Pelvic lymph node dissection
Why ?

PLND is the most accurate staging procedure !

- CT/MRI imaging with an unacceptable high false-positive and false-negative rate (20-50%)
- False-negative results in 20% by routine histologic work-up (H&E staining)
- More micrometastases can be found by molecular (PCR) and immunohistochemical methods (9-79%)

Wolf et al., J Urol 1995; Pagliarulo V et al., J Clin Oncol 2006, Potter et al., Cancer 2000, Ferrari et al., J Natl Cancer Inst 1997

Pelvic lymph node dissection When ?

Nomograms to define low risk groups?

But:

- Undergrading by biopsy in 18%
- Clinical understaging in 43%
- Nomograms based on extended PLND??

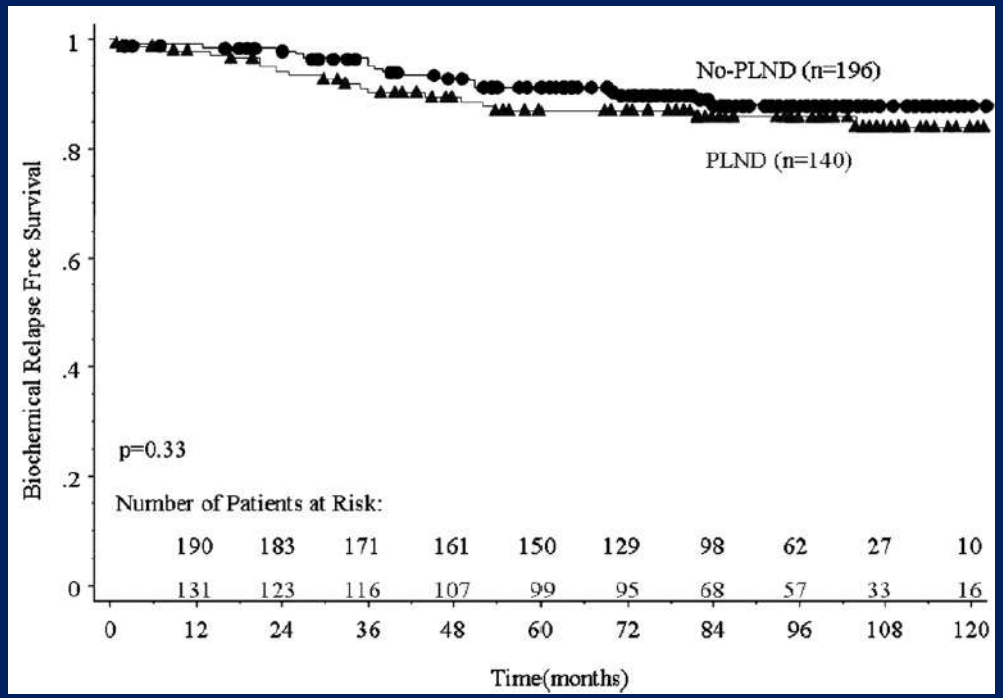
Are 11 LNs extended??

- Number of removed nodes not known

Catalona and Brigg, J Urol 143: 538, 1990
Fournier and Narayan, BJU 72: 484, 1993
Briganti et al., Eur Urol. 49:1019-26, 2006

Limited Pelvic Lymph Node Dissection Does Not Improve Biochemical Relapse-Free Survival at 10 Years After Radical Prostatectomy in Patients with Low-Risk Prostate Cancer

Christopher J. Weight, Alwyn M. Reuther, Paul W. Gunn, Craig R. Zippe, Nivedita B. Dhar, and Eric A. Klein



UROLOGY 71: 141–145, 2008.

DO ADENOCARCINOMAS OF THE PROSTATE WITH GLEASON SCORE (GS) ≤6 HAVE THE POTENTIAL TO METASTASIZE TO LYMPH NODES?

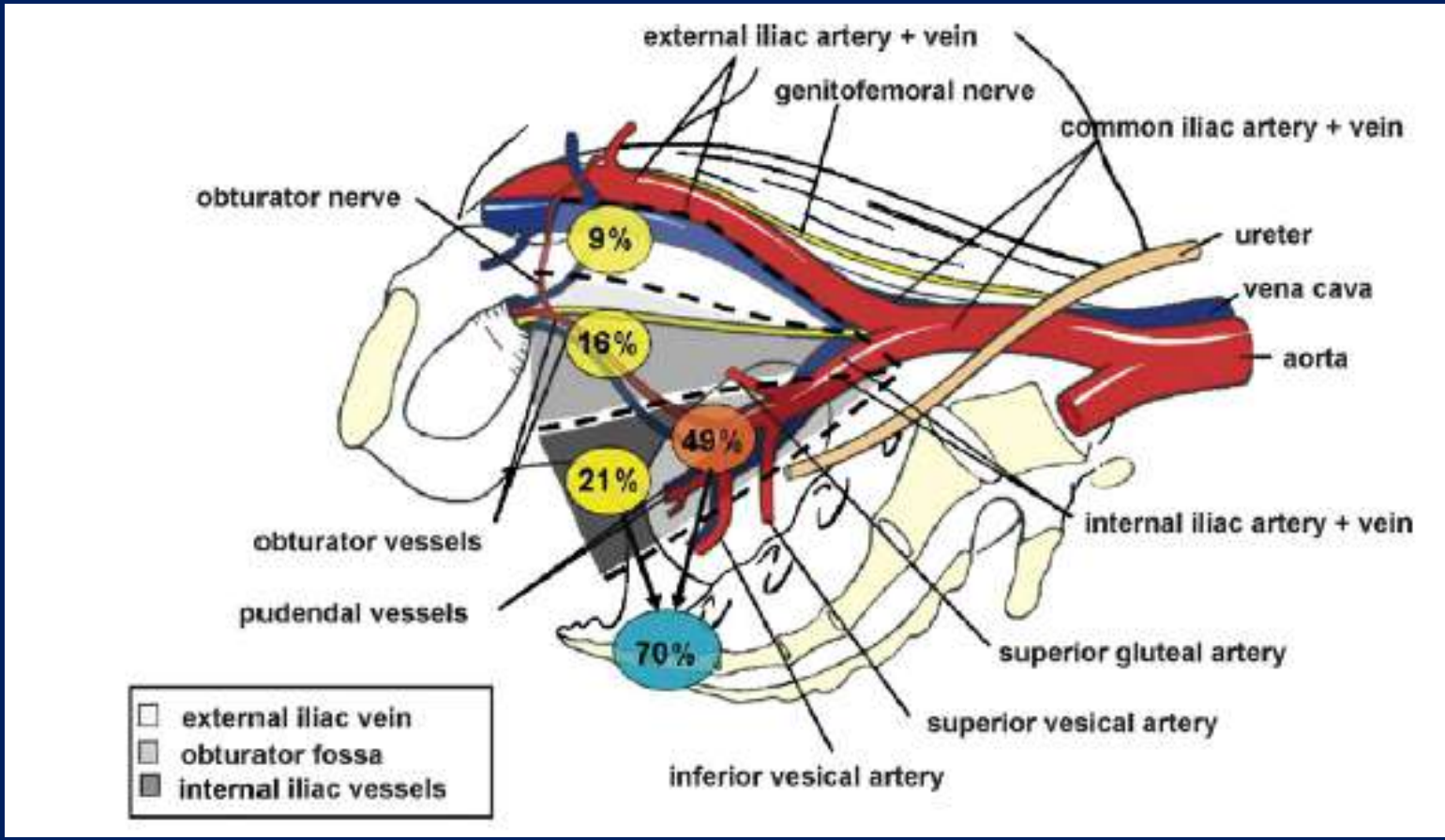
Hillary M. Ross[1], Oleksandr N. Kryvenko[4], Janet E. Cowan[5], Jeffry P. Simko[5,6], Thomas M. Wheeler[7], and Jonathan I. Epstein[1,2,3]

Conclusions

In an associated study, post-operative follow-up of over 2500 patients with GS ≤6 at RP (median 5 years) showed no development of systemic disease or death due to prostatic adenocarcinoma. Based on the current study, it can now be added that GS≤6 using the updated system lacks the potential to metastasize to pelvic lymph nodes.

Am J Surg Pathol. 2012 September ; 36(9): 1346–1352
Hernandez DJ et al. Urology. 2008; 72:172–176.

Pelvic lymph node dissection extent ?



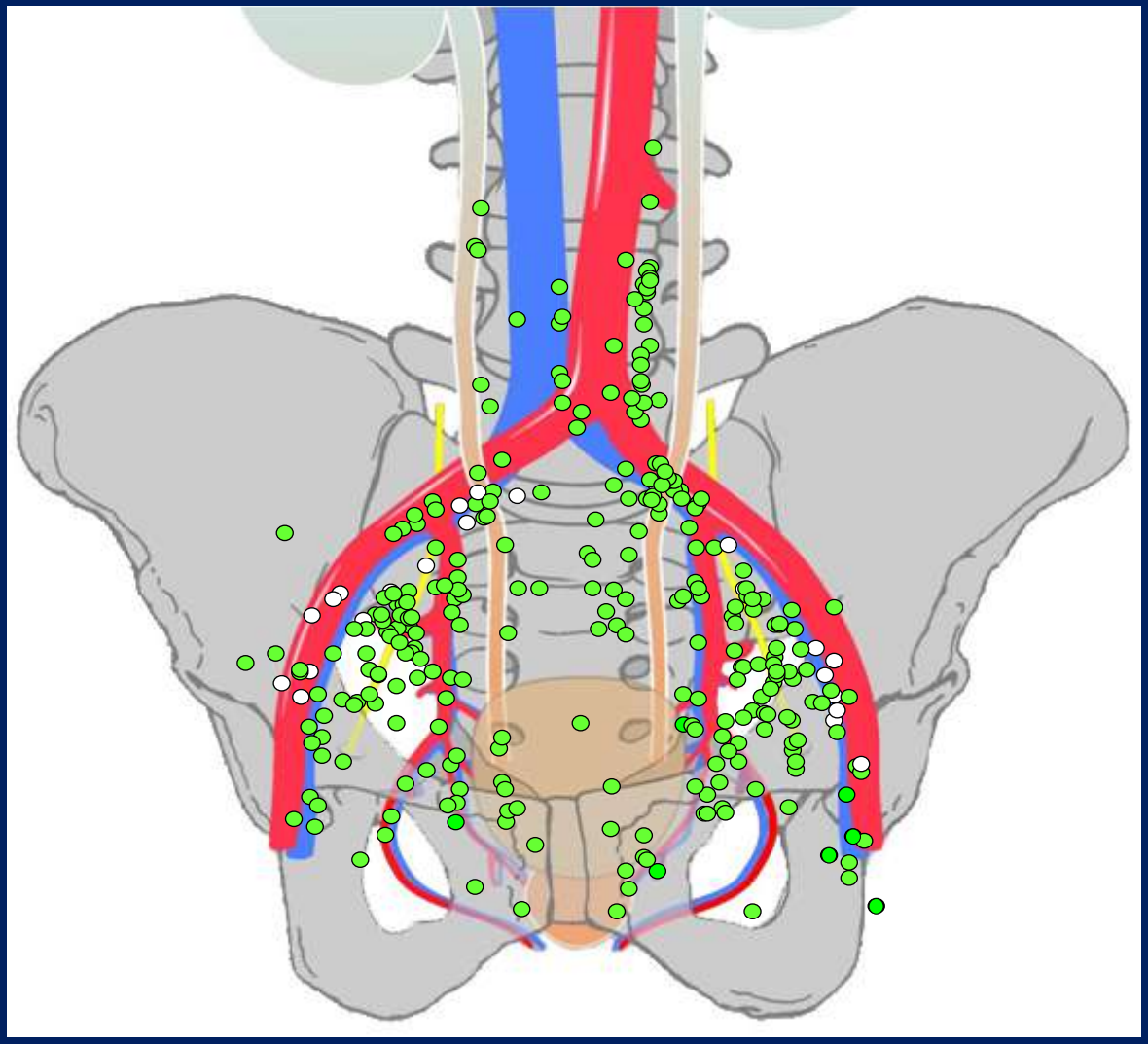
Schumacher M et al., European Urology 54: 344–352, 2008

Indications and Extent of PLND: Guidelines

GUIDELINE	INDICATION FOR PLND	EXTENT OF PLND
European Association of Urology^	Men with intermediate (cT2a, PSA 10-20 ng/ml, biopsy Gleason score=7) or high risk (>cT2b, PSA>20 ng/ml, Gleason score≥8) prostate cancer	Extended
American Urological Association §	PLND generally reserved for patients with higher risk of nodal involvement	Not indicated
National Comprehensive Cancer Network*	PLND can be excluded in patients with <7% predicted probability of lymph node metastases by nomograms, although some patients with nodal metastases will be missed. An extended PLND is preferred when PLND is performed.	Extended

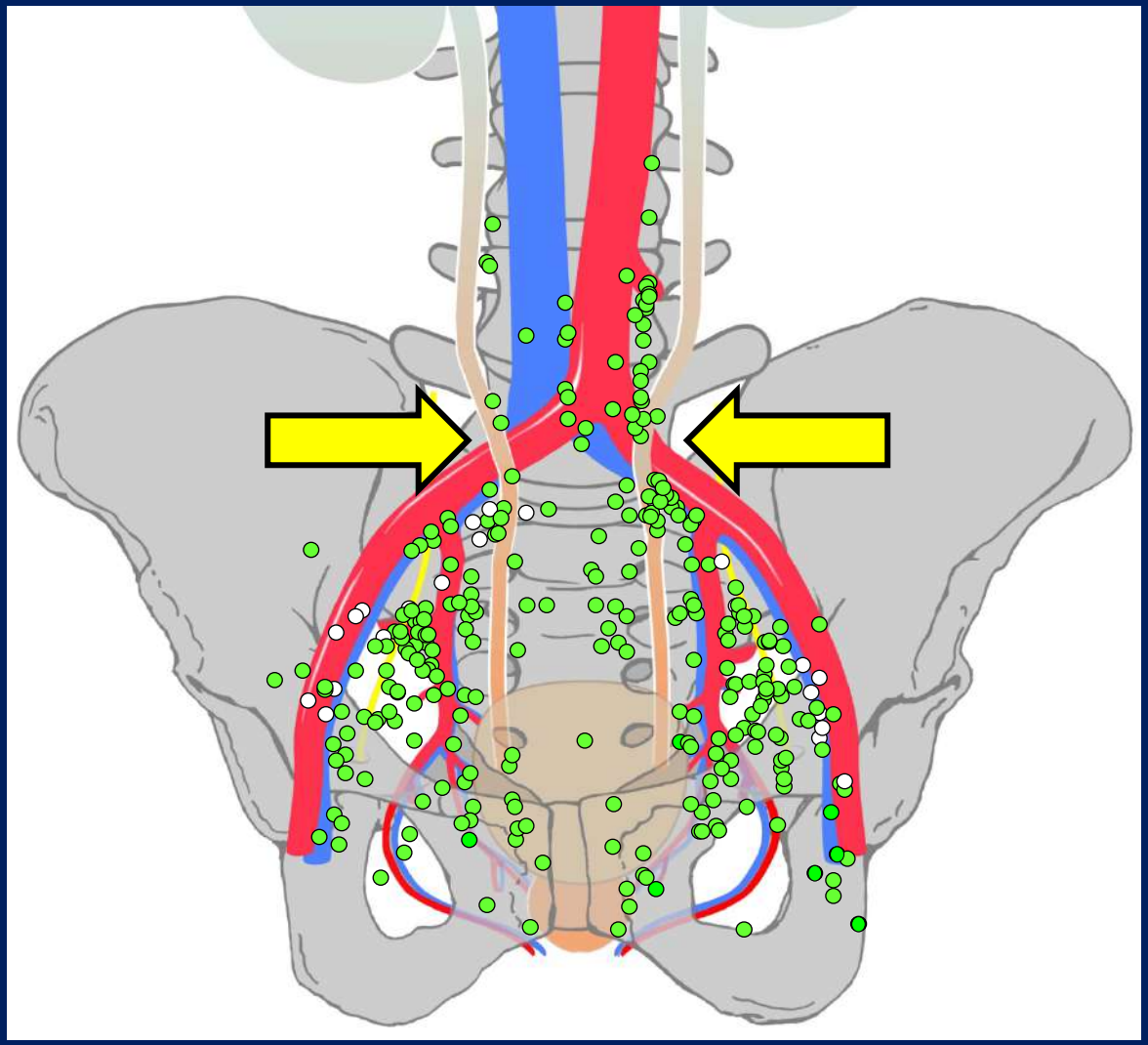
^EAU 2014 prostate cancer guidelines, available at www.uroweb.org
§ Thompson I et al J Urol, 177:2106-31, 2007
* www.ncnn.org

Primary lymphatic landing sites of the Prostate



Mattei A. et al., Eur. Urol., 53:118-125, 2008

Primary lymphatic landing sites of the Prostate



Mattei A. et al., Eur. Urol., 53:118-125, 2008

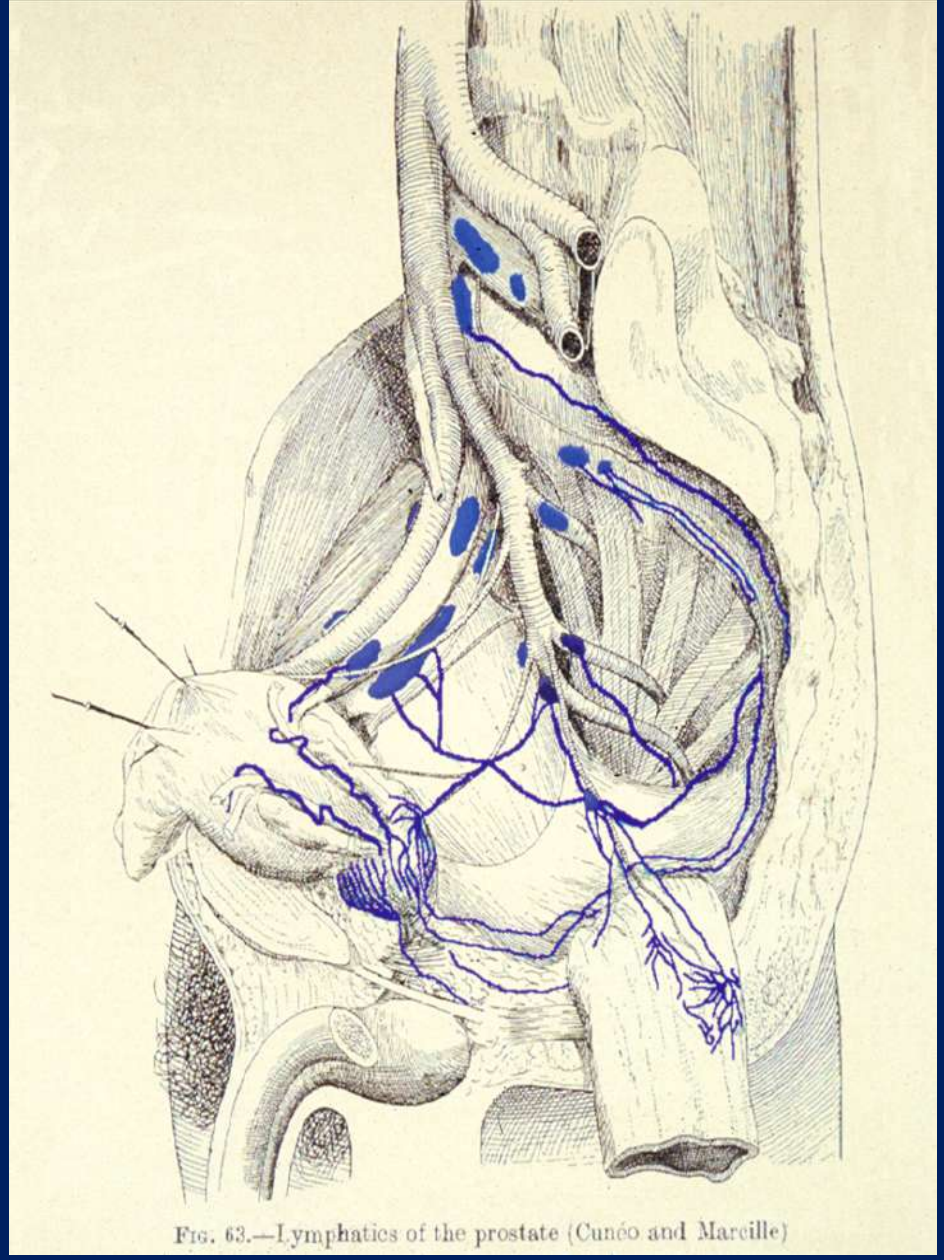
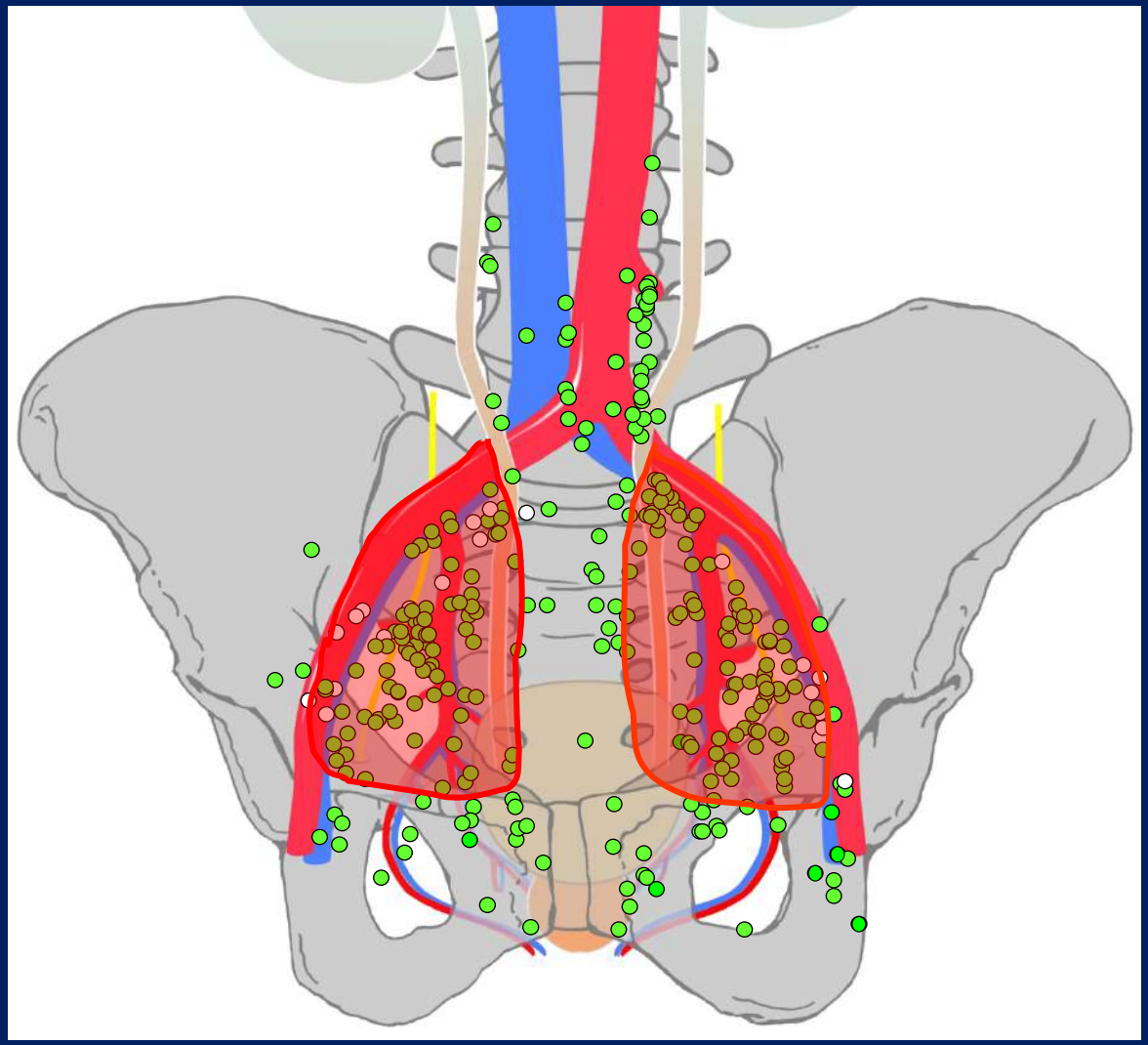


Fig. 63.—Lymphatics of the prostate (Cunéo and Marcille)

Adapted from Cunéo and Marcille, 1902
Anatomie des lymphatiques de l'homme
Westminster, Archibal Constable & Co LTD

Primary lymphatic landing sites of the Prostate Template



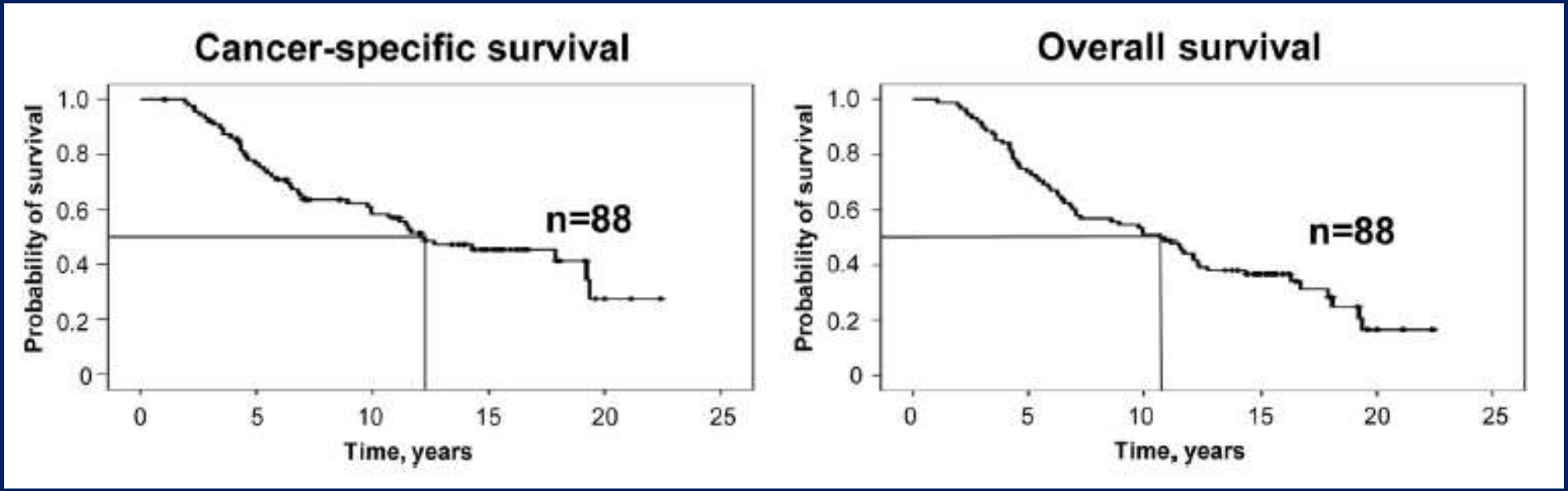
Mattei A. et al., Eur. Urol., 53:118-125, 2008

Survival & Positive lymph nodes
– Survival rates –

	All	1 pN+	2 pN+	>3 pN+
Median biochemical recurrence-free survival				
5 yr	14%	25%	12%	5%
10 yr	3%			
15 yr				
Median cancer –specific survival				
5 yr	85%	95%	93%	68%
10 yr	60%	72%	79%	33%
15 yr	45%			
Median overall survival				
5 yr	83%	93%	89%	68%
10 yr	52%	71%	72%	27%
15 yr	42%			

Schumacher MC et al., European Urology 54: 344–352, 2008

Long term survival is possible with extended lymph node dissection in patients with limited nodal disease



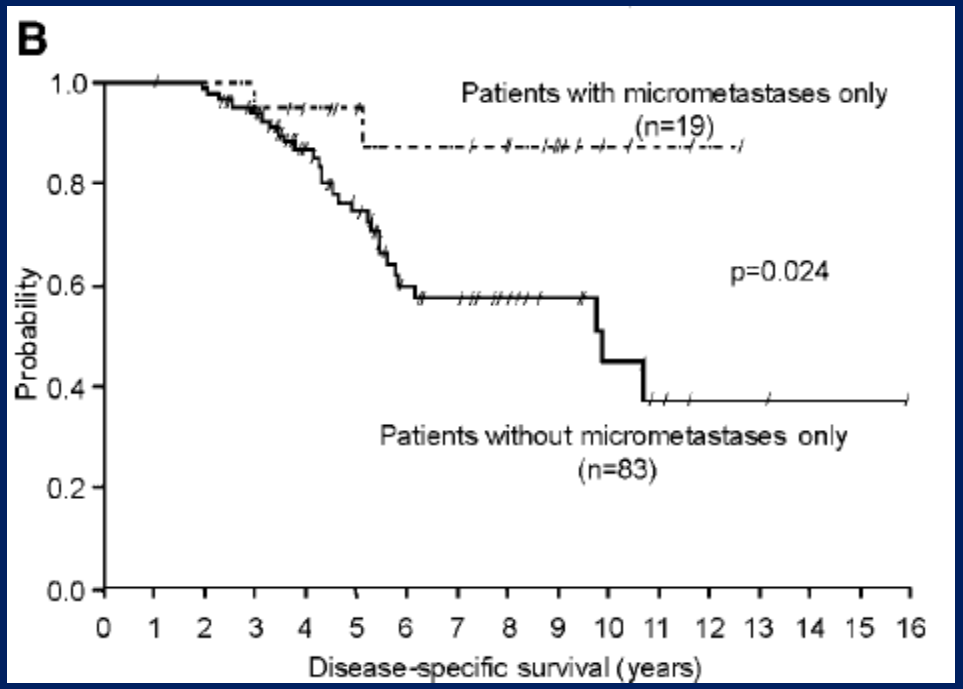
Seiler R. et al. J Urol 2014

Survival & Positive lymph nodes – Multivariate analysis –

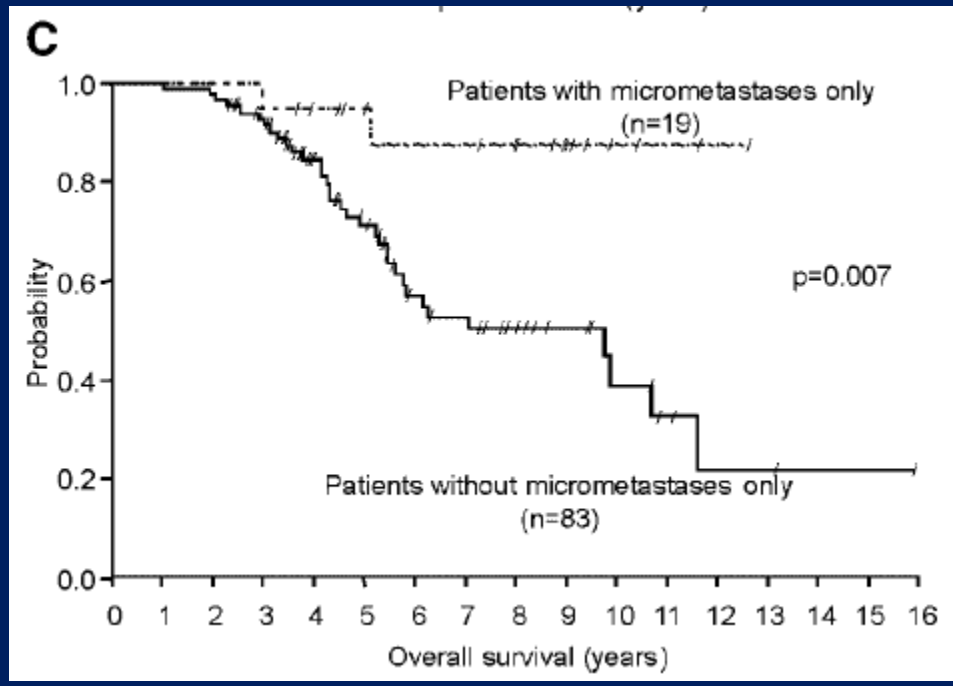
Risk factors		Cancer-specific survival HR	p-value
PSA		1.0	0.7
No. of pos. LNs removed >2 pN+ vs ≤2		1.9	0.02
pT3a vs pT2		1.3	0.6
pT3b vs pT2		2.1	0.1
pT4 vs pT2		4.0	0.02
Gleason Score	7 vs 2-6	1.8	0.09
	8-10 vs 2-6	3.9	<0.001
Pos. Margins		1.9	0.008

Briganti et al., European Urology 55: 261–270, 2009

Survival & Positive lymph nodes
– Micrometastases –



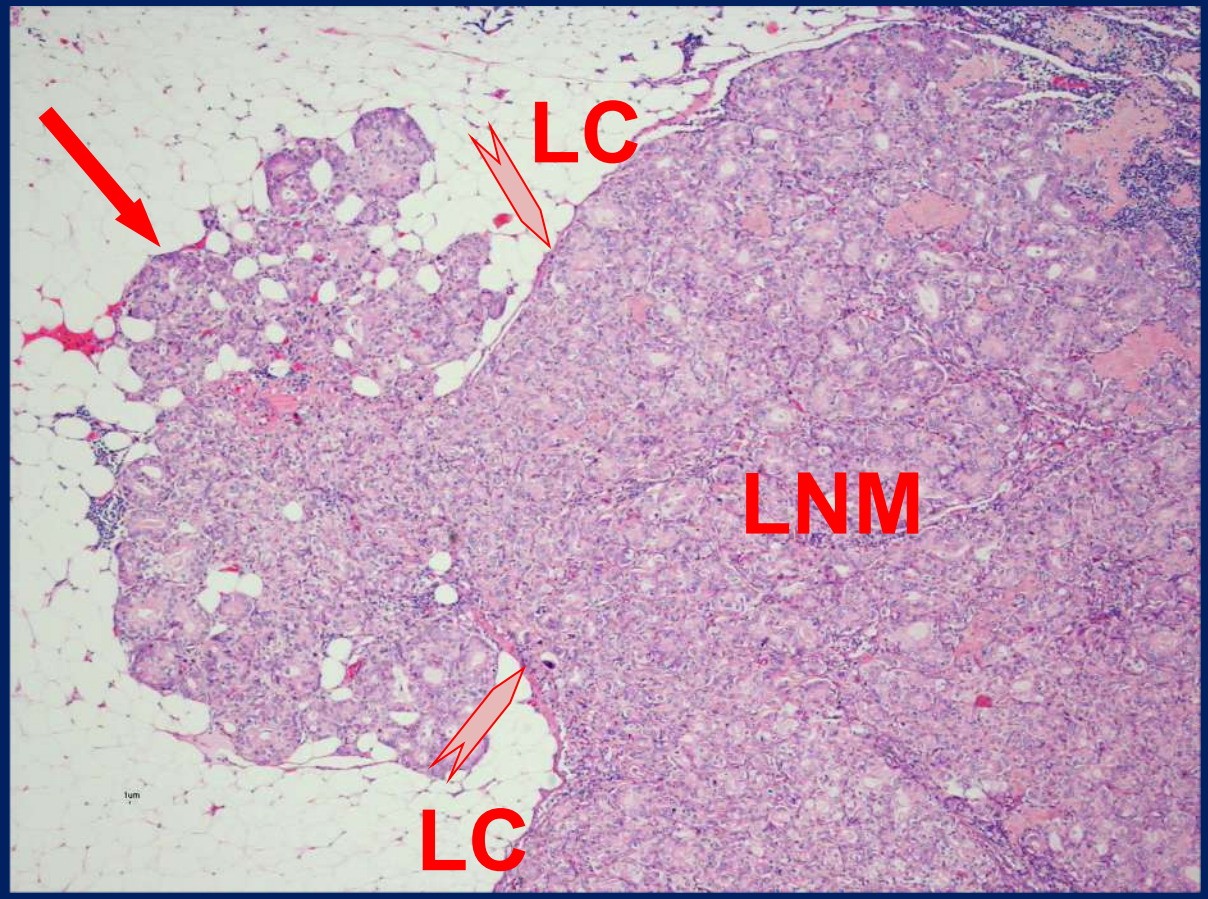
Disease-specific survival



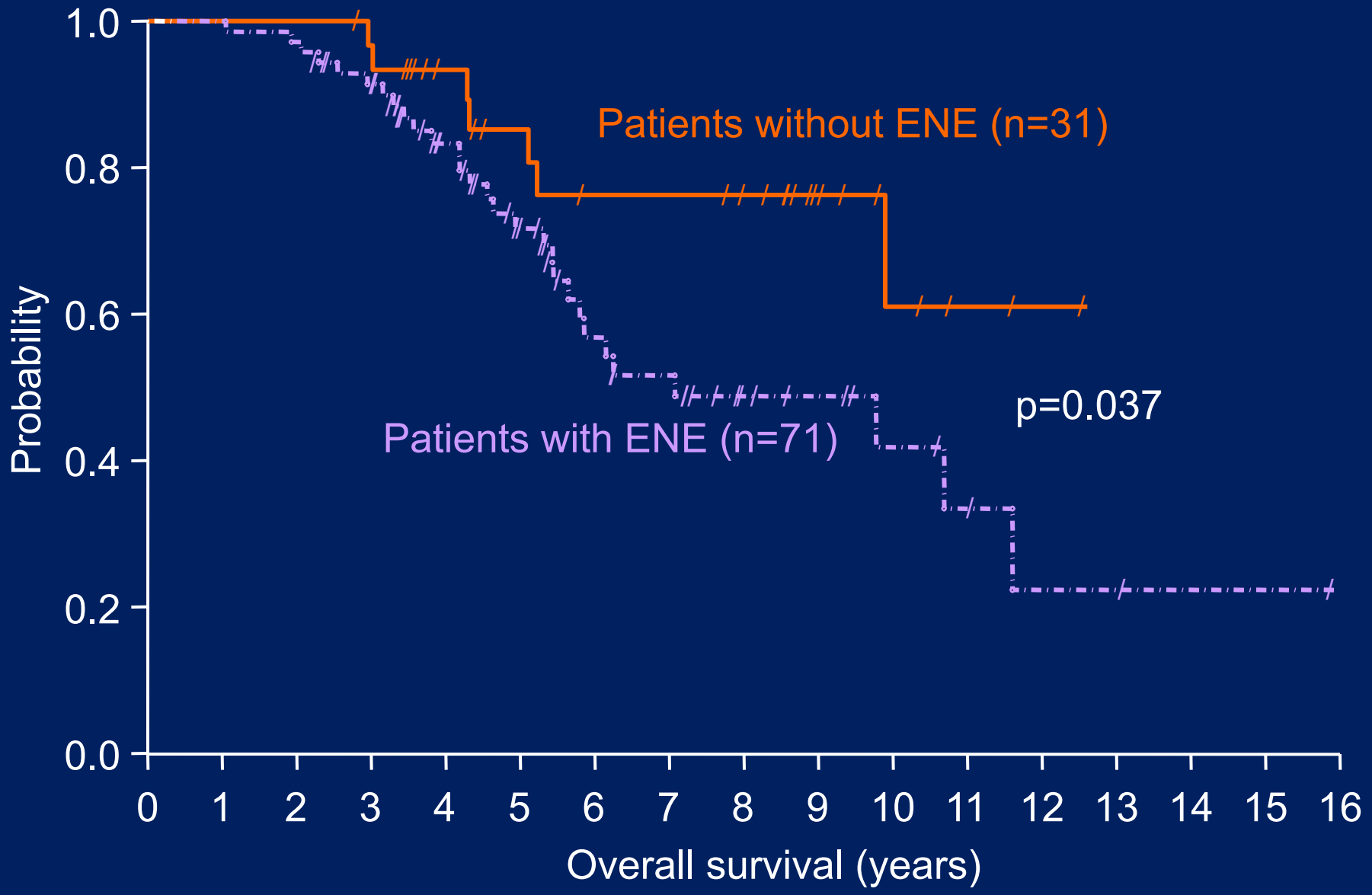
Overall survival

Fleischmann A et al., Prostate 69: 352–362, 2009.

Survival & Positive lymph nodes
– Extranodal extension (ENE) of lymph node metastasis –



Overall survival according to ENE



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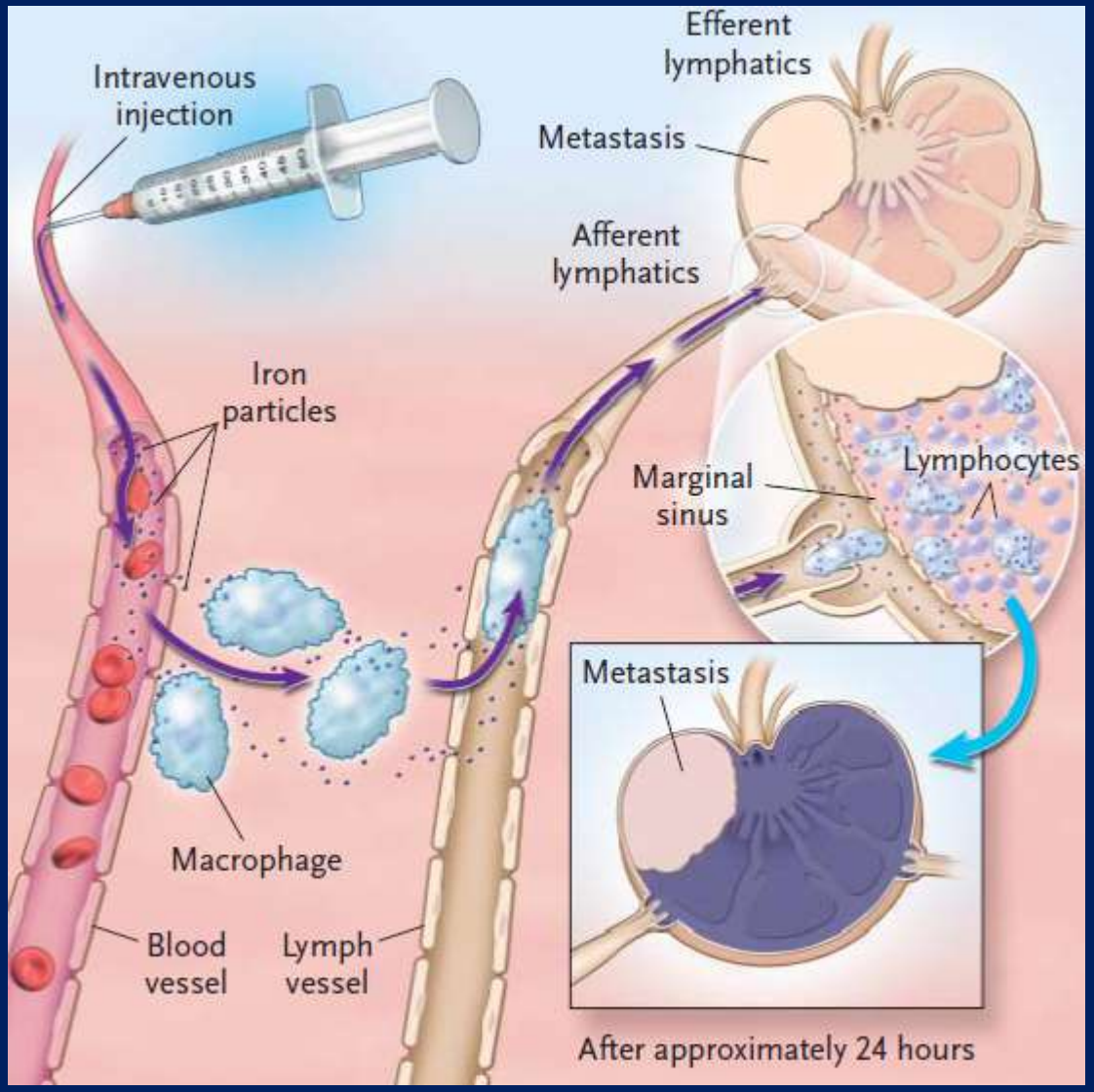
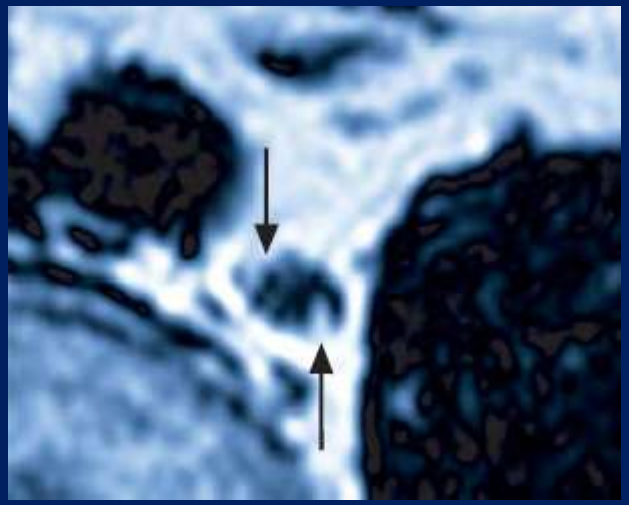
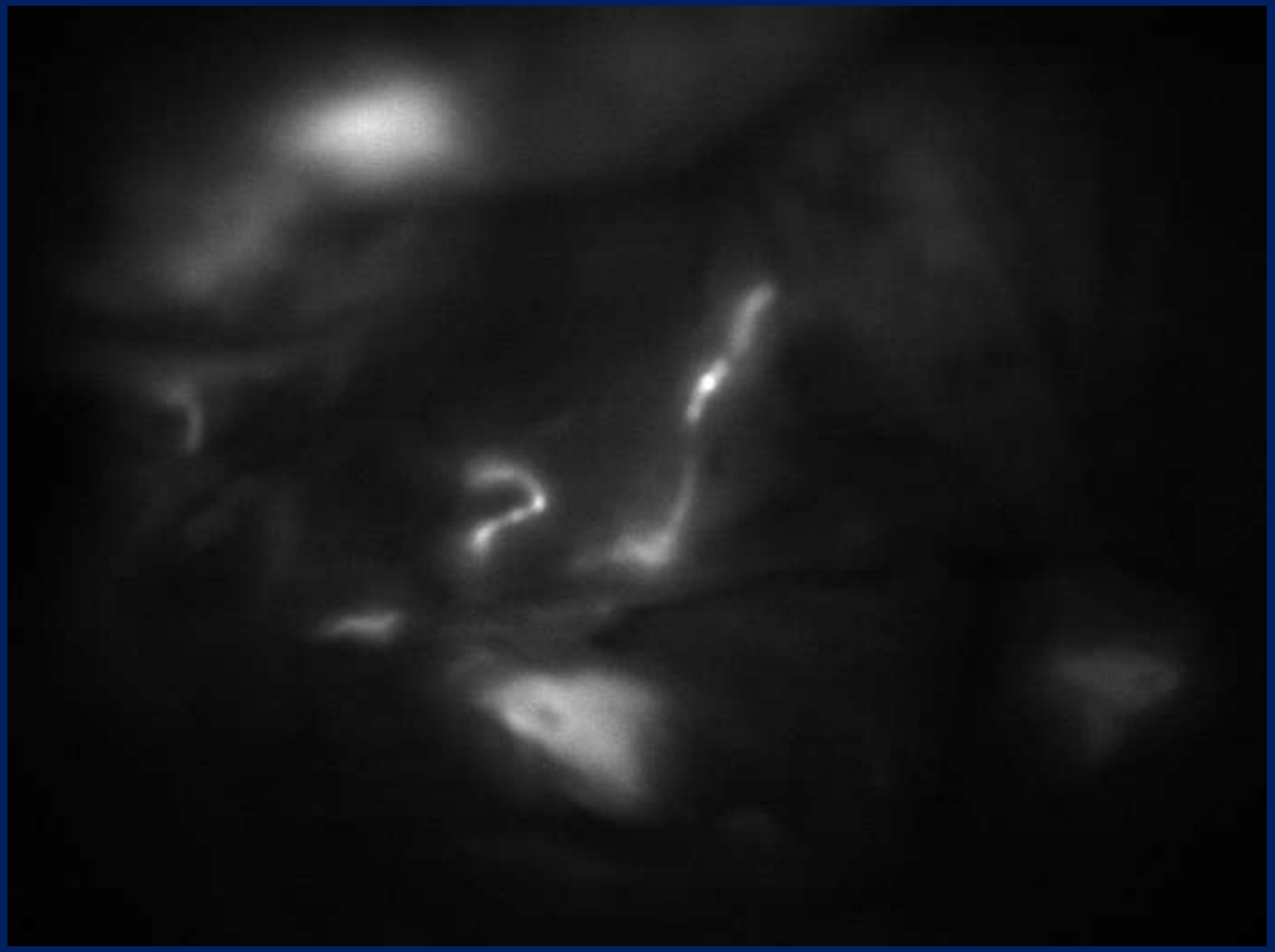
Noninvasive Detection of Clinically Occult Lymph-Node Metastases in Prostate Cancer

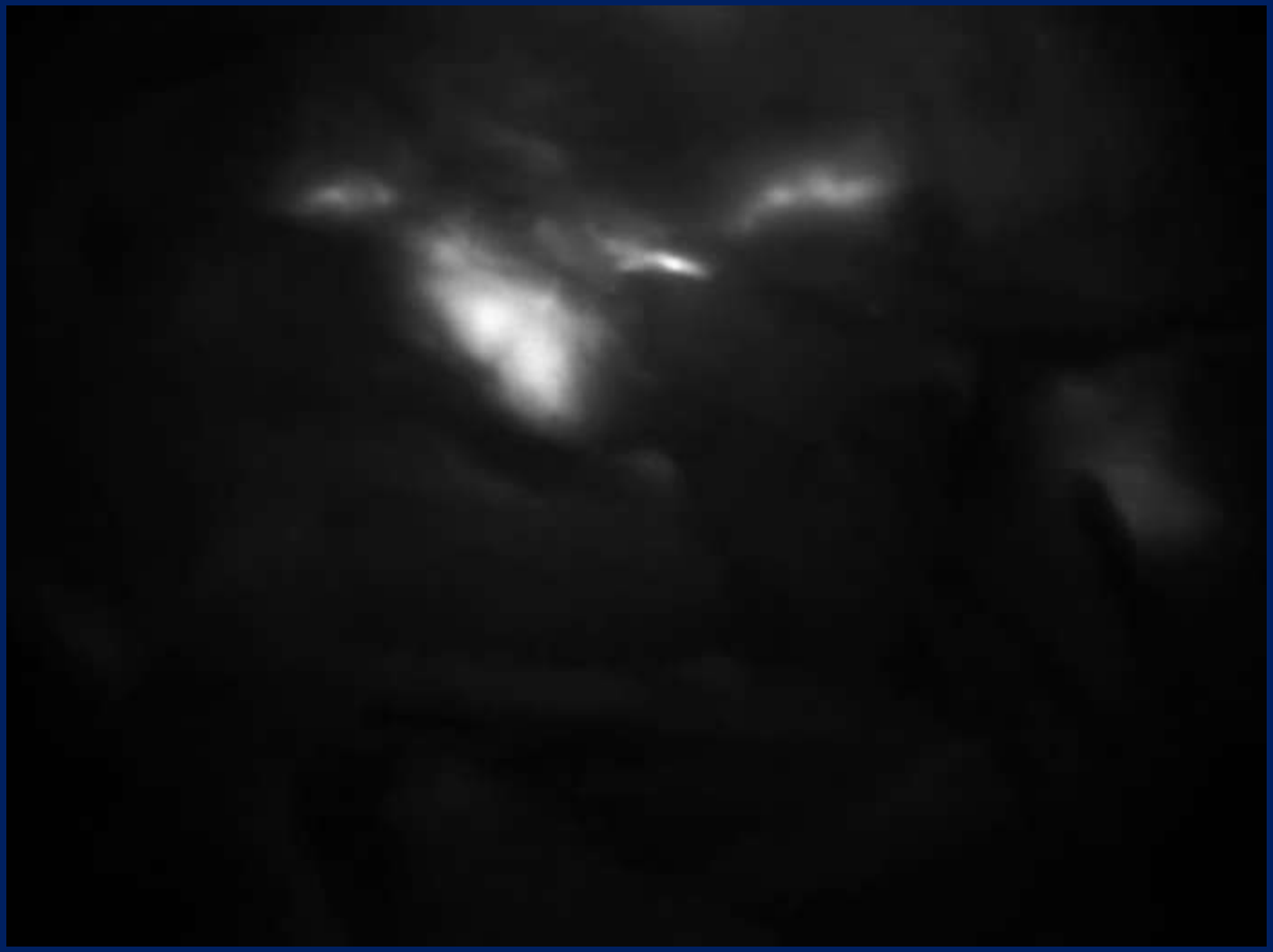
Mukesh G. Harisinghani, M.D., Jelle Barentsz, M.D., Ph.D., Peter F. Hahn, M.D., Ph.D., Willem M. Deserno, M.D., Shahin Tabatabaei, M.D., Christine Hulsbergen van de Kaa, M.D., Ph.D., Jean de la Rosette, M.D., Ph.D., and Ralph Weissleder, M.D., Ph.D.

Imaging of lymph node metastases









Oligometastases & Lymph node management – CONCLUSIONS

- ✓ There is a growing body of evidence that EPLND has a curative effect in a subset of patients at high risk undergoing radical prostatectomy
- ✓ Imaging modalities might improve detection
- ✓ Salvage pelvic lymph node dissection may help postponing systemic treatment