LYMPH NODE DISSECTION: WHO MAY BE 'SPARED'?

Assist. Prof. Dr. Nicolae CRISAN

September 2014, Cluj-Napoca

Role of Lymphadenectomy for Prostate Cancer: Indications and Controversies

Jeffrey C. La Rochelle, MD, Christopher L. Amling, MD*

Urol Clin N Am 38 (2011) 387–395

The last article in *Urologic Clinics of North America* to discuss the indications of pelvic lymph node dissection for prostate cancer was in 2001.[5] The

GUIDES IN 2003

- Role of stadialisation
- Lymph node dissection

N0 → **Radical prostatectomy**

N+ → **Hormonal therapy**

Most urologists are reluctant to perform radical prostatectomy for clinical N+ disease or will cancel the radical prostatectomy if a frozen section shows lymph node invasion. It should be noted that the definitive

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BJU INTERNATIONAL

Intraoperative frozen section assessment of pelvic lymph nodes during radical prostatectomy is of limited value

Jie Song*, Mei Li*, Gregory P. Zagaja†, Jerome B. Taxy*, Arieh L. Shalhav† and Hikmat A. Al-Ahmadie*†

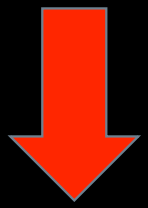
2010 BJU INTERNATIONAL | 106, 1463–1467

- **the accuracy of frozen section**
  - **metastases of ≥ 5 mm – a sensitivity of 100%**
  - **metastases of < 5 mm – a sensitivity of 10%**

PROSTATE CANCER SCREENING EFFECT

the rate of positive lymph nodes decreased

from 11% in 1982 through 1991 to



1% in 2000 - 2005

Makarov DV, Trock BJ, Humphreys EB, et al. Updated nomogram to predict pathologic stage of prostate cancer given prostate-specific antigen level, clinical stage, and biopsy Gleason score (Partin Tables) based on cases from 2000 to 2005. Urology 2007;69:1095–101.

- **The rate of positive lymph nodes after radical prostatectomy with pelvic lymphadenectomy is 2,5%**

metastasis rate

2007	2012
• 3-9% in low risk	– 1.7% in low risk
• 20-25% in intermediate risk	– 8.6% in intermediate risk
• 30-40% in high risk	– 23.9% in high risk

EUROPEAN UROLOGY 52 (2007) 29–37

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology

Review – Prostate Cancer

Anatomical Extent of Pelvic Lymphadenectomy in Patients Undergoing Radical Prostatectomy

Axel Heidenreich[a,*], *Carsten H. Ohlmann*[a], *Sergej Polyakov*[b]

Pelvic Lymph Node Dissection for Prostate Cancer: Frequency and Distribution of Nodal Metastases in a Contemporary Radical Prostatectomy Series

Guilherme Godoy, Christian von Bodman, Daher C. Chade, Ozdal Dillioglugil, James A. Eastham, Samson W. Fine, Peter T. Scardino and Vincent P. Laudone*

THE JOURNAL OF UROLOGY® Vol. 187, 2082-2086, June 2012

LYMPH NODE DISSECTION: WHO MAY BE 'SPARED'?

- **Nomograms**

PLND can be done when the risk of LNI is ≥ 5%

not specify which prediction tool should be used.

European Association of Urology

PLND can be done when the risk of LNI is ≥ 5%

not specify which prediction tool should be used.

NCCN National Comprehensive Cancer Network®

ePLND can be done when the risk of LNI is ≥ 2%

without a specific prediction tool specified.

PLND can be done when the risk of LNI is ≥ 5%

not specify which prediction tool should be used.

ePLND can be done when the risk of LNI is ≥ 2%

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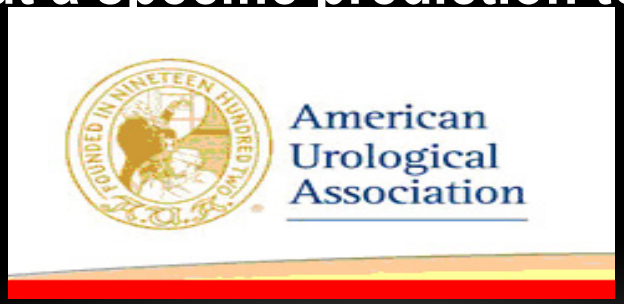

PLND can be appropriately omitted in patients with

Gleason score less than or equal to 6 and PSA less than or equal to 10

Nomogram prediction

2%

avoiding of 23% of unnecessary lymphadenectomies

losing only 1.7% of the patients with lymph nodes invasion

A population-based assessment of the National Comprehensive Cancer Network practice guideline indications for pelvic lymph node dissection at radical prostatectomy

Firas Abdollah*†, Jan Schmitges*‡, Maxine Sun*, Shahrokh F. Shariat§, Alberto Briganti†, Al'a Abdo*¶, Zhe Tian*, Paul Perrotte*¶, Francesco Montorsi† and Pierre I. Karakiewicz*¶

2011 BJU INTERNATIONAL | 109, 1177–1182

Nomogram prediction

2%

avoiding of 23% of unnecessary lymphadenectomies

losing only 1.7% of the patients with lymph nodes invasion

3%

avoiding of 58% of unnecessary lymphadenectomies

losing only 15% of the patients with lymph nodes invasion

Nomogram prediction

avoiding of 23% of unnecessary lymphadenectomies	2%	losing only 1.7% of the patients with lymph nodes invasion
avoiding of 58% of unnecessary lymphadenectomies	3%	losing only 15% of the patients with lymph nodes invasion
avoiding of 72% of unnecessary lymphadenectomies	4%	losing only 26% of the patients with lymph nodes invasion

Nomogram prediction

avoiding of 23% of unnecessary lymphadenectomies	2%	losing only 1.7% of the patients with lymph nodes invasion
avoiding of 58% of unnecessary lymphadenectomies	3%	losing only 15% of the patients with lymph nodes invasion
avoiding of 72% of unnecessary lymphadenectomies	4%	losing only 26% of the patients with lymph nodes invasion
avoiding of 86% of unnecessary lymphadenectomies	5%	losing only 37% of the patients with lymph nodes invasion

Nomogram prediction

2%

avoiding of 23% of unnecessary lymphadenectomies

losing only 1.7% of the patients with lymph nodes invasion

3%

avoiding of 58% of unnecessary lymphadenectomies

losing only 15% of the patients with lymph nodes invasion

4%

avoiding of 72% of unnecessary lymphadenectomies

~~losing only 26% of the patients with lymph nodes invasion~~

No more than 25%

5%

avoiding of 86% of unnecessary lymphadenectomies

~~losing only 37% of the patients with lymph nodes invasion~~

A population-based assessment of the National Comprehensive Cancer Network practice guideline indications for pelvic lymph node dissection at radical prostatectomy

Firas Abdollah*†, Jan Schmitges*†, Maxine Sun*, Shahrokh F. Shariat‡, Alberto Briganti†, Al'a Abdo*¶, Zhe Tian*, Paul Perrotte*¶, Francesco Montorsi† and Pierre I. Karakiewicz*¶

2011 BJU INTERNATIONAL | 109, 1177–1182

LYMPH NODE DISSECTION: WHO MAY BE 'SPARED'?

- Nomograms
- Limited vs Extensive PLND (ePLND)

EUROPEAN UROLOGY 63 (2013) 450–458

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European Association of Urology

Platinum Priority – Prostate Cancer

Editorial by Alberto Briganti, Nazareno Suardi, Andrea Gallina, Firas Abdollah and Francesco Montorsi on pp. 459–461 of this issue

Mapping of Pelvic Lymph Node Metastases in Prostate Cancer

Steven Joniau [a,†,], Laura Van den Bergh [b,†], Evelyne Lerut [c], Christophe M. Deroose [d], Karin Haustermans [b], Raymond Oyen [e], Tom Budiharto [b], Filip Ameye [a], Kris Bogaerts [f], Hein Van Poppel [a]*

	N+ patients correctly staged, no. (%, 95% CI)	N+ patients in whom all N+ removed, no. (%, 95% CI)	N+ removed, no. (%)	Nodes removed, no., median (IQR)
Obturator LND	16/34 (47, 29–62)	5/34 (15, 3–26)	23/91 (25)	6 (4–9)
Limited LND (external iliac plus obturator regions)	26/34 (76, 62–88)	10/34 (29, 15–44)	47/91 (52)	12 (8–17)
Extended LND (external and internal iliac plus obturator regions)	32/34 (94, 85–100)	26/34 (76, 62–88)	79/91 (87)	16 (10–21)
New suggested LND template (eLND plus presacral regions)	33/34 (97, 91–100)	30/34 (88, 76–97)	87/91 (96)	18 (12–23)
Superextended LND (eLND plus presacral plus common iliac regions)	33/34 (97, 91–100)	33/34 (97, 91–100)	90/91 (99)	21 (16–27)
Superextended LND plus SN	34/34 (100)	34/34 (100)	91/91 (100)	21 (16–27)

N+ = node-positive; CI = confidence interval; IQR = interquartile range; LND = lymph node dissection; eLND = extended lymph node dissection; SN = sentinel node.

- ePLND removes
  - twice more lymph nodes
  - three times more metastatic lymph nodes
  - but with a higher rate of complication(35.9% vs 2% in limPLND)

- after ePLND the cancer free surviving rate at 10 years is
  - 79% for one positive lymph node
  - 72% for 2 positive lymph nodes
  - 33% for 3 or more positive lymph nodes

Stone NN, Stock RG, Unger P. Laparoscopic pelvic lymph node dissection for prostate cancer: comparison of the extended and modified technique. J Urol 1997;158:1891–4
Eur Urol. 2008 Aug;54(2):344-52. Good outcome for patients with few lymph node metastases after radical retropubic prostatectomy. Schumacher MC, Burkhard FC, Thalmann GN, Fleischmann A, Studer UE.

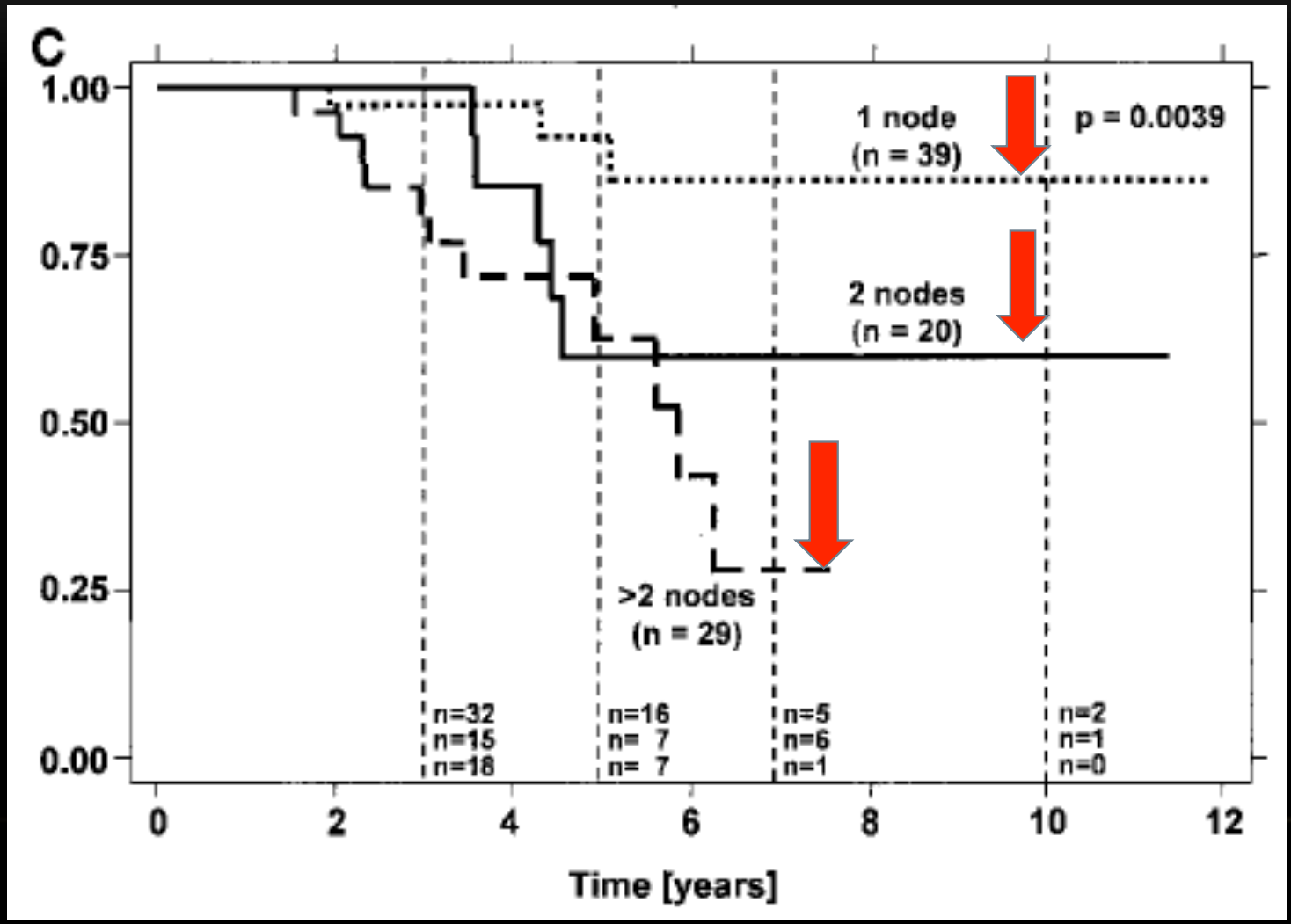
YES - ePLND

- The extended lymphadenectomy can reduce the mortality cancer specific risk with 23%

- Some patients with minimal metastatic disease remain free of prostate specific antigen relapse for more than 10 years after prostatectomy without any adjuvant treatment.

JOSLYN SA, KONETY BR. IMPACT OF EXTENT OF LYMPHADENECTOMY ON SURVIVAL AFTER RADICAL PROSTATECTOMY FOR PROSTATE CANCER. UROLOGY 2006;68:121–5.

TIME TO TUMOR SPECIFIC DEATH



BJUI BJU INTERNATIONAL

Histopathological characteristics of lymph node metastases predict cancer-specific survival in node-positive prostate cancer

2008 BJU INTERNATIONAL | 102, 1589–1593

Joost L. Boormans, Mark F. Wildhagen, Chris H. Bangma, Paul C. Verhagen and Geert J. van Leenders*

YES - ePLND

Poor cancer-specific survival prediction

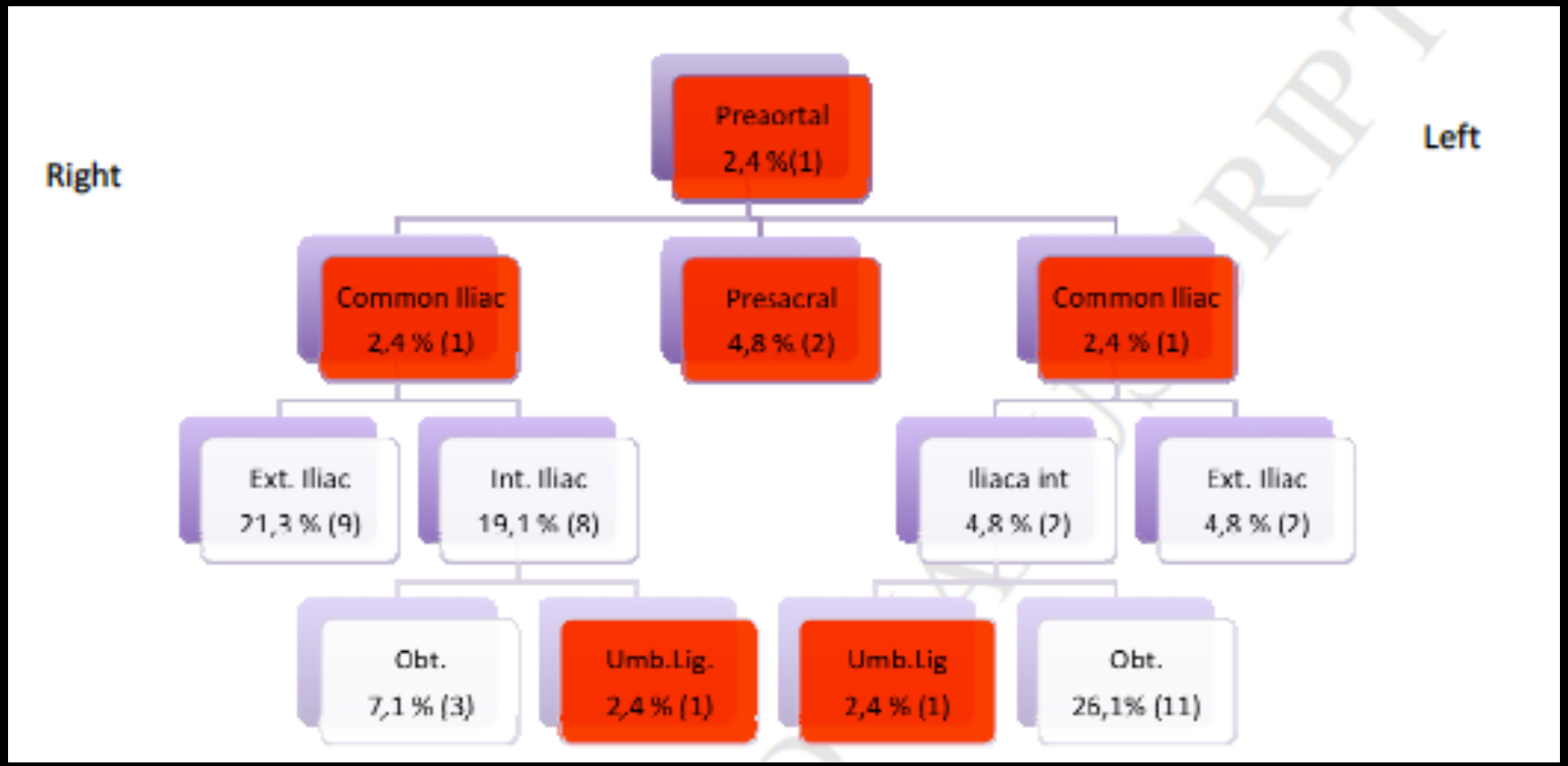
- **a nodal Gleason score of > 7 (*P* < 0.001)**
- **a diameter of the largest metastasis of > 3 mm (*P* = 0.025)**
- **> 2 lymph node metastases (*P* = 0.003)**
- **extranodal extension in more than one lymph node (*P* = 0.014)**

Fluorescence – guided targeted pelvic Lymph node dissection in intermediate and high risk prostate cancer

Stephan Hruby[1], Christine Englberger[1], Lukas Lusuardi[1], Tobias Schätz[1], Thomas Kunit[1], Ahmed Magdy Abdel-Aal[1], Martina Hager[2] and Günter Janetschek[1]

THE JOURNAL of UROLOGY

16,7% ARE FOUND OUTSIDE E-PLND TEMPLATE



LYMPH NODE DISSECTION: WHO MAY BE 'SPARED'?

- Nomograms
- Extensive PLND (ePLND)
- All negative lymph nodes, only positive nodes

LYMPH NODE DISSECTION: WHO MAY BE 'SPARED'?

- MR-contrast agent ferumoxtran-10

and

- MR lymphoangiography

Interpretation MRL had significantly higher sensitivity and NPV than MDCT for patients with prostate cancer who had intermediate or high risk of having lymph-node metastases. In such patients, after a negative MRL, the post-test probability of having lymph-node metastases is low enough to omit a PLND.

MRI with a lymph-node-specific contrast agent as an alternative to CT scan and lymph-node dissection in patients with prostate cancer: a prospective multicohort study

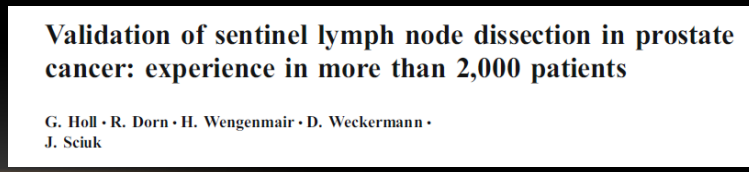
Roel A M Heesakkers, Anke M Hövels, Gerrit J Jager, Harrie C M van den Bosch, J Alfred Witjes, Hein P J Raat, Johan L Severens, Eddy M M Adang, Christina Hulsbergen van der Kaa, Jurgen J Fütterer, Jelle Barentsz

Lancet Oncol 2008; 9: 850–56

Lymph node dissection: who may be ‘spared’?

- Sentinel node lymphoscintigraphy
  - high sensitivity(96%)
  - also an important rate of false negative results

— take significantly longer time than routine extended PLND


Validation of sentinel lymph node dissection in prostate cancer: experience in more than 2,000 patients

G. Holl · R. Dorn · H. Wengenmair · D. Weckermann · J. Sciuk

Briganti A, Blute ML, Eastham JH, Graefen M, Heidenreich A, Karnes JR, Montorsi F, Studer UE. Eur Urol. 2009 Jun;55(6):1251-65. Pelvic lymph node dissection in prostate cancer.

Lymph node dissection: who may be ‘spared’?

- Sentinel nodule lymphoscintigraphy
  - high sensitivity(96%)
  - al

Our data show that SLND in prostate cancer up to a Gleason score of 8 is a reliable procedure for N-staging of patients with in intraoperative detection rate of 98% and a false-negative rate of 6%.

— take significantly longer time than routine extended PLND

Validation of sentinel lymph node dissection in prostate cancer: experience in more than 2,000 patients

G. Holl · R. Dorn · H. Wengenmair · D. Weckermann · J. Sciuk

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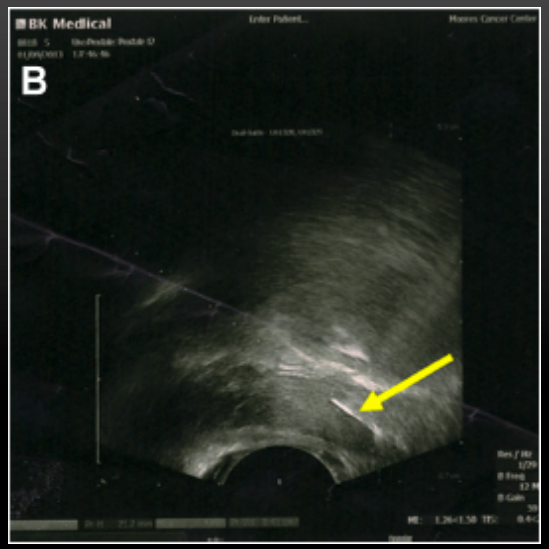
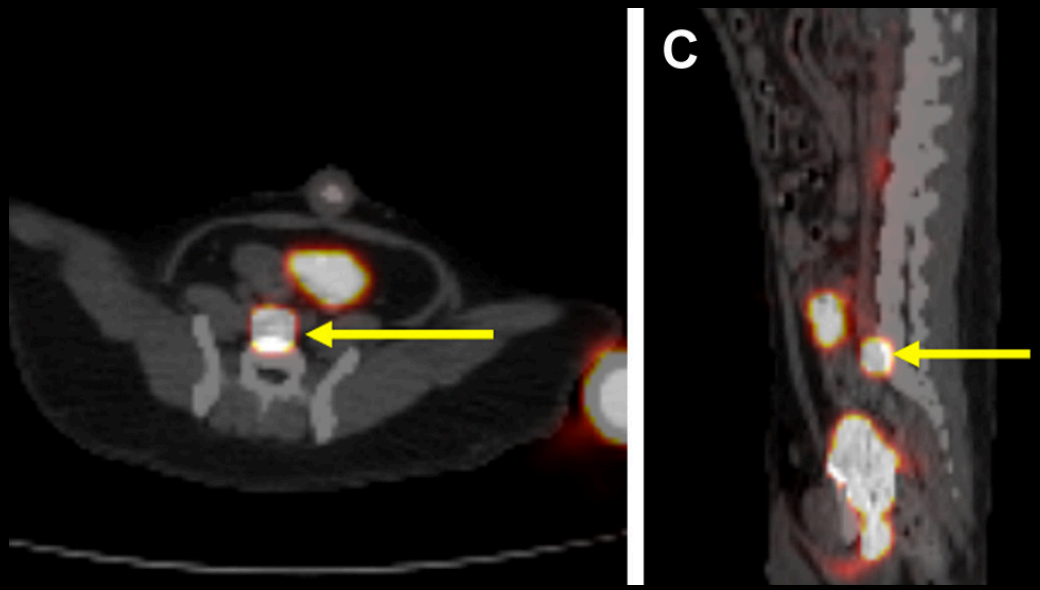
Robotic-assisted Fluorescence Sentinel Lymph Node Mapping Using Multimodal Image Guidance in an Animal Model

Michael A. Liss, Sean P. Stroup, Zhengtao Qin, Carl K. Hoh, David J. Hall, David R. Vera, and Christopher J. Kane

UROLOGY 84 (4), 2014



Gallium Ga-68
Technetium Tc-99me labeled 800CW tilmanocept



One hour after injection – pelvic PET/CT scan

Sentinel lymph node (SLN) mapping

Robotic-assisted Fluorescence Sentinel Lymph Node Mapping Using Multimodal Image Guidance in an Animal Model

Michael A. Liss, Sean P. Stroup, Zhengtao Qin, Carl K. Hoh, David J. Hall, David R. Vera, and Christopher J. Kane

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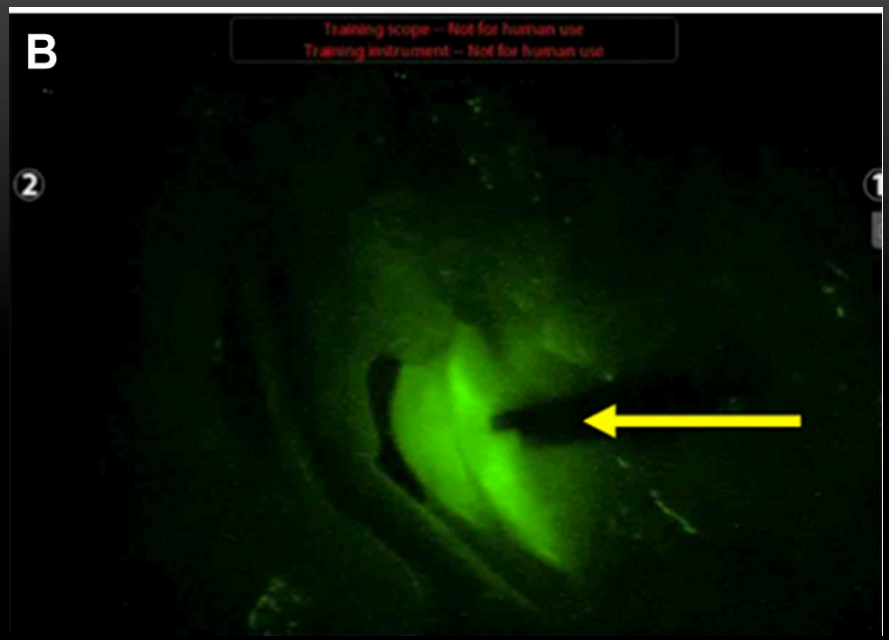
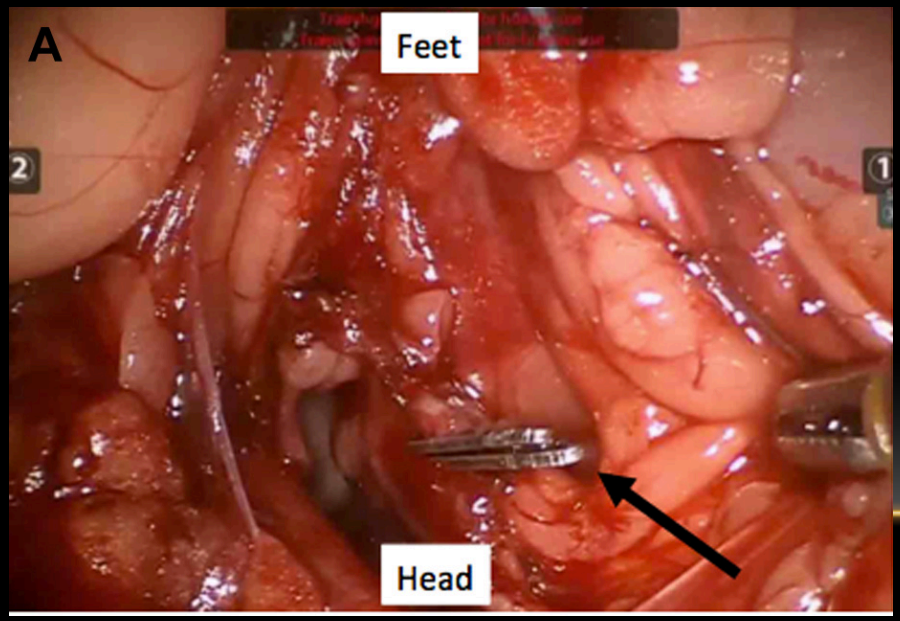


36 hours after injection

Robotic-assisted Surgery
Firefly Fluorescence Imaging



Robotic-assisted SLN mapping

Take home messages

- nomograms lose 15% of the patients with lymph node invasion
- extensive PLND lose 16,7% of the patients with lymph node invasion
- SLN mapping

THANK YOU!


Thank you!

WHAT ARE THE TENDENCY IN 2013?

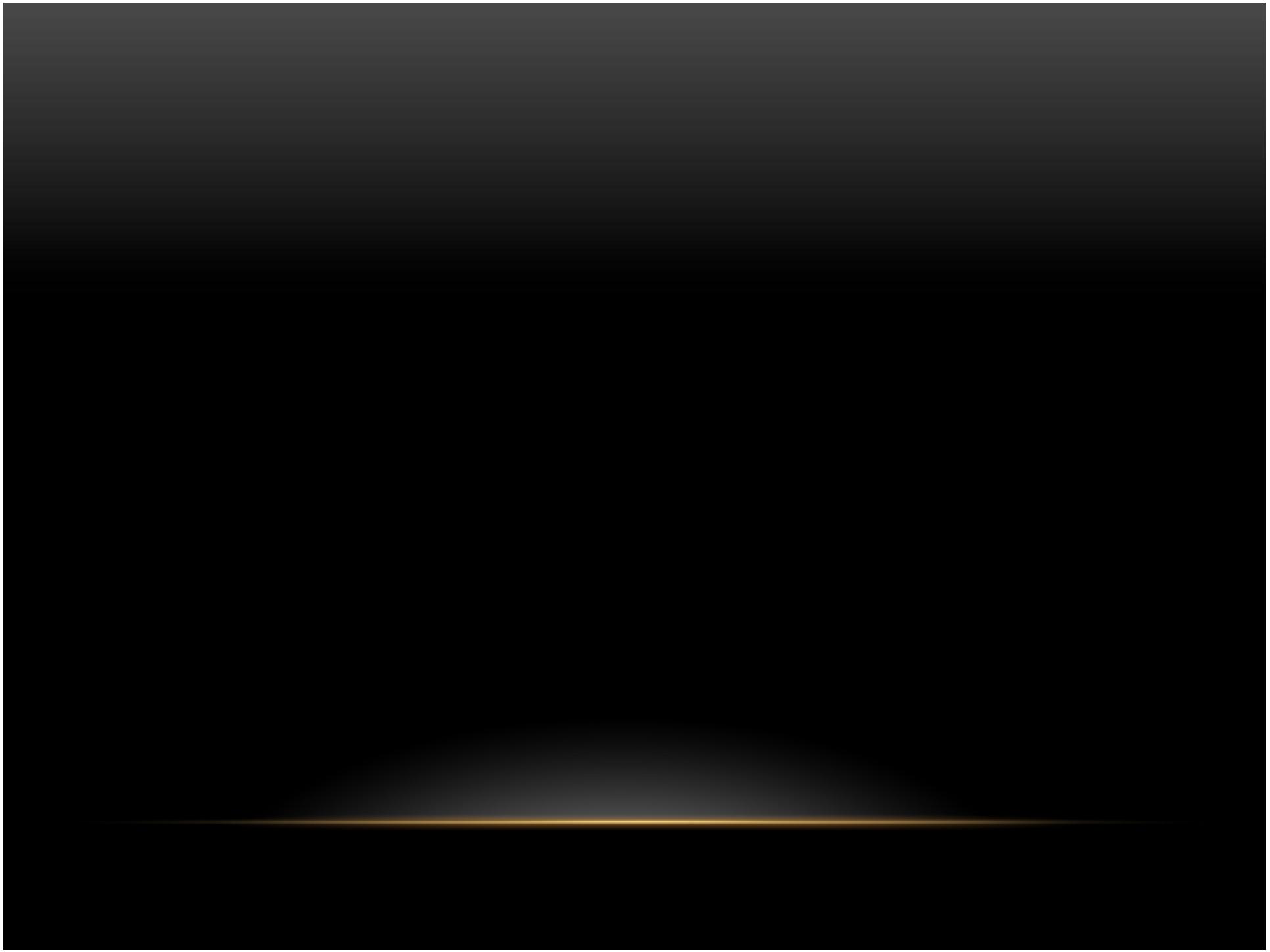
2001

- Role of stadialisation
- N+ meaning NO radical prostatectomy just hormonal therapy

2013

- Curative role
- The treatment is radic prostatectomy with lymphadenectomy

WHAT ARE THE TENDENCY IN 2013?



- In what concernes the N stadialisation of prostatic cancer, the MRI capacity to identify the lymph nodes metastasis is low: Se of 40% and Sp of 80%
- (Hövels AM, Heesakkers RA, Adang EM, et al: The diagnostic accuracy of CT and MRI in the staging of pelvic lymph nodes in pa-tients with prostate cancer: a meta-analysis. Clin Radiol 2008; 63: 387–395) Acest lucru se explică prin faptul că suspiciunea ca un ganglion sa fie pozitiv la IRM este ridicată doar de dimensiunea crescută a acestuia, iar metastazele au de obicei dimensiuni microscopice. Urol Int. 2012;88(2):125-36. doi: 10.1159/000335205. Epub 2012 Jan 27.Imaging in prostate cancer staging: present role and future perspectives.Pinto F, Totaro A, Palermo G, Calarco A, Sacco E, D'Addessi A, Racioppi M, Valentini A, Gui B, Bassi

- Rolul terapeutic – legatura cu supravietuirea
- pN+ - HT adjuvanta – da/nu si +/-
- Nomograme
- Therapeutic role-connected with the survival
- pN+ adjuvant HT- yes/no and +/-
- Nomograms

- Also like T stadialisation, for the N stadialisation are more factors with predictive role for lymph nodes metastasis:
- The value of PSA (>20ng/ml)
- The stage >T3a
- High Gleason score >8
- The perineural invasion
- Those factors are taken in consideration for the calculation of nomograms who are predicting the risk of metastasation and gives the indication of lymphadenectomy
- On the other hand for the prostatic cancer with high rate of metastasis the N+ is more than 50% and for the low risk stag is aproximately 4%. So, pelvic lymphadenectomy may be eludated when the lymph nodes metastatic risk is low: T1a or t2a, Gleason 6. Psa<20/ng/ml

- The limited lymphadenectomy is not recommended only to obturator fosa, taking in consideration that 50% of lymph nodes metastasis can escape this Istation. The specific cancer free surviving rate depends on the number of metastatic ganglia, the number is between 75-80% fo one metastatic lymph node and 20-30% for 5 metastatic lymph node.
- CT and MRI have comparable results in detecting the metastatic lymph nodes >6 mm: sensibility of 78% and specificity of 98%

- 427 patients, who had a median of 16 lymph nodes removed
- Of the patients 35 (8.2%) had lymph node metastases, including
  - 1.7% with low,
  - 8.6% with intermediate
  - 23.9% with high risk cancer.
- Of those with nodal metastases 24 (69%) had positive lymph nodes in only 1 of the 3 areas, including the external iliac in 4 (11%), the obturator in 9 (26%) and the hypogastric in 11 (31%). Only 37% of the patients had positive nodes only in the external iliac area above the obturator nerve while 60% and 49% had at least 1 positive node in the obturator and the hypogastric area, respectively. Of the patients 80% had only 1 (49%) or 2 (31%) positive nodes.
- cancer lymph node metastases were found more often and frequently exclusively in the obturator and hypogastric areas than in the external iliac area.
- Pelvic lymph node dissection limited to the external iliac area above the obturator nerve would identify and remove lymph node metastases in only a third of the patients with positive nodes found at full pelvic lymph node dissection.

Indications for Pelvic Nodal Treatment in Prostate Cancer Should Change. Validation of the Roach Formula in a Large Extended Nodal Dissection Series

Firas Abdollah, M.D.,* Cesare Cozzarini, M.D.,† Nazareno Suardi, M.D.,* Andrea Gallina, M.D.,* Umberto Capitanio, M.D.,* Marco Bianchi, M.D.,* Manuela Tutolo, M.D.,* Andrea Salonia, M.D.,* Mariangela La Macchia, M.D.,† Nadia Di Muzio, M.D.,† Patrizio Rigatti, M.D.,* Francesco Montorsi, M.D.,* and Alberto Briganti, M.D.*

Int J Radiation Oncol Biol Phys, Vol. 83, No. 2, pp. 624–629, 2012

- Conclusions: The Roach formula is still accurate and does not overestimate the rate of LNI in contemporary prostate cancer patients if they are treated with ePLND. However, the recommended cut off of 15% would miss approximately one-third of patients with LNI. Based on our results, the cut off should be lowered to 6%.
- It is suggested that the cut-off for nodal treatment be lowered from 15% to 6% allowing nodal irradiation to be avoided in 49.5% of men while missing only 10% with LNI.

EUROPEAN UROLOGY 55 (2009) 1251–1265

available at www.sciencedirect.com
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European Association of Urology

Platinum Priority – Review – Prostate Cancer

Editorial by Judd W. Moul on pp. 1266–1268 of this issue

Pelvic Lymph Node Dissection in Prostate Cancer

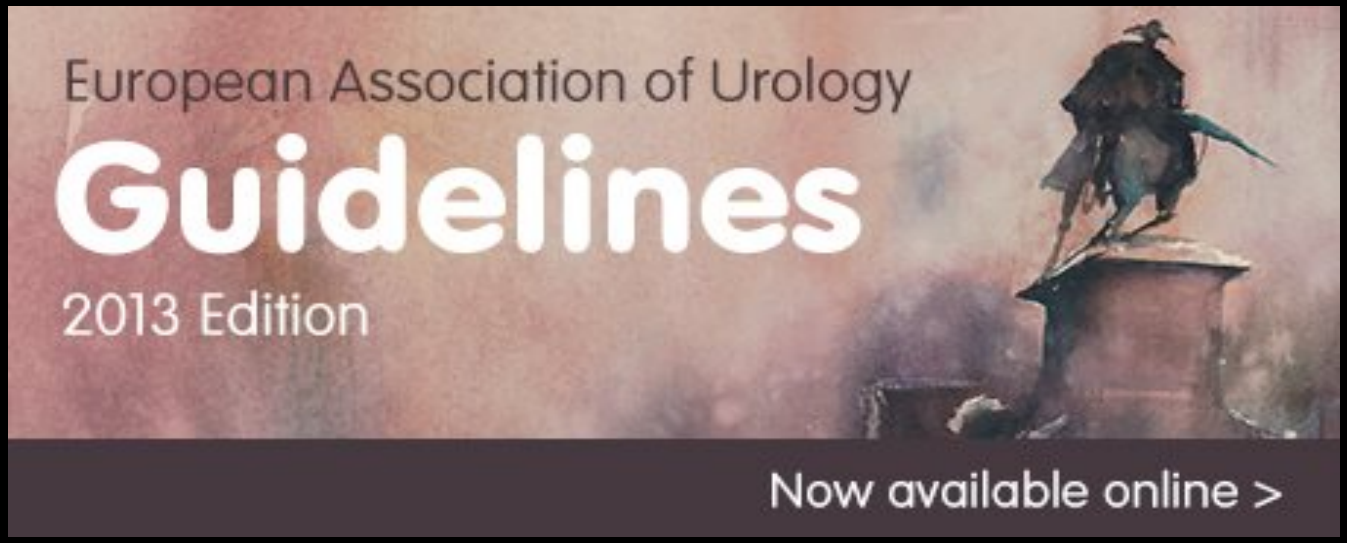
Alberto Briganti[a,*], *Michael L. Blute*[b], *James H. Eastham*[c], *Markus Graefen*[d], *Axel Heidenreich*[e], *Jeffrey R. Karnes*[b], *Francesco Montorsi*[a], *Urs E. Studer*[f]

BJUI
BJU INTERNATIONAL

Therapeutic value of lymph node dissec at radical prostatectomy: a population- case–cohort study

Diana R. Withrow, Julie M. DeGroot, D. Robert Siemens*† and Pa

2010 BJU INTERNATIONAL | 108, 209–216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HOW DID WE GET HERE?

4. Lymph node status (N-staging) is only important when potentially curative treatment is planned. Patients with Stage T2 or less, PSA < 20 ng/ml and a Gleason score of 6 or less have less than a 10% likelihood of having node metastases and may be spared nodal evaluation. Accurate lymph node staging can only be determined by operative lymphadenectomy.

2001

- Role of stadialisation
- N+ meaning NO radical prostatectomy just hormonal therapy

2013

- Curative role
- The treatment is radic prostatectomy with lymphadenectomy

- pelvic lymph node dissection

Staging role

positive impact on disease progression and long-term disease-free survival

?

We

Still

have

questions

to be answered

Table 1 Characteristics of patients who underwent RP versus ePLND

Characteristic	Overall no. of patients (%)*	No. of pN0 patients (%)†	No. of pN1 patients (%)‡
Year of surgery			
2000	60 (1.9)	51 (1.8)	9 (2.7)
2001	148 (4.8)	130 (4.7)	18 (5.4)
2002	180 (5.8)	157 (5.6)	23 (6.8)
2003	339 (10.9)	306 (11.0)	33 (9.8)
2004	344 (11.0)	312 (11.2)	32 (9.5)
2005	457 (14.7)	412 (14.8)	45 (13.4)
2006	356 (11.4)	321 (11.6)	35 (10.4)
2007	364 (11.7)	328 (11.8)	36 (10.7)
2008	392 (12.6)	335 (12.1)	57 (17.0)
2009	337 (10.8)	306 (11.0)	31 (9.2)
2010	138 (4.4)	121 (4.4)	17 (5.1)

- The extended lymphadenectomy can reduce the mortality cancer specific risk with 23%
- Joslyn SA, Konety BR. Impact of extent of lymphadenectomy on survival after radical prostatectomy for prostate cancer. Urology 2006;68:121–5.

- The mortality rate is 0-1.5%
- Burkhard FC, Schumacher M, Studer UE. The role of lymphadenectomy in prostate cancer. Nat Clin
- Pract Urol 2005 Jul;2(7):336-42.

- Nat Clin Pract Urol. 2005 Jul;2(7):336-42.
- **The role of lymphadenectomy in prostate cancer.**
- Burkhard FC, Schumacher M, Studer UE.
- **Source**
- Department of Urology at the University Hospital in Bern, Switzerland.
- w.ncbi.nlm.nih.gov/pubmed/16474786

- **urinary fistulae** are seen in 1.2-4% of patients **urinary incontinence** persists after 1 year in 7.7%
- Hautmann RE, Sauter TW, Wenderoth UK. Radical retropubic prostatectomy: morbidity and urinary continence in 418 consecutive cases. Urology 1994 Feb;43(2 Suppl):47-51.
- http://www.ncbi.nlm.nih.gov/pubmed/8116133

- In men undergoing prostatectomy, the rates of postoperative and late urinary complications are significantly reduced if the procedure is performed in a high-volume hospital and by a surgeon who performs a large number of such interventions

- **Erectile dysfunction** used to occur in nearly all patients, but this can be avoided by using nerve-sparing techniques in early-stage disease (90). Patients who benefit from nerve-sparing RP may have a higher chance of local disease recurrence and should therefore be selected carefully

EURURO-5060; No. of Pages 10
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Platinum Priority – Collaborative Review – Prostate Cancer
Editorial by XXX on pp. x–y of this issue

Pelvic Lymph Node Dissection During Robot-assisted Radical Prostatectomy: Efficacy, Limitations, and Complications—A Systematic Review of the Literature

Guillaume Ploussard [a,b,c,], Alberto Briganti [d], Alexandre de la Taille [c,e], Alexander Haese [f], Axel Heidenreich [g], Mani Menon [h], Tullio Sulser [i], Ashutosh K. Tewari [j], James A. Eastham [k]*

- (1) the potential benefits of PLND outweigh its morbidity
- (2) limited PLND should be abandoned as a staging procedure
- (3) the overall numbers of nodes removed and the percentage of positive nodes are not affected by the robotic assistance
- (4) current evidence suggests that a PLND improves staging and improves prognosis in intermediate- and high-risk patients.

2003

Lymph node status (N-staging) is only important when treatment with curative intent is planned. Accurate lymph node staging can only be determined by bilateral pelvic lymphadenectomy; CT/MRI are of limited value due to low sensitivity. However, in patients with a high risk of node metastases, CT/MRI may be useful in recognizing enlarged lymph nodes and in guiding aspiration biopsy, thus avoiding an operative procedure.

Most urologists are reluctant to perform radical prostatectomy for clinical N+ disease or will cancel the radical prostatectomy if a frozen section shows lymph node invasion. It should be noted that the definitive

What We Learned 10 Years ago ?

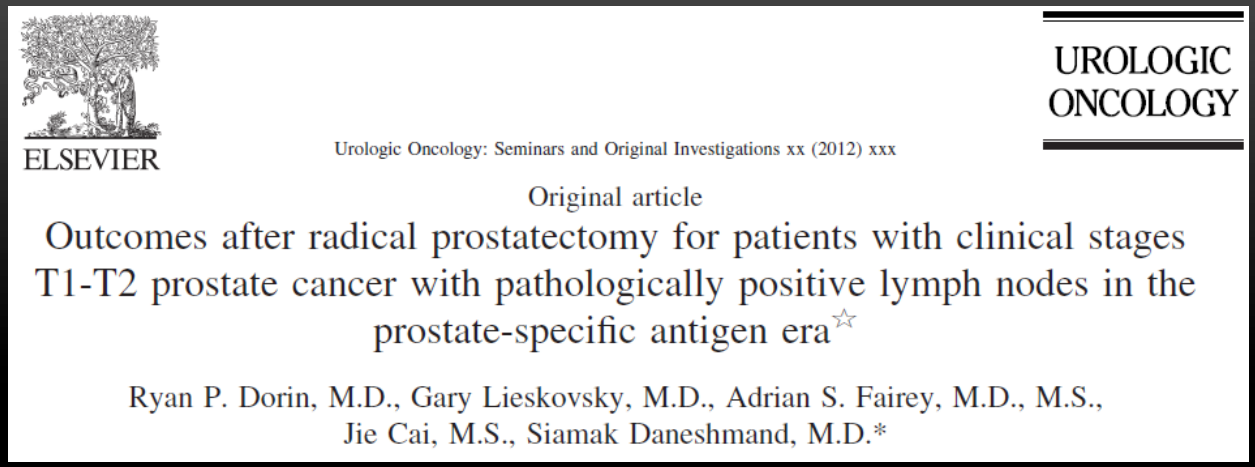
European Urology

European Urology 47 (2005) 45–51

Is There a Need for Pelvic Lymph Node Dissection in Low Risk Prostate Cancer Patients Prior to Definitive Local Therapy?

Dorothea Weckermann*, Friedhelm Wawroschek, Rolf Harzmann

biopsies in both lobes). Up to 4 positive SLN were found. Therefore, we suggest not to dispense with an operative lymph node staging, even in low risk disease.



ELSEVIER

Urologic Oncology: Seminars and Original Investigations xx (2012) xxx

UROLOGIC ONCOLOGY

Original article

Outcomes after radical prostatectomy for patients with clinical stages T1-T2 prostate cancer with pathologically positive lymph nodes in the prostate-specific antigen era☆

Ryan P. Dorin, M.D., Gary Lieskovsky, M.D., Adrian S. Fairey, M.D., M.S., Jie Cai, M.S., Siamak Daneshmand, M.D.*

- **The incidence of pN1 in men with cT1-T2 disease was low (6.0%) and decreased since the beginning of the PSA screening era (12.6%–4.4%).**

MORBIDITY

- Pelvic eLND remains a surgical procedure that **increases morbidity** in the treatment of PCa. When comparing extended vs. limited LND, threefold higher complication rates have been reported by some authors

EUROPEAN UROLOGY 55 (2009) 1251–1265

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology

Platinum Priority – Review – Prostate Cancer

Editorial by Judd W. Moul on pp. 1266–1268 of this issue

Pelvic Lymph Node Dissection in Prostate Cancer

Alberto Briganti [a,], Michael L. Blute [b], James H. Eastham [c], Markus Graefen [d], Axel Heidenreich [e], Jeffrey R. Karnes [b], Francesco Montorsi [a], Urs E. Studer [f]*

ROBOTIC PLND

- lower rate of lymphocele (a rate of 2%)

- The overall number of nodes removed, the likelihood of node positivity, and the types and rates of complications of PLND are similar to pure laparoscopic and open retropubic procedures.

Validation of sentinel lymph node dissection in prostate cancer: experience in more than 2,000 patients

G. Holl · R. Dorn · H. Wengenmair · D. Weckermann · J. Sciuk

Eur J Nucl Med Mol Imaging (2009) 36:1377–1382

Our data show that SLND in prostate cancer up to a Gleason score of 8 is a reliable procedure for N-staging of patients with in intraoperative detection rate of 98% and a false-negative rate of 6%. Whether the excision of pelvic

take significantly longer

than routine extended PLND

EUROPEAN UROLOGY 52 (2007) 126–133

available at www.sciencedirect.com
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European Association of Urology

Prostate Cancer

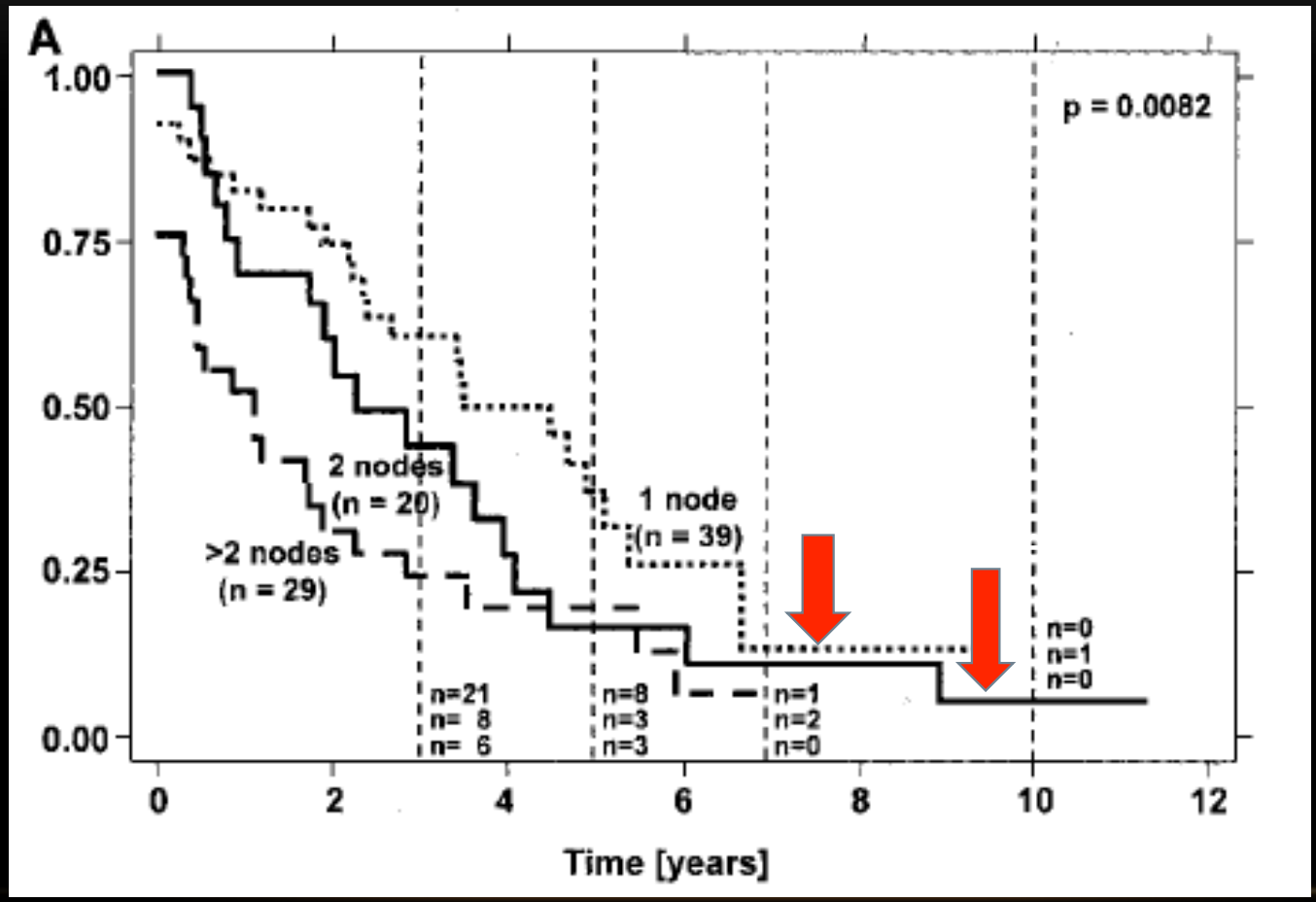
Detection Rate and Operating Time Required for γ Probe-Guided Sentinel Lymph Node Resection after Injection of Technetium-99m Nanocolloid into the Prostate with and without Preoperative Imaging

Sebastian H. Warncke[a], *Agostino Mattei*[a], *Frank G. Fuechsel*[b], *Sebastian Z'Brun*[a], *Thomas Krause*[b], *Urs E. Studer*[a,*]

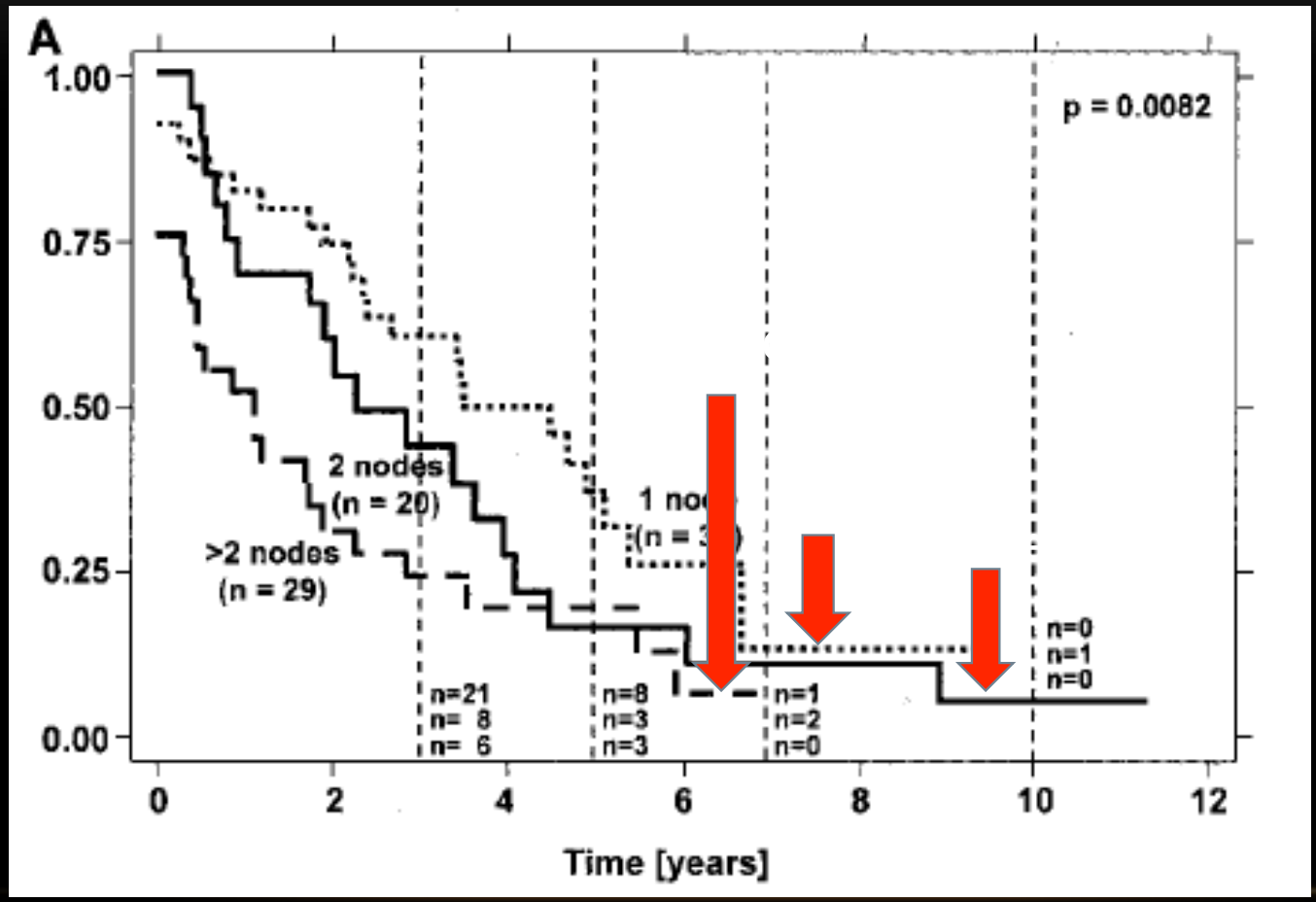
COMPLICATIONS - CAN BE PREVENT?

- MR difusion weighted imaging (DWI)
- MR spectroscopic imaging
- MR with lymphotropic superparamagnetic nanoparticles
- PET/CT

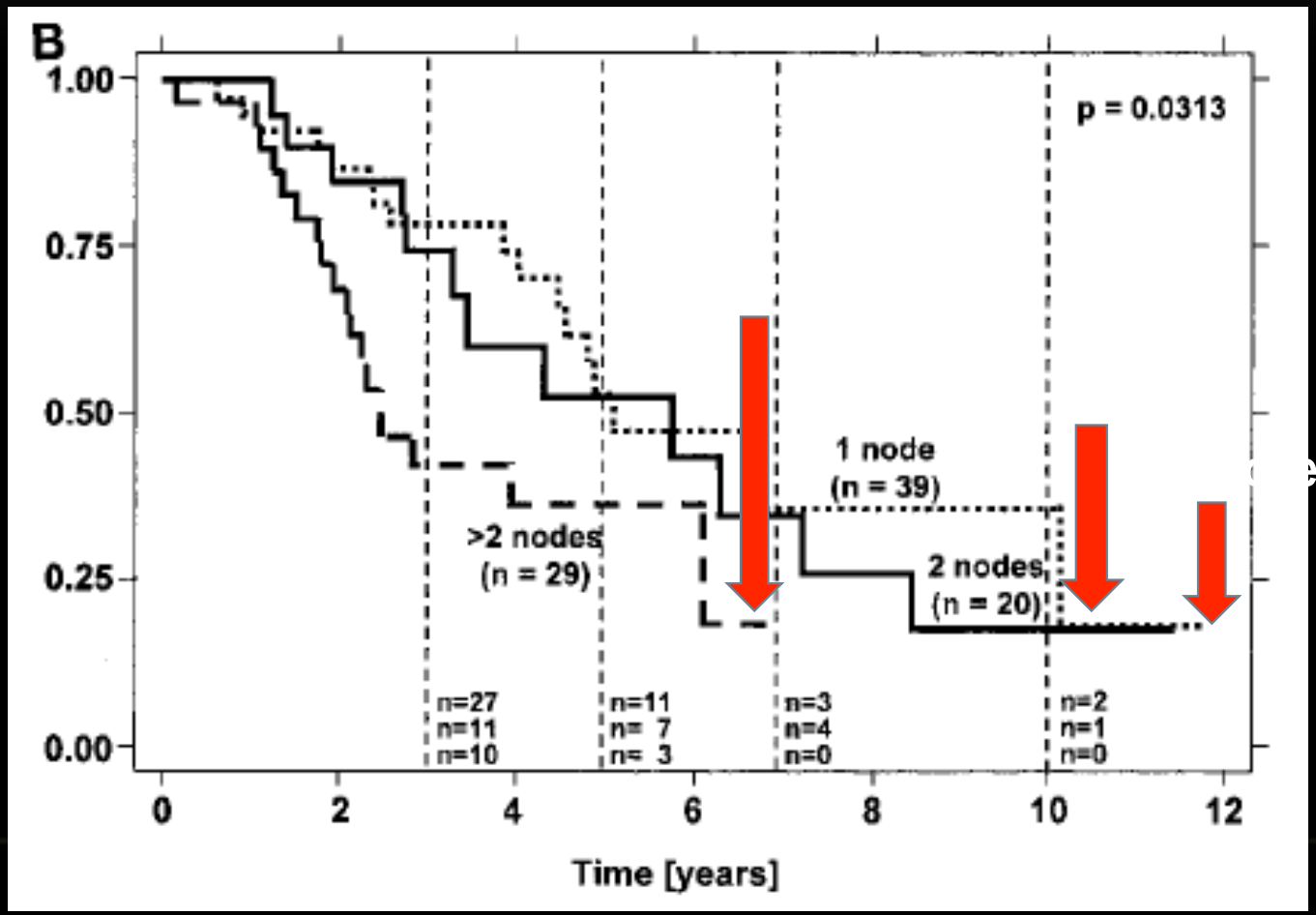
TIME TO ASYMPTOMATIC PSA INCREASE



TIME TO ASYMPTOMATIC PSA INCREASE



TIME TO SYMPTOMATIC TUMOR PROGRESSION



BJUI BJU INTERNATIONAL

Histopathological characteristics of lymph node metastases predict cancer-specific survival in node-positive prostate cancer

2008 BJU INTERNATIONAL | 102, 1589–1593

Joost L. Boormans, Mark F. Wildhagen, Chris H. Bangma, Paul C. Verhagen and Geert J. van Leenders*

Poor cancer-specific survival

- ~~a nodal Gleason score of > 7 ($P < 0.001$)~~
- ~~a diameter of the largest metastasis of > 3 mm ($P = 0.025$)~~
- > 2 lymph node metastases ($P = 0.003$)
- extranodal extension in more than one lymph node ($P = 0.014$)

only

independent predictors of cancer-specific survival

EURURO-5056; No. of Pages 6
ARTICLE IN PRESS
EUROPEAN UROLOGY XXX (2013) XXX–XXX

available at www.sciencedirect.com
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Platinum Priority – Prostate Cancer
Editorial by XXX on pp. x–y of this issue

Long-term Outcomes of Patients with Lymph Node Metastasis Treated with Radical Prostatectomy Without Adjuvant Androgen-deprivation Therapy

Karim A. Touijer [a,b,], Clarisse R. Mazzola [a], Daniel D. Sjoberg [c], Peter T. Scardino [a,b], James A. Eastham [a,b]*

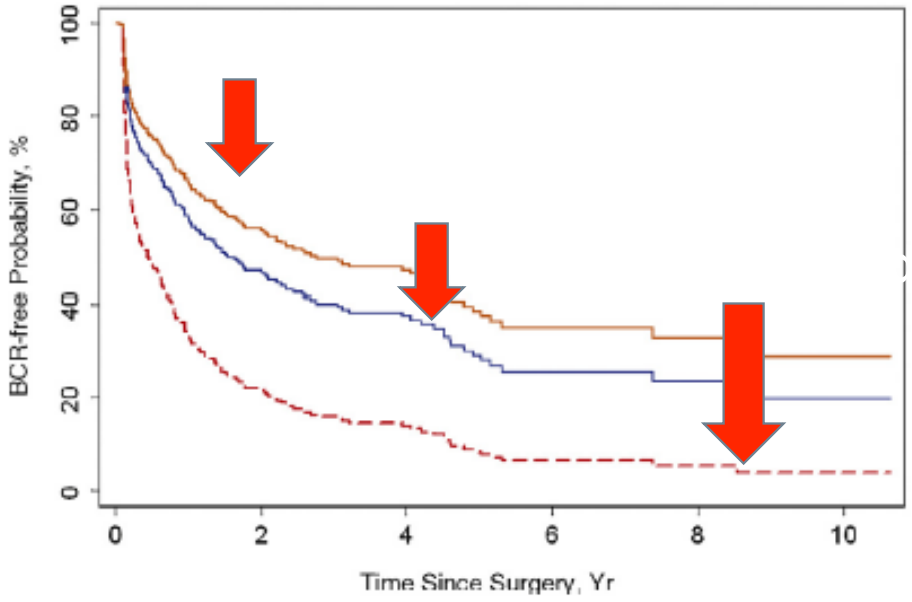

Fig. 6 – Probability of freedom from biochemical recurrence (BCR) by number of positive nodes. Orange line = one positive node; blue line = two positive nodes; red line = three or more positive nodes.

A considerable subset of men with LNM remained free of disease 10 yr after RP and bilateral extended pelvic lymphadenectomy without adjuvant ADT.

- **pathologic Gleason score <8**
- **negative surgical margins**
- **<3 positive nodes**

THE CLOSER PROGRAMME - INITIAL EXPERIENCE WITH LAPAROSCOPIC VERSUS OPEN RADICAL PROSTATECTOMY

TMJ 2010, Vol. 60, No. 2 - 3

Nicolae Crisan[1], Bogdan Petrut[2], Florin Nechita[1], Bogdan Feciche[1], Zoltan Mihaly[1], Dan Stanca[1], Ioan Coman[1]

Variable	Open RP	Laparoscopic RP
Nr of patients	50	58
Mean age	63.2 (50-72)	62.1 (48-73)
Clinical stage: *n* (%)		
T_{1c}	7 (14)	20 (34.4)
T_2	43 (86)	38 (65.5)
Mean PSA value	11.1 (3.9-18.9)	10.2 (2.3-39)
Biopsy Gleason score	6 (4-8)	6 (4-8)
Stage pT *n* (%)		
pT_2	34 (68)	46 (78)
pT_3	14 (28)	12 (22)
pT_4	2 (4)	0
RP piece Gleason score	6 (4-9)	6 (4-10)
Positive margins (%)	9 (18)	10 (17.2)
Duration of intervention (min)	207 (150-300)	269 (150-690)
Blood loss (ml)	745 (300-2700)	474 (200-1200)
Hospital time (days)	9 (6-21)	13 (5-25)
Indwelling catheter time (days)	16 (6-25)	15 (7-26)
Continent patients: *n* (%)		
6 month evaluation	41 (81)	22 (37)
Presence of erection: *n* (%)		
6 month evaluation	15 (30)	31 (54)

RP - radical prostatectomy, PSA - prostate-specific antigen

PROSTATE CANCER SCREENING EFFECT

the rate of positive lymph nodes decreased

from 11% in 1982 through 1991 to

1% in 20[illegible]hrough 2005

Makarov DV, Trock BJ, Humphreys EB, et al. Updated nomogram to predict pathologic stage of prostate cancer given prostate-specific antigen level, clinical stage, and biopsy Gleason score (Partin Tables) based on cases from 2000 to 2005. Urology 2007;69:1095–101.

- **The rate of positive lymph nodes after radical prostatectomy with pelvic lymphadenectomy is 2,5%**

metastasis rate

2007	2012
• 3-9% in low risk	– 1.7% in low risk
• 20-25% in intermediate risk	– 8.6% in intermediate risk
• 30-40% in high risk	– 23.9% in high risk

EUROPEAN UROLOGY 52 (2007) 29–37

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology

Review – Prostate Cancer

Anatomical Extent of Pelvic Lymphadenectomy in Patients Undergoing Radical Prostatectomy

Axel Heidenreich[a,*], *Carsten H. Ohlmann*[a], *Sergej Polyakov*[b]

Pelvic Lymph Node Dissection for Prostate Cancer: Frequency and Distribution of Nodal Metastases in a Contemporary Radical Prostatectomy Series

Guilherme Godoy, Christian von Bodman, Daher C. Chade, Ozdal Dillioglugil, James A. Eastham, Samson W. Fine, Peter T. Scardino and Vincent P. Laudone*

THE JOURNAL OF UROLOGY® Vol. 187, 2082-2086, June 2012

Pelvic Lymph Node Dissection for Prostate Cancer: Frequency and Distribution of Nodal Metastases in a Contemporary Radical Prostatectomy Series

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THE JOURNAL OF UROLOGY®

Vol. 187, 2082-2086, June 2012

- limPLND includes only 38% of prostate draining nodes
- ePLND includes 75% of prostate draining nodes

EUROPEAN UROLOGY 63 (2013) 450–458

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology

Platinum Priority – Prostate Cancer

Editorial by Alberto Briganti, Nazareno Suardi, Andrea Gallina, Firas Abdollah and Francesco Montorsi on pp. 459–461 of this issue

Mapping of Pelvic Lymph Node Metastases in Prostate Cancer

Steven Joniau [a,†,], Laura Van den Bergh [b,†], Evelyne Lerut [c], Christophe M. Deroose [d], Karin Haustermans [b], Raymond Oyen [e], Tom Budiharto [b], Filip Ameye [a], Kris Bogaerts [f], Hein Van Poppel [a]*

	N+ patients correctly staged, no. (%, 95% CI)	N+ patients in whom all N+ removed, no. (%, 95% CI)	N+ removed, no. (%)	Nodes removed, no., median (IQR)
Obturator LND	16/34 (47, 29–62)	5/34 (15, 3–26)	23/91 (25)	6 (4–9)
Limited LND (external iliac plus obturator regions)	26/34 (76, 62–88)	10/34 (29, 15–44)	47/91 (52)	12 (8–17)
Extended LND (external and internal iliac plus obturator regions)	32/34 (94, 85–100)	26/34 (76, 62–88)	79/91 (87)	16 (10–21)
New suggested LND template (eLND plus presacral regions)	33/34 (97, 91–100)	30/34 (88, 76–97)	87/91 (96)	18 (12–23)
Superextended LND (eLND plus presacral plus common iliac regions)	33/34 (97, 91–100)	33/34 (97, 91–100)	90/91 (99)	21 (16–27)
Superextended LND plus SN	34/34 (100)	34/34 (100)	91/91 (100)	21 (16–27)

N+ = node-positive; CI = confidence interval; IQR = interquartile range; LND = lymph node dissection; eLND = extended lymph node dissection; SN = sentinel node.

WHAT IS THE TENDENCY IN 2013?

- eLND should be performed in intern localised PCa if the estimated risk for positive lymph nodes exceeds 5%
- In all other cases, eLND can be omitted, which means accepting a low risk of missing positive nodes.
- Limited LND should no longer be performed, because this misses at least half of the nodes involved.