

Ganglio Centinela en Cáncer Ginecológico

Congreso Internacional 2017

SOGBA – SOGMdP

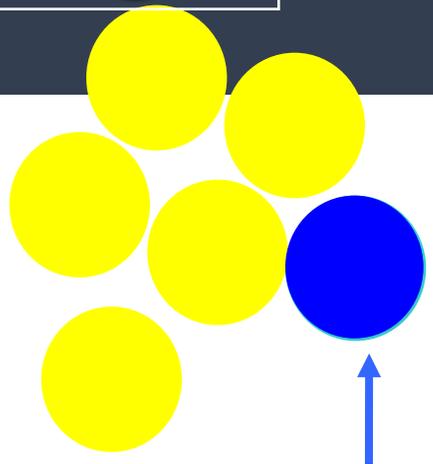
Julián Di Guilmi



Jdiguilmi@hbritanico.com.ar

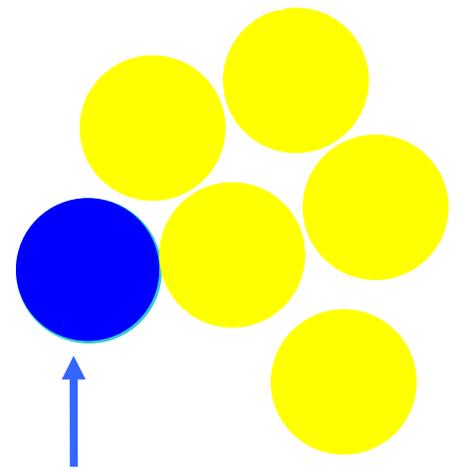
Ganglio Centinela

Ganglios regionales

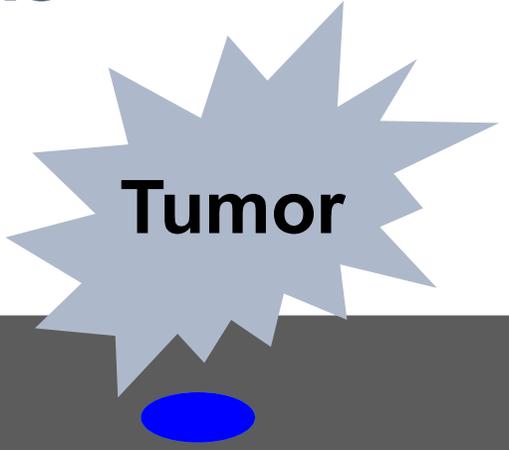


Primer lugar de metastasis

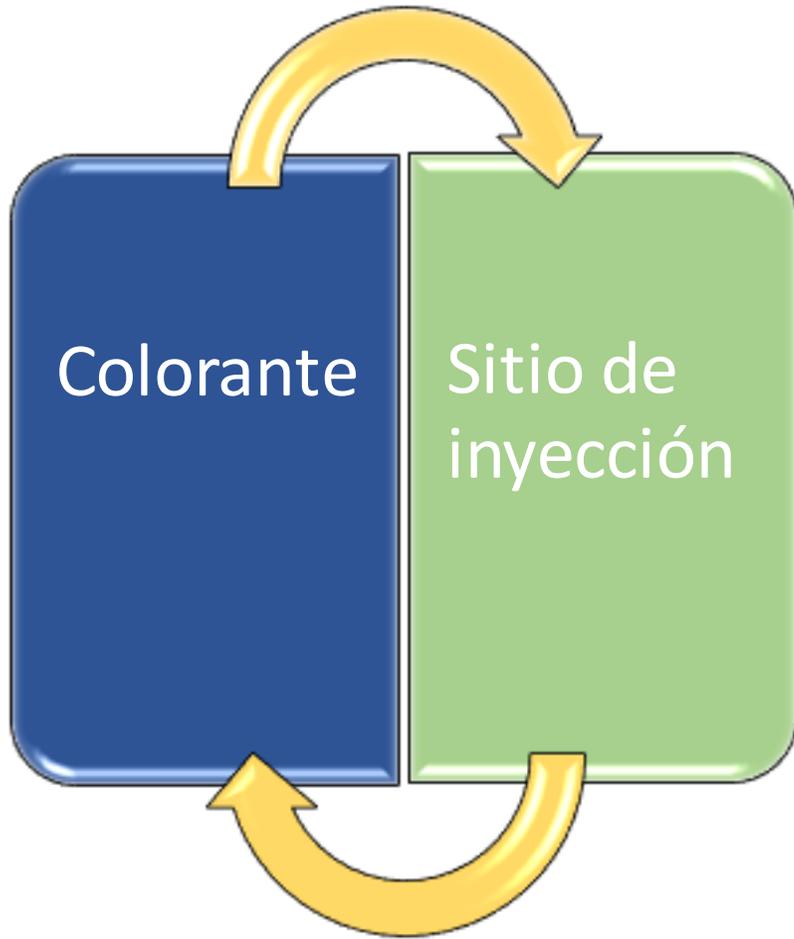
Ganglios regionales



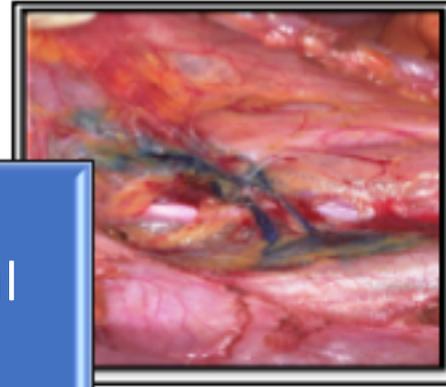
Primer lugar de metastasis



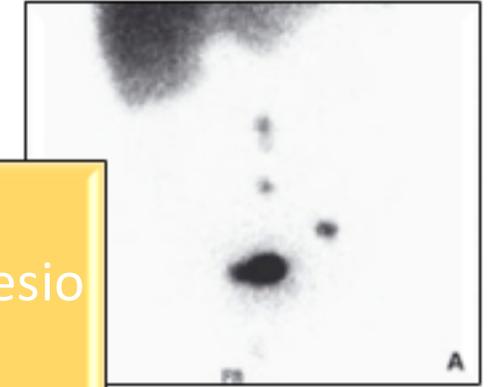
Tumor



Azul

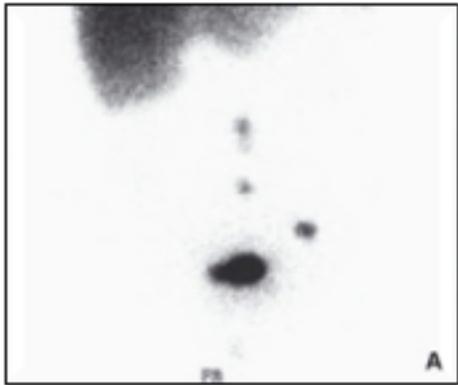
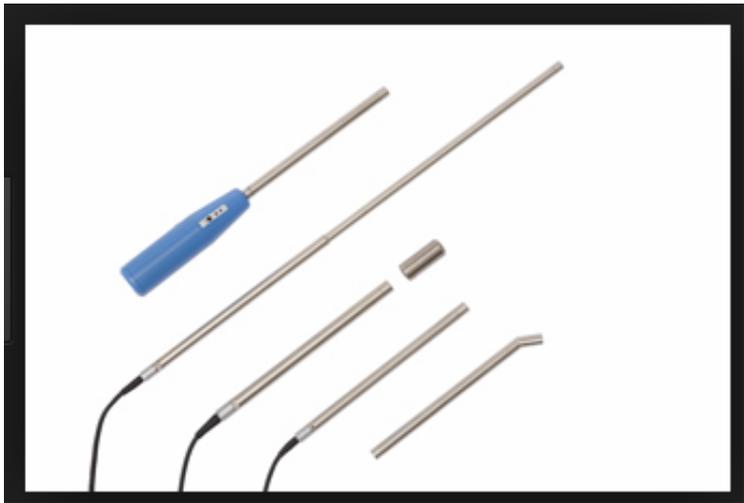


Tecnesio

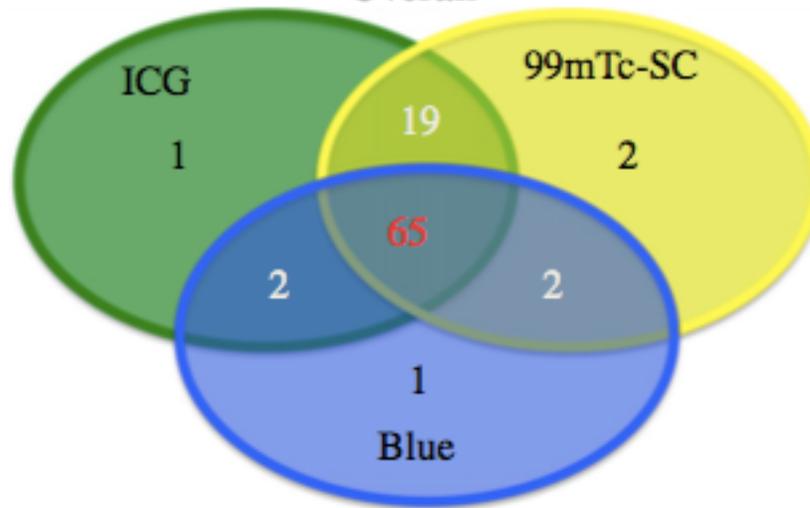


ICG





Overall

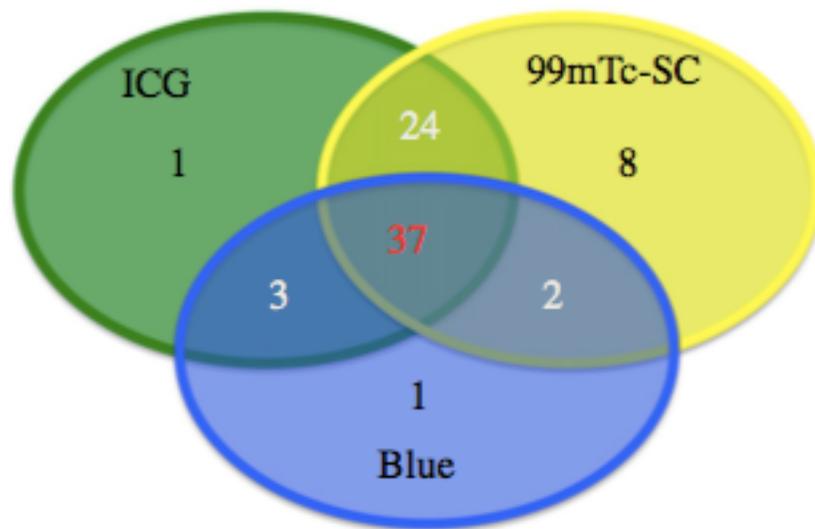


TASA DETECCION ICG vs 99m TC-SC 87% vs 88% (P 0.83)
TASA DETECCIÓN ICG vs BLUE DYE 87% vs 71% (P 0.005)

LA COMBINACION DE ICG Y TECNECIO PERMITE UNA ALTA TASA DE DETECCION.

EL ICG EVIDENCIO LA MAYOR TASA DE DETECCION DE GANGLIO CENTINELA BILATERAL.

Bilateral



TASA DETECCION BILATERAL ICG vs 99m TC-SC 71% vs 65% (P 0.36)
TASA DETECCIÓN BILATERAL ICG vs BLUE DYE 65% vs 43% (P 0.002)

Comparing indocyanine green, and blue dye for sentinel lymph node mapping in endometrial cancer.

How et al , Gynecol Oncol, 2015 Jun;137(3):436-42.

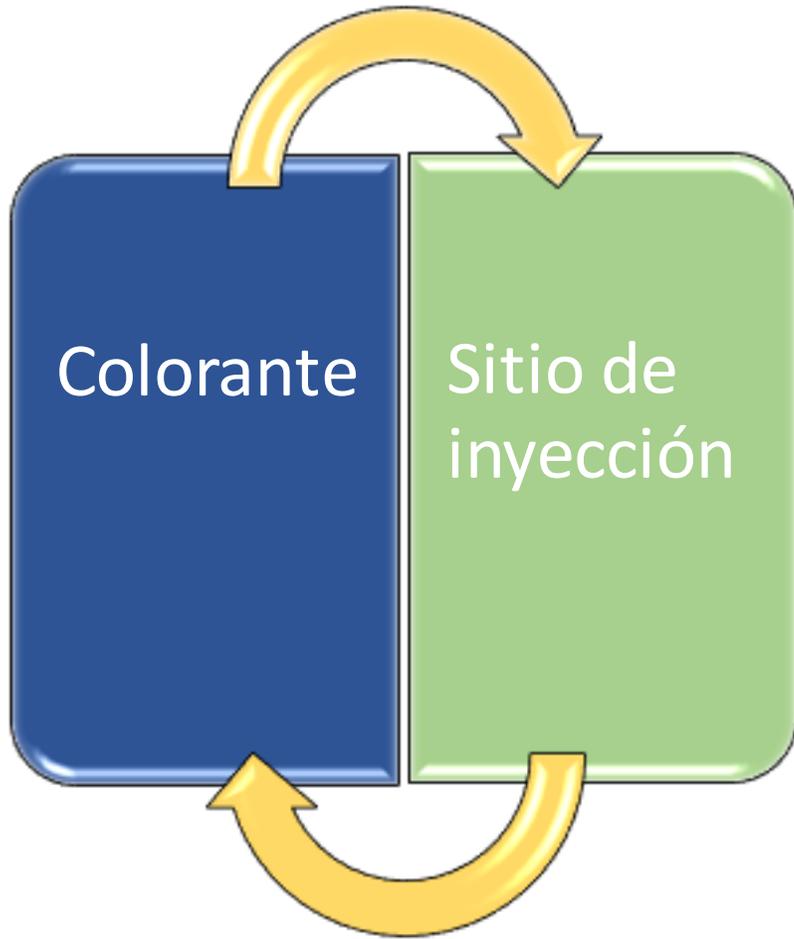
REVIEW – CLINICAL ONCOLOGY

Sentinel lymph node mapping in endometrial cancer: comparison of fluorescence dye with traditional radiocolloid and blue

Table 1 Toxicity profile and adverse reactions of the tracers used for SLN mapping

Tracer	Severe allergic reaction	Other toxicity
Tc-99m	1–6/100,000	Radioactive drug
Blue dyes	2%	Discoloration of skin Discoloration of urine Skin necrosis Transient interference with pulse oximetry readings
ICG	0.05%	–

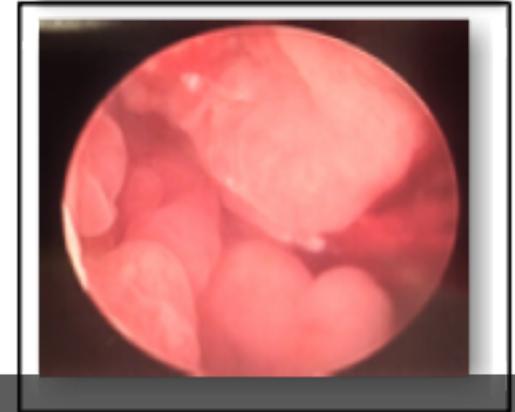
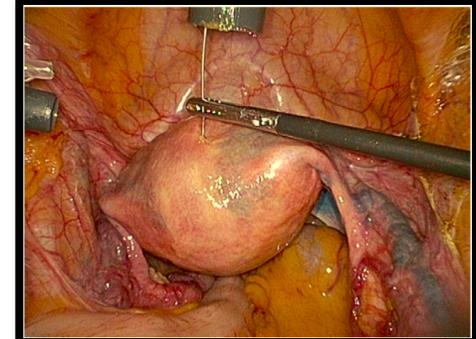
ICG menor toxicidad
ICG mayor detección bilateral
ICG ventaja en BMI >30

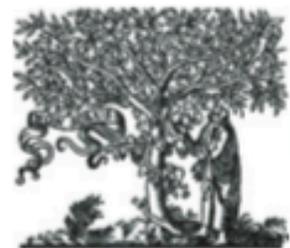


Cervix

Fondo Uterino

Histeroscopia



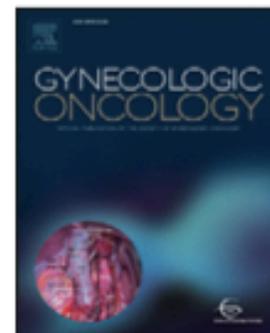


ELSEVIER

Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno



Comparing indocyanine green, technetium, and blue dye for sentinel lymph node mapping in endometrial cancer[☆]



J. How^a, W.H. Gotlieb^{a,*}, J.Z. Press^a, J. Abitbol^a, M. Pelmus^b, A. Ferenczy^b, S. Probst^c, R. Gotlieb^d, S. Brin^a, S. Lau^a

^a Division of Gynecologic Oncology, Segal Cancer Center, Jewish General Hospital, McGill University, Montreal, QC H3T 1E2, Canada

^b Department of Pathology, Segal Cancer Center, Jewish General Hospital, McGill University, Montreal, QC H3T 1E2, Canada

^c Department of Nuclear Medicine, Segal Cancer Center, Jewish General Hospital, McGill University, Montreal, QC H3T 1E2, Canada

^d Division of Experimental Surgery, Faculty of Medicine, McGill University, Montreal, QC, Canada

Gynecologic Oncology 123 (2011) 522-527

Contents lists available at SciVerse ScienceDirect

 **Gynecologic Oncology** 

journal homepage: www.elsevier.com/locate/ygyno

Sentinel lymph node biopsy in endometrial cancer: Meta-analysis of 26 studies

Sokbom Kang ^{*}, Heon Jong Yoo, Jong Ha Hwang, Myong-Cheol Lim, Sang-Soo Seo, Sang-Yoon Park

Center for Uterine Cancer, National Cancer Center, Goyang, 410-769, Republic of Korea

- ✓ Tasas menores cuando no hay inyección cervical
- ✓ Inyección cervical no es inferior al comparar con otros métodos
- ✓ Inyección subserosa “sola” no debería usarse

EMPEZAR INYECTANDO EN EL CUELLO!

Kang S, Yoo HJ, Hwang JH, Lim MC, Seo SS, Park SY. Gynecol Oncol. 2011 Dec;123(3):522-7

✓ *Nuevos conceptos*

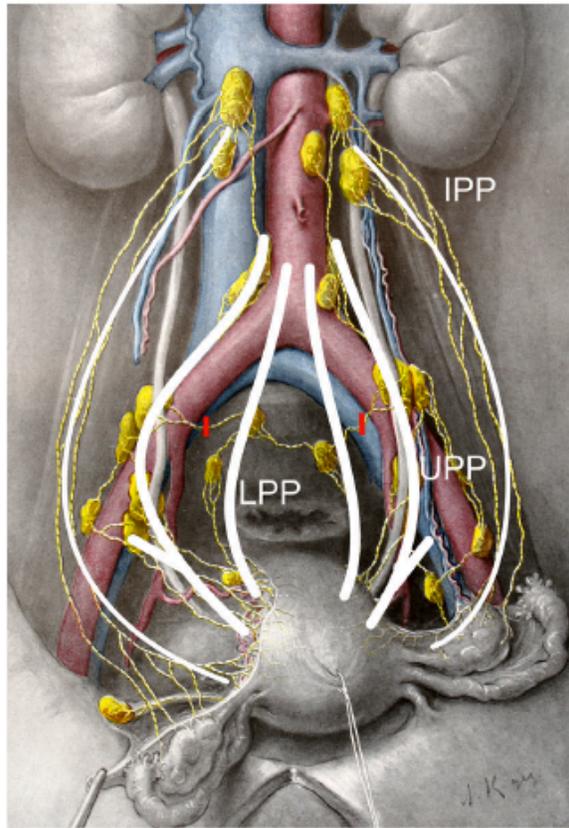


Fig. 2. Schematic overview of the uterine lymphatic pathways. UPP = upper paracervical pathway, LPP = lower paracervical pathway, IPP = Infundibulo-pelvic pathway. Modified after Döderlein and Krönig [40], 1912, by kind permission of Thieme publishers, Germany.

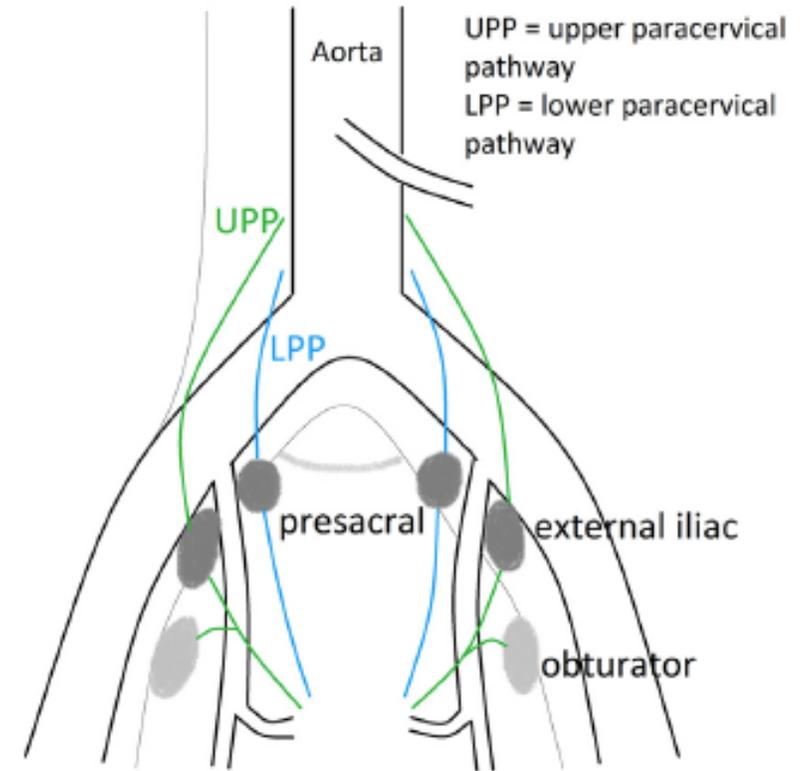


Fig. 3. The most common Sentinel lymph node position per lymphatic pathway in endometrial cancer patients.

Geppert B et al, A study on uterine lymphatic anatomy for standardization of pelvic sentinel lymph node detection in endometrial cancer. *Gynecol Oncol*. 2017 May;145(2):256-261.doi: 10.1016/j.ygyno.2017.02.018. Epub 2017 Feb

✓ *Nuevos conceptos*

BIOPSIA DE GANGLIO CENTINELA (sIn)
VS
MAPEO LINFATICO (mapping)



- **Drenaje linfático mas complejo para el útero**
- **Trabajos muestran mas de 1 ganglio centinela**
- **La inyección en el cuello es la mas representativa**
- **Cuello Uterino como principal lugar de inyección**

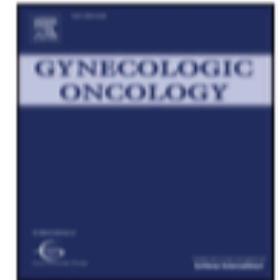




Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno



Detection of sentinel lymph nodes in minimally invasive surgery using indocyanine green and near-infrared fluorescence imaging for uterine and cervical malignancies[☆]



Elizabeth L. Jewell ^{a,b,*}, Juan Juan Huang ^c, Nadeem R. Abu-Rustum ^{a,b}, Ginger J. Gardner ^{a,b}, Carol L. Brown ^{a,b}, Yukio Sonoda ^{a,b}, Richard R. Barakat ^{a,b}, Douglas A. Levine ^{a,b}, Mario M. Leitao Jr. ^{a,b}

ICG TIENE UNA ALTA TASA DE DETECCION BILATERAL.
No requiere asociarlo a otros colorantes.

Detección de ganglio centinela con azul isosulfán en cáncer de endometrio: estudio prospectivo

Di Guilmi, J¹; Darin, MC¹; Gaspar, K²; Garcia Zeman, M²; Monjo, I²; Maya A

¹Sección de Ginecología Oncológica . Hospital Británico de Buenos Aires

²Servicio de Ginecología. Hospital Británico de Buenos Aires

XI Congreso AAGO- Agosto 2011

93%

•Tasa de
detección

76%

•Tasa de
detección
bilateral

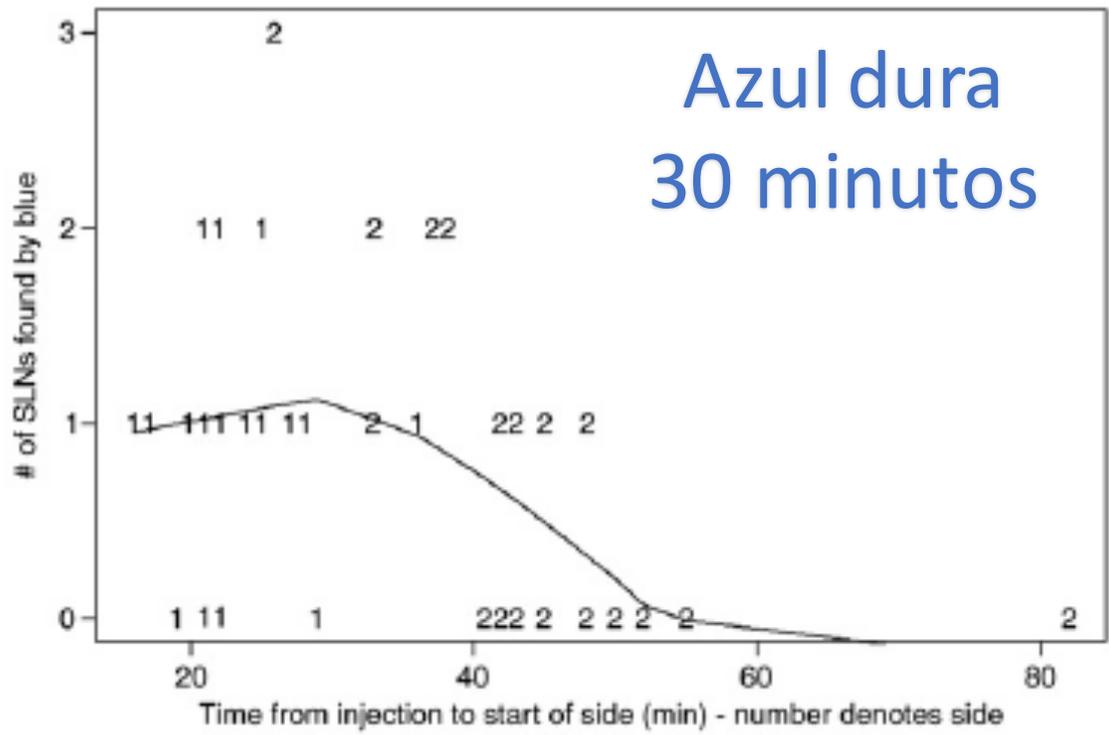
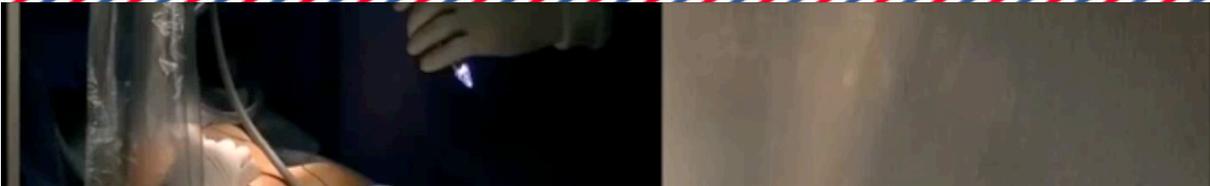
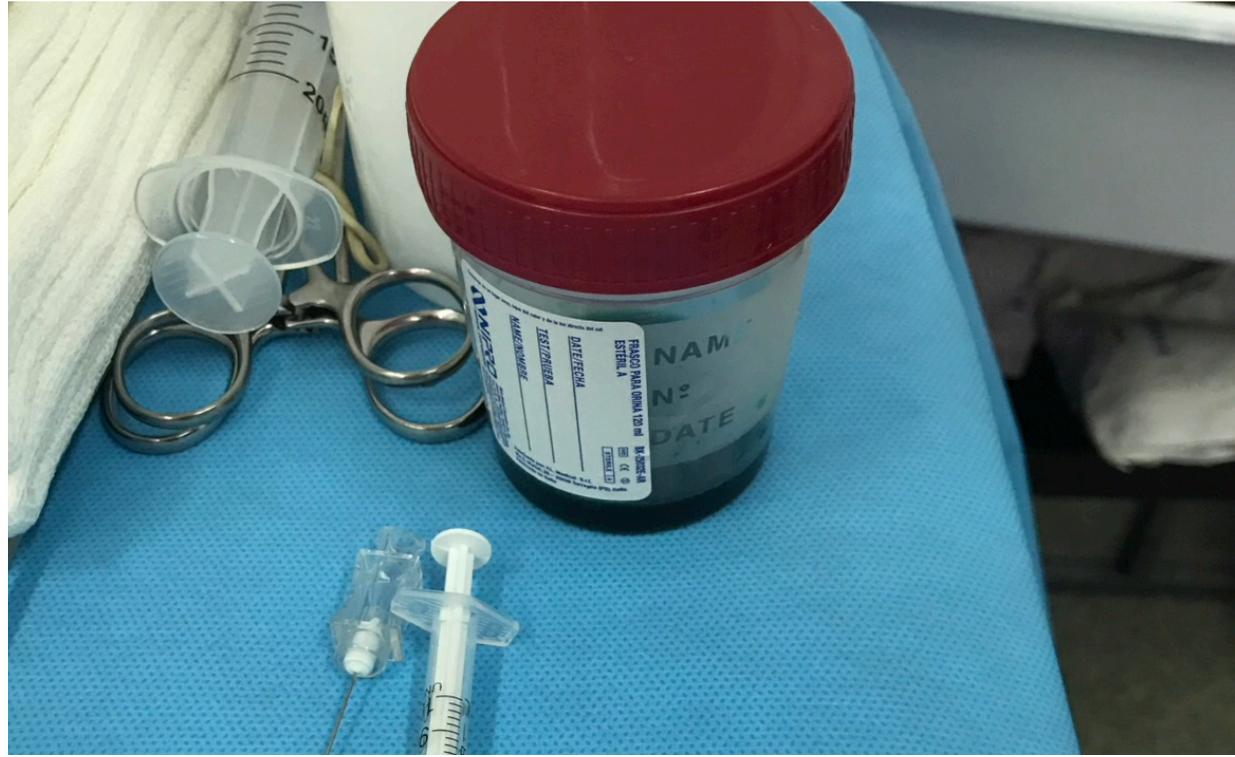


Fig. 2. Time analysis. Number of SLNs identified with blue dye only.



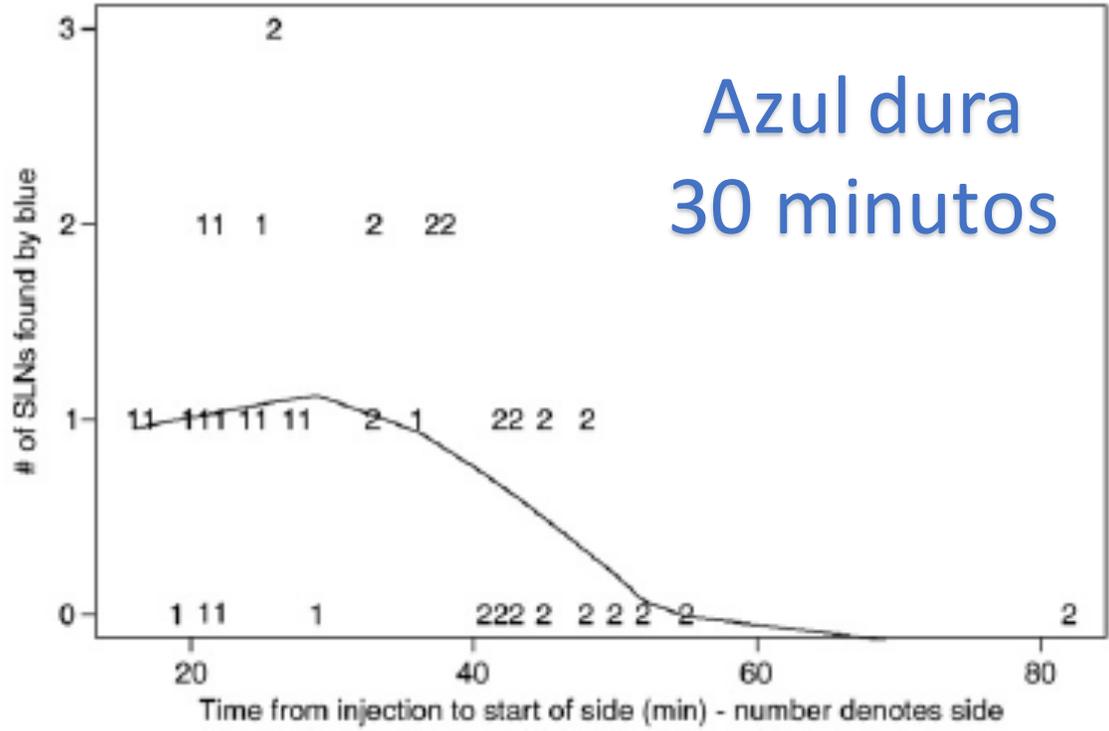
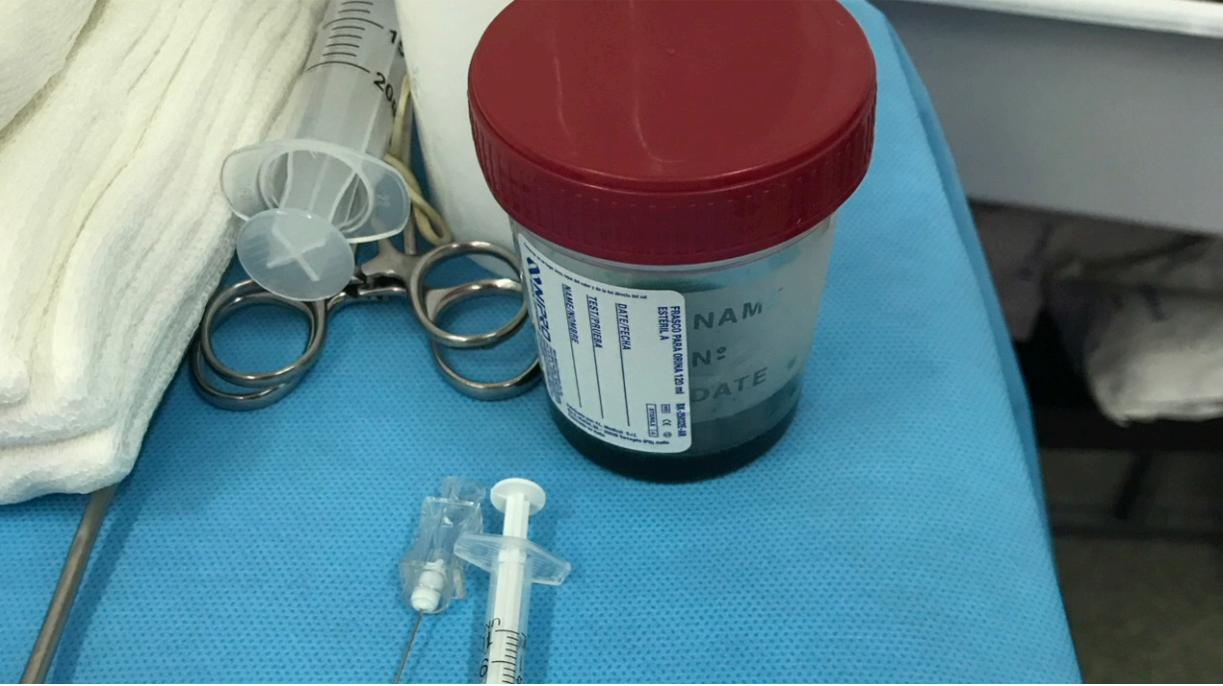


Fig. 2. Time analysis. Number of SLNs identified with blue dye only.



✓ Curva de aprendizaje



Improving sentinel lymph node detection rates in endometrial cancer: How many cases are needed?

Fady Khoury-Collado^a, Gretchen E. Glaser^b, Oliver Zivanovic^a, Yukio Sonoda^a, Douglas A. Levine^a, Dennis S. Chi^a, Mary L. Gemignani^c, Richard R. Barakat^a, Nadeem R. Abu-Rustum^{a,*}

^a Gynecology Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, Box 261, New York, NY 10065, USA

^b Department of Obstetrics and Gynecology, Abington Memorial Hospital, 1200 Old York Road, Abington, PA 19001, USA

^c Breast Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10065, USA

- ✓ Cada cirujano debe conocer su tasa de detección y falso negativo
- ✓ Incremento del Volumen asociado a mayor tasa de detección (n=30)

Khoury-Collado et al, Improving sentinel lymph node detection rates in endometrial cancer: How many cases are needed? Gynecologic Oncology 115 (2009) 453–455



ELSEVIER

Available online at www.sciencedirect.com



Gynecologic Oncology 111 (2008) S44–S50

Gynecologic
Oncology

www.elsevier.com/locate/ygyno

Techniques of sentinel lymph node identification for early-stage cervical and uterine cancer

Nadeem R. Abu-Rustum*, Fady Khoury-Collado, Mary L. Gemignani

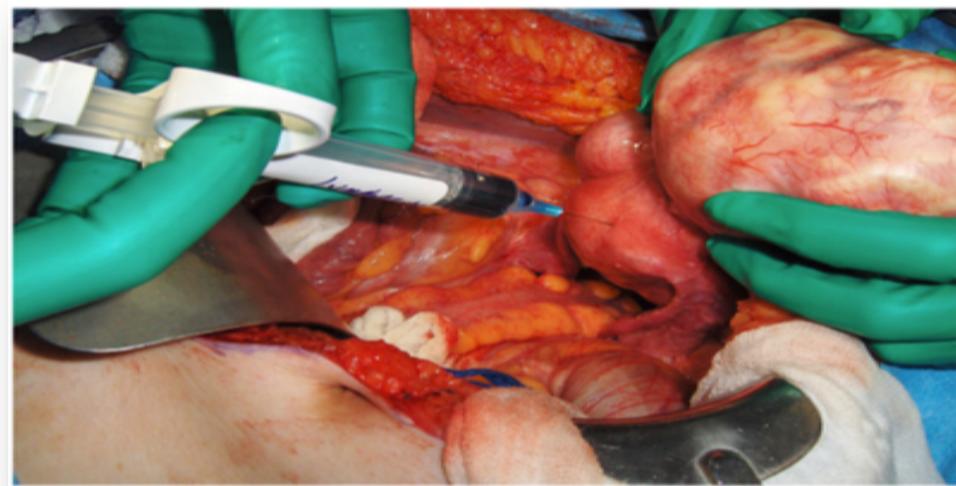
Gynecology Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY, USA

Received 3 July 2008

Available online 28 August 2008

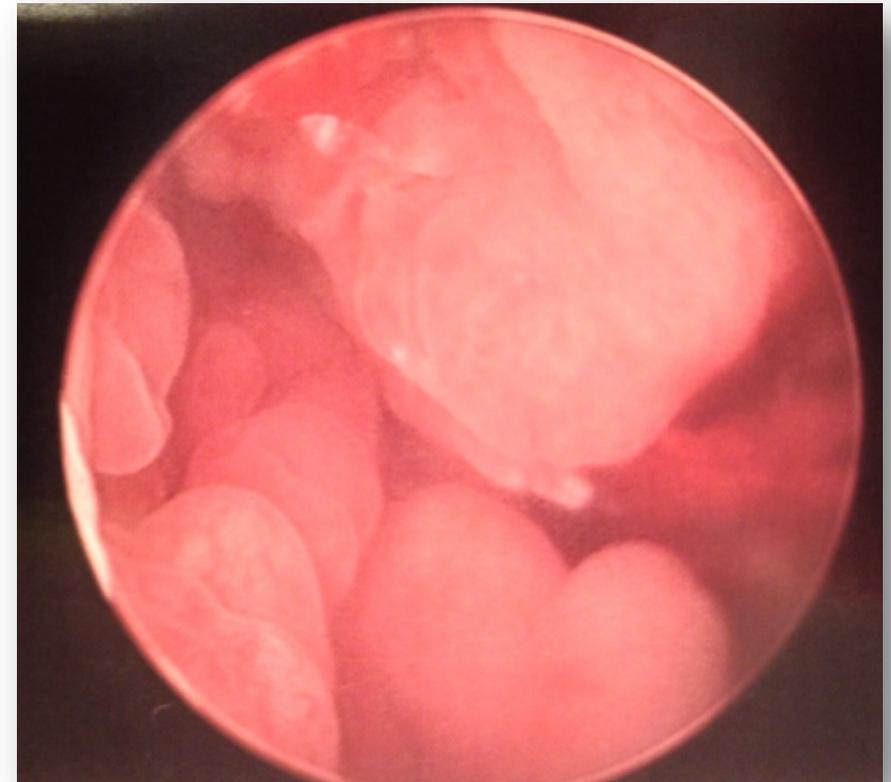
Studies using the uterine corpus subserosal myometrium as the injection site

Study	N	Substance injected	Site of injection	PAN	SLN detection (%)
Burke et al. (1996) [1]	15	B	Subserosal myometrium (3 sites)	Yes	67
Echt et al. (1999) [2]	8	B	Subserosal myometrium (3 sites)	Yes	0
Holub et al. (2002) ^a [3]	13	B	Subserosal myometrium (3 sites)	No	61.5
Gien et al. (2005) ^a [4]	9	B	Subserosal myometrium (1 site overlying the tumor)	Yes (for PS and CC)	56
Li et al. (2007) [5]	20	B	Subserosal myometrium (3 sites) and Subserosal isthmus (2 sites)	Yes (4 cases)	75
Frumovitz et al. (2007) [6]	18	R,B	Subserosal myometrium (3 sites)	Yes	45
Altgassen et al. (2007) [7]	23	B	Subserosal myometrium (8 sites)	Yes (15 cases)	92



Studies using the endometrium (by hysteroscopy) as the injection site

Study	N	Substance injected	Site of injection	PAN	SLN detection (%)
Hysteroscopic Niikura et al. (2004) [14]	28	R	Endometrium	Yes	82
Fersis et al. (2004) [15]	10	R	Endometrium	Yes	70
Raspagliesi et al. (2004) [16]	18	R,B	Endometrium	Yes (for PS and CC)	100
Maccauro et al. (2005) [17]	26	R, B	Endometrium	Yes (for PS and CC)	100
Gien et al. (2005) ^a [4]	3	B	Endometrium	Yes (for PS and CC)	0
Hysteroscopic and subserosal myometrium					
Gien et al. (2005) ^a [4]	4	B	Endometrium and Subserosal myometrium (1 site overlying the tumor)	Yes (for PS and CC)	50



Studies using the uterine cervix as the injection site

Study	N	Substance injected	Site of injection	PAN	SLN detection (%)
Cervical injection only					
Gargiulo et al. (2003) [8]	11	R,B	Cervix (3,6,9,12 o'clock)	No	100
Pelosi et al. (2003) [9]	16	R,B	Cervix (3,6,9,12 o'clock)	No	94
Barranger et al. (2004) [10]	17	R,B	R: Cervix (3,6,9,12 o'clock) B: Cervix (3,9 o'clock)	No	94
Lelievre et al. (2004) [11]	12	R,B	Cervix (3,6,9,12 o'clock)	Yes (5 cases)	91
Bats et al. (2005) [12]	26	R,B	Cervix (3,6,9,12 o'clock)	No	80
Combined cervical and subserosal myometrium					
Holub et al. (2002) ^a [3]	12	B	Cervix (3,6,9,12 o'clock) and Subserosal myometrium (1 site fundal)	No	83
Holub et al. (2004) [13]	25	B	Cervix (3,6,9,12 o'clock) and Subserosal myometrium (1 site fundal)	Yes (1 case)	84





Contents lists available at SciVerse ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno



Sentinel lymph node biopsy in endometrial cancer: Meta-analysis of 26 studies

Sokbom Kang ^{*}, Heon Jong Yoo, Jong Ha Hwang, Myong-Cheol Lim, Sang-Soo Seo, Sang-Yoon Park

Center for Uterine Cancer, National Cancer Center, Goyang, 410-769, Republic of Korea

- ✓ Tasas menores cuando no hay inyección cervical
- ✓ Inyección cervical no es inferior al comparar con otros métodos
- ✓ Inyección subserosa “sola” no debería usarse

✓ Marco teórico



National
Comprehensive
Cancer
Network®

NCCN Guidelines Version 1.2014 Cervical Cancer

[NCCN Guidelines Index](#)
[Cervical Cancer TOC](#)
[Discussion](#)

PRINCIPLES OF EVALUATION AND SURGICAL STAGING

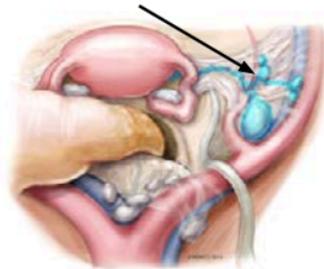
Sentinel Lymph Node Mapping for Cervical Cancer:

• SLN mapping as part of the surgical management of select stage I cervical cancer is considered in gynecologic oncology practices worldwide. While this technique has been used in tumors up to 4 cm in size, the best detection rates and mapping results are in tumors less than 2 cm.⁹⁻¹¹ This simple technique utilized a direct cervical injection with dye or radiocolloid Technetium-99 (99Tc) into the cervix, usually at 2 or 4 points as shown in Figure 1 (below). The SLNs are identified at the time of surgery with direct visualization of colored dye, a fluorescent camera if indocyanine green (ICG) was used, or a gamma probe if 99Tc was used. SLNs following a cervical injection are commonly located medial to the external iliac vessels, ventral to the hypogastric vessels, or in the superior part of the obturator space (Figure 2). SLNs usually undergo ultrastaging by pathologists, which allows for higher detection of micrometastasis that may alter postoperative management.^{2,12}

Figure 1: Options of SLN Cervical Injection Sites†



Figure 2: SLNs (blue, arrow) After Cervical Injection Are Commonly Located Medial to the External Iliac, Ventral to the Hypogastric, or in the Superior Part of the Obturator Space†



National
Comprehensive
Cancer
Network®

NCCN Guidelines Version 1.2014 Endometrial Carcinoma

[NCCN Guidelines Index](#)
[Uterine Neoplasms TOC](#)
[Discussion](#)

PRINCIPLES OF EVALUATION AND SURGICAL STAGING WHEN SLN MAPPING IS USED

Figure 1: Common cervical injection sites for mapping uterine cancer†

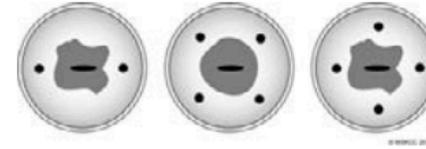


Figure 2: Most common location of SLNs (blue, arrow) following a cervical injection†

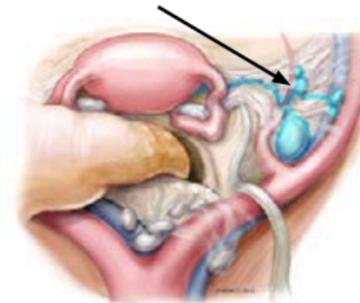
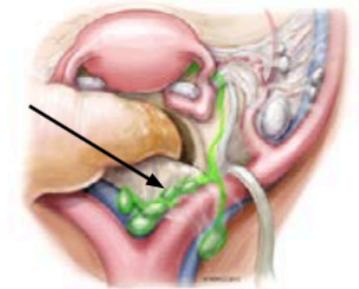


Figure 3: Less common location of SLNs (green, arrow) usually seen when lymphatic trunks are not crossing over the umbilical ligament but following the mesoreter cephalad to common iliac and presacral region†



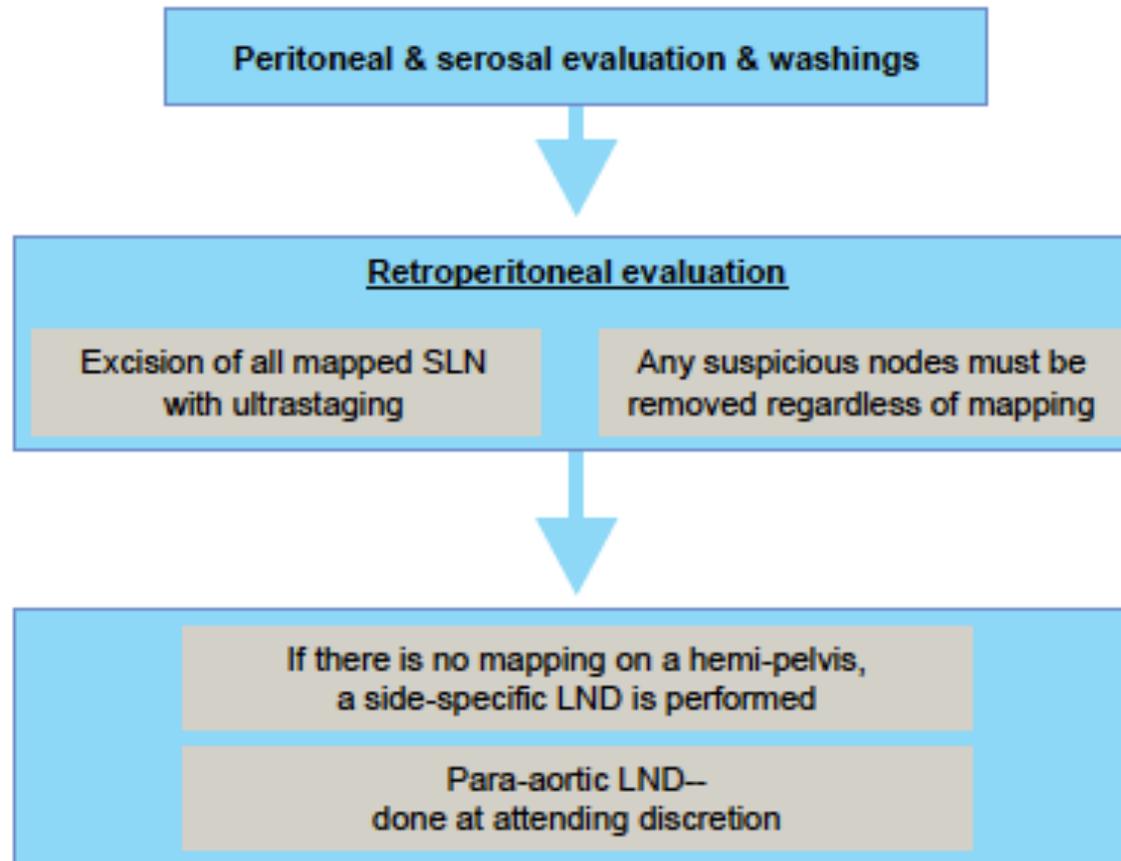
†Figures 1, 2, and 3 are reproduced with permission from Memorial Sloan-Kettering Cancer Center. © 2013, Memorial Sloan-Kettering Cancer Center.

†Figures 1 and 2 are reproduced with permission from Memorial Sloan-Kettering Cancer Center. © 2013 Memorial Sloan-Kettering Cancer Center.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

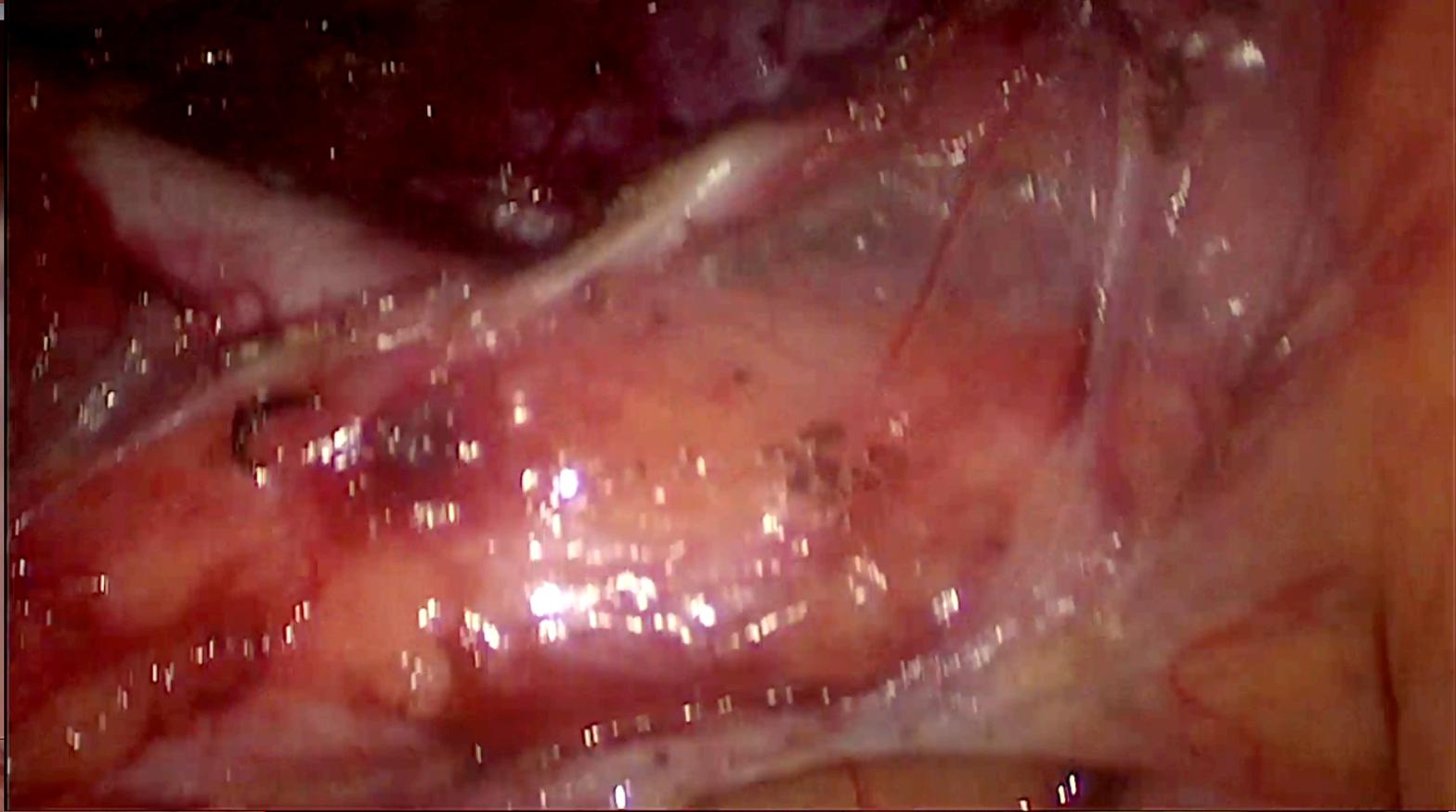
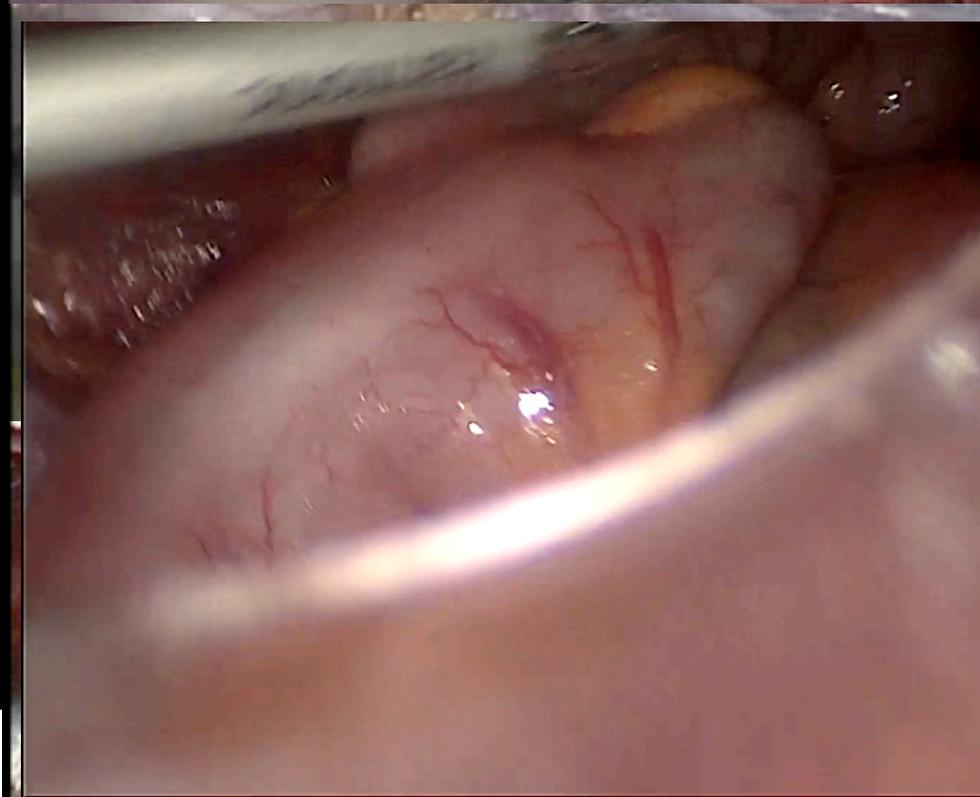
PRINCIPLES OF EVALUATION AND SURGICAL STAGING WHEN SLN MAPPING IS USED

Figure 4. The SLN algorithm for surgical staging of endometrial cancer*



**Linfa sistemática
Según factores de
Riesgo**

The importance of applying a sentinel lymph node mapping algorithm in endometrial cancer staging: beyond removal of blue nodes. Barlin JN, **Khoury-Collado** F, Kim CH, Leitao MM Jr, Chi DS, Sonoda Y, Alektiar K, DeLair DF, Barakat RR, Abu-Rustum NR. Gynecol Oncol. 2012 Jun;125(3):531-5. doi: 10.1016/j.ygyno.2012.02.021. Epub 2012 Feb 22.



✓ *Por donde empezar?*

- ✓ 30 casos para obtener las mejores tasas (pensar cuanto tiempo es eso)
- ✓ Comenzar la Validación alcanzada la curva de aprendizaje
- ✓ Contar con una base de datos eficiente

1	MENOPAUSIA SINTOMAS BMI			BX PREVIA		Cirugia	Infiltracion Miometro				COLORANTE Sitio de inyeccion reinyeccion		
2	MENOPAUSIA	SINTOMAS	BMI	HISTOLOGIA	GRADO HISTOLO	Cirugia	IM RMN	IM CONGELACION	IM Diferido	discordancia	COLORANTE	Sitio de inyeccion	reinyeccion
3	49	0	28	1	3	0	0	0	0	0	0	0	0
4		0		1	3	0	1	1		0	0	0	0

CENTINELA						Histologia congelacion		Histologia diferida		Efec. Adversos colorante		HTO PRE	HTO POST	Tiempo c
GC DER	GC DER (n)	GC der lugar	GC IZQ	GC IZQ (n)	GC izq lugar	HISTOLOGIA GC der	Histologia GC izq	HISTOLOGIA	Histologia GC	Efec. Adversos colorante	HTO PRE	HTO POST	Tiempo c	
0	1	2	0	1	4	0	2				40			
0	1	0	0	1	2	0	0			3	37			



Sistema Integrado
de Información
Sanitaria Argentino



Ministerio de Salud
Presidencia de la Nación

Código ↓	Título	Condición de salud	Categoría	Tipo de estudio	Sit. Registro	Fecha de registro	Estado del estudio	
IS001792	Ganglio Centinela en Cancer de Cuello Uterino	Cáncer	Cuello uterino	Experimental	HABILITADO	30/10/2017	Activo incorporando pacientes	    
IS001558	Detección de ganglio centinela en cancer de endometrio	Cáncer	Útero o endometrio	Experimental	HABILITADO	27/06/2017	Activo incorporando pacientes	    

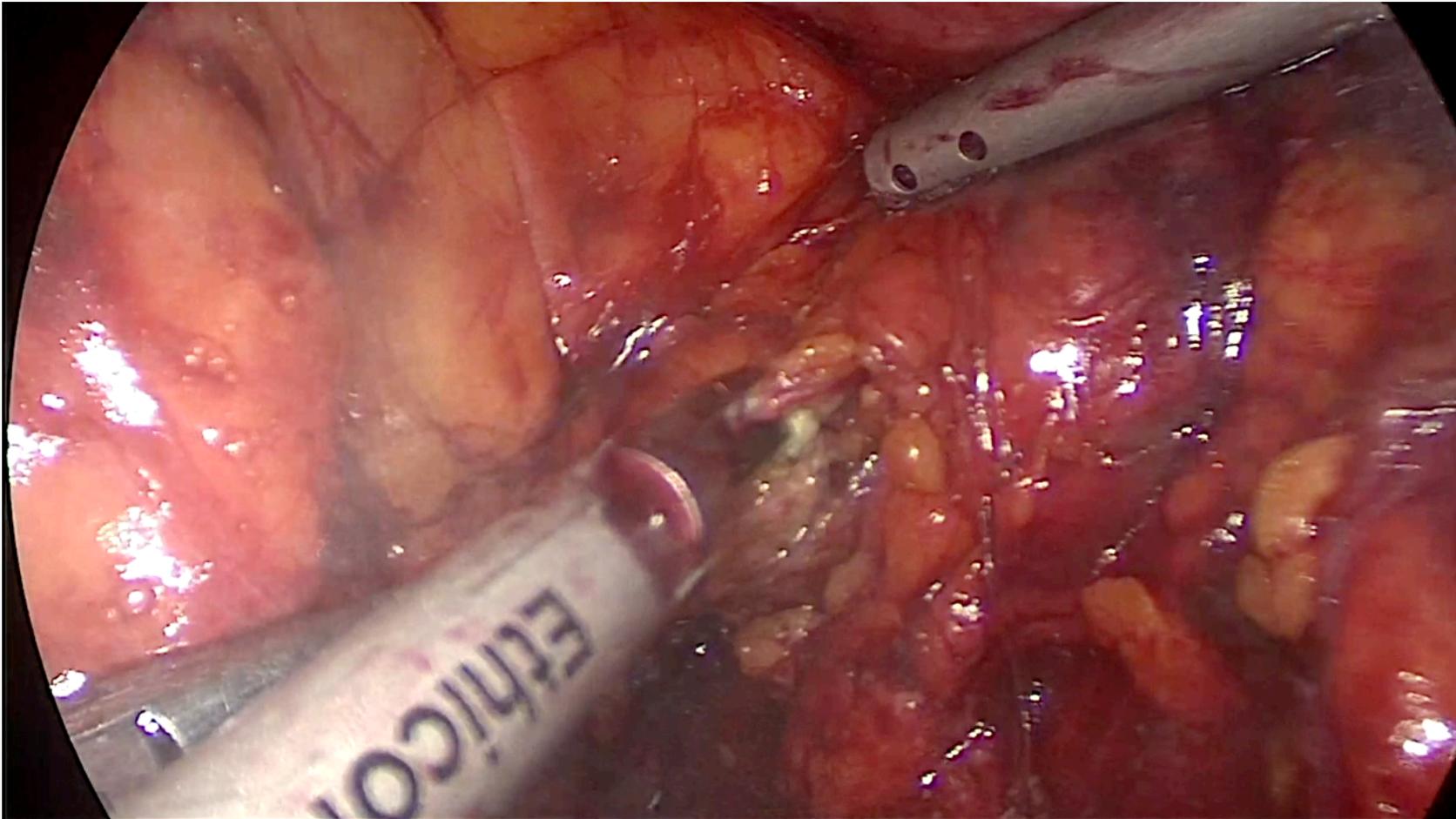


JORNADAS DE GINECOLOGÍA ONCOLÓGICA

TEMA: GANGLIO CENTINELA
EN CERVIX Y ENDOMETRIO



✓ cosas que nos pueden pasar



Conclusiones

- ✓ **Tecnica**
 - ✓ Disponibilidad de cada centro
 - ✓ Azul/cervical para comenzar
- ✓ **Que tipo de cáncer**
 - ✓ Endometrio bajo riesgo
 - ✓ Endometrio Alto riesgo
 - ✓ Cuello
- ✓ **Curva de aprendizaje**
 - ✓ Procedimiento menos invasivo pero no mas fácil
- ✓ **Como implementar**
 - ✓ Guías NCNN marco teórico
 - ✓ Base de datos
 - ✓ Protocolos

Muchas Gracias!



Jdiguilmi@hbritanico.com.ar