



SENTINEL NODE DISSECTION IN ONCO-GYNECOLOGICAL SURGERY

E. Leblanc, F Narducci, N Hudry

Dept of onco-gynecology, Centre Oscar Lambret, Lille, France

10 congrés català d'obstetrícia i ginecologia Barcelona Nov 7 th
2018

NO CONFLICT OF INTEREST

WHY A LYMPH NODE STAGING ?

- Staging of lymphophilic diseases (carcinomas) —> prognosis
 - nodal involvement => reduction by 30-50% of survival whatever the primary tumor
- Adapt further management —> therapeutic effect
 - Radical surgery aborted / ...extended
 - RT or CRT fields adapted (after complementary PA Ind)

MORBIDITY OF SYSTEMATIC LYMPHADENECTOMIES IS SIGNIFICANT

- **Pelvic level**

- **4% peroperative complications** (Querleu et al 2006): vascular, urinary tract, bowel
- **Symptomatic lymphocysts: 27-34%** (Gao et al 2013; Achouri et al 2013)
- **Leg lymphedema: 2.4-37.8%** (Tada et al 2009, Salani et al 2014)

- **Paraaortic level** (Gouy et al 2013)

- **3-5% peroperative complications**
 - **2.5% deaths** (Pomel et al 2015)
- **11% lymphocysts**
- **0.1-4% durable leg lymphedema**

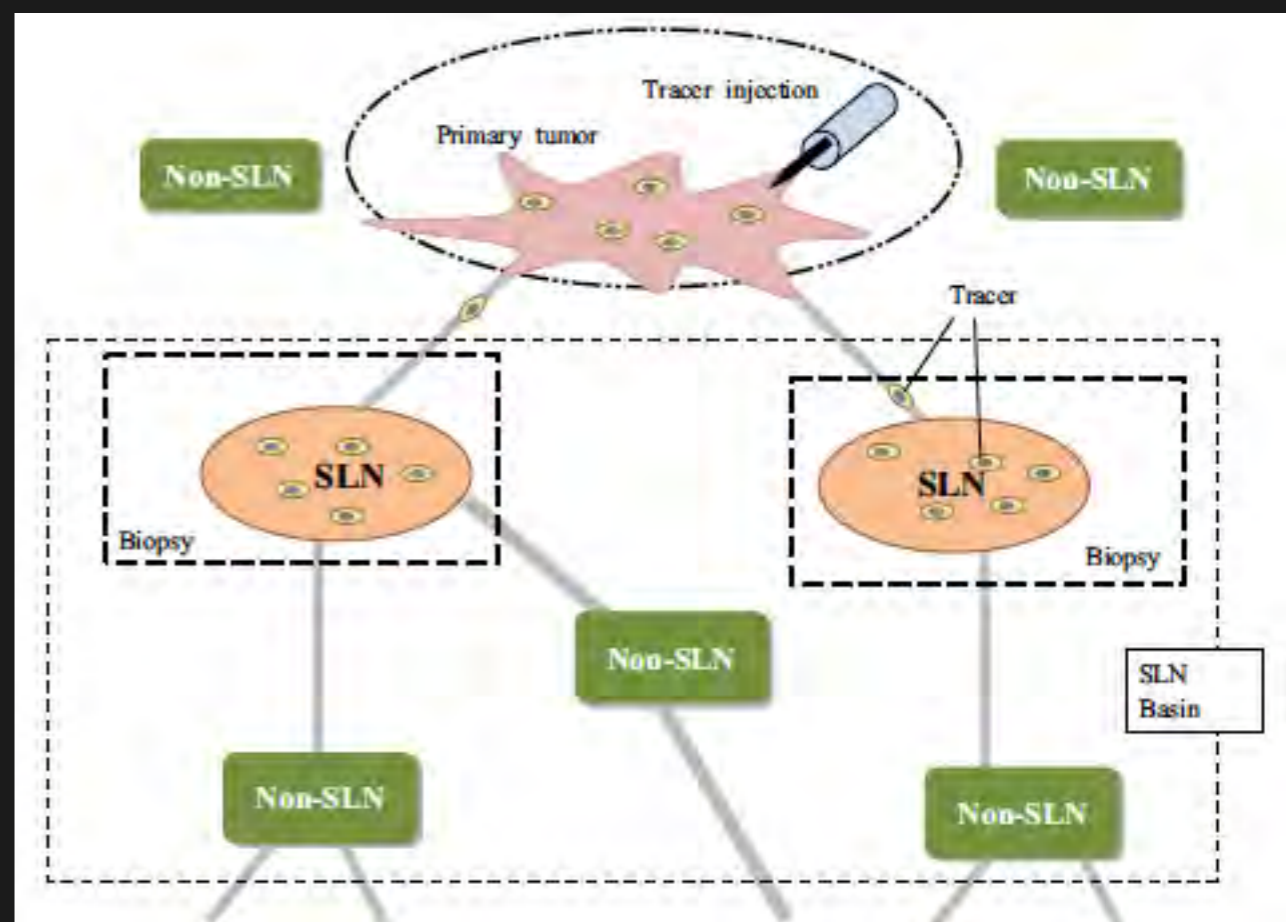
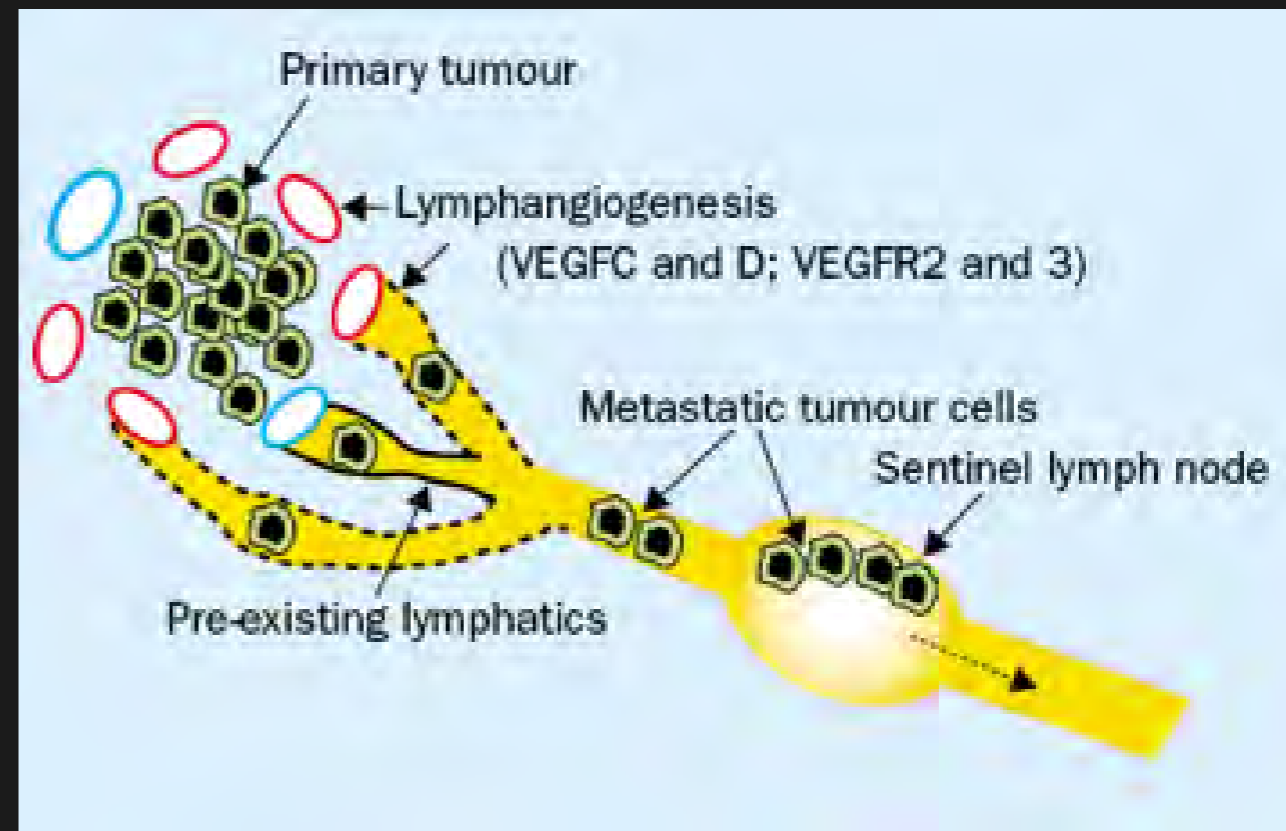
GOG 244 (LEG) study (SGO 2018 - Abstr 11): 18-40% leg lymphedema, 95% during 1st year

Approach, RT, number of nodes were not significant, but SND results in fewer leg lymphedema (SGO 2018 Abst 56)



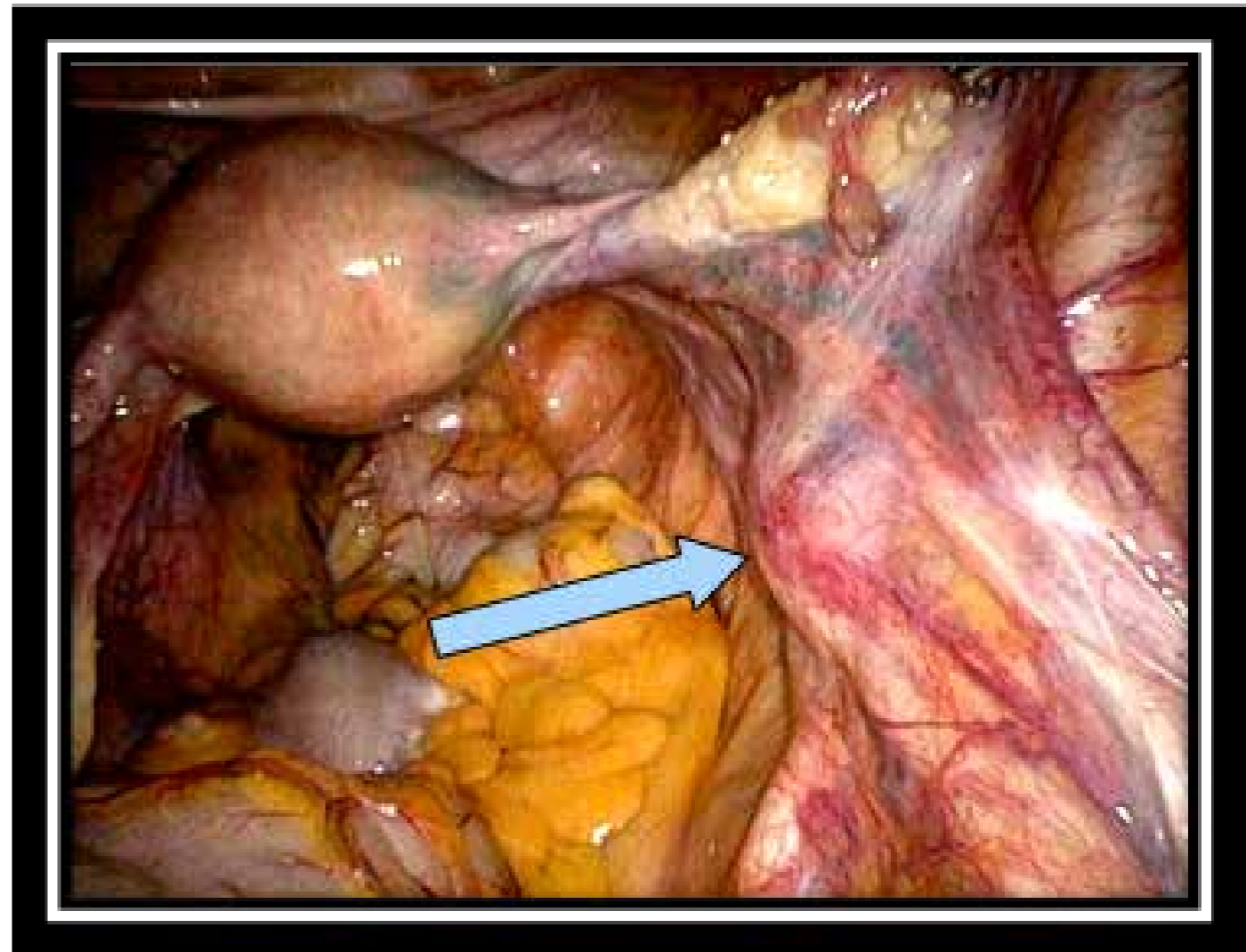
SENTINEL NODE DISSECTION

1. IN UTERINE CARCINOMAS



WHATEVER THE TECHNIQUE: 1 CONTRA INDICATION, 1 LIMIT

- SN dissection is for normal appearing nodes and no obvious visible disease (carcinomatosis, metastasis)
- Detection of suspicious node or extrauterine disease —> evaluation of these lesions takes priority over mapping
- Uterus is a median organ —> SND detection must be bilateral - > otherwise side specific full dissection (« algorithm »)



1. WHAT TO INJECT ?

ADVANTAGES / INCONVENIENCES

	Dose	Advantages	Inconveniences
Blue (Lymphazurin®, Patent blueV®..)	dilution 50% 1mlx4 at 2 or 4 points	Cheap Fast lymphatic captation	Stains the operative field Rapid washout 1-2% anaphylaxis Trouble with oxygen saturation Costs: Isosulfan > methylen blue
99m Technetium (Nanocis®..)	15MBqx4 if same day 30 MBqx4 if next day	Good lymphatic penetration even in obese patients Possibility to combine with CT -> SPECT CT Often combined to a colored tracer (blue or ICG) -> combined detection No complication	Nuclear medicine dept - > logistics Specific gamma probe Radioactivity
ICG (Infracyanine®, ICG Pulsion®..)	0.5- 1.25mg/ml 2-4 ml	Good lymphatic penetration even in obese pts No staining of the operative field Long washout 1/42000 anaphylaxis (iodine)	Costs: specific infrared light source + camera Hepatic failure

Sentinel Node Mapping in Cervical and Endometrial Cancer: Indocyanine Green Versus Other Conventional Dyes—A Meta-Analysis

Ilary Ruscito, MD^{1,2}, Maria Luisa Gasparri, MD^{3,1}, Elena Ioana Braicu, MD, PhD², Filippo Bellati, MD, PhD⁴, Luigi Raio, MD³, Jalid Sehoul, MD, PhD², Michael D. Mueller, MD³, Pierluigi Benedetti Panici, MD¹, and Andrea Papadia, MD, PhD³

- ▶ 6/ 45 studies with ≥ 538 pts: 60 robotic, 32 laparoscopy, 8 open

Compared to Blue alone

- ▶ higher overall detection rates
- ▶ higher bilateral detection rates but similar FN rates

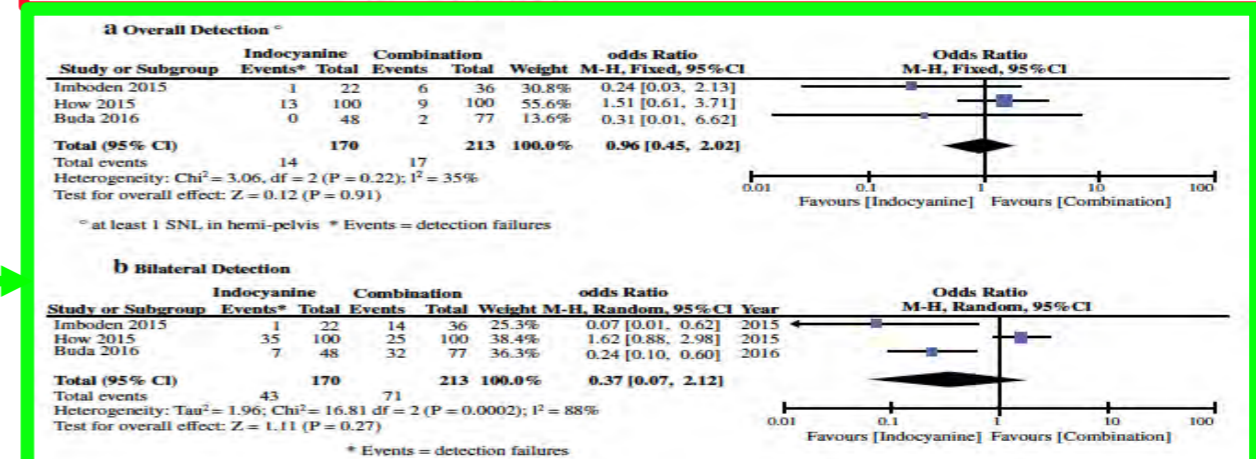
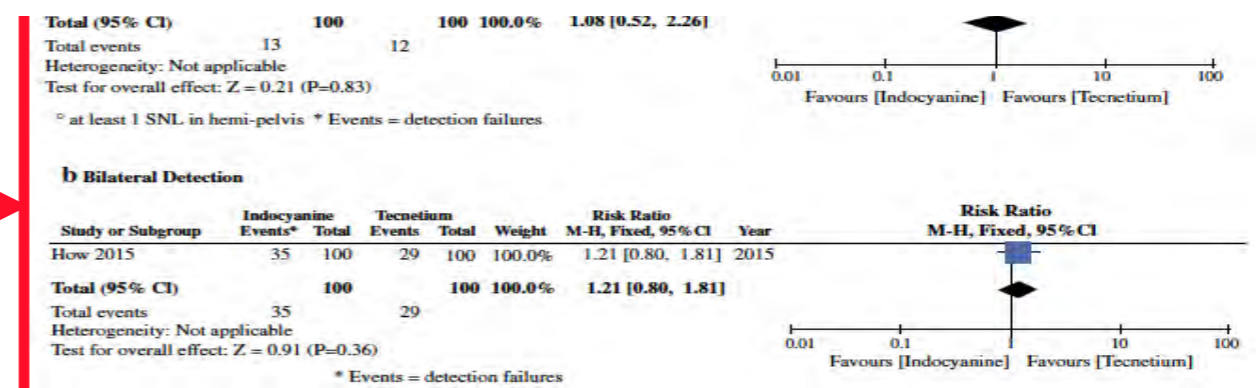
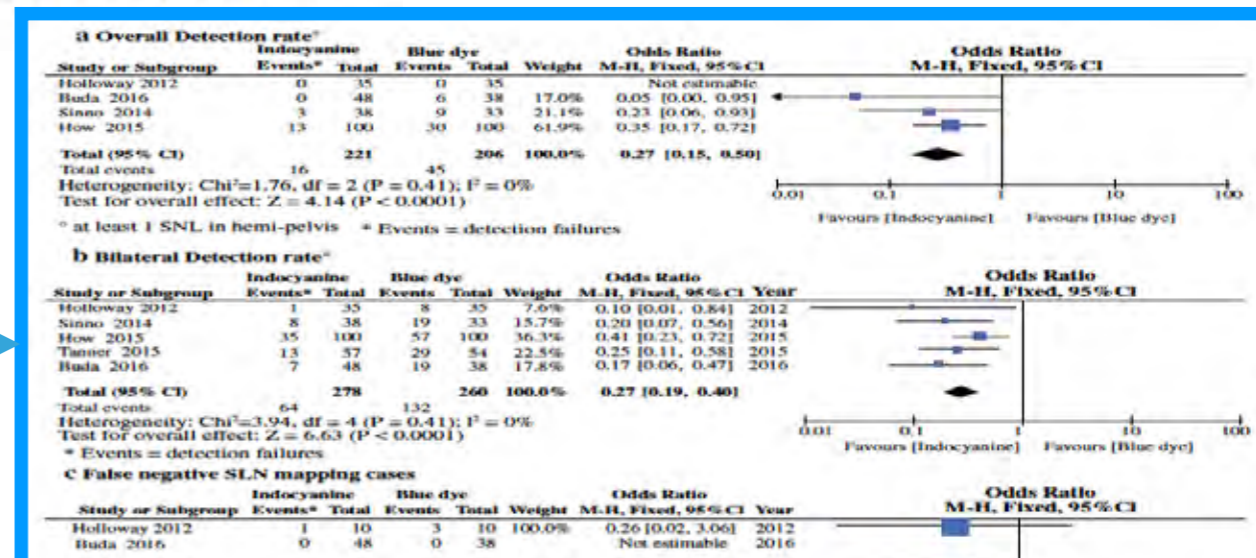
ICG = blue+TC > blue

Compared to 99mTc alone

- ▶ same results (detection rates, FN)

Compared to combined blue+99mTC

- ▶ same results (detection rates, FN)



1. HOW TO INJECT ?

IN EARLY CERVICAL CARCINOMAS

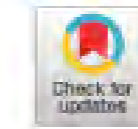
- ▶ 2 techniques
 - ▶ 4x submucosal injections
 - ▶ 2x submucosal + stromal injection
- ▶ Always peripheral from tumor



No comparative study: seems equivalent > 95% d

IN LOCALLY ADVANCED CERVICAL CARCINOMA

SLN biopsy in cervical cancer patients with tumors larger than 2 cm and 4 cm



L. Dostálek^a, M. Zikan^a, D. Fischerova^a, R. Kocian^a, A. Germanova^a, F. Frühauf^a, L. Dusek^b, J. Slama^a, P. Dunder^c, K. Nemejcova^c, D. Cibula^{a,*}

- ▶ Injection of blue dye into the cervical stroma under TVUS to avoid necrotic areas
- ▶ Comparison of DR for $T \leq 2\text{cm}$, $2 < T \leq 4\text{ cm}$, $4\text{cm} < T$
 - ▶ no difference for bilateral detection

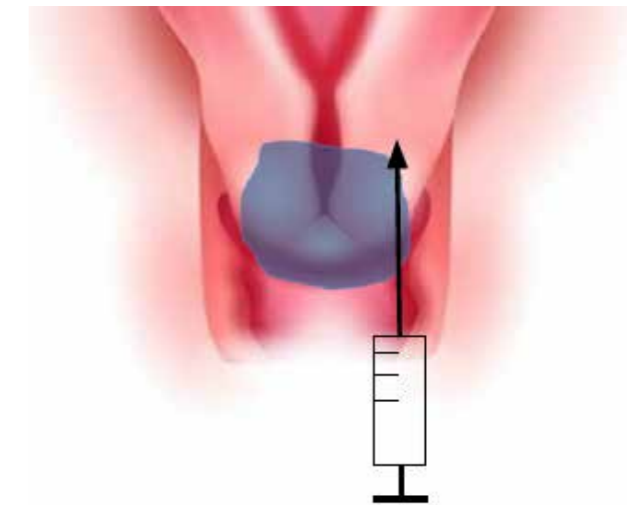


Fig. 1. Technique of tracer application in larger tumors.

SLN detection rate (n, %)	Total (n = 350)	<2.0 cm (n = 140)	2.0–3.9 cm (n = 138)	≥4.0 cm (n = 72)	P [†]
Overall	326 (93.1%)	128 (91.4%)	134 (97.1%)	64 (88.9%)	0.034
Unilateral only	45 (12.9%)	17 (12.1%)	19 (13.8%)	9 (12.5%)	0.936
Right side	23 (6.6%)	10 (7.1%)	8 (5.8%)	5 (6.9%)	0.887
Left side	22 (6.3%)	7 (5.0%)	11 (8.0%)	4 (5.6%)	0.555
→ Bilateral	281 (80.3%)	111 (79.3%)	115 (83.3%)	55 (76.4%)	0.460

IN ENDOMETRIAL CARCINOMAS

More controversial

Intracervical ?



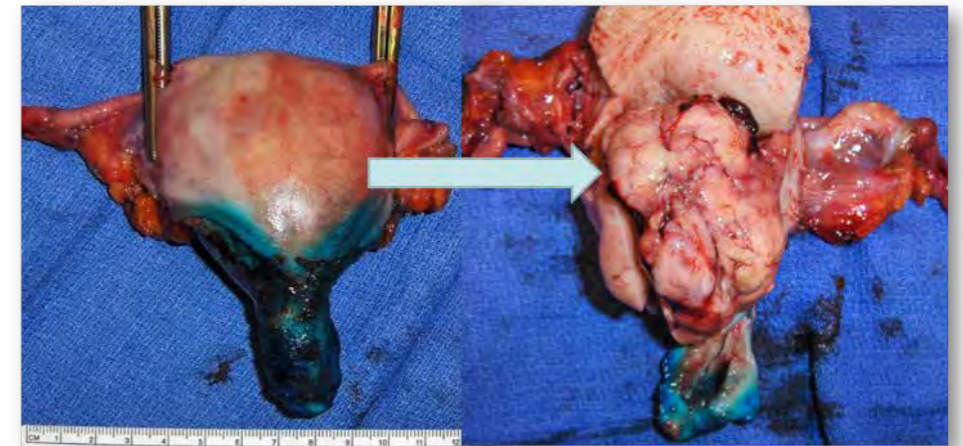
Easy
4 points submucous
2 points 3-9 o'clock
+/- 2 depths ++

Subserosal ?



Easy?
only intraoperative
pb if myomatosis

Peritumoral/HSS ?

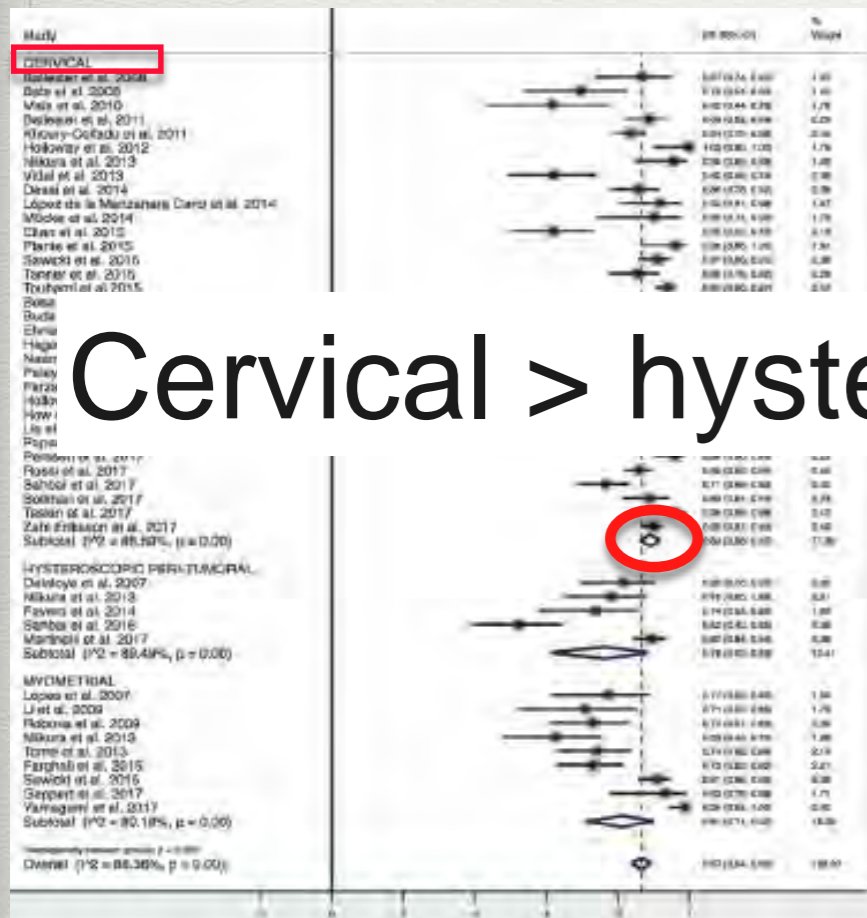


Uneasy/uncomfortable
but more realistic ?

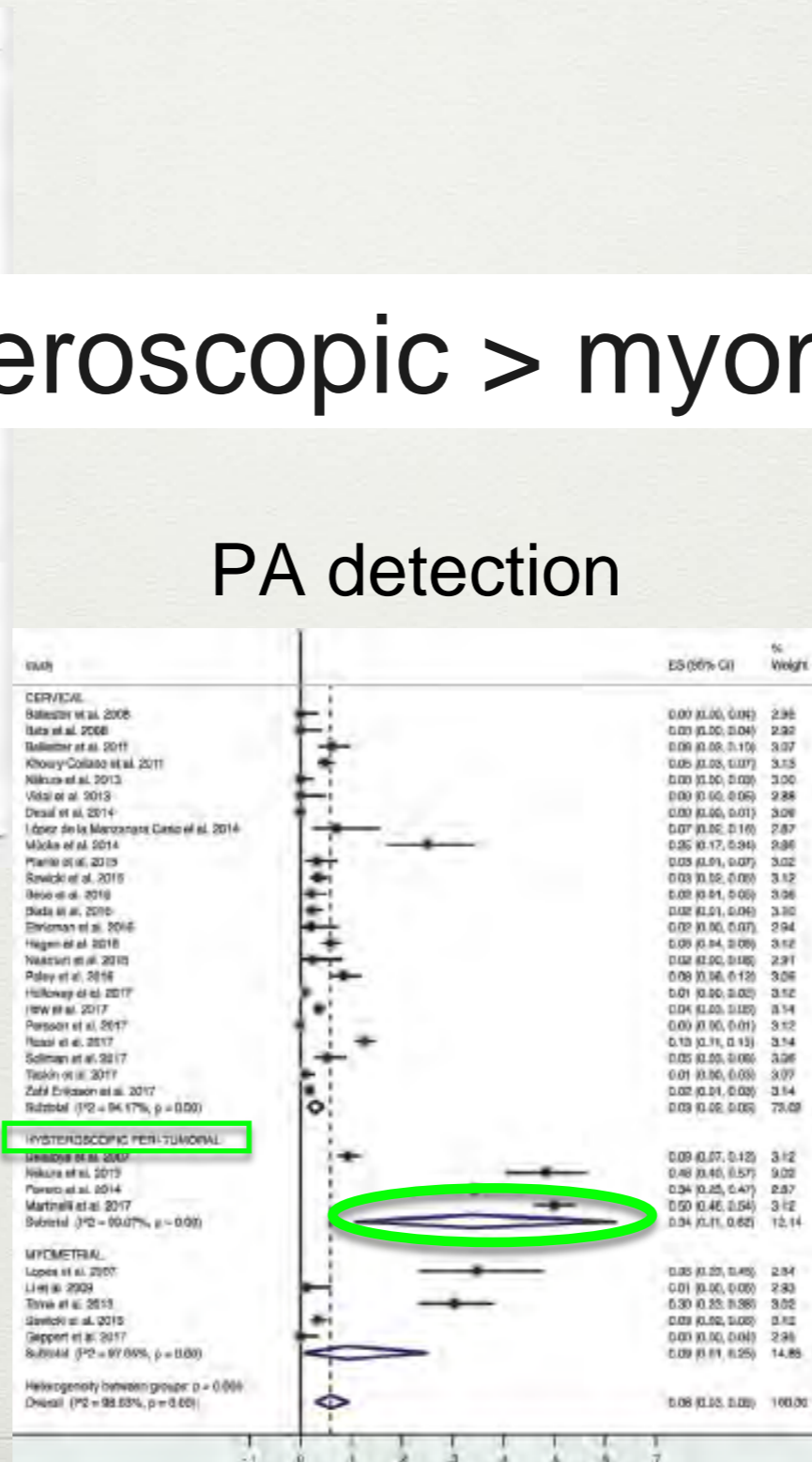
More PA SN.... but relevant ?

Sentinel lymph node mapping in endometrial cancer: a systematic review and meta-analysis

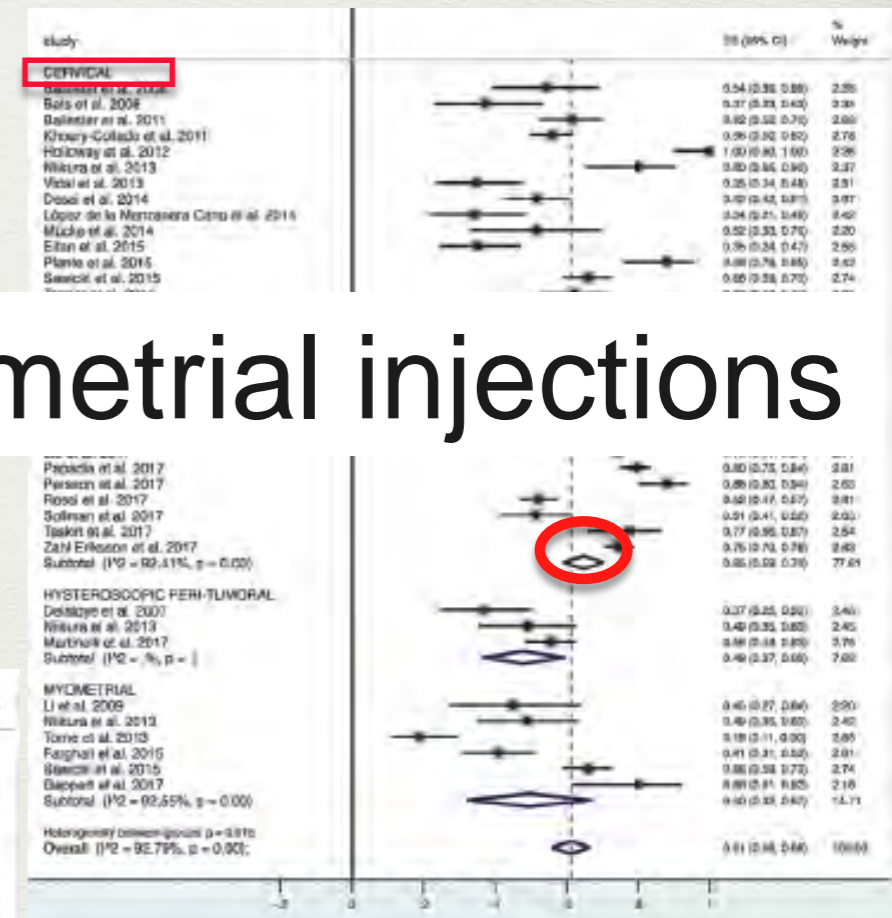
Jeffrey A. HOW, Patrick O'FARRELL, Zainab AMAJOURD, Susie LAU, Shannon SALVADOR, Emily HOW, Walter H. GOTLIEB *



Overall detection



PA detection



Bilateral detection

3. HOW MUCH ICG TO INJECT ?

The impact of different doses of indocyanine green on the sentinel lymph-node mapping in early stage endometrial cancer

Andrea Papadla¹ · Alessandro Buda² · Maria Luisa Gasparri¹ · Giampaolo Di Martino² · Beatrice Busi² · Debora Verri² · Michael D. Mueller¹

- ▶ Retrospective analysis 2 doses 2 concentrations of ICG in 2 institutions

- ▶ 8ml of 5mg/ml vs 4ml of 1.25mg/ml

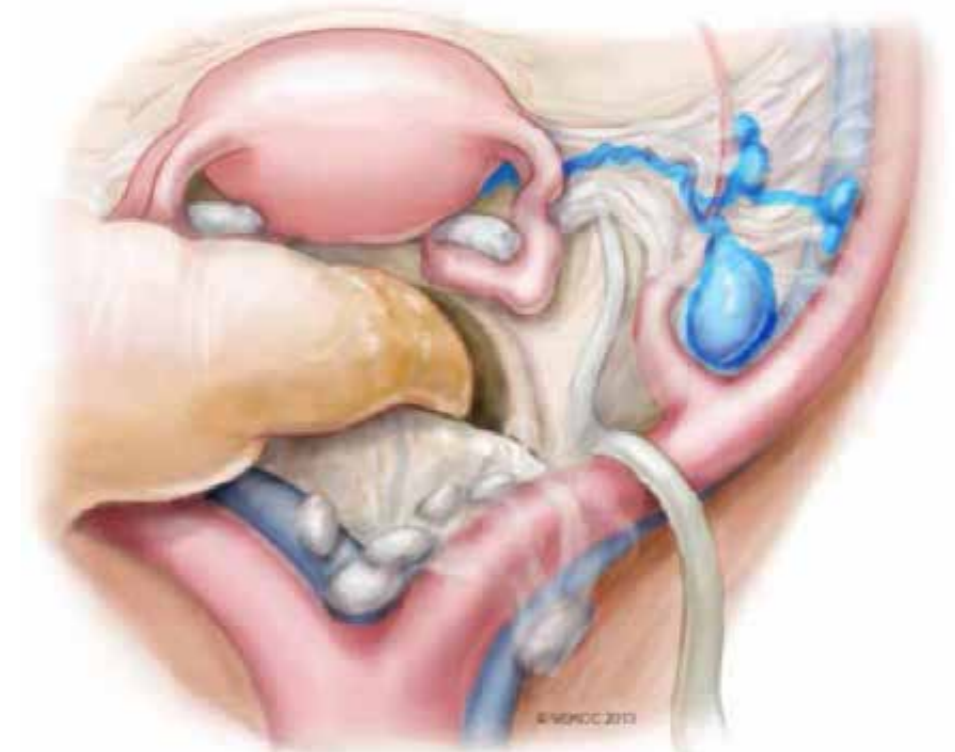
	Bilateral detection (yes/no)			
	Univariate analysis		Multivariate analysis	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Age (< 64 vs ≥ 64)	1.37 (0.54, 3.45)	0.49		
BMI (≥ 35 vs < 35)	0.44 (0.15, 1.29)	0.13	0.34 (0.11, 1.07)	0.066
Tumor volume (≥ 2 vs < 2 cm)	1.34 (0.54, 3.33)	0.52		
LVSI (positive vs negative)	0.73 (0.15, 3.45)	0.69		
ICG concentration (5 vs 1.25 mg/ml)	2.2 (0.88, 5.52)	0.09	2.64 (0.81, 6.92)	0.084

1. No difference in detection rates

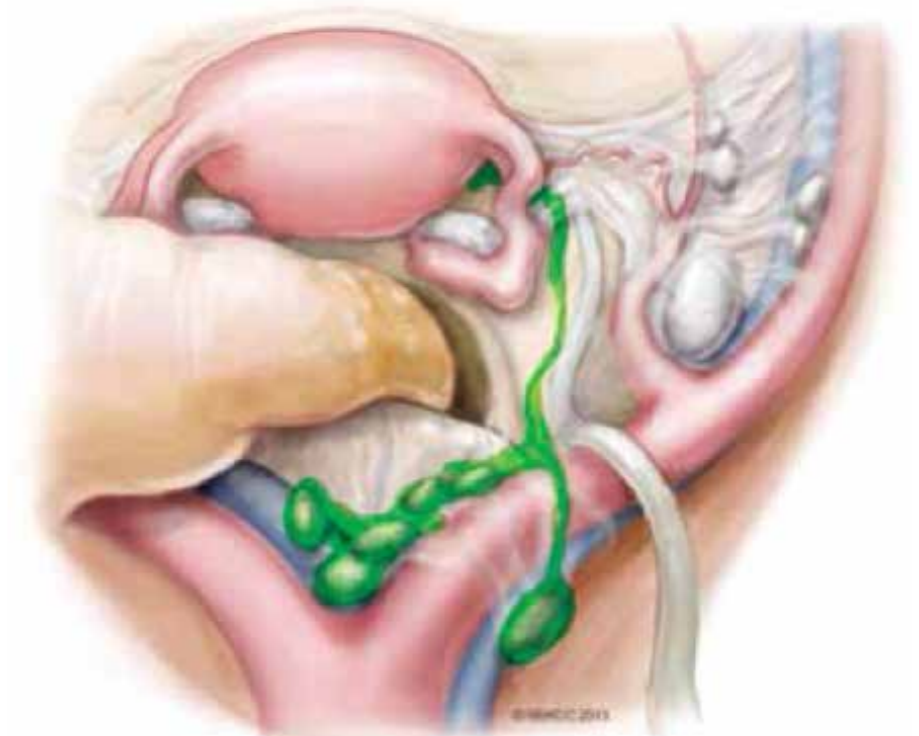
	Number of lymph nodes (≥ 3 vs < 3)			
	Univariate analysis		Multivariate analysis	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Age (< 64 vs ≥ 64)	1.46 (0.76, 2.81)	0.25	1.61 (0.79, 3.29)	0.18
BMI (≥ 35 vs < 35)	0.78 (0.32, 1.87)	0.58		
Tumor volume (≥ 2 vs < 2 cm)	1.26 (0.65, 2.42)	0.48		
LVSI (positive vs negative)	1.88 (0.67, 5.26)	0.22	2.04 (0.67, 6.23)	0.2
ICG concentration (5 vs 1.25 mg/ml)	4.75 (2.32, 9.72)	0.001	4.9 (2.37, 10.1)	0.001

2. more SNs if more ICG

4. WHERE TO FIND THE SN ?



Standard distribution



Alternate distribution

MULTISTEP « ALGORITHMIC »PROCEDURE +++

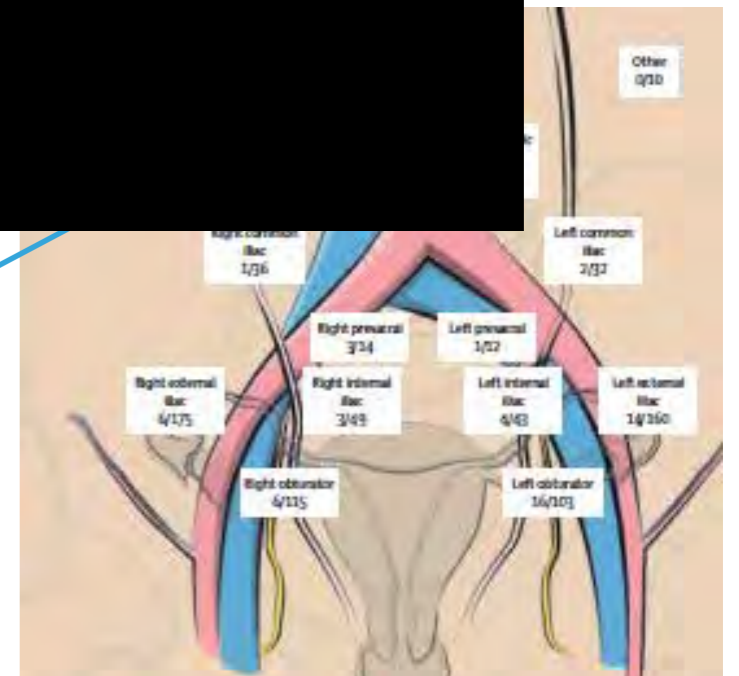


Training and regular practice are both necessary !

10-15% Geppert
Piersson 2017

...and consider paraaortic SN exploration

4. ...and consider paraaortic SN exploration



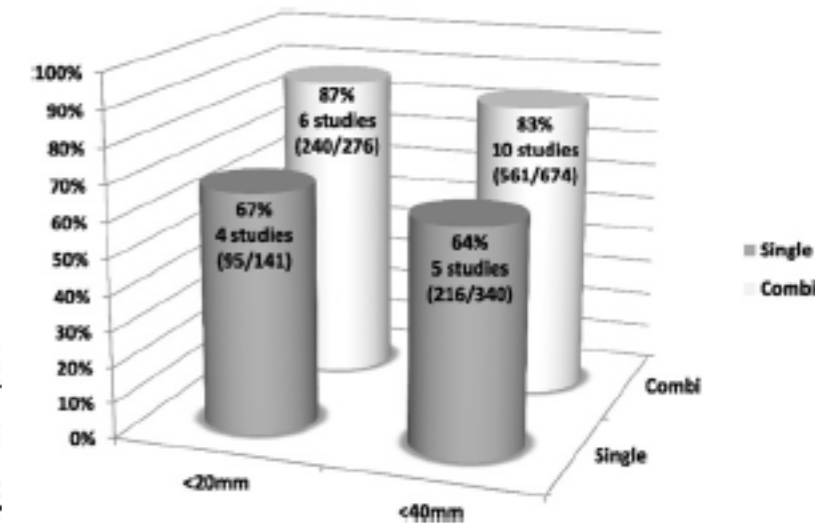
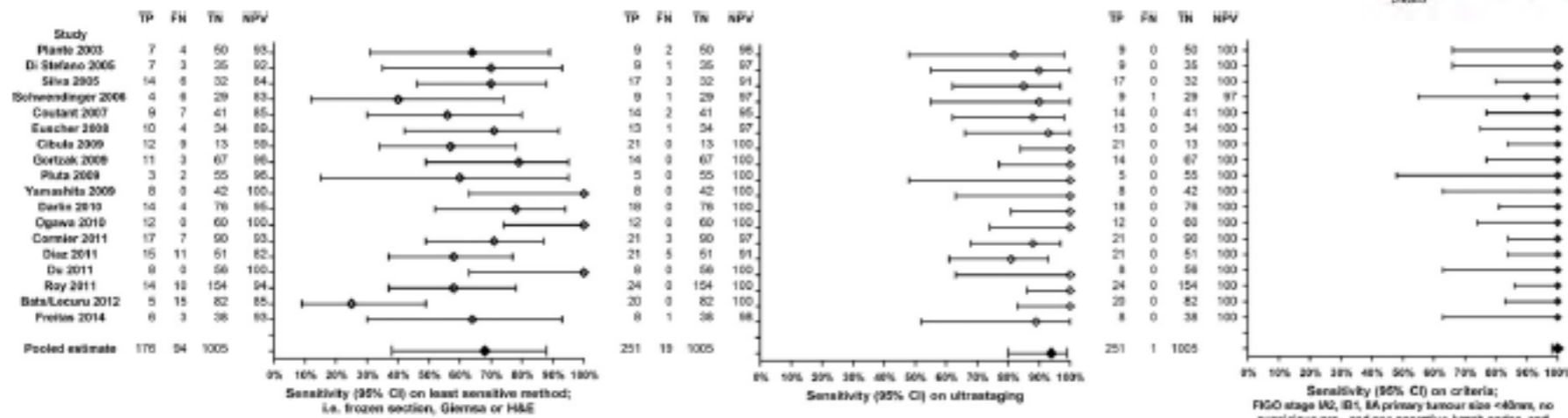
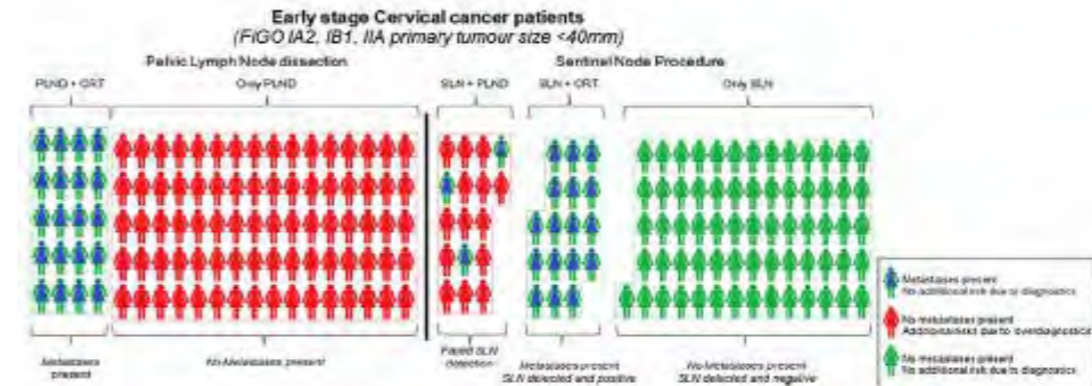
From E Rossi et al Lancet Oncol 2017

RELIABILITY OF SN POLICY IN CERVICAL CARCINOMAS

The sentinel node procedure in early stage cervical cancer, taking the next step; a diagnostic review

Casper Tax^{a,*}, Maroeska M. Rovers^{a,b}, Corine de Graaf^c, Petra L.M. Zusterzeel^c, Ruud L.M. Bekkers

- 47 studies 4130 early St IA2-IB1 CC



Overall and bilateral detection rate per technique.

	Studies	At least one SLN			Bilateral detection			
		Total patients	Number detected	DR (95% CI)	Studies	Total patients	Number detected	DR (95% CI)
Overall	44	3931	3584	91% (90-92)	31	3026	1816	60% (58-62)
Per technique								
Dye tracer	11	594	502	85% (81-87)	8	349	194	56% (50-61)
Isotope tracer	7	336	299	89% (85-92)	4	256	139	54% (48-60)
Dye or isotope tracer	18	930	801	86% (84-88)	12	605	333	55% (51-59)
Dye and isotope tracer	32	2539	2379	94% (93-95)	18	1274	916	72% (69-74)

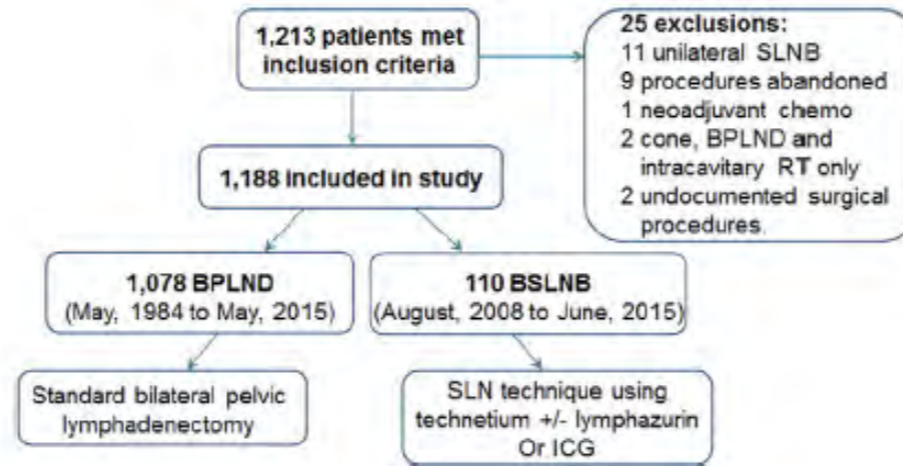
Conclusions. Early stage cervical cancer patients (FIGO IA2, IB1, IIA primary tumor size <40 mm) who have no suspicious pre-, and per-operative lymph nodes, and have bilateral negative SLNs after ultra staging, have a residual risk of 0.08% (1/1257) on occult metastases. On the basis of these results we recommend not to perform a full PLND in these patients.

Can sentinel lymph node biopsy replace pelvic lymphadenectomy for early cervical cancer?

Genevieve K. Lennox^a, Allan Covens^{a,b,*}

^a Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, University of Toronto, M700-610 University Avenue, Toronto, ON M5G 2M9, Canada

^b Division of Gynecologic Oncology, T2051 Odette Cancer Centre, University of Toronto, 2075 Bayview Avenue, Toronto, ON M4N 3M5, Canada



▶ No survival difference in pN0 group => yes but a rdm study is preferable ...

Patient characteristics.

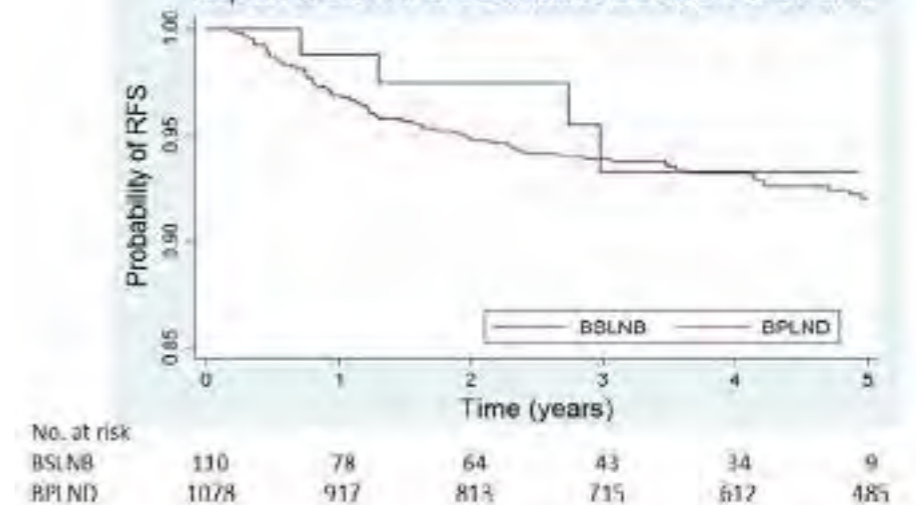
Parameter ^a	BSLNB N = 110	BPLND N = 1078	p
Age (years)	35 (19-64)	40 (17-86)	<0.001
Year of primary surgery	2008-2015	1984-2014	<0.001
Size of measurable tumors (mm)	22.5 (10-50)	20 (1-70)	0.06
Depth of invasion (mm)	4.3 (0-33)	5.0 (0-64)	0.15
Lymphovascular space invasion	29 (26.4)	400 (37.1)	0.03
Stage			<0.001
IA	65 (59.1)	102 (9.5)	
IB	45 (40.9)	976 (90.5)	
Histology			0.19
Squamous cell carcinoma	77 (71.3)	767 (71.7)	
Adenocarcinoma	31 (28.7)	274 (25.6)	
Other	0 (0)	29 (2.7)	

Morbidity in BSLNB versus BPLND groups.

Parameter ^a	BSLNB N (%)	BPLND N (%)	p value
Intra-operative complications	5 (4.6)	66 (6.1)	0.67
Intra-operative blood loss (mL)	100 (0-300)	500 (30-5500)	<0.001
Surgical time (hours)	2.0 (0.8-3.5)	2.8 (1-9)	<0.001
Blood transfusion	0 (0)	246 (23.1)	<0.001
Length of stay (days)	0 (0-1)	6 (0-65)	<0.001
Time to normal residual urine (days)	5 (0-12)	6 (0-120)	0.13
Short-term morbidity	5 (4.6)	55 (5.1)	1.0
Post-operative infection (%)	0 (0)	115 (10.7)	<0.001

Mode of treatment ^a	BSLNB N (%)	BPLND N (%)	p
Surgical procedure			<0.001
Simple hysterectomy	9 (8.2)	14 (1.3)	
MIS	9 (8.2)	2 (0.2)	
Open	0 (0)	7 (0.6)	
Modified radical hysterectomy	24 (21.8)	483 (44.8)	
MIS	24 (21.8)	86 (8.0)	
Open	0 (0)	458 (42.5)	
Radical hysterectomy	12 (10.9)	438 (40.6)	
MIS	12 (10.9)	1 (0.1)	
Open	0 (0)	339 (31.4)	
Radical trachelectomy	33 (30.0)	143 (13.3)	
MIS	33 (30.0)	136 (12.6)	
Open	0 (0)	6 (0.6)	
Cervical conization	32 (29.1)	0 (0)	
MIS	32 (29.1)	0 (0)	
Open	0 (0)	0 (0)	
Adjuvant radiation therapy	6 (5.4)	94 (8.7)	0.58
None	104 (94.6)	944 (90.9)	
EBRT	5 (4.6)	79 (7.6)	
EBRT and brachytherapy	1 (0.9)	15 (1.4)	

Kaplan-Meier RFS estimates: BSLNB vs. BPLND



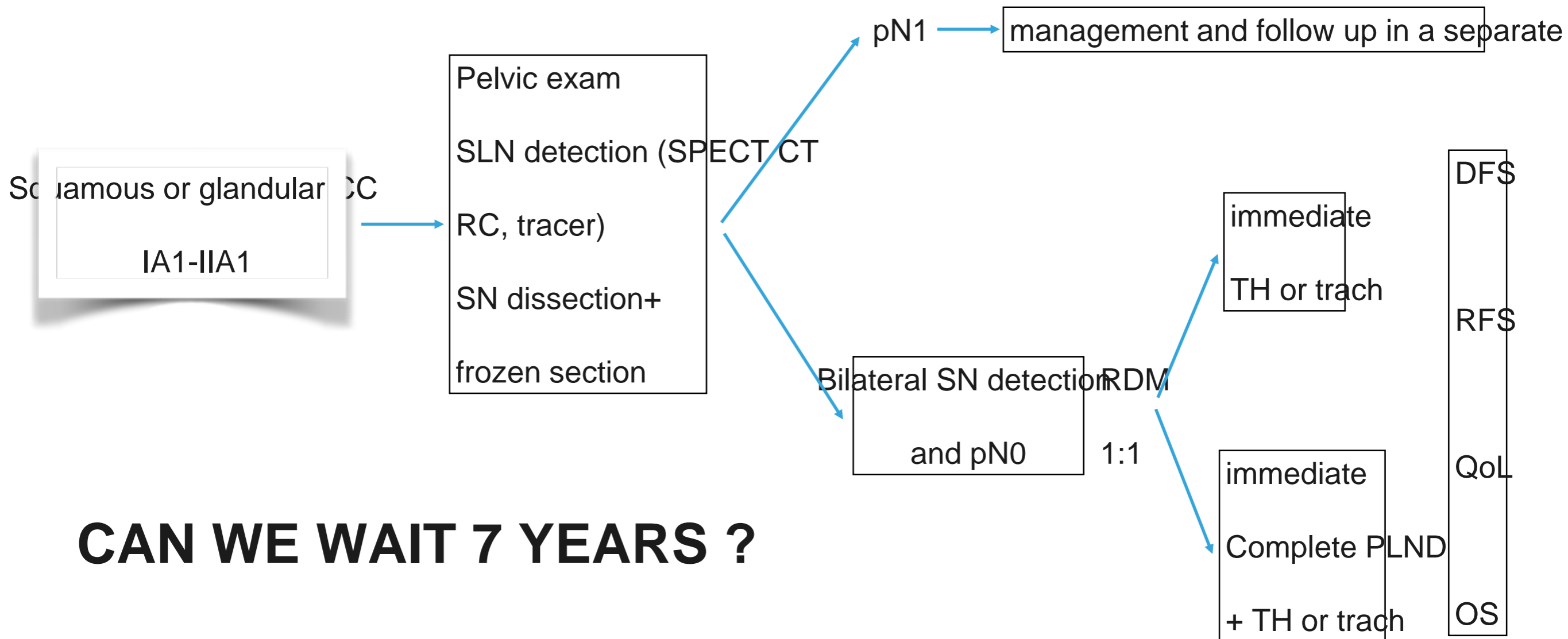
SENTICOL 3

950 patients with 200 in France

Accrual: 03/2017 - 03/2020

Results: 03/2025

► French randomized study



RELIABILITY OF SN POLICY IN ENDOMETRIAL CARCINOMAS

A comparison of sentinel lymph node biopsy to lymphadenectomy for endometrial cancer staging (FIRES trial): a multicentre, prospective, cohort study

Emma C Rossi, Lynn D Kowalski, Jennifer Scalici, Leigh Cantrell, Kevin Schuler, Rabbie K Hanna, Michael Method, Melissa Ade, Anastasia Ivanova, John F Boggess

▶ multicentre prospective study of all types and grades stage 1 EC

▶ 18 experienced sites 385 pts

▶ Standardized contrast 1 ml (0.5mg/ml) at 3 and 9 o'clock = 1mg

▶ Robotic detection space: SND for bilateral pelvic (surgeon's discretion)

▶ location of SND

▶ Detection rate

▶ Se = TP/(TP+FN)

▶ Sp = TN/(TN+FP)

▶ PPV = TP/(TP+FP)

▶ NPV = TN/(TN+FN) = 257/258 = 99.6%



The results of the FIRES trial are consistent with what has been shown in smaller series. The aggregate of evidence addressing the accuracy of the technique suggests that sentinel-lymph-node biopsy can detect metastatic disease for endometrial cancer with a sensitivity similar to that for breast cancer, melanoma, and vulvar cancers, all tumours for which sentinel-lymph-node biopsy is an accepted standard of care in staging and surgical management.

Bilateral mapping	177 (52%)
Para-aortic sentinel lymph node detected	81 (23%)
Isolated para-aortic sentinel lymph node detected	3 (<1%)
Median number of sentinel lymph nodes removed	2 (0-20)
Mean number of total nodes removed	19 (10-3; 1-61)

Data are n (%), median (range), or mean (SD; range).

Table 2: Surgical results in patients who had pelvic lymphadenectomy

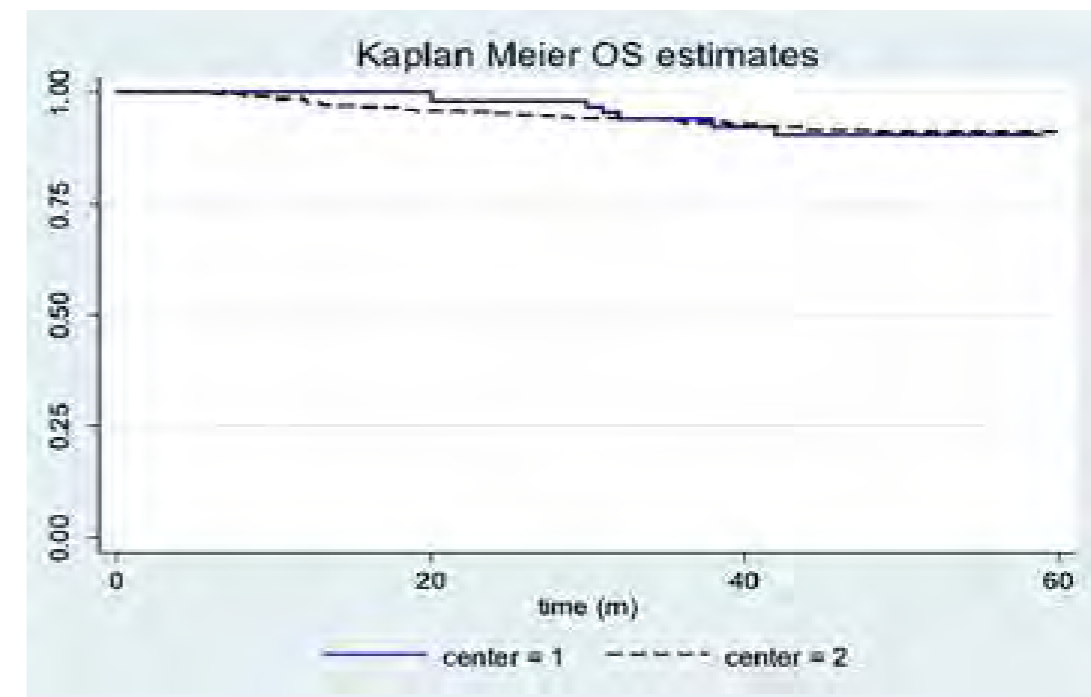
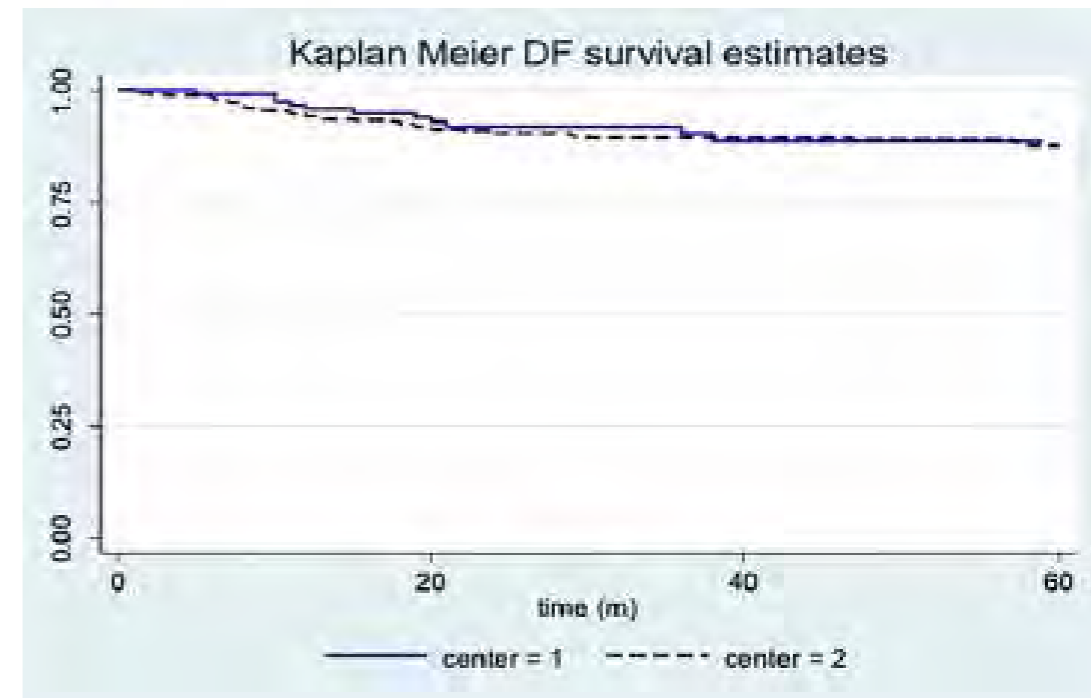
	True positive nodes	True negative nodes
Positive sentinel lymph node	35	0
Negative sentinel lymph node	1	257

Table 3: Sensitivity and specificity data

The impact on survival of two different staging strategies in apparent early stage endometrial cancer comparing sentinel lymph nodes mapping algorithm and selective lymphadenectomy: An Italian retrospective analysis of two reference centers

Alessandro Buda^{a,*}, Giampaolo Di Martino^a, Stefano Restaino^b, Elena De Ponti^c, Giorgia Monterossi^d, Daniela Giuliani^a, Alfredo Ercoli^e, Federica Dell'Orto^a, Giorgia Dinoi^d, Tommaso Grassi^a, Giovanni Scambia^d, Francesco Fanfani^f

- ▶ Bicentric retrospective study of 802 St I EC 2010-2014
- ▶ TH-BSO + node assessment if intermediate or high risk EC
 - ▶ Monza: 145 SND (Tc Blue or ICG) +/- P (algorithm) +/- PA Ind exam HES +/- IHC
 - ▶ Rome: 657 syst P Ind +/- PA Ind exam HES only
- ▶ Results : 1595 (Monza) vs 6634 (Rome) nodes were examined
 - ▶ pInd in 33% Monza and 56% in Rome
 - ▶ More IIC1 in SLN group (16 vs 7%)
 - ▶ **No survival difference according to strategy**



Sentinel lymph node mapping and staging in endometrial cancer: A Society of Gynecologic Oncology literature review with consensus recommendations

Robert W. Holloway^{a,*}, Nadeem R. Abu-Rustum^b, Floor J. Backes^c, John F. Boggess^d, Walter H. Gotlieb^e, W. Jeffrey Lowery^f, Emma C. Rossi^d, Edward J. Tanner^g, Rebecca J. Wolsky^h

- ▶ **SND policy (+ « algorithm ») = < 5% false neg** in trained hands (**experience > 30 cases**)
 - ▶ Increases the detection of nodal met as for other tumor types, but missed met can occur...
- ▶ **Detection by ICG = 99m TC+ blue, and intracervical** injections should be preferred (*confirmed by a meta-analysis by How JA et al Min Gynecol 2018*)
- ▶ Pathological examination of SN should include 2mm sectioning + HES, +/- IHC if neg
- ▶ **Patients with low risk stage 1 EC can be staged with SND only** (->*side-specific PLND if failed SND but high-risk features of TH/BSO at FS - Tanner et al GO 2017*)
- ▶ Patients with **intermediate/high risk stage 1 EC can be offered SND policy but completion of pelvic PA Ind is advocated, outside results of rdm studies** (*on-going SENTIRAD rdm trial in France*)

2. SENTINEL NODE IN VULVAR CARCINOMA

Update on sentinel lymph node biopsy for early-stage vulvar cancer



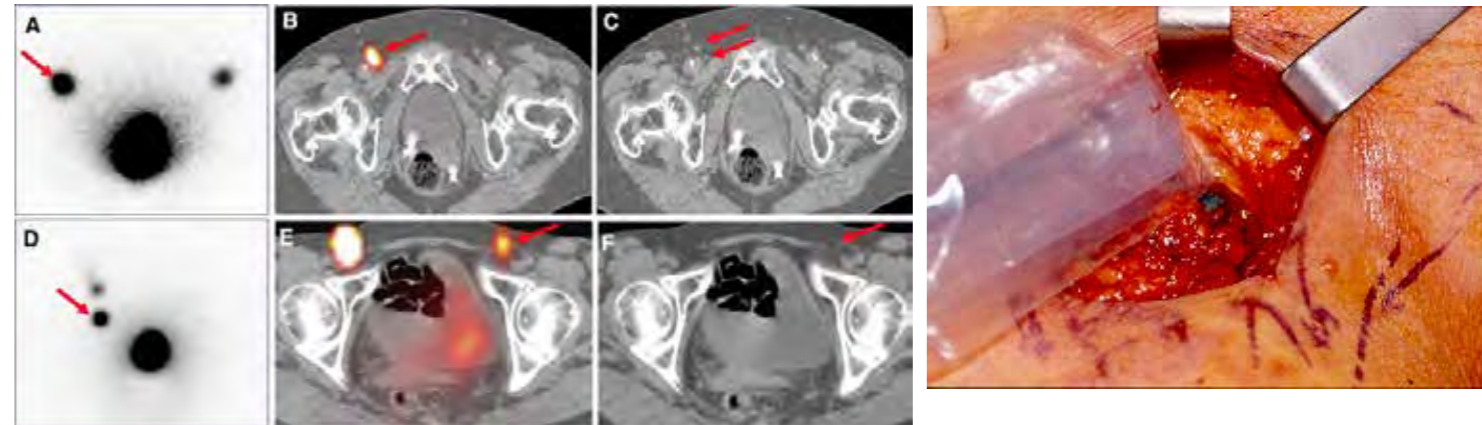
Brian M. Slomovitz ^{a,*}, Robert L. Coleman ^b, Maaïke H.M. Oonk ^c, Ate van der Zee ^c, Charles Levenback ^b

^a Division of Gynecologic Oncology, Sylvester Comprehensive Cancer Center, University of Miami, Miami, FL 33136, United States

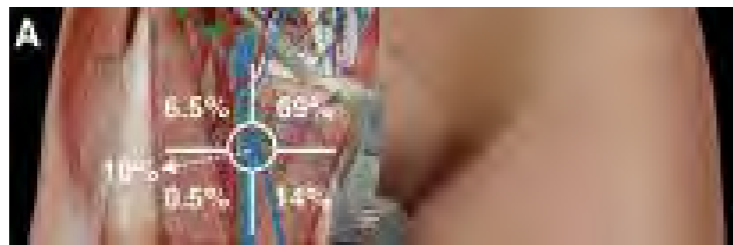
^b Department of Gynecologic Oncology and Reproductive Medicine, The University of Texas MD Anderson Cancer Center, Houston, TX 77030, United States

^c Department of Gynecologic Oncology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands

- T1-T2 VC with no evidence of suspicious node (clin, imaging (US/ PET-CT scan))
- 4 peritumoral injections of tracers (99m RC / blue/ ICG / hybrid)
- SND : bilateral if median disease, unilateral if > 1cm from median line

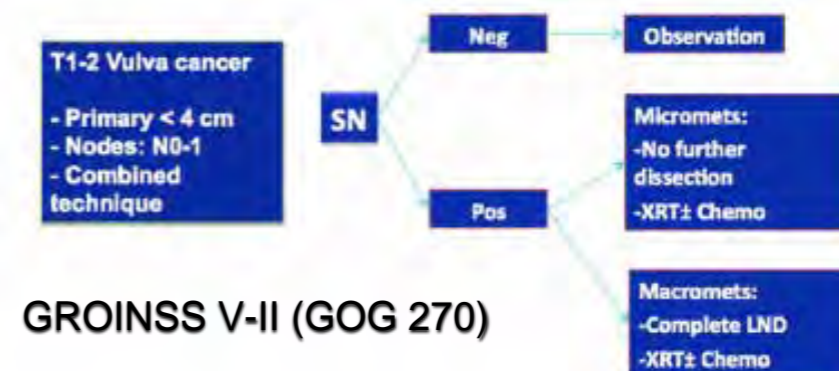


- Location of SN



- Advantage of SND over syst full ing lnd
- Accuracy > any imaging technique
- reduced morbidity (30% incidence of leg lymphedema after full inguinal dissections Huang 2017) and no increase in node rec rates (prospective GROINSS V study :SN only if neg / if pos -> full LND then RT Van der Zee JCO 2008) => regular practice of SND accepted in early VC, clin pN0
- New GROINSS V-2 study: avoid RT if SN micrometastatic

	Morbidity	SLN Dissection Only	SLN Dissection Plus Lymphadenectomy	P
Short term				
Total No. of patients		268	47	
Wound breakdown, groin				<.0001
No. of patients		21	18	
%		7.8	38.3	
Cellulitis				<.0001
No. of patients		12	10	
%		4.5	21.3	
Hospital stay, days		8.4	12.7	<.0001
Long term				
Total No. of patients		268	1101	
Lymphedema				<.0001
No. of patients		5	30	
%		1.9	27.2	
Recurrent inguinal				<.0001
No. of patients		1	108	
%		0.4	9.8	



GROINSS V-II (GOG 270)

SND in vulvar carcinomas

Sentinel Lymphadenectomy in Vulvar Cancer Using Near-Infrared Fluorescence From Indocyanine Green Compared With Technetium 99m Nanocolloid

Philipp Soergel, MD, MHBA,* Hermann Hertel, MD,* Anna Kaarina Nacke,* Rüdiger Klapdor, MD,* Thorsten Derlin, MD,† and Peter Hillemanns, MD*



TABLE 1. Test results for different sentinel detection strategies

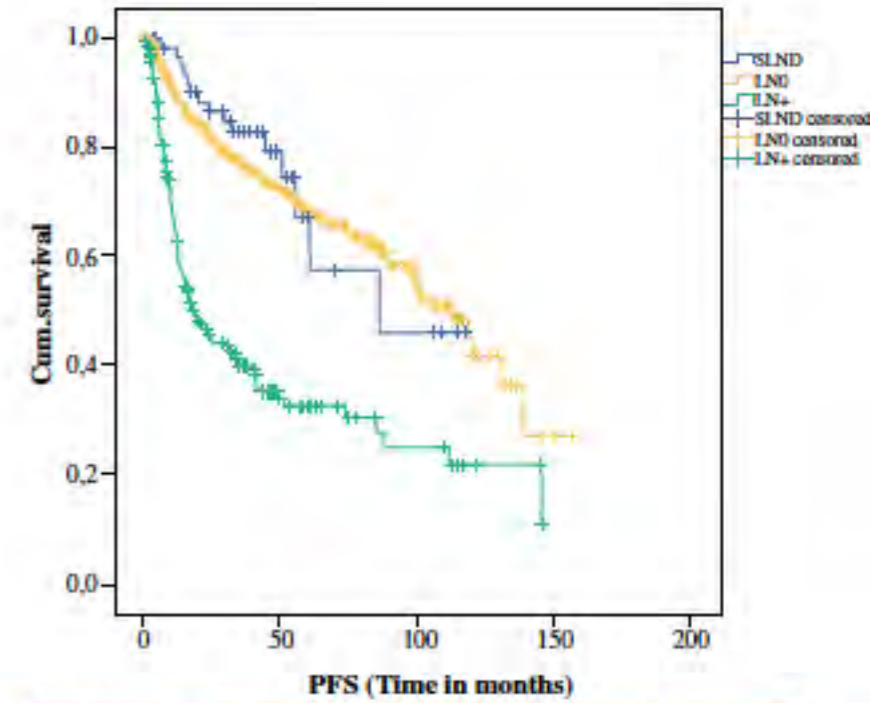
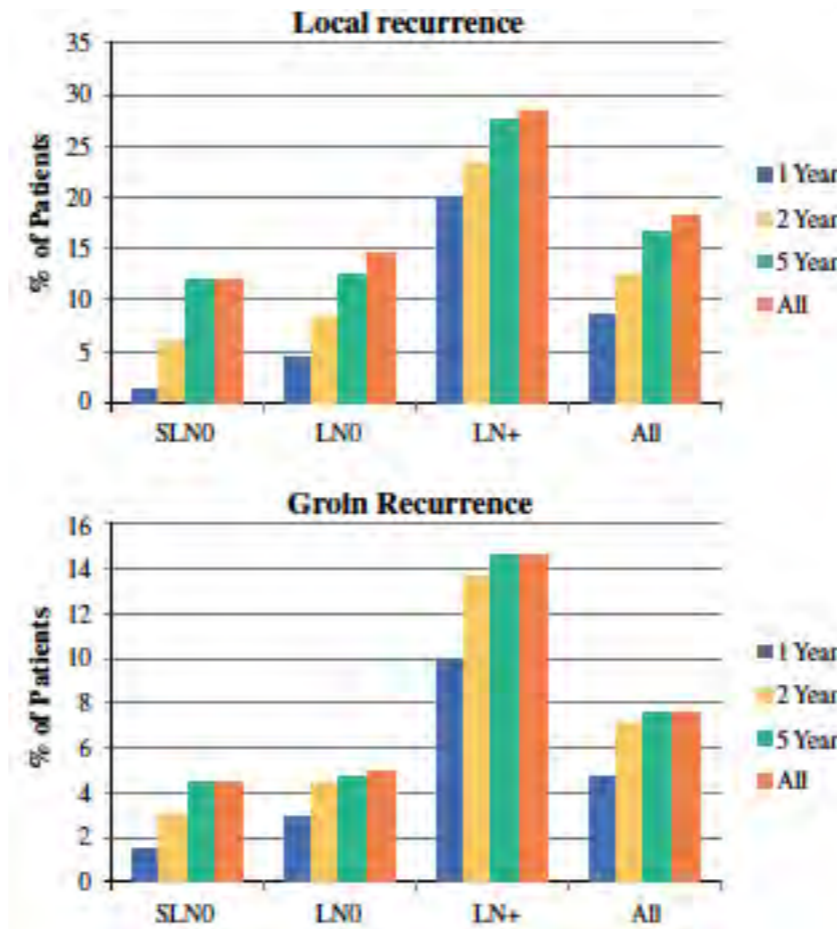
		No. of Patients Treated	No. Groins Treated	No. Test-Positive LN	No. True-Positive (^{99m} Tc Positive SLN)*	Sensitivity Compared With ^{99m} Tc, %	95% CI, %	Positive Predictive Value Compared With ^{99m} Tc, %	95% CI, %	No. Test-Positive LN/Groin	Successful Sentinel Rate (At Least 1 Sentinel per Groin), %
Preoperative	SPECT-CT	25	46	52	82	63.4	2.1–73.8	100.0	93.2–100	1.1	90.0
Intraoperative	^{99m} Tc-nanocolloid	27	52	91	91	n. a.		n. a.		1.8	100.0
	ICG	27	52	98	91	100.0	6.0–100	91.9	84.7–96.5	2.0	100.0
	Patent blue	18	36	27	70	38.6	7.2–51.0	100.0	87.2–100	0.8	31.6

ESGO recos 2017 (Oonk et al IJGC 2017) : 99mTc mandatory +/- dye (blue/ICG) : grade B

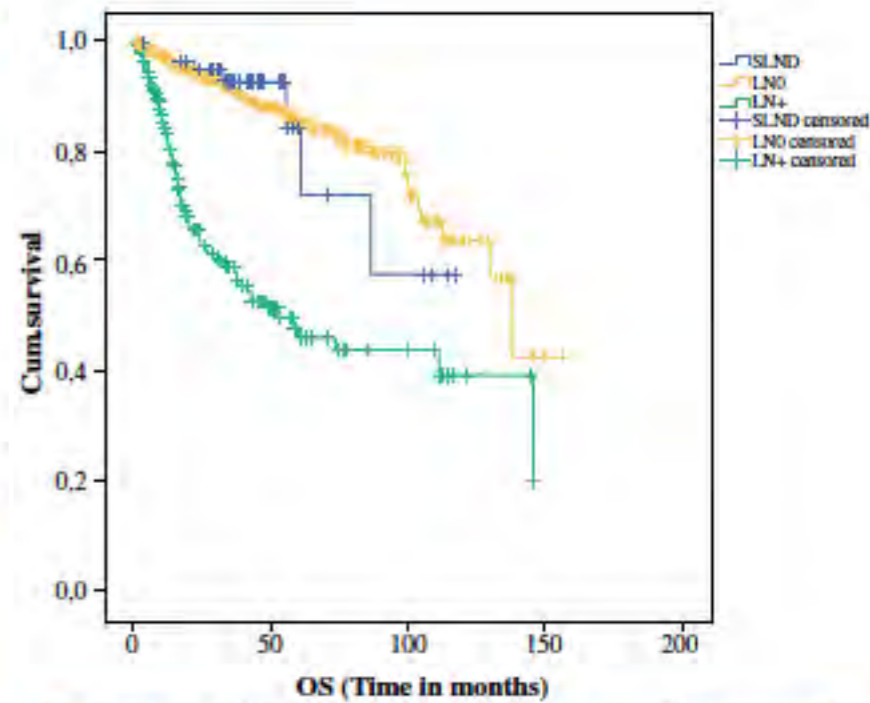
Outcome After Sentinel Lymph Node Dissection in Vulvar Cancer: A Subgroup Analysis of the AGO-CaRE-1 Study

Rüdiger Klapdor, MD¹, Peter Hillemanns, MD¹, Linn Wölber, MD², Julia Jückstock, MD³, Felix Hilpert, MD⁴, Nikolaus de Gregorio, MD⁵, Severine Iborra, MD⁶, Jalid Sehouli, MD⁷, Anika Habermann, MD⁸, Sophie Teresa Fürst, MD⁹, Hans Georg Strauß, MD¹⁰, Klaus Baumann, MD¹¹, Falk Thiel, MD¹², Alexander Mustea, MD¹³, Werner Meier, MD¹⁴, Philipp Harter, MD¹⁵, Pauline Wimberger, MD¹⁶, Lars Hanker, MD¹⁷, Barbara Schmalfeldt, MD³, Ulrich Canzler, MD¹⁶, Tanja Fehm, MD^{18,19}, Alexander Luyten, MD²⁰, Martin Hellriegel, MD²¹, Jens Kosse, MD²², Christoph Heiss, MD¹², Peer Hantschmann, MD²³, Peter Mallmann, MD²⁴, Berno Tanner, MD²⁵, Jacobus Pfisterer, MD²⁶, Barbara Richter, MD²⁷, Martin Jäger, MD²⁸, and Sven Mahner, MD³

- ▶ 487/772 vulvar cancer pts < 4cm: comparison pN0 in full LND vs SND alone
- ▶ 69 SND alone vs 703 LND +/- SND
- ▶ **33 months: no survival difference**
- ▶ Adequacy of SND only in selected clin N0 patients with unifocal < 4cm tumors



Number at risk	12	24	60	120
SLND	56	49	7	0
LND	319	266	124	12
LN+	110	71	21	3



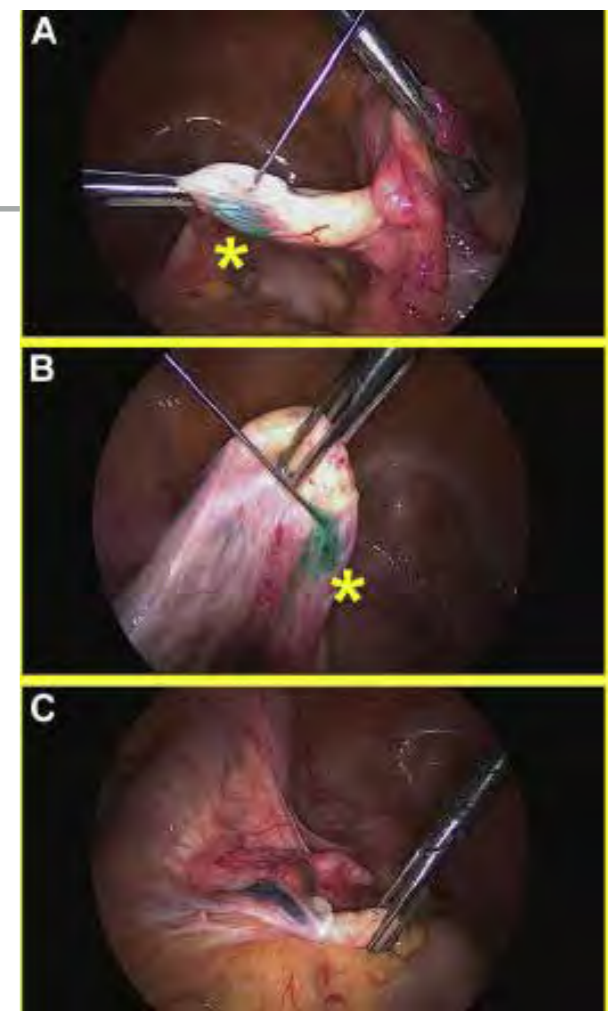
Number at risk	12	24	60	120
SLND	56	52	7	0
LND	336	288	133	13
LN+	134	89	24	3

3. SENTINEL NODE IN OVARIAN CARCINOMA

Near-infrared Fluorescence-guided Sentinel Node Mapping of the Ovary With Indocyanine Green in a Minimally Invasive Setting: A Feasible Study

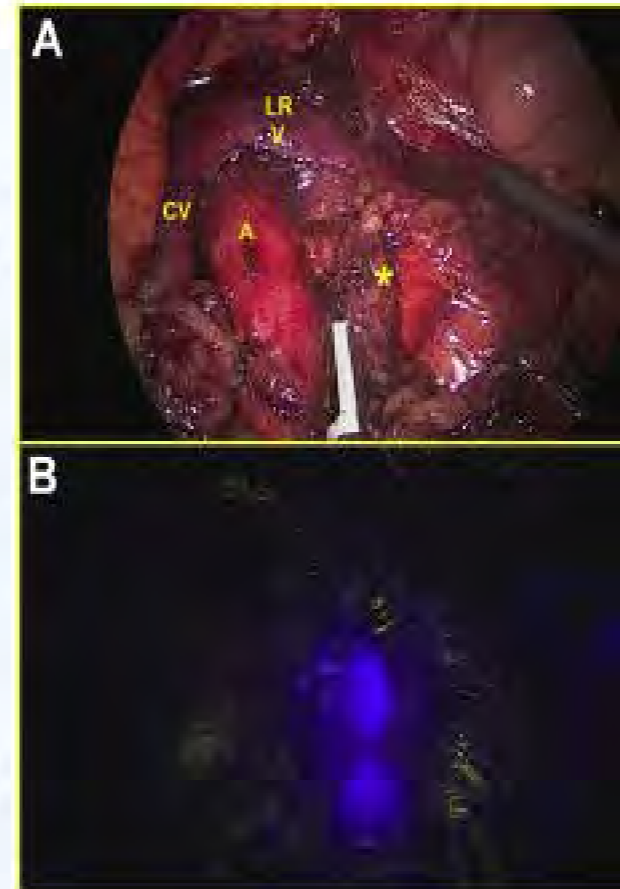
Alessandro Buda, MD*, Paolo Passoni, MD, Giacomo Corrado, MD, PhD, Beatrice Bussi, MD, Giuseppe Cutillo, MD, Sonia Magni, MD, and Enrico Vizza, MD

- ▶ 10 cases (all stage 1; 7 endometrioid, 3 clear cell carc)
- ▶ Literature
 - ▶ Not all ovarian tumors
 - ▶ Ubiquitary distribution of SN
 - ▶ **Feasible in selected case, but interest in routine ?**

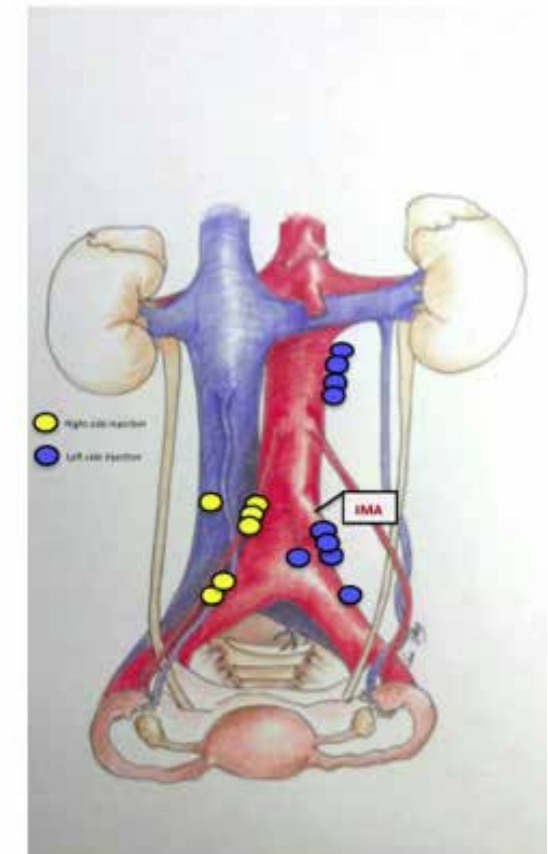


Ovarian sentinel node mapping series published

Author	n	BMI kg/m ² (range)	Tumor type	Tracer	Detection rate	SLN location	Sensitivity	NPV
Negishi, 2004 [11]	11	NA	10 EC 1 FTC	CH40	100%	a-IMA: 91% ar-IMA: 36% b-IMA: 36% CI: 26% EI: 9%	100%	100%
Nyberg, 2011 [9]	16	27 (20-42)	14 EC 2 other	^{99m} Tc + blue dye	94%	a-IMA: 33% b-IMA: 67%	NA	NA
Kleppe, 2015 [10]	22	NA	8 BM 8 BOT 5 EOC 1 EOC + EC	^{99m} Tc + blue dye	96%	Aortic/caval: 67% Pelvic: 9% Aortic + pelvic: 24%	NA	NA
Present study	10	22.5 (17.3-23)	7 EOC 3 CC	ICG	90%	a-IMA: 27% b-IMA: 53% Pelvic: 20%	NE	100%



The anatomic locations of the SLNs from the ovaries.

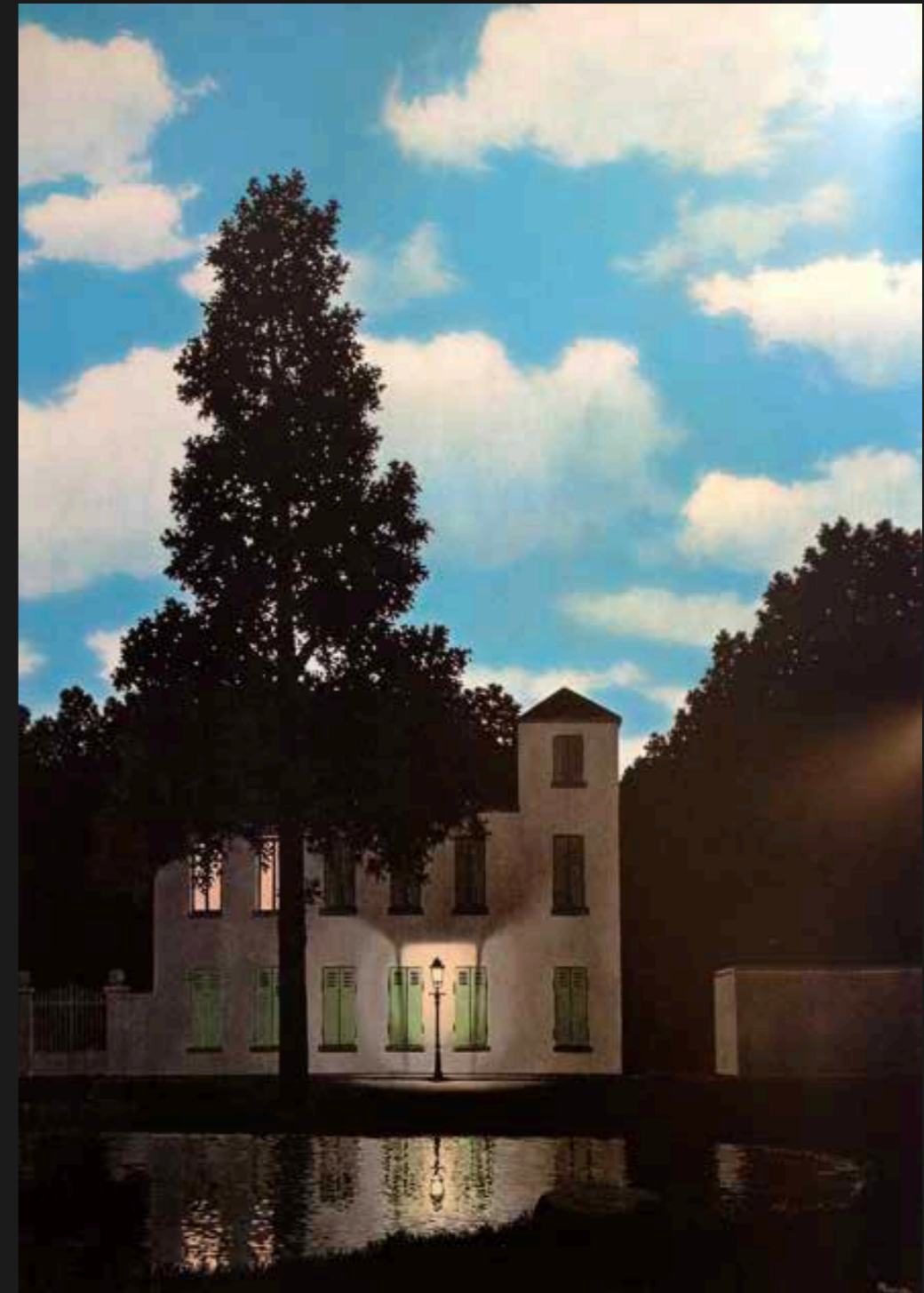


UNANSWERED QUESTIONS ?

- ▶ Other methods of SN detections
 - ▶ SPECT-CT: assistance in SN localization but availability, costs
 - ▶ FDG lymphography (Thorek J Nucl Med 2012 -> map only positive SN)
 - ▶ Nano -particles C-dots (Bradbury Integr Biol 2013)
- ▶ Clinical outcomes
 - ▶ Intraoperative diagnosis: which method (OSNA, proteomics...) ?
 - ▶ Better knowledge of management of low volume metastasis (ITC and micro metastases) ?
 - ▶ Longer follow-up (> 5years) is necessary -> possible delayed recurrences ?

CONCLUSIONS

- Sentinel node policy fulfills the specifications of a modern lymph node exploration
 - Low invasion and morbidity
 - Excellent sensitivity and specificity
 - Good trade-off between no lymph node dissection and systematic full dissections -> replace Ind
- Use of ICG alone or combined + NIR detection or combination Tc 99m and blue are the best tracers
- Meticulous operative technique and regular practice
- New methods of intraoperative diagnosis and long follow up for true survival impact





Moltes gràcies per la vostra atenció