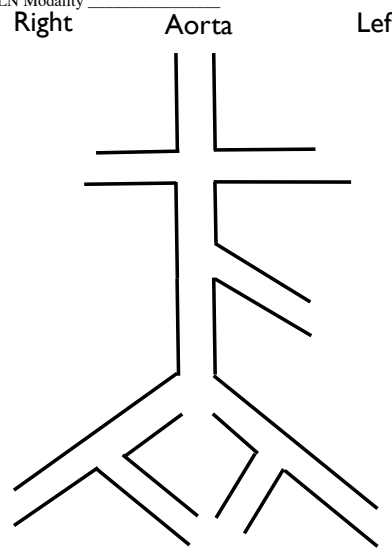


# Supplemental Figure 1

HIGH PARA-AORTICS						Study: Positron Lymphography High Grade Endometrial Cancer						HIGH PARA-AORTICS								
Dye+ Yes/No						Surgery Form Patient Name _____ Date _____ MRN _____ Study ID _____ SLN Modality _____ <div style="display: flex; justify-content: space-around; align-items: center;"> <span>Right</span>  <span>Left</span> </div>						Dye+ Yes/No								
Predict Malignant/Benign												Predict Malignant/Benign								
Sentinel Yes/No												Sentinel Yes/No								
Path Label (ex: "Left inguinal LN")												Path Label (ex: "Left inguinal LN")								
positron lymphography (list ID)												positron lymphography (list ID)								
LOW PARA-AORTICS						LOW PARA-AORTICS														
Dye+ Yes/No						Dye+ Yes/No														
Predict Malignant/Benign						Predict Malignant/Benign														
Sentinel Yes/No						Sentinel Yes/No														
Path Label (ex: "Left inguinal LN")						Path Label (ex: "Left inguinal LN")														
positron lymphography (list ID)						positron lymphography (list ID)														
Common Iliac						Common Iliac														
Dye+ Yes/No						Dye+ Yes/No														
Predict Malignant/Benign						Predict Malignant/Benign														
Sentinel Yes/No						Sentinel Yes/No														
Path Label (ex: "Left inguinal LN")						Path Label (ex: "Left inguinal LN")														
positron lymphography (list ID)						positron lymphography (list ID)														
External Iliac						External Iliac														
Dye+ Yes/No						Dye+ Yes/No														
Predict Malignant/Benign						Predict Malignant/Benign														
Sentinel Yes/No						Sentinel Yes/No														
Path Label (ex: "Left inguinal LN")						Path Label (ex: "Left inguinal LN")														
positron lymphography (list ID)						positron lymphography (list ID)														
Obturator						Obturator														
Dye+ Yes/No						A1	A2	A3	A4	A5	Dye+ Yes/No					A1	A2	A3	A4	A5
Predict Malignant/Benign											Predict Malignant/Benign									
Sentinel Yes/No											Sentinel Yes/No									
Path Label (ex: "Left inguinal LN")											Path Label (ex: "Left inguinal LN")									
positron lymphography (list ID)											positron lymphography (list ID)									

**Supplemental Figure 1:** Anatomic reference chart used by surgeon and study radiologist to facilitate positron lymphography (PLG) sentinel lymph node (SLN) location and concordance with dye-identified SLN.

Supplemental Table 1.

Comparing investigational SLN mapping (A) and blue and green dye SLN mapping (B) with final pathology at the nodal level (n=113).

**A. Investigational SLN mapping**

Investigational SLN mapping negative Pathology negative	71	Investigational SLN mapping negative Pathology positive	NA
Investigational SLN mapping positive Pathology negative	15	Investigational SLN mapping positive Pathology positive	27
Total number of nodes	86		27

**B. Dye SLN mapping**

			Total	
Dye SLN mapping negative Pathology negative	86	Dye SLN mapping negative Pathology positive	27	113
Dye SLN mapping positive Pathology negative	NA	Dye SLN mapping positive Pathology positive	NA	NA

NA = full LN dissection was not performed and number of nodes is unknown

Supplemental Table 2.

Comparing investigational SLN mapping (A) and blue and green dye SLN mapping (B) with final pathology at the patient level (n=20).

**A. Investigational SLN mapping**

Investigational SLN mapping negative Pathology negative	15	Investigational SLN mapping negative Pathology positive	0
Investigational SLN mapping positive Pathology negative	2	Investigational SLN mapping positive Pathology positive	3
Total number of patients	17		3

**B. Dye SLN mapping**

				Totals
Dye SLN mapping negative Pathology negative	17	Dye SLN mapping negative Pathology positive	3	20
Dye SLN mapping positive Pathology negative	NA	Dye SLN mapping positive Pathology positive	NA	NA

NA = full LN dissection was not performed and number of nodes is unknown

Supplemental Table 3.

Comparing investigational SLN mapping with blue and green dye SLN mapping at the (A) nodal and (N) patient level.

**A. Node level (n=113)**

Dye SLN mapping negative Investigational SLN mapping negative	71	Dye SLN mapping positive Investigational SLN mapping negative	NA
Dye SLN mapping negative Investigational SLN mapping positive	42	Dye SLN mapping positive Investigational SLN mapping positive	NA

**A. Patient level (n=20)**

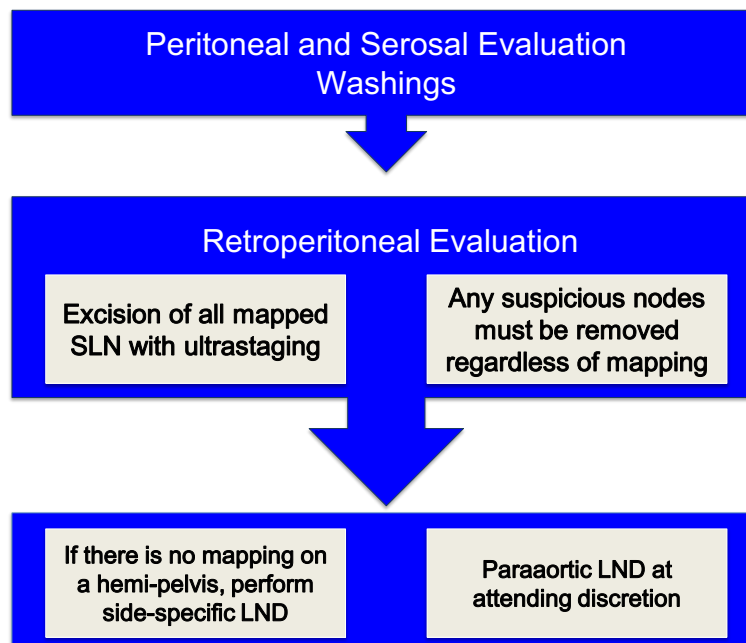
Dye SLN mapping negative Investigational SLN mapping negative	15	Dye SLN mapping positive Investigational SLN mapping negative	NA
Dye SLN mapping negative Investigational SLN mapping positive	5	Dye SLN mapping positive Investigational SLN mapping positive	NA

NA = full LN dissection was not performed and number of nodes is unknown

# Appendix 1. Organ absorbed doses and effective dose (assumes 10mCi injection at the cervix)

Organ	Diagnostic CAP-CT (per impACT) (MSKCC Female mean)	Systemic (per ICRP-106, 2008)	Cervical LN (per OLINDA)	8 mCi Administration			10 mCi Administration			12 mCi Administration		
				Systemic Frac	Cervical LN Frac	Total PET/CT	Systemic Frac	Cervical LN Frac	Total PET/CT	Systemic Frac	Cervical LN Frac	Total PET/CT
				50%	50%	Organ Dose	50%	50%	Organ Dose	50%	50%	Organ Dose
				4	4	Estimate	5	5	Estimate	6	6	Estimate
	mGy/scan	mGy/MBq	mGy/MBq	mGy	mGy	mGy	mGy	mGy	mGy	mGy	mGy	mGy
Adrenals	1.35E+01	1.20E-02	2.70E-03	1.8E+00	4.0E-01	1.6E+01	2.2E+00	5.0E-01	1.6E+01	2.7E+00	6.0E-01	1.7E+01
Bladder	1.42E+01	1.30E-01	9.62E-02	1.9E+01	1.4E+01	4.8E+01	2.4E+01	1.8E+01	5.6E+01	2.9E+01	2.1E+01	6.4E+01
Bone surfaces	2.03E+01	1.10E-02	5.19E-03	1.6E+00	7.7E-01	2.3E+01	2.0E+00	9.6E-01	2.3E+01	2.4E+00	1.2E+00	2.4E+01
Brain	1.61E+01	3.80E-02	1.48E-05	5.6E+00	2.2E-03	2.2E+01	7.0E+00	2.7E-03	2.3E+01	8.4E+00	3.3E-03	2.5E+01
Breasts	1.20E+01	8.80E-02	5.91E-04	1.3E+01	8.7E-02	2.5E+01	1.6E+01	1.1E-01	2.8E+01	2.0E+01	1.3E-01	3.2E+01
Gallbladder	1.44E+01	1.30E-02	1.04E-02	1.9E+00	1.5E+00	1.8E+01	2.4E+00	1.9E+00	1.9E+01	2.9E+00	2.3E+00	2.0E+01
Gastrointestinal tract												
- stomach	1.44E+01	1.10E-02	4.96E-03	1.6E+00	7.3E-01	1.7E+01	2.0E+00	9.2E-01	1.7E+01	2.4E+00	1.1E+00	1.8E+01
- small intestine	1.35E+01	1.20E-02	6.32E-02	1.8E+00	9.4E+00	2.5E+01	2.2E+00	1.2E+01	2.7E+01	2.7E+00	1.4E+01	3.0E+01
- colon		1.30E-02		1.9E+00		1.9E+00	2.4E+00		2.4E+00	2.9E+00		2.9E+00
- Upper large intestine	1.35E+01	1.20E-02	3.26E-02	1.8E+00	4.8E+00	2.0E+01	2.2E+00	6.0E+00	2.2E+01	2.7E+00	7.2E+00	2.3E+01
- Lower large intestine	1.27E+01	1.40E-02	3.54E-02	2.1E+00	5.2E+00	2.0E+01	2.6E+00	6.5E+00	2.2E+01	3.1E+00	7.9E+00	2.4E+01
Heart	1.53E+01	6.70E-02	1.14E-03	9.9E+00	1.7E-01	2.5E+01	1.2E+01	2.1E-01	2.8E+01	1.5E+01	2.5E-01	3.0E+01
Kidneys	1.47E+01	1.70E-02	5.66E-03	2.5E+00	8.4E-01	1.8E+01	3.1E+00	1.0E+00	1.9E+01	3.8E+00	1.3E+00	2.0E+01
Liver	1.38E+01	2.10E-02	4.05E-03	3.1E+00	6.0E-01	1.8E+01	3.9E+00	7.5E-01	1.8E+01	4.7E+00	9.0E-01	1.9E+01
Lungs	1.53E+01	2.00E-02	8.00E-04	3.0E+00	1.2E-01	1.8E+01	3.7E+00	1.5E-01	1.9E+01	4.4E+00	1.8E-01	2.0E+01
Muscles	9.59E+00	1.00E-02	1.16E-02	1.5E+00	1.7E+00	1.3E+01	1.9E+00	2.1E+00	1.4E+01	2.2E+00	2.6E+00	1.4E+01
Oesophagus		1.20E-02		1.8E+00		1.8E+00	2.2E+00		2.2E+00	2.7E+00		2.7E+00
Ovaries	1.26E+01	1.40E-02	1.27E-01	2.1E+00	1.9E+01	3.3E+01	2.6E+00	2.3E+01	3.9E+01	3.1E+00	2.8E+01	4.4E+01
Pancreas	1.32E+01	1.30E-02	4.30E-03	1.9E+00	6.4E-01	1.6E+01	2.4E+00	8.0E-01	1.6E+01	2.9E+00	9.5E-01	1.7E+01
Red marrow	1.12E+01	1.10E-02	1.22E-02	1.6E+00	1.8E+00	1.5E+01	2.0E+00	2.3E+00	1.5E+01	2.4E+00	2.7E+00	1.6E+01
Skin	8.56E+00	7.80E-03	3.28E-03	1.2E+00	4.9E-01	1.0E+01	1.4E+00	6.1E-01	1.1E+01	1.7E+00	7.3E-01	1.1E+01
Spleen	1.34E+01	1.10E-02	3.62E-03	1.6E+00	5.4E-01	1.6E+01	2.0E+00	6.7E-01	1.6E+01	2.4E+00	8.0E-01	1.7E+01
Thymus	1.69E+01	1.20E-02	4.77E-04	1.8E+00	7.1E-02	1.9E+01	2.2E+00	8.8E-02	1.9E+01	2.7E+00	1.1E-01	2.0E+01
Thyroid	2.16E+01	1.00E-02	1.25E-04	1.5E+00	1.9E-02	2.3E+01	1.9E+00	2.3E-02	2.3E+01	2.2E+00	2.8E-02	2.4E+01
Uterus	1.38E+01	1.80E-02	5.64E+00	2.7E+00	8.3E+02	8.5E+02	3.3E+00	1.0E+03	1.1E+03	4.0E+00	1.3E+03	1.3E+03
Remaining organs		1.20E-02		1.8E+00		1.8E+00	2.2E+00		2.2E+00	2.7E+00		2.7E+00
Effective Dose	1.34E+01 mSv/scan	1.90E-02 mSv/MBq	1.78E-01 mSv/MBq	2.8E+00 mSv	2.6E+01 mSv	4.3E+01 mSv/8 mCi	3.5E+00 mSv	3.3E+01 mSv	5.0E+01 mSv/10 mCi	4.2E+00 mSv	4.0E+01 mSv	5.7E+01 mSv/12 mCi

## Appendix 2. Gynecologic Oncology Sentinel Lymph Node Mapping Algorithm

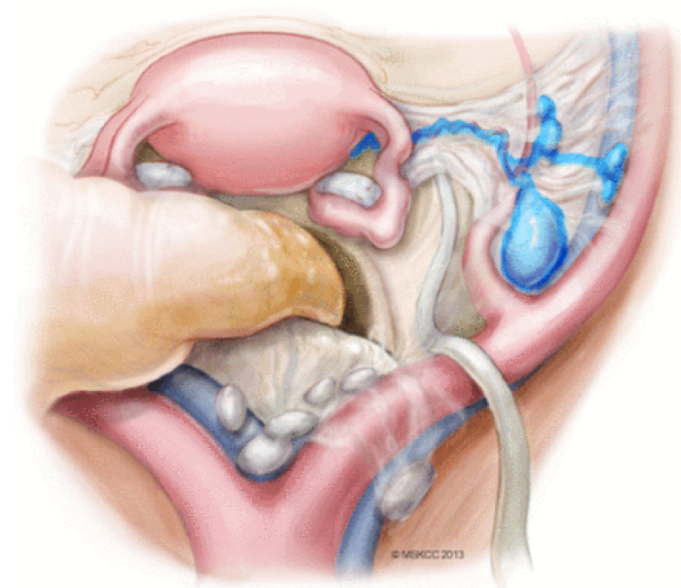


*SLN, sentinel lymph node; LND, lymph node dissection*

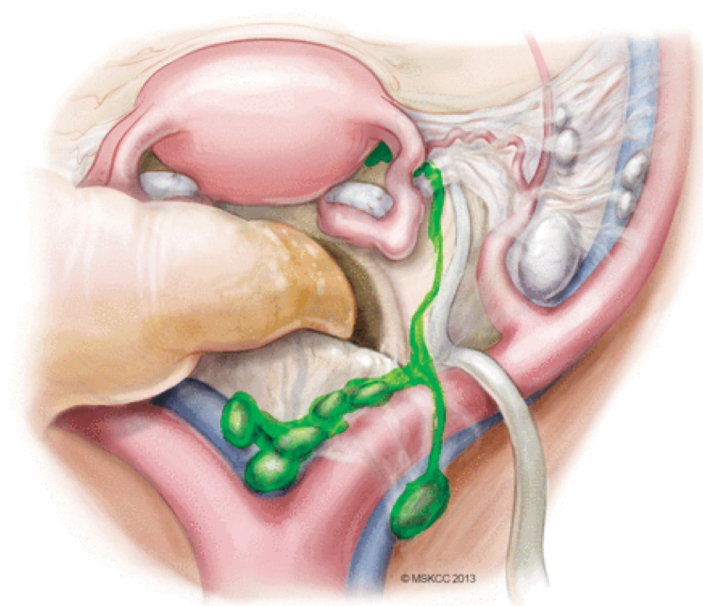
*Barlin JN, Khoury-Collado F, Kim CH, et al. The importance of applying a sentinel lymph node mapping algorithm in endometrial cancer staging: beyond removal of blue nodes. Gynecol Oncol 2012; 125: 531–5.*

### Appendix 3. Dominant patterns for sentinel lymph node mapping after intracervical injection.

A.



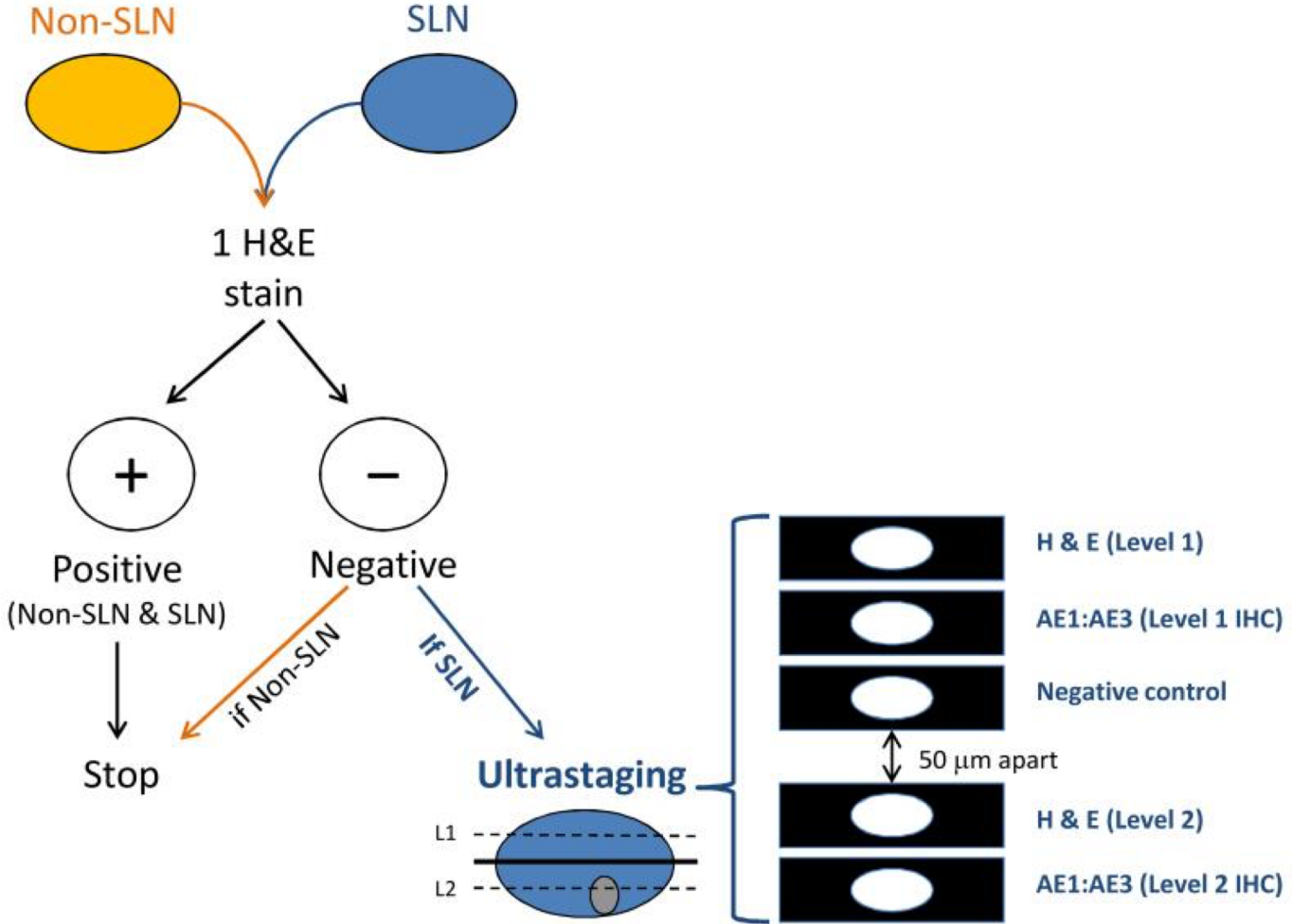
B.



A. The most common sentinel lymph node location after a cervical injection are medial to the external iliac vessels, ventral to the hypogastric vessels, and in the superior portion of the obturator space. B. The less common sentinel lymph node locations of sentinel lymph nodes are seen when channels travel within the mesoreuter cephalad to the common iliac vessels and presacral region.

Courtesy of Abu-Rustum NR, Levine DA, Barakat RR, eds. Atlas of Procedures in Gynecologic Oncology, 3rd ed. London: Informa Healthcare; 2013. ©2013, Memorial Sloan-Kettering Cancer Center.

# Appendix 4. Ultrastaging technique for sentinel lymph nodes in endometrial and cervical cancer.



Kim CH, Soslow RA, Park KJ, Barber EL, Khoury-Collado F, Barlin JN, Sonoda Y, Hensley ML, Barakat RR, Abu-Rustum NR. Pathologic Ultrastaging Improves Micrometastasis Detection in Sentinel Lymph Nodes during Endometrial Cancer Staging. *Int J Gynecol Cancer*. 2013 Jun;23(5): 964-970.

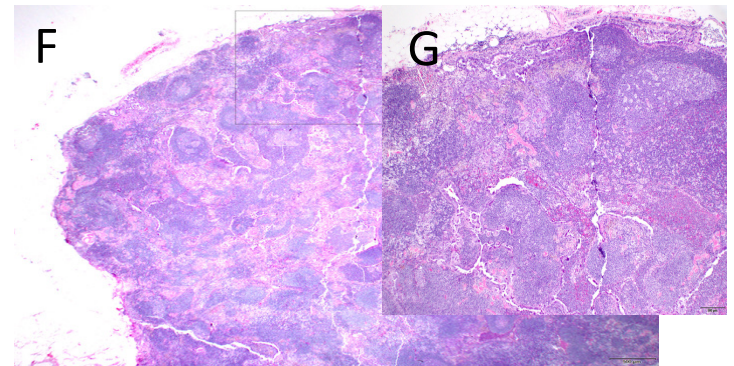
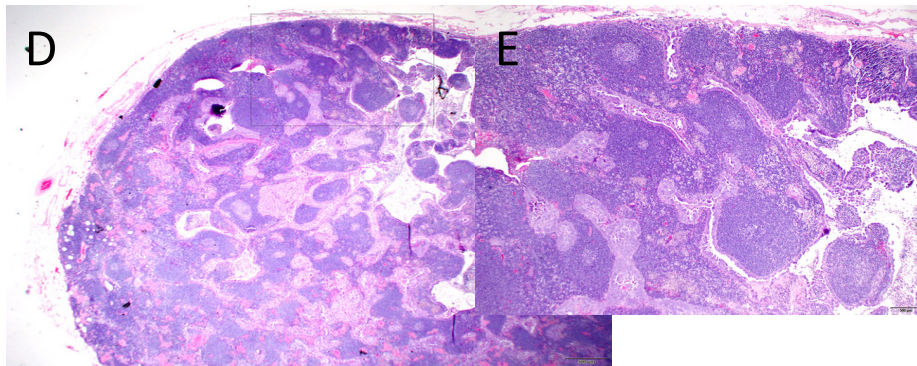
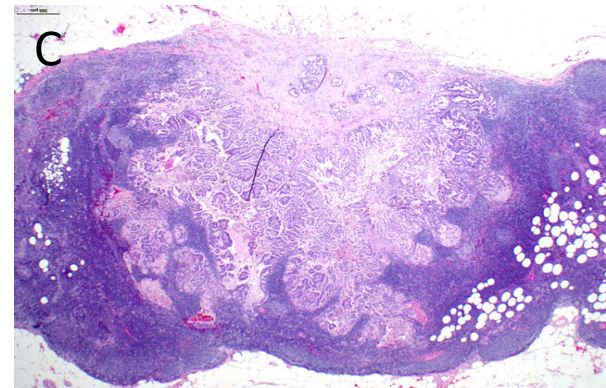
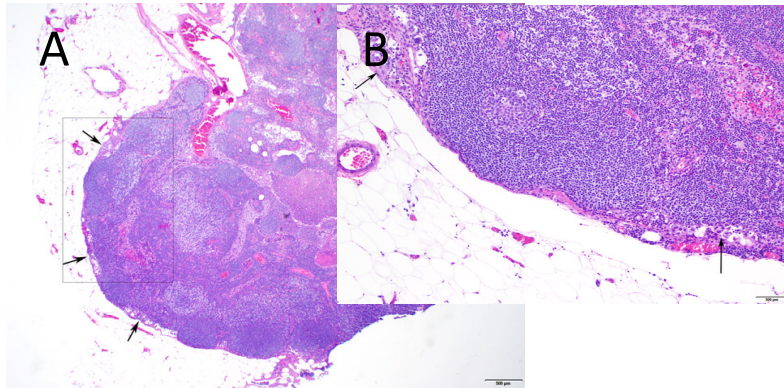


# Appendix 5. Micromorphometry of positive nodes.

## Micromorphometric features of SLN deposits

Histology	ID	SLN No.	No. of deposits	Size (mm)	% of LN	Subcapsular depth (mm)	Shape/ Distribution
Endometrial Carcinosarcoma	1	R obt 1/1 +	Multiple	See 'Shape'	<1	0	Single cells and small clusters (<0.1mm) within subcapsular sinus, spanning a maximum length of 3.0mm
Endocervical AC	5	R Obt 1/2 +	1	4.2x3.0	15	3.0	Nodule, expansile
Endometrial serous	15	L Obt 1/5 +	1	10.0x6.0	60	6.0	Nodule, infiltrative
		R Obt 1/1+	1	8.0x8.0	40	8.0	Nodule, infiltrative

# Appendix 5. Micromorphometry of positive nodes.



(A.) Patient ID 1. Deposits (arrows) of metastatic carcinomatous component of carcinosarcoma in subcapsular sinus of lymph node, low-power view of lymph node; (B) area denoted by rectangle in (A).

(C.) Patient ID 5. Single expansile nodular deposit of metastatic adenocarcinoma extending from capsule of lymph node into the nodal parenchyma.

(D.) Patient ID 15. Nodular deposit of metastatic serous carcinoma extending from capsule of lymph node into the parenchyma. The tumor nodule comprises cords and glands infiltrating between nodal parenchyma, low-power; (E.) area denoted by rectangle in (D).

(F.) Patient ID 15. Nodular deposit of metastatic serous carcinoma extending from capsule of lymph node into the parenchyma. The tumor nodule comprises cords and glands infiltrating between nodal parenchyma, low-power; (G.) area denoted by rectangle in (F).

See Appendix 4 for complete micromorphometric descriptions.