

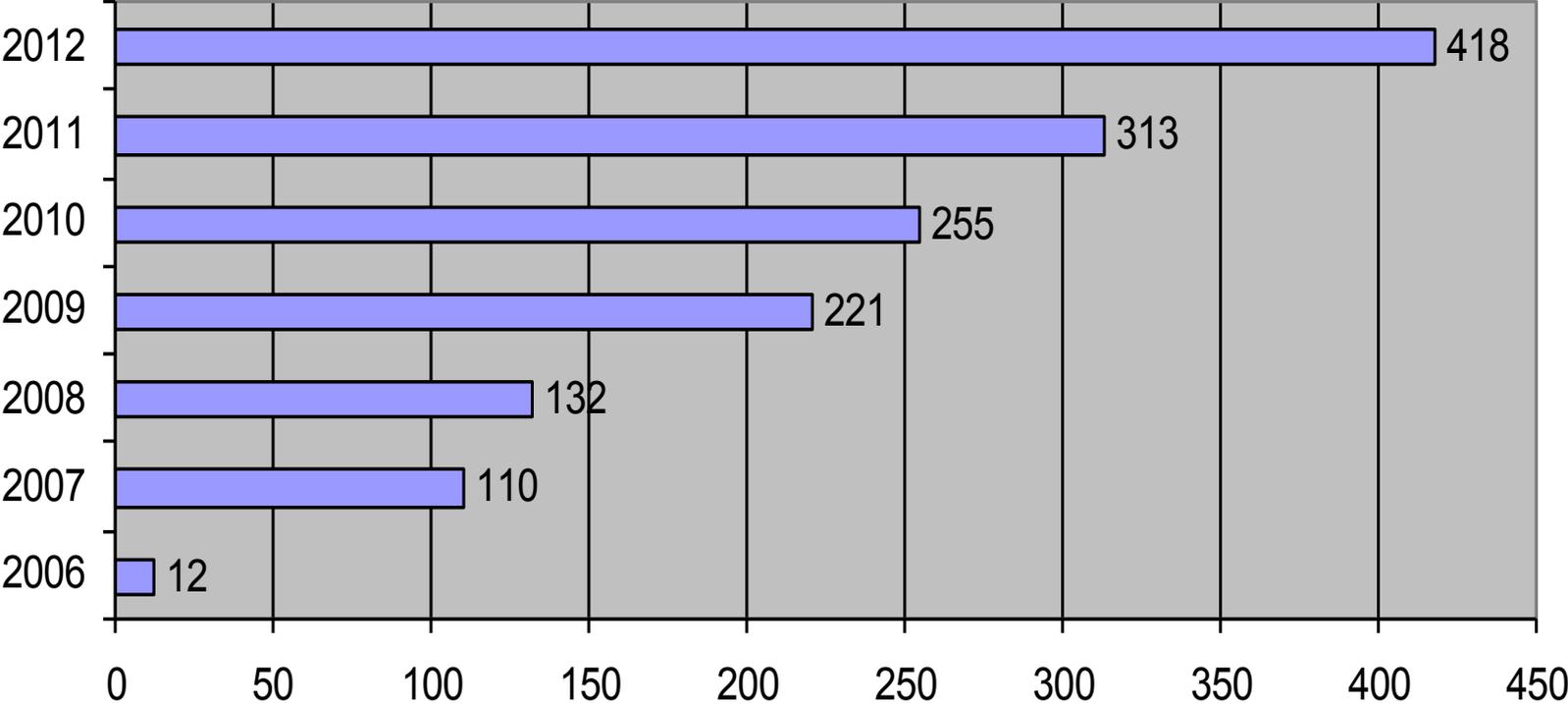
Novel trends in robot assisted
radical prostatectomy

Robotic surgery at its best after MRI

Gennaro Musi



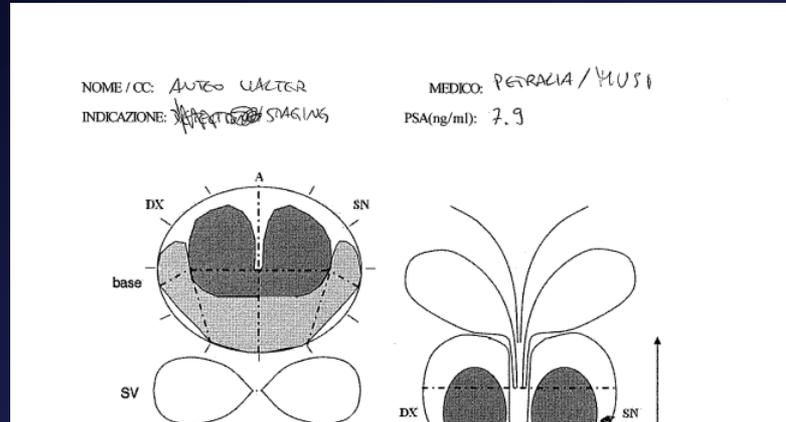
RALP IEO 1461



Robotic Results - 1461 patients

Variable	Comparison	Results
Age	Median (range)	64 (42-81)
cT	cT1c (%)	65.0%
	cT2 (%)	31.9%
	cT3 (%)	3.1%
Volume	Median (range)	40 (11-200)
PSApreInt	Median (range)	6.4 (0.4-33.0)
GS biop	Median (range)	6 (2-9)
pT*	pT0 (%)	0.5%
	pT2 (%)	60.6%
	pT3 (%)	38.3%
	pT4 (%)	0.6 %
GS post	Median (range)	7 (4-9)
Surgical time	Global Time Median (range)	240 (120-600)
Blood loss ml	Median (range)	200 (50-2000)
Catheter removal	Median (range)	6 (4-55)

375 pts RALP MRI pre and related intraoperative frozen section (RIFS)



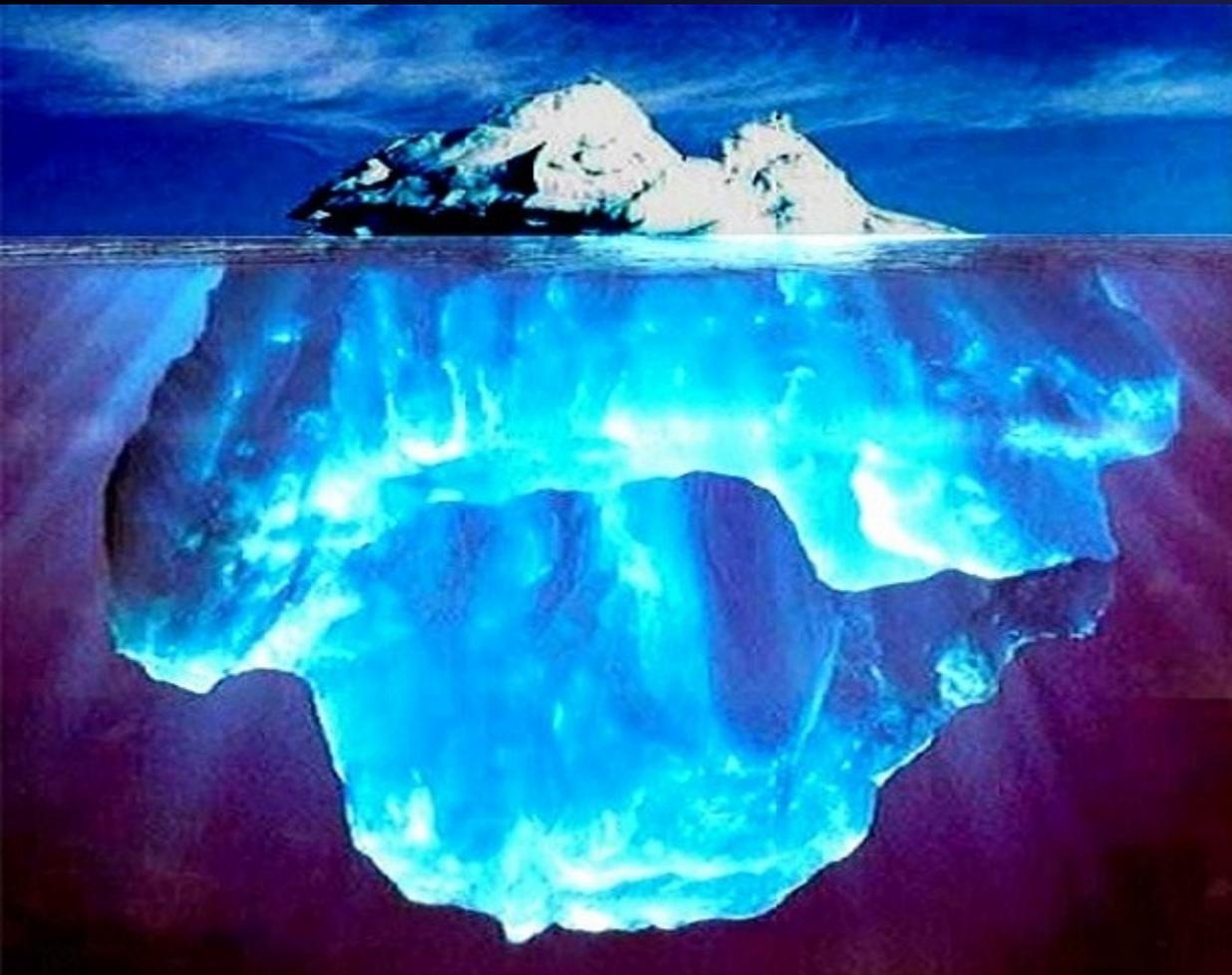
Why do we need this?

LESION	SIZE	SITE	T2W	DW	PERF	CONTACT WITH CAPSULE	PI-RADS
1	7	PE	4	5	1	YES	4
2							
3							
4							
5							

T2W, DW, PERF → From 1 (definitely benign) to 5 (definitely malignant)
 Contact with capsule (yes or no)
 Site (PZ, TZ, SFA)

PI-RADS: 1 (clinically significant disease highly un-likely)
 2 (clinically significant disease un-likely)
 3 (clinically significant disease is equivocal)
 4 (clinically significant disease is likely)
 5 (clinically significant disease is highly likely)

NOTES: _____



Prostate biopsy

Definitive
histology

Facebook Cover Photo



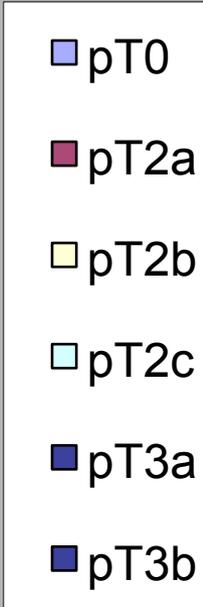
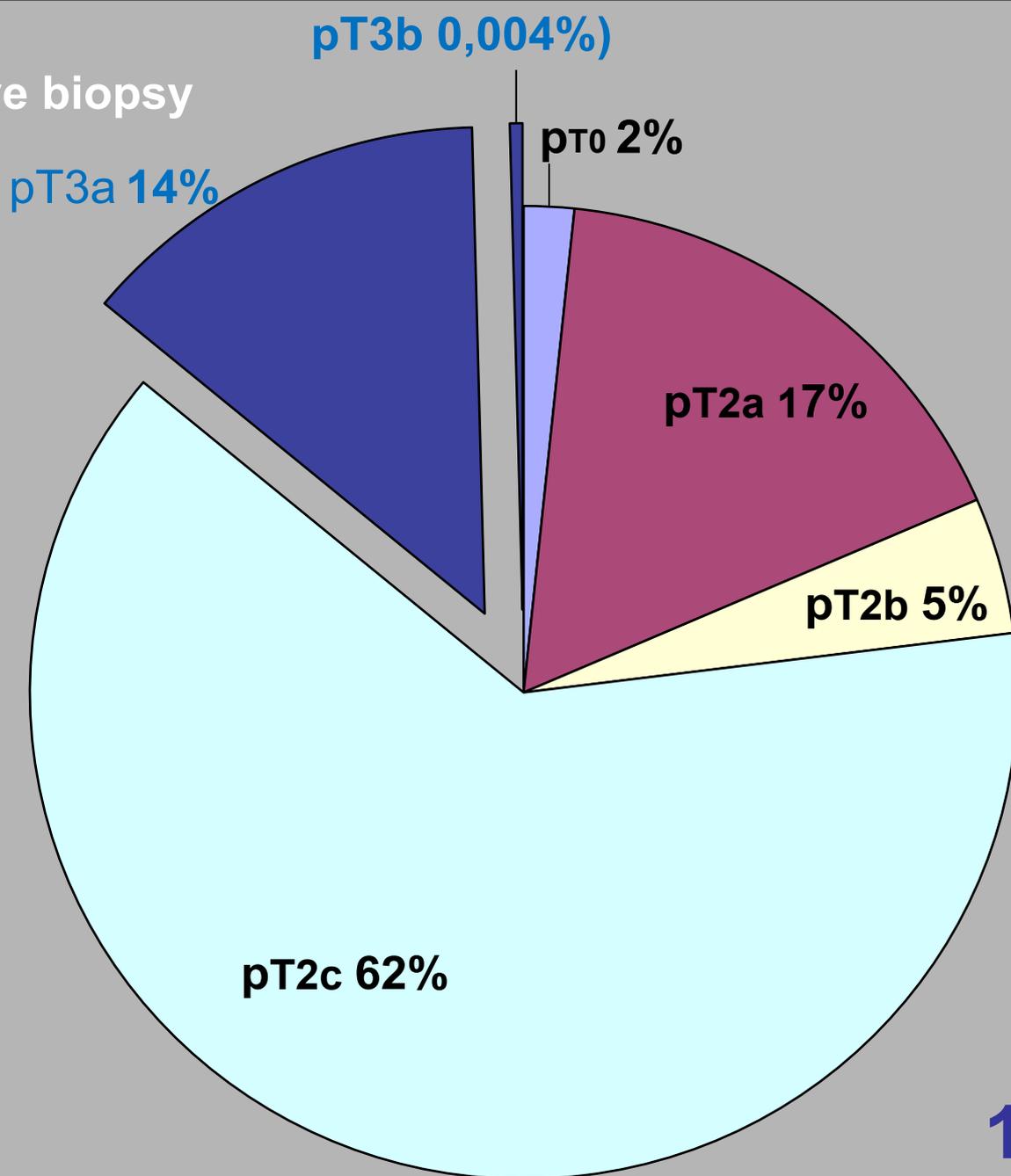
Actual Photo



Prostate biopsy

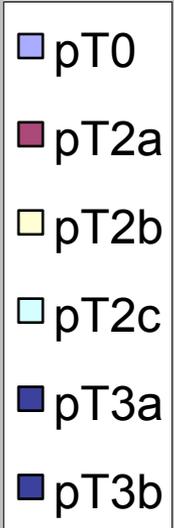
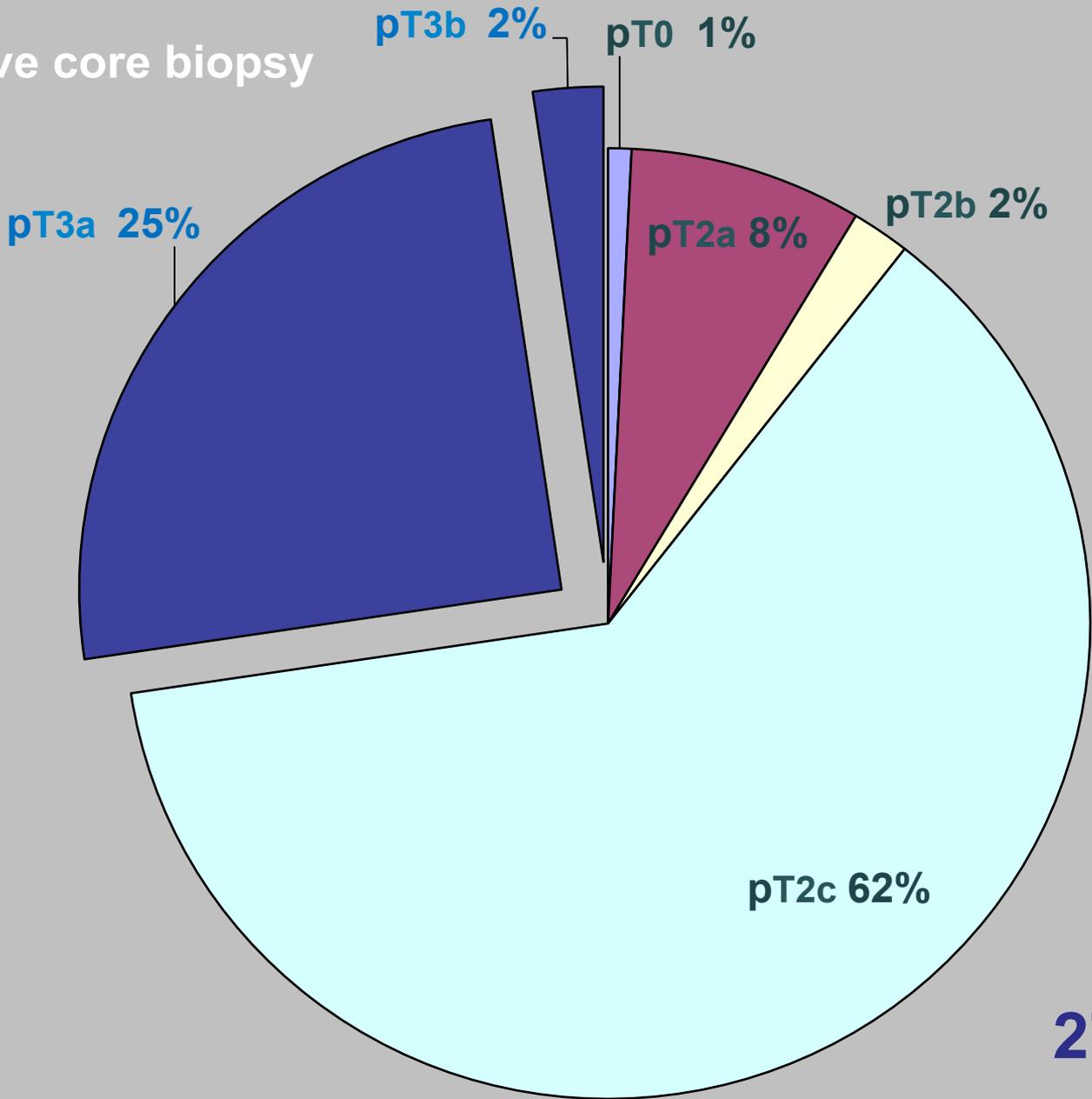
Definitive
histology

1 core positive biopsy
247 pts



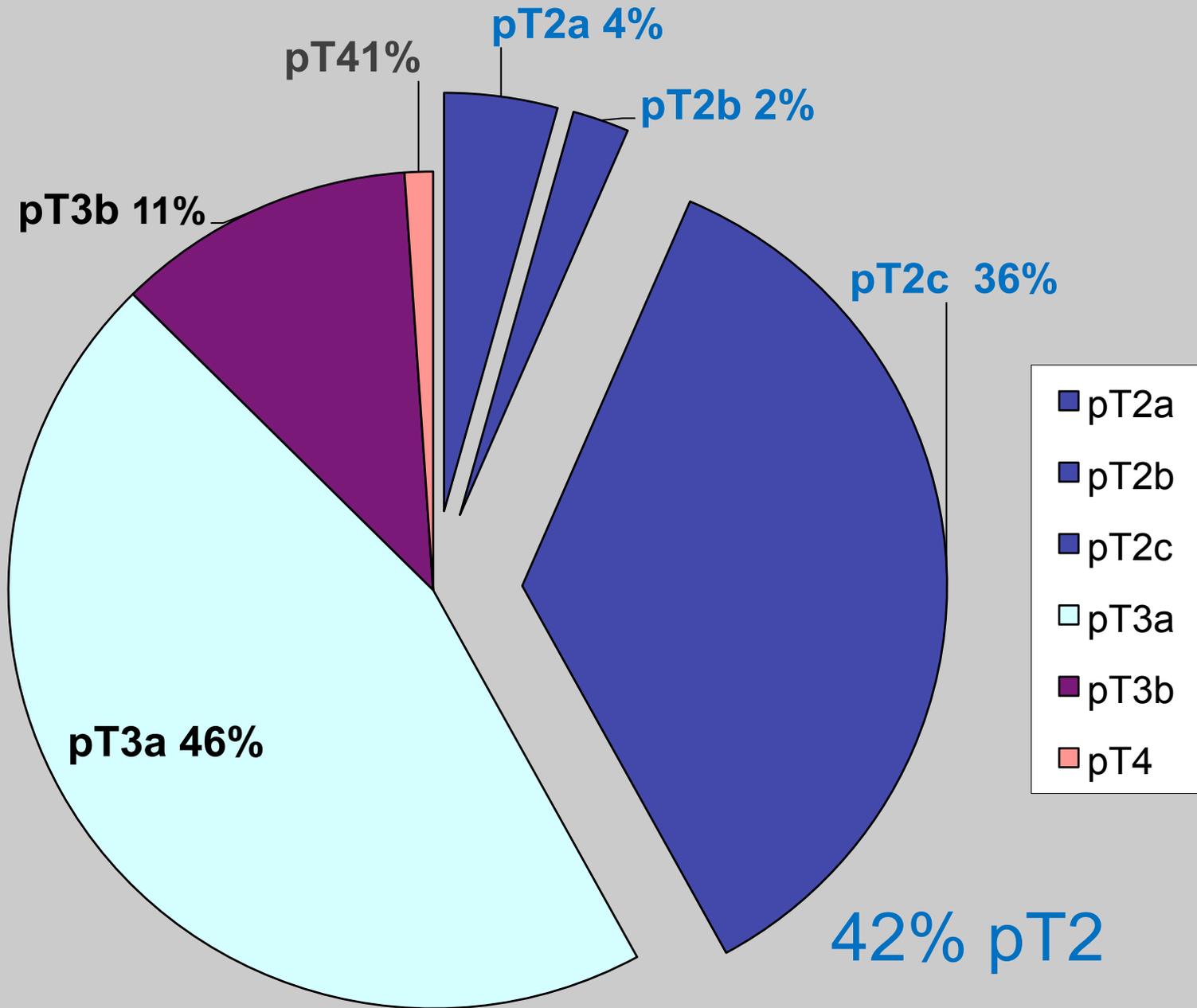
14% pT3

2 positive core biopsy
258 pts

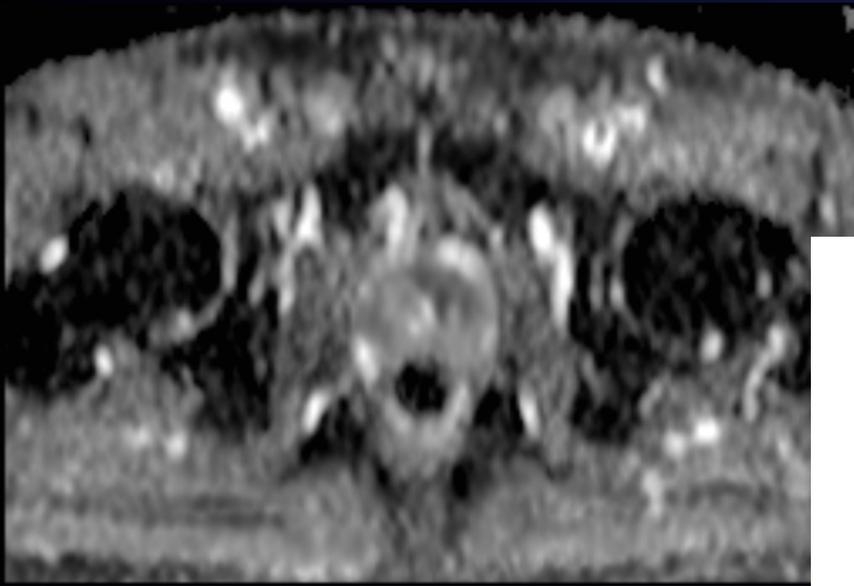


27% pT3

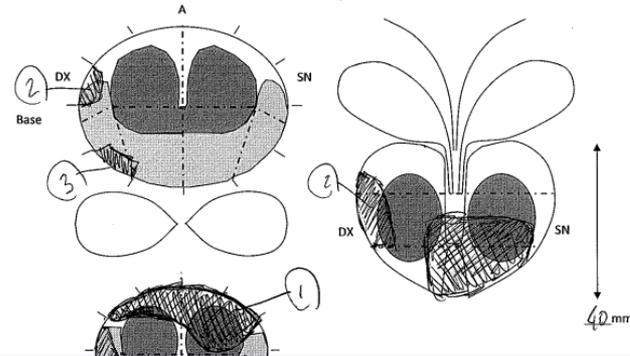
cT2
476 pts



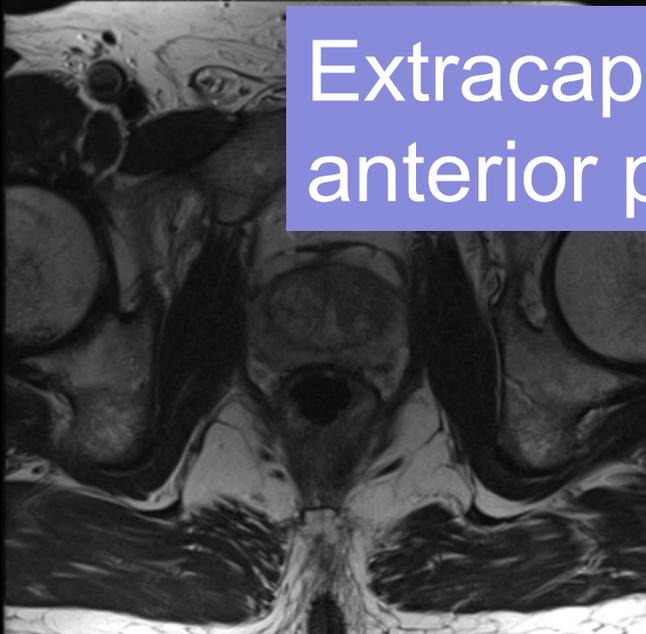
Bilateral nerve sparing



NAME: REGAZZONI GIACOMO DOCTOR: PECUNIA / ROSI
 INDICATION: STAGING PSA (ng/ml): 15



Extracapsular extension in anterior part pT3a R0



Lesion	Size	Site	Distance from Apex	T2W	DWI	PERF	Contact with Capsule	PI-RADS
1	27	AP5+TZ	/	5	5	1	Yes (body of)	5
2	24	P2	11	4	2	1	Yes	2
3	21	P2	23	2	3	1	Yes	2
4								
5								

T2W, DW, PERF → From 1 = definitely benign to 5 = definitely malignant
 Contact with capsule (YES or NO)
 Site (P2, TZ, AFS)

PI-RADS: clinically significant disease is 1 = highly unlikely
 2 = unlikely
 3 = equivocal
 4 = likely
 5 = highly likely

NOTES: apopleic TC (45 x 32 x 35 mm)
alterazione diffusa sp. si estende out sup. SN

Bilateral nerve sparing

iPSA: 37.5 ng/ml

cT1c

3/14 zone 70%-10% cores

Extracapsular extension
in anterior part pT3a R0

NOME PAZIENTE: PERONACI VITTORIO; 12013352
MEDICO: CALABRESE / ALBERTI / MUSI / DATA RM: 29/03/2012 PSA(ng/ml): 37,5



epox

LESION	SIZE	SITE	T2W	DW	PERF	CONTACT WITH CAPSULE	PI-RADS
1	3.1	T2	5	5	4	YES	5
2	3.8	P2	5	5	4	YES	5
3	1.5	P2	5	5	4	YES	5
4							
5							

T2W, DW, PERF → From 1 (definitely benign) to 5 (definitely malignant)
Contact with capsule (yes or no)
Site (P2, T2, SFA)

PI-RADS: 1 (clinically significant disease highly unlikely),
2 (clinically significant disease unlikely),
3 (clinically significant disease equivocal),
4 (clinically significant disease likely),
5 (clinically significant disease highly likely).

LYMPH NODES:

NOTES: possibile frattura del tronco ALC. ILIACO SIN.

Nerve sparing in cT2

- No MRI
- cT2: 358 pts
- Bilateral nerve Sparing: 57 pts (15.9%)

- Pre MRI and RIFS
- cT2: 111 pts
- Bilateral nerve Sparing: 33 pts (32.4%)

Nerve sparing can preserve orgasmic function in most men after robotic-assisted laparoscopic radical prostatectomy

Ashutosh Tewari, Sonal Grover, Prasanna Sooriakumaran, Abhishek Srivastava, Sandhya Rao, Amit Gupta, Robert Gray, Robert Leung and Darius A. Paduch*

*Prostate Cancer Institute and Lefrak Center of Robotic Surgery, *Center for Male Reproductive Medicine and Microsurgery, James Buchanan Brady Foundation, Department of Urology, Weill Medical College of Cornell University, New York, NY, USA*

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European Association of Urology

Platinum Priority – Prostate Cancer

Editorial by XXX on pp. x–y of this issue

Effect of a Risk-stratified Grade of Nerve-sparing Technique on Early Return of Continence After Robot-assisted Laparoscopic Radical Prostatectomy

Abhishek Srivastava^a, Sameer Chopra^a, Anthony Pham^a, Prasanna Sooriakumaran^a, Matthieu Durand^a, Bilal Chughtai^a, Siobhan Gruschow^a, Alexandra Peysen^a, Niyati Harraoia^a, Robert Leung^a, Richard Lee^a, Michael Herman^a, Brian Robinson^b, Maric Ashutosh Tewari^{a,*}

Pathological confirmation of nerve-sparing types performed during robot-assisted radical prostatectomy (RARP)

Woo Jin Ko, Gregory W. Hruby*, Andrew T. Turk[‡], Jaime Landman[†] and Ketan K. Badani*

Department of Urology, National Health Insurance Corporation Insan Hospital, Goyang, South Korea; Departments of [†]Urology and [‡]Pathology, Columbia University Medical Center, New York, NY; and ^{}Department of Urology, University of California Irvine, Irvine, Orange, CA, USA*

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Surgery in Motion

Current Technique of Open Intrafascial Nerve-Sparing Retropubic Prostatectomy

Lars Budäus^{a,b,*}, Hendrik Isbarn^{a,b}, Thorsten Schlömm^a, Hans Heinzer^a, Alexander Haese^a, Georg Salomon^a, Hartwig Huland^a, Markus Graefen^a

*^aer Centre Hamburg-Eppendorf, Hamburg, Germany
^bEppendorf, Department of Urology, Hamburg, Germany*



Anatomy of neurovascular bundles

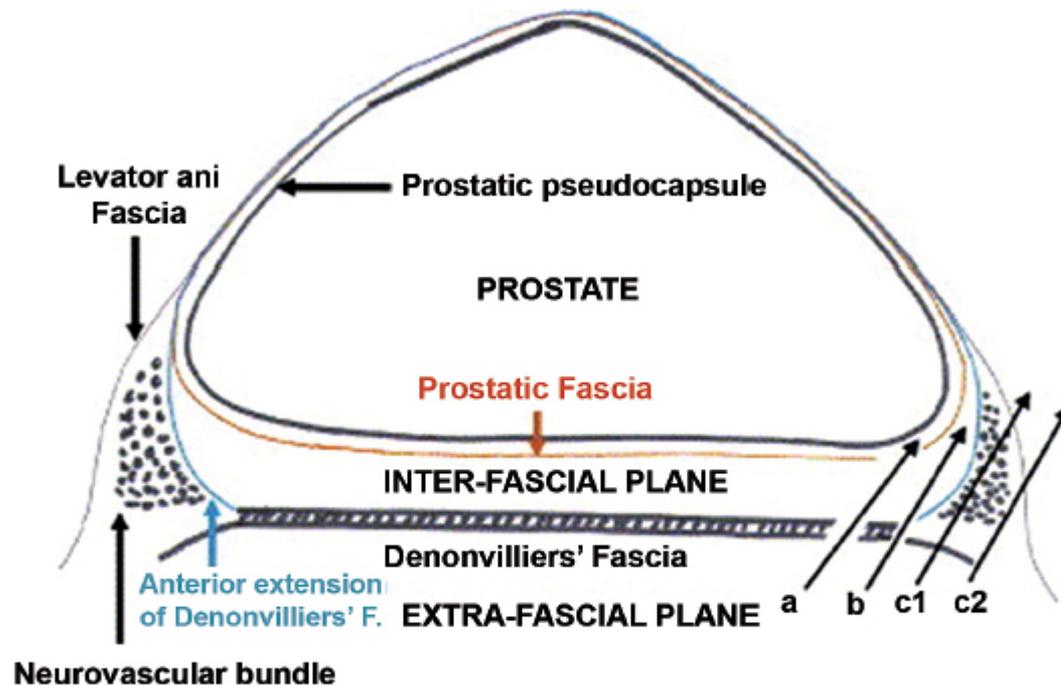
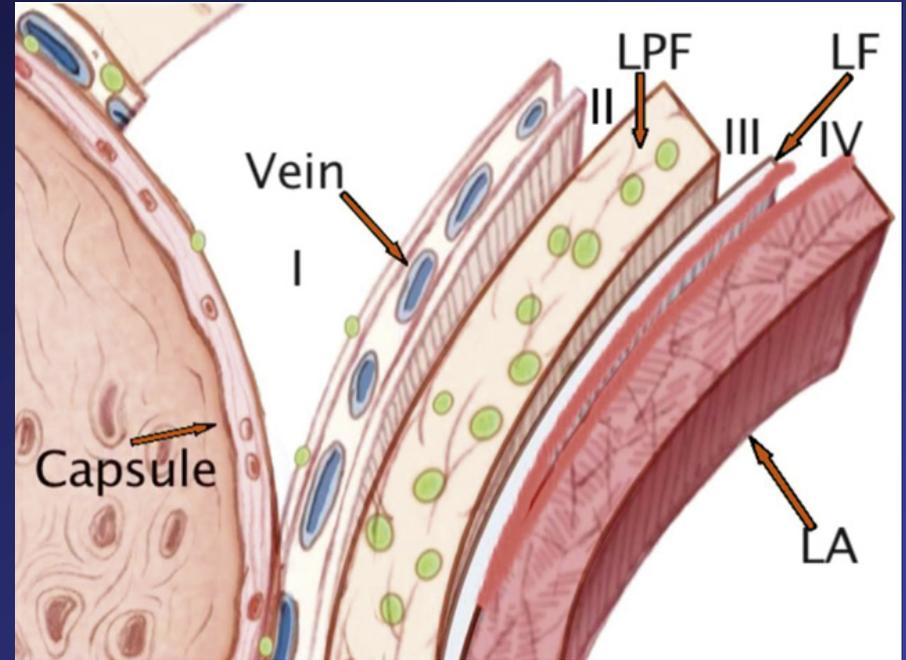
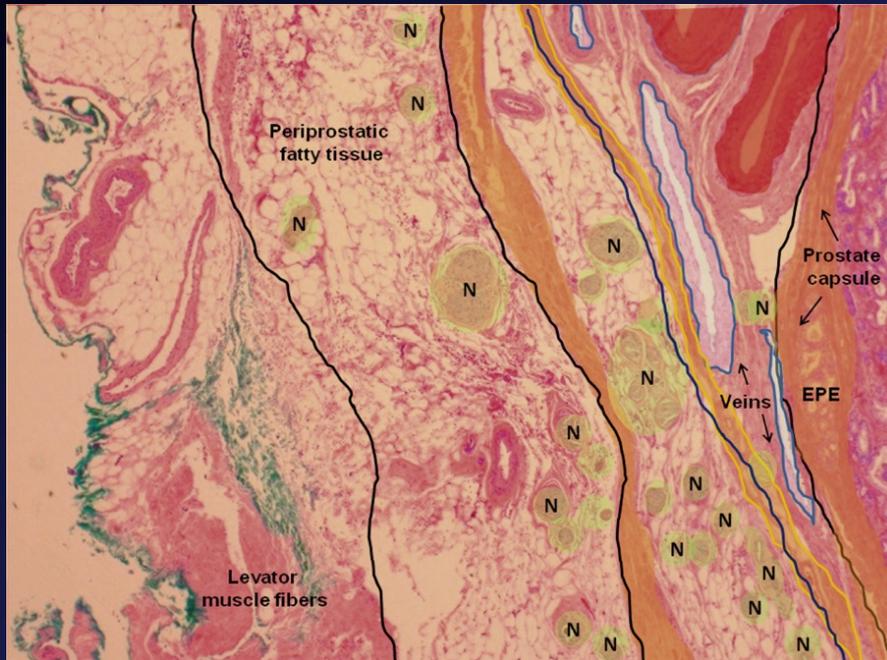


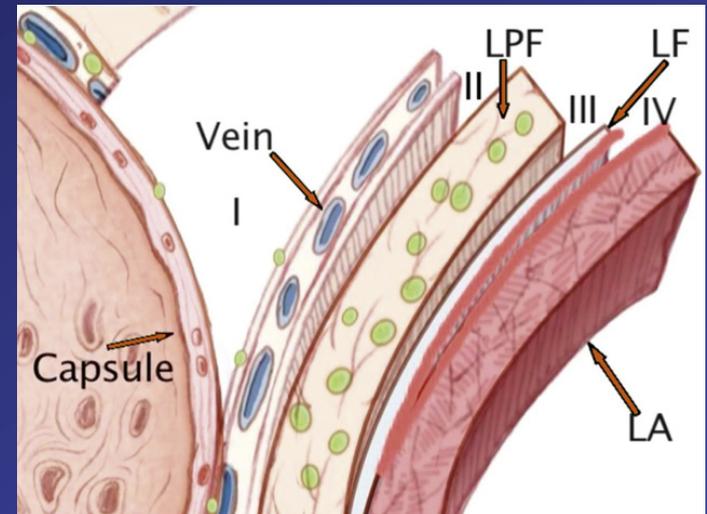
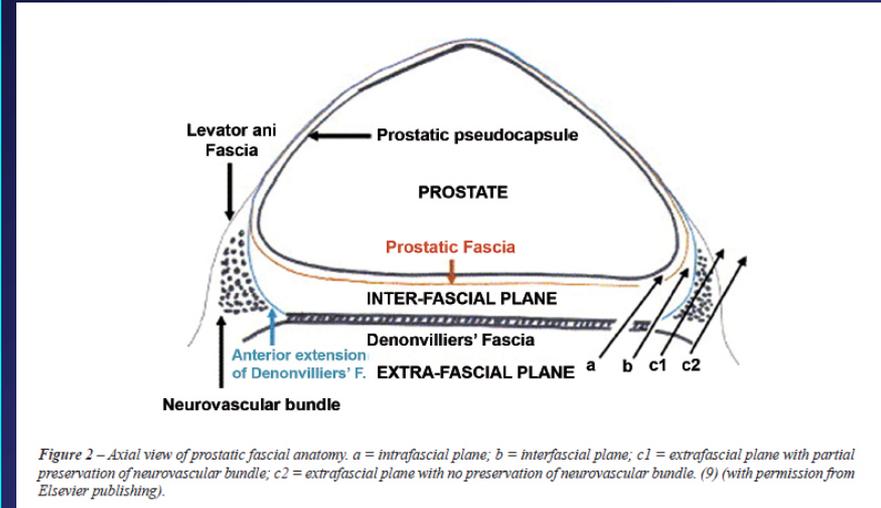
Figure 2 – Axial view of prostatic fascial anatomy. a = intrafascial plane; b = interfascial plane; c1 = extrafascial plane with partial preservation of neurovascular bundle; c2 = extrafascial plane with no preservation of neurovascular bundle. (9) (with permission from Elsevier publishing).

Anatomy of neurovascular bundles

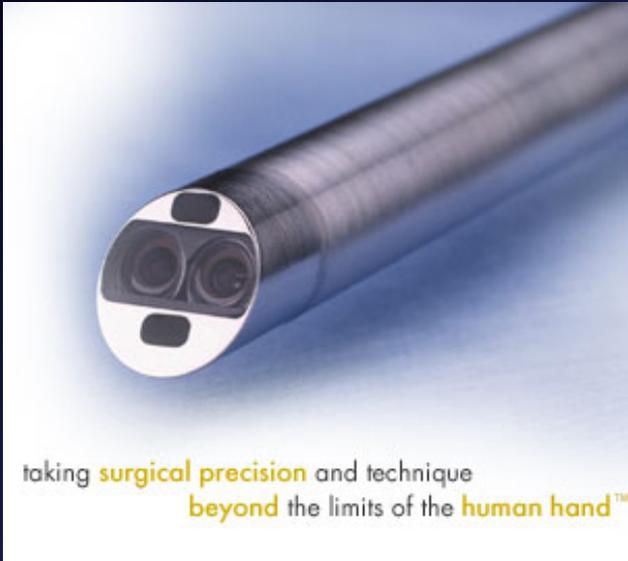


Histology of non-nerve-sparing radical prostatectomy specimen with wide excision of adjacent tissue. Note the distribution of nerve fibers (highlighted in green) in the periprostatic fascial layers. N = nerve;

Anatomy of neurovascular bundles



Better visualization



Twin optical paths, fused to give
3-D image

Surgeon is immersed in 3-D
image of surgical field



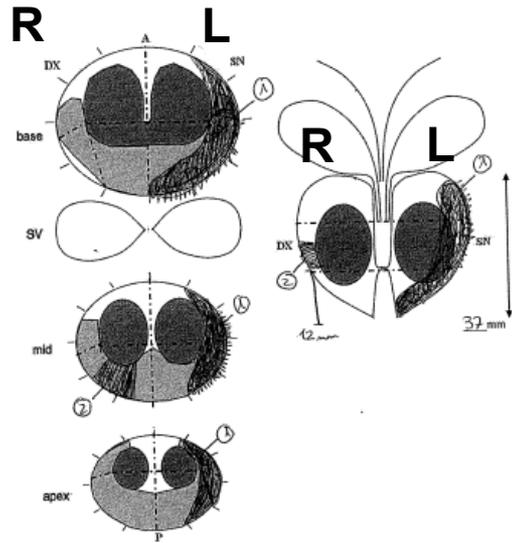
3-D images

Endo-wrist technology



NOME/CO: VALENTINI ALBERTO ENRICO
 INDICAZIONE: SINGING

MEDICO: PETRALIA / MUSI
 PSA(ng/ml): 0,9

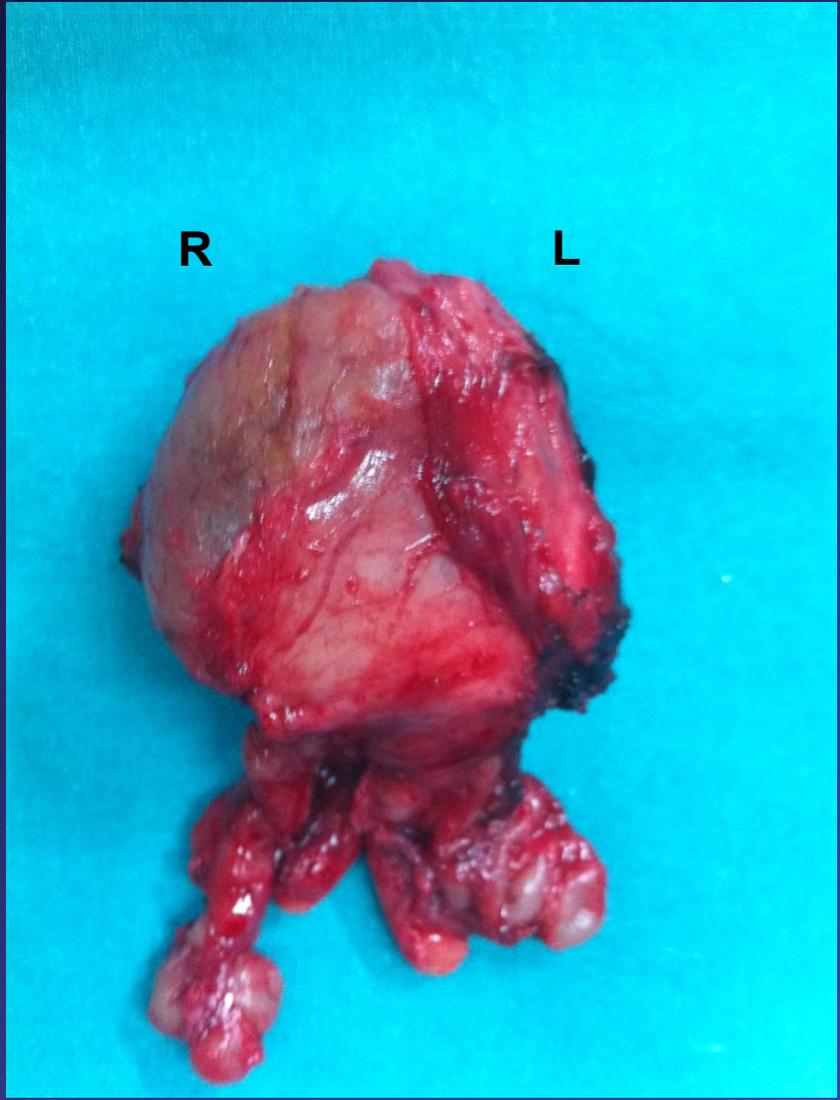


LESION	SIZE	SITE	TZW	DW	PERF	CONTACT WITH CAPSULE	PI-RADS
1	26	PZ	5	5	5	YES (lobular)	5
2	7	PZ	3	3	4	YES	3
3							
4							
5							

TZW, DW, PERF → From 1 (definitely benign) to 5 (definitely malignant)
 Contact with capsule (yes or no)
 Site (PZ, TZ, SFA)

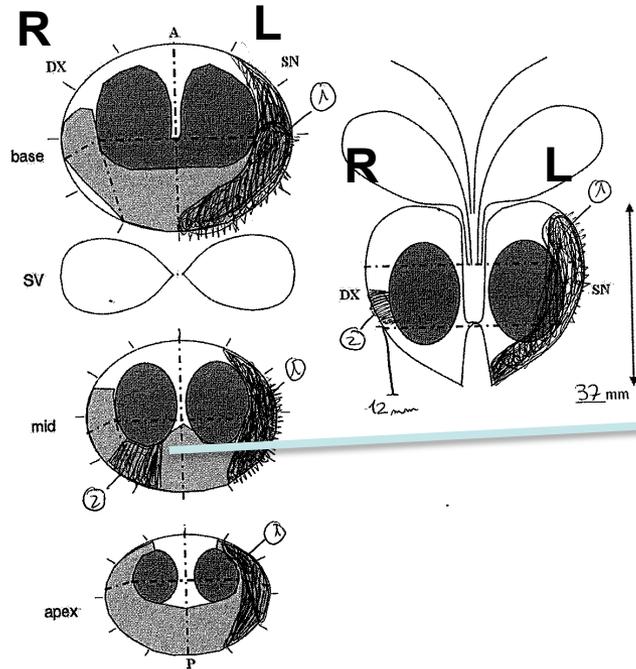
PI-RADS: 1 (clinically significant disease highly unlikely)
 2 (clinically significant disease unlikely)
 3 (clinically significant disease is equivocal)
 4 (clinically significant disease is likely)
 5 (clinically significant disease is highly likely)

NOTES: _____



NOME/CC: VALONTINI ALBERTO ENRICO
 INDICAZIONE: STAGING

MEDICO: PETRALIA / MUSI
 PSA(ng/ml): 0.9

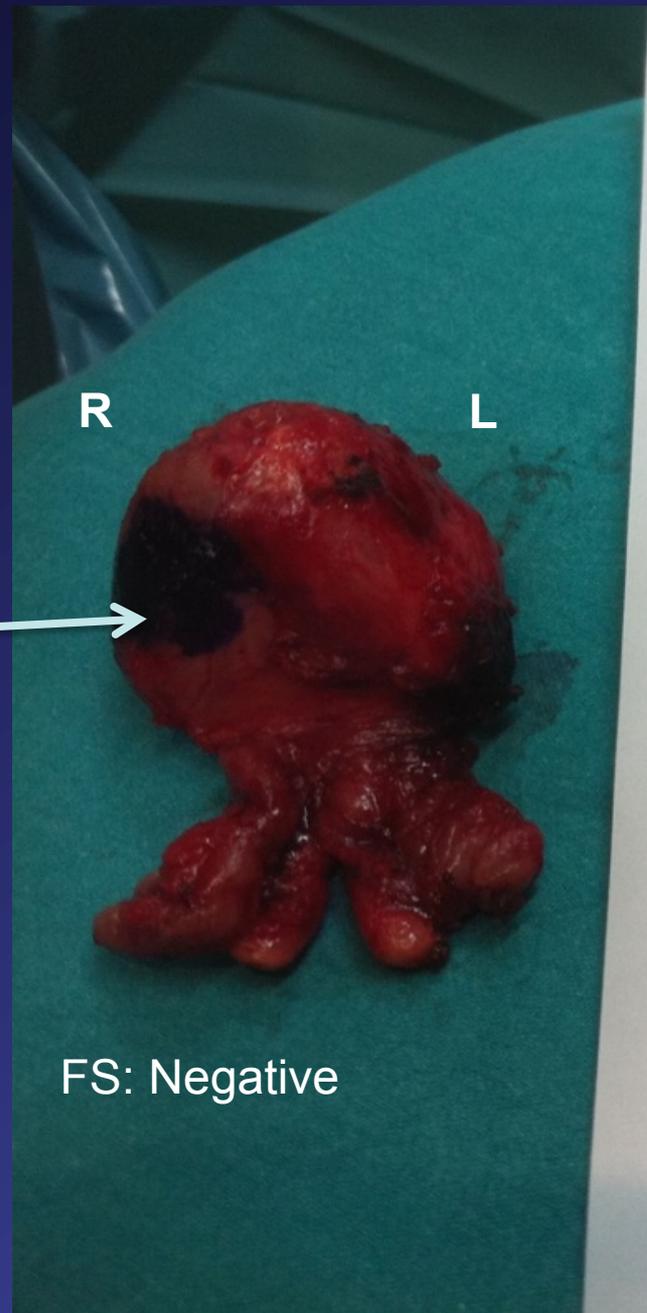


LESION	SIZE	SITE	T2W	DW	PERF	CONTACT WITH CAPSULE	PI-RADS
1	26	PZ	5	5	5	YES (bulging)	5
2	7	PZ	3	3	4	YES	3
3							
4							
5							

T2W, DW, PERF → From 1 (definitely benign) to 5 (definitely malignant)
 Contact with capsule (yes or no)
 Site (PZ, TZ, SFA)

PI-RADS: 1 (clinically significant disease highly un-likely)
 2 (clinically significant disease un-likely)
 3 (clinically significant disease is equivocal)
 4 (clinically significant disease is likely)
 5 (clinically significant disease is highly likely)

NOTES: _____



FS: Negative

iPSA: 7.3

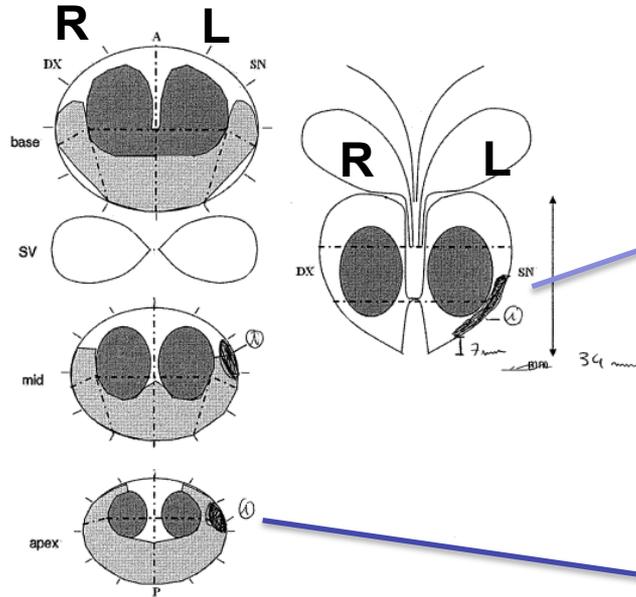
Gleason 3+3

2/14 positive biopsies 5% and 10%

Bilateral nerve sparing

NOME/CC: ANTONIO WALTER
INDICAZIONE: ~~PROSTATECTOMIA~~ STAGING

MEDICO: PERRACIA / YOUSSEF
PSA(ng/ml): 7.9

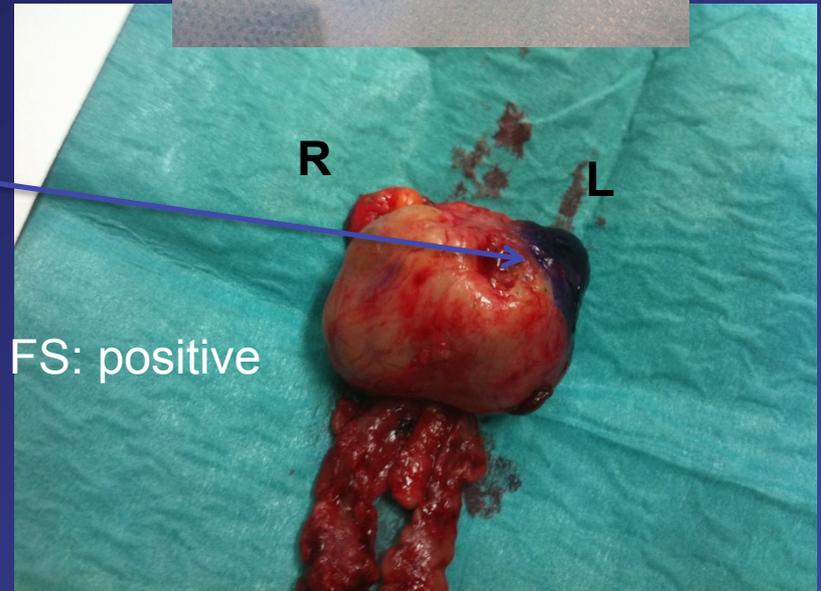


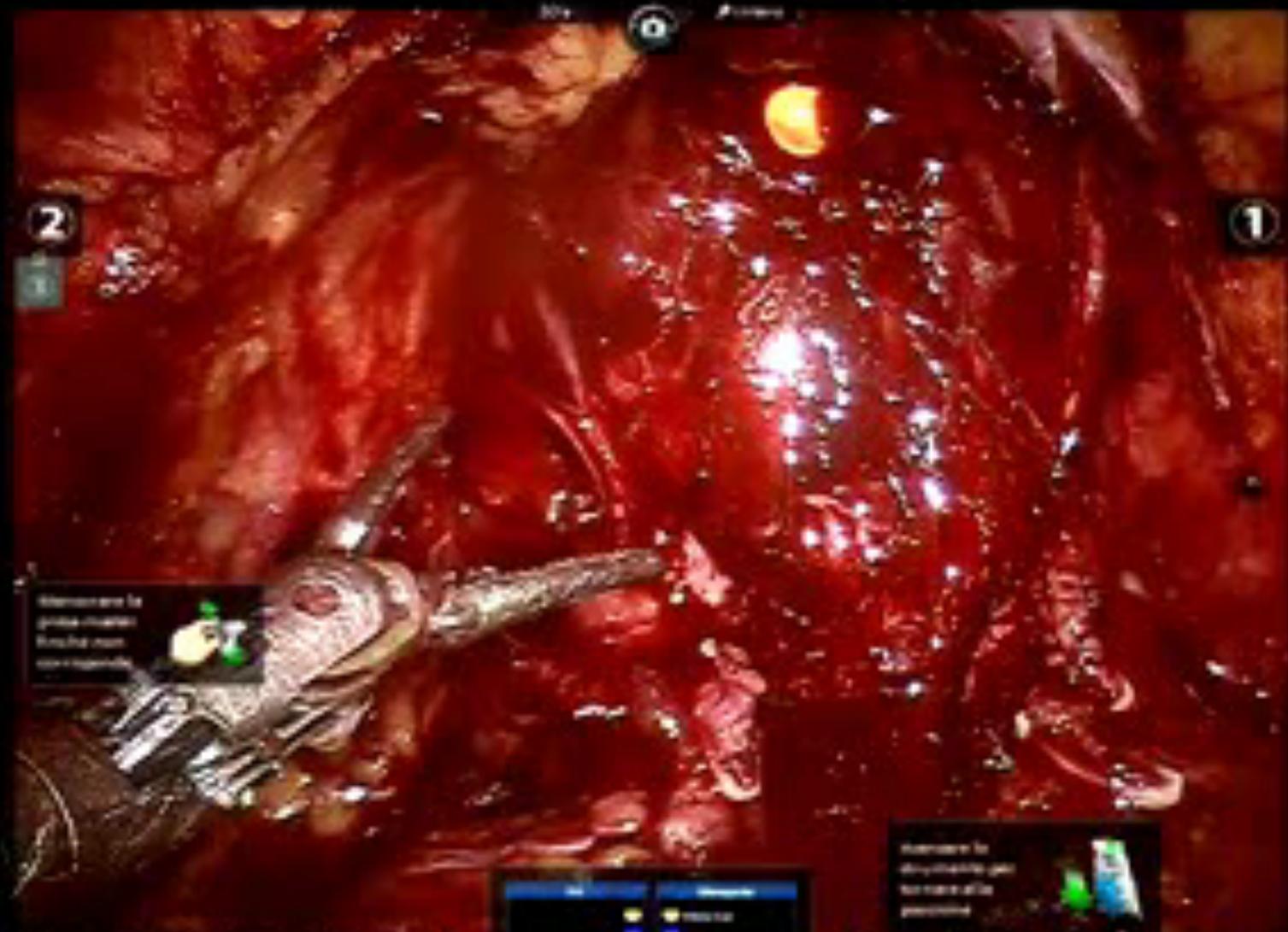
LESION	SIZE	SITE	T2W	DW	PERF	CONTACT WITH CAPSULE	PI-RADS
1	7	RZ	4	5	1	YES	4
2							
3							
4							
5							

T2W, DW, PERF → From 1 (definitely benign) to 5 (definitely malignant)
Contact with capsule (yes or no)
Site (PZ, TZ, SFA)

PI-RADS: 1 (clinically significant disease highly unlikely)
2 (clinically significant disease unlikely)
3 (clinically significant disease is equivocal)
4 (clinically significant disease is likely)
5 (clinically significant disease is highly likely)

NOTES: _____





2

1

Remember to
grasp muscle
fascia near
the tendon.

Remember to
dissect the fat
for most of the
prostate.

Labels
Legend

PK Dissecting Forceps

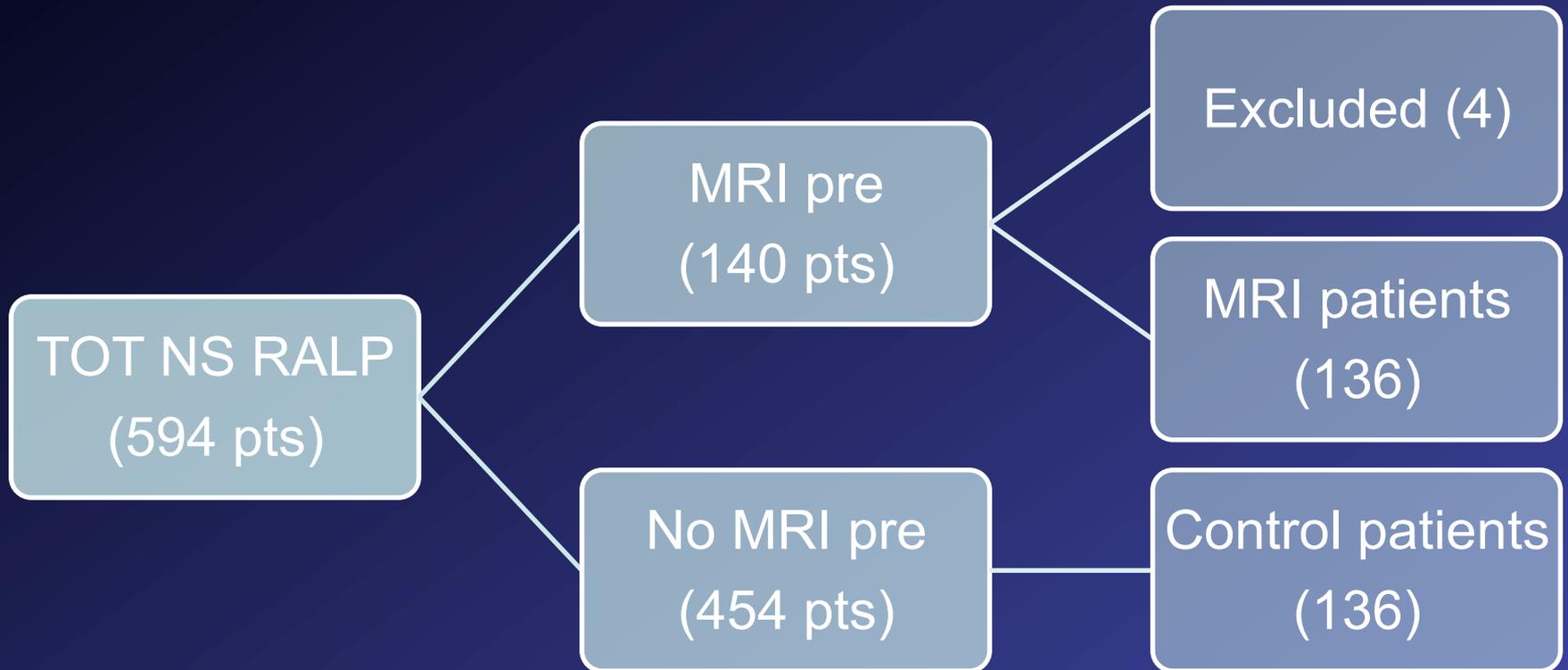
PK Dissecting Forceps	Monopolar Curved Scissors

Monopolar Curved Scissors

MRI and RIFS

Evaluation of positive surgical margin

(From January 2010 to May 2012)

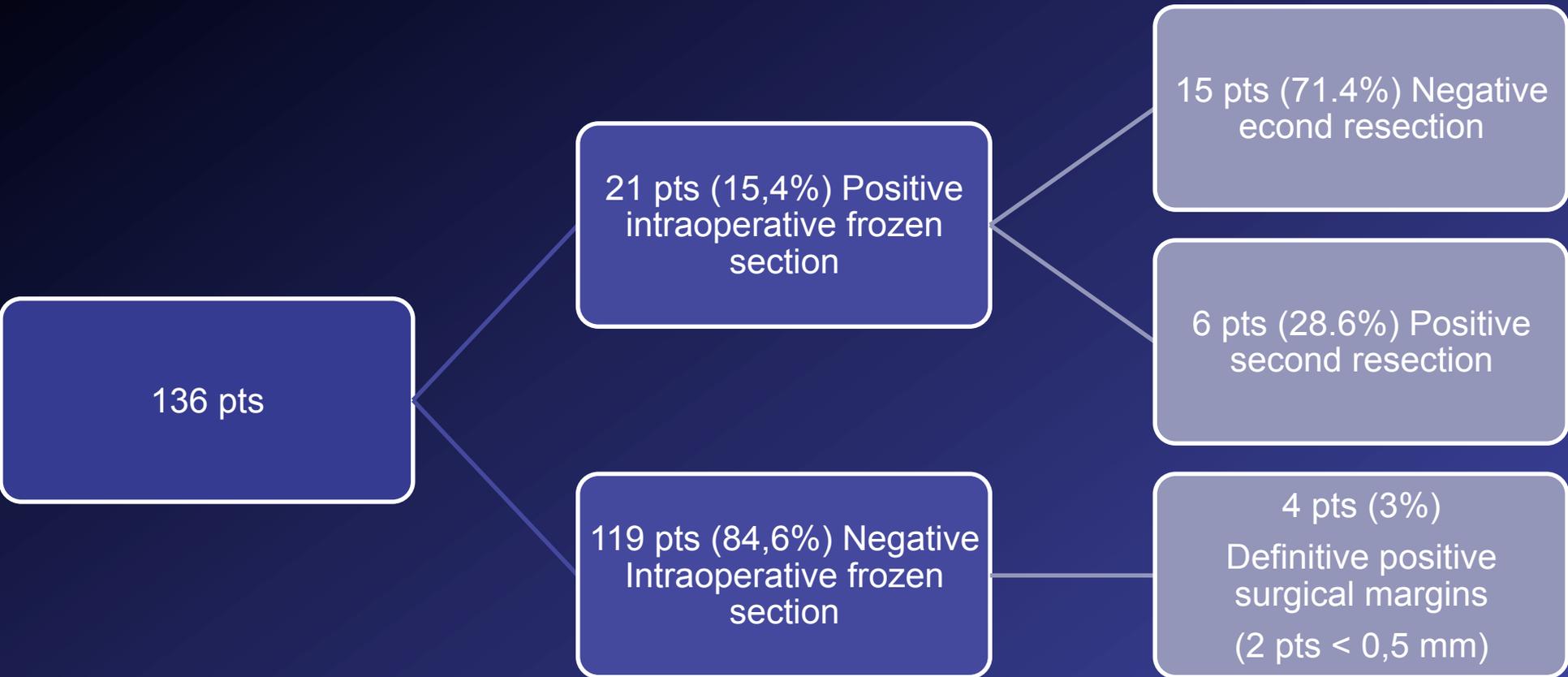


- No MRI
- cT2: 358 pts
- Bilateral nerve Sparing: 57 pts (15.9%)

- Pre MRI and RIFS
cT2:111 pts
- Bilateral nerve Sparing: 33 pts (32.4%)

- Pre MRI and RIFS (study group)
- cT2:41 pts
- Bilateral nerve Sparing: 13 pts (31.7%)

Results MRI



Results MRI positive intraoperative FS

15 pts Negative
second
resection

14 (10.2%) Negative
definitive surgical
margins

1 (0,7%) pts Positive
definitive surgical
margins

6 pts Positive
second resection

6 pts (100%) Positive
definitive surgical
margins

6 pts (100%) pT3

3 pts (50%) pN1

RESULTS

- 136 MRI patients
- 136 Control patients (no MRI)

	Positive S. M.	Negative S. M.	% Positive S. M.
MRI pts (136)	12	124	8.8% 6.6 % pT3 2.2% pT2
Control pts (136)	25	111	18.4% 11.1 % pT3 7.3% pT2
<i>P-value</i>			0.03

Nerve Sparing ≤65aa

PADS 3 mesi	No use of PADS (%)	80.3%
PADS 6 mesi	No use of PADS (%)	91.1%
PADS 12 mesi	No use of PADS (%)	96.7%

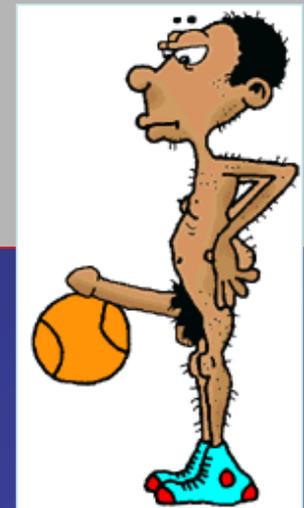
Sexual fuction 3	Yes (%)	37.8%
Erezione 6mesi	Yes (%)	50.4%
Erezione 12mesi	Yes (%)	64.2%

PSM 8.8%

Conclusion

1- Increases the number of nerve sparing procedures

2- Reduces PSM



“ Robotic Surgery is the more recent step in a 50-year process Opened by the principle *minimum effective treatment* whose fundamental objective is the quality of life of our patients ”

Prof. U. Veronesi