
Differing definitions of biochemical failure
Heterogeneity in measuring toxicity
Publication (as well as other) biases
Meta-analyses of heterogeneous data

But sSBRT Data Is Simply Not as Robust

- **Largest** study is only **100 patients**
- **Across** 7 centers
- Treating **low risk** disease **- 55% Gleason ≤ 6**

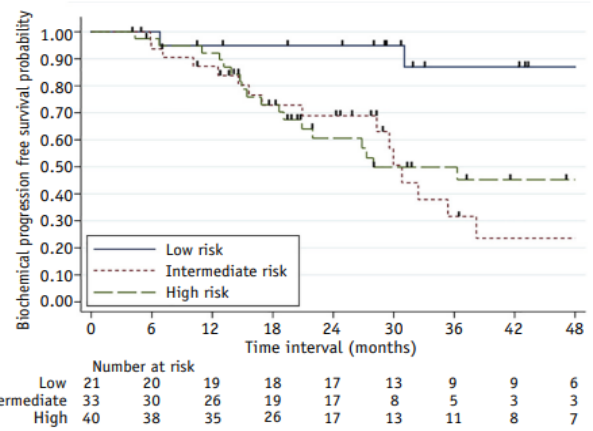
- **Short Follow Up** - **Median 29 months**
- **Concurrent ADT: 34%** (median 12 months)

- Actuarial 3-year grade ≥2 GU/GI toxicity was 20.8%
- **3-yr bRFS → 55%**

Clinical Investigation

Salvage Stereotactic Body Radiation Therapy for Local Prostate Cancer Recurrence After Radiation Therapy: A Retrospective Multicenter Study of the GETUG

David Pasquier, MD, PhD,*,† Geoffrey Martinage, MD,* Guillaume Janoray, MD,‡,§ Damaris Patricia Rojas, MD,‖ Dario Zerini, MD,‖ Flora Goupy, MD,¶ Renaud De Crevoisier, MD, PhD,¶,#,** Emilie Bogart, MSc,†† Gilles Calais, MD, PhD,‡,§ Alain Toledano, MD,‡‡ Laurent Chauveinc, MD, PhD,‡‡ Nathaniel Scher, MD,‡‡ Pierre Yves Bondiau, MD, PhD,§§ Jean Michel Hannoun-Levi, MD, PhD,§§ Marlon Silva, MD,‖‖ Emmanuel Meyer, MD,‖‖ Philippe Nickers, MD, PhD,* Thomas Lacornerie, MSc,¶¶ Barbara Alicja Jereczek-Fossa, MD, PhD,‖ and Eric Lartigau, MD, PhD*,†




Jumping The Gun
"Unexpected skippery"

Cancer Treatment Reviews 98 (2021) 102206

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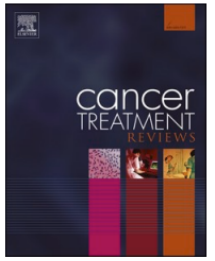


Hot Topic

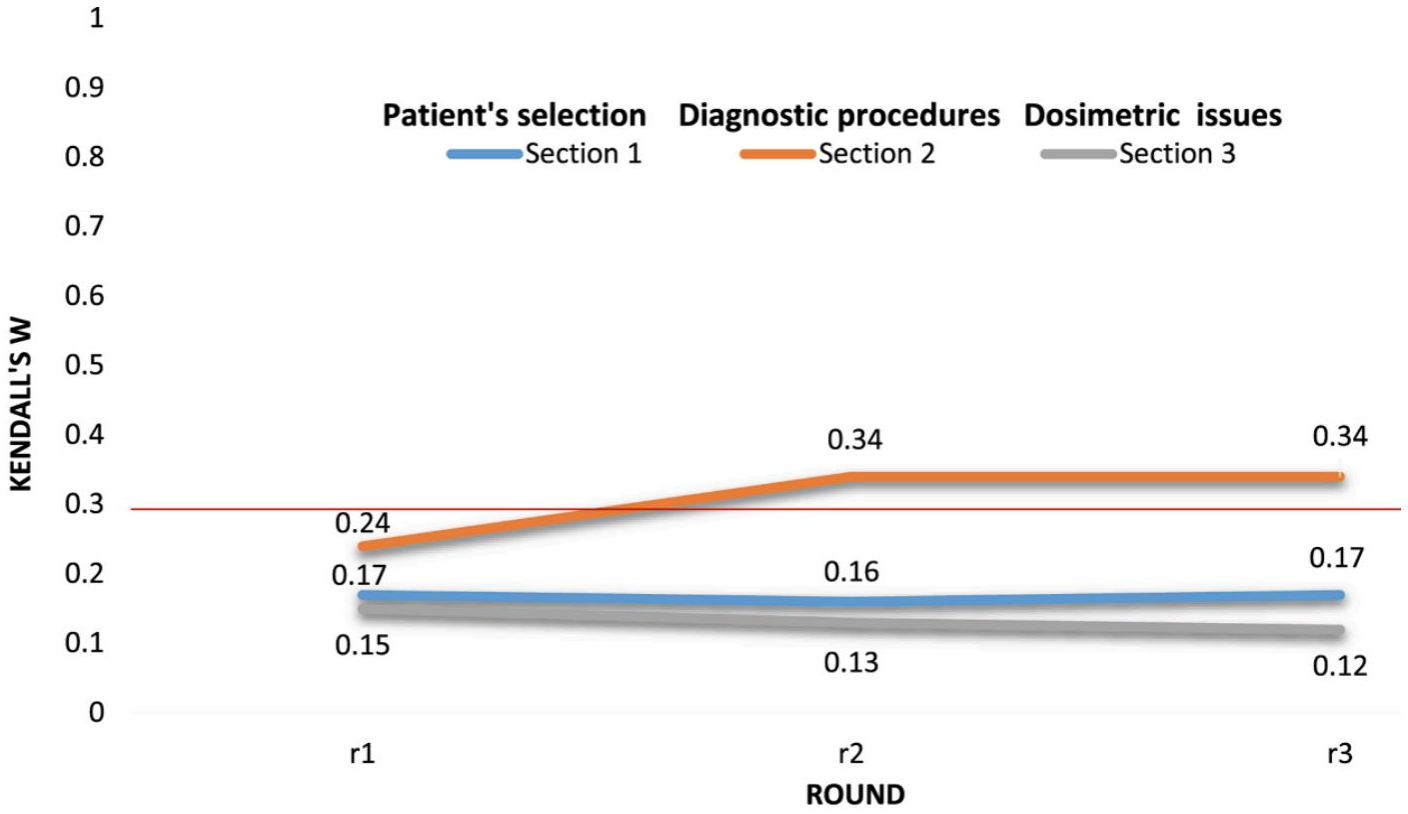
Salvage stereotactic body radiotherapy (SBRT) for intraprostatic relapse after prostate cancer radiotherapy: An ESTRO ACROP Delphi consensus

Barbara A. Jereczek-Fossa [a,b,1], Giulia Marvaso [a,b,1], Mattia Zaffaroni [a,*], Simone Giovanni Gugliandolo [a,c,d,2], Dario Zerini [a], Federica Corso [e,f], Sara Gandini [e], Filippo Alongi [g,h], Alberto Bossi [i], Philip Cornford [j], Berardino De Bari [k,l], Valérie Fonteyne [m], Peter Hoskin [n,o], Bradley R. Pieters [p], Alison C. Tree [q,r], Stefano Arcangeli [s], Donald B. Fuller [t], Ciro Franzese [u,v], Jean-Michel Hannoun-Levi [w], Guillaume Janoray [x,y], Linda Kerkmeijer [z], Young Kwok [aa], Lorenzo Livi [ab], Mauro Loi [ac], Raymond Miralbell [ad], David Pasquier [ae,af], Michael Pinkawa [ag], Nathaliel Scher [ah,ai], Marta Scorsetti [u,v], Mohamed Shelan [aj], Alain Toledano [ah,ai], Nicholas van As [ak], Andrea Vavassori [a], Thomas Zilli [al,am], Matteo Pepa [a,3], Piet Ost [m,3], on the behalf of the European Society for Radiotherapy, Oncology Advisory Committee on Radiation Oncology Practice (ESTRO ACROP)

"No international guidelines or clinical indications exist on the use of salvage SBRT"

"Re-irradiation of intraprostatic recurrence remains disputed"

Consensus Only on Diagnostic Procedures!



Professor Garg Said it Best

"Data is early"

"There are a lot of unknowns"

"I personally don't do it"

"Try to avoid it"

-Miami 1/3026-

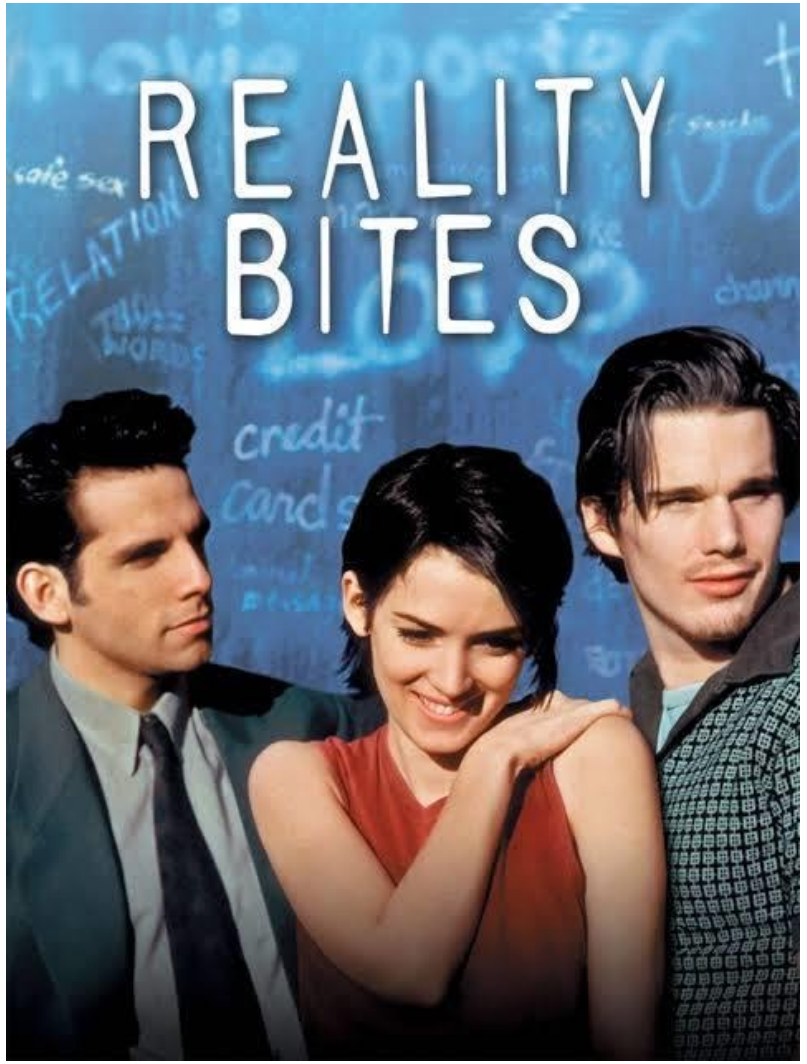
REALITY BITES: THERE IS NO “WINNER”

- SURGERY
  - Some just “want it out’ or “radiation didn’t work the first time”
  - Clarity of follow up and maximize local control

- RADIATION AND ABLATION
  - Minimally invasive and short-duration
  - “I don’t want needles” “I don’t want to be cut”

- FOCAL THERAPY
  - Preserve current high function and minimize risk
  - Chance to preserve erectile function

- PATIENT/TUMOR FACTORS
  - Poor surgical candidate or prior RT toxicity
  - Tumor location and extent



"Then, gentlemen, it is the consensus of this meeting that we say nothing, do nothing, and hope it all blows over before our next meeting."