Sentinel Lymph Node Biopsy in Endometrial Cancer

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General Principles

Primary treatment

Hysterectomy/BSO

and

Lymph node assessment

Benefits

- Precise risk stratification
- Accurate surgical staging
- Adjuvant treatment dicisions

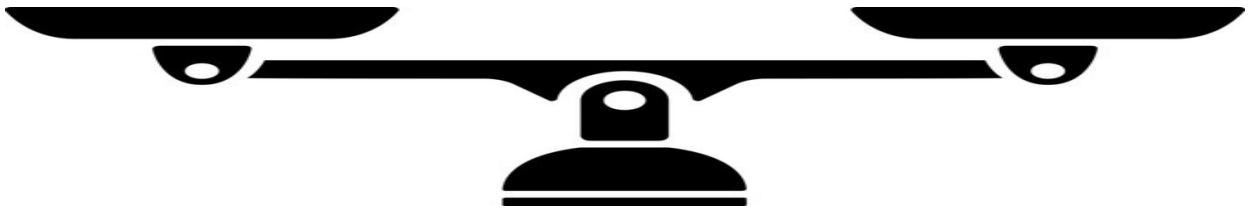
Complications

Immediate

- Increase operative time
- Great vessels or nerve injury

Long term

- Lymphocele,Lymphatic leakage
- Lower limb lymphedema (LLL)
- Wound dehiscence



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SLN biopsy

Pivotal Sentinel Lymph Node clinical trails

Trial	Populations	Outcome	Tracer	Sensitivity	NPV	FN
SENTI-ENDO 2011,2015	**N = 125 (HG 13%)** FIGO st I-II	Recurrence : No difference No significant A/E (tracer)	Tecnitium-99 + blue dye	84%	97%	No
FIRES 2017	**N = 385 (HG 29%)** Robotic staging	Succesful mapping 86% (Bilateral 52%)	ICG	97.6%	96.6%	2.8%
SHREC 2019	**N = 257 (HG 49%)** Robotic staging	Succesful mapping 82 % (95% with reinjection)	ICG	98%	99.5%	1 case
SENTOR 2021	**N = 156 (HG 80%)** Robotic staging	Succesful mapping 97.4% (Bilateral 77.6%)	ICG	96.3%	99.2%	3.7%

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Indications

Candidates

Early stage endometrial cancer

- Stage I-II
- Any Histology
- Without suspicious of metastasis
- Without extrauterine disease

SLNB can safely replace **Full lymphadenectomy**

(High detection diagnostic accuracy of nodal metastatic disease **even in HGEC**)

ICG increase detection rate

How to SLN mapping

NCCN GUIDELINES

1. ICG diluted to 0.5 – 1.25 mg/ml using sterile water 2 – 4 ml injected into cervix

- The preparation contained 25 g of ICG
+ 20 mL of sterile water (1.25 mg/mL)
- Draw on 1-3 ml syringe with Needle 22-25G

2. Injection site

- **Injection into cervix**
- Around tumor by hysteroscope
- Subserosal myometrium at fundus

PRINCIPLES OF EVALUATION AND SURGICAL STAGING WHEN SLN MAPPING IS USED

Figure 1: Common cervical injection sites for mapping uterine cancer[a]

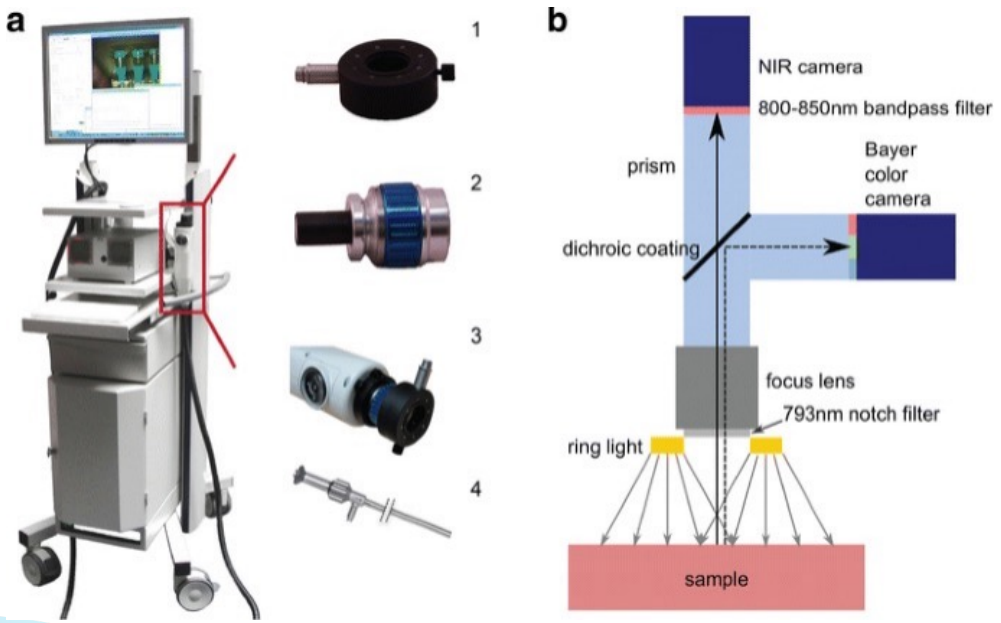
(1) 3 and 9 o'clock
(2) 2, 5, 7, and 10 o'clock
(3) 12, 3, 6, and 9 o'clock

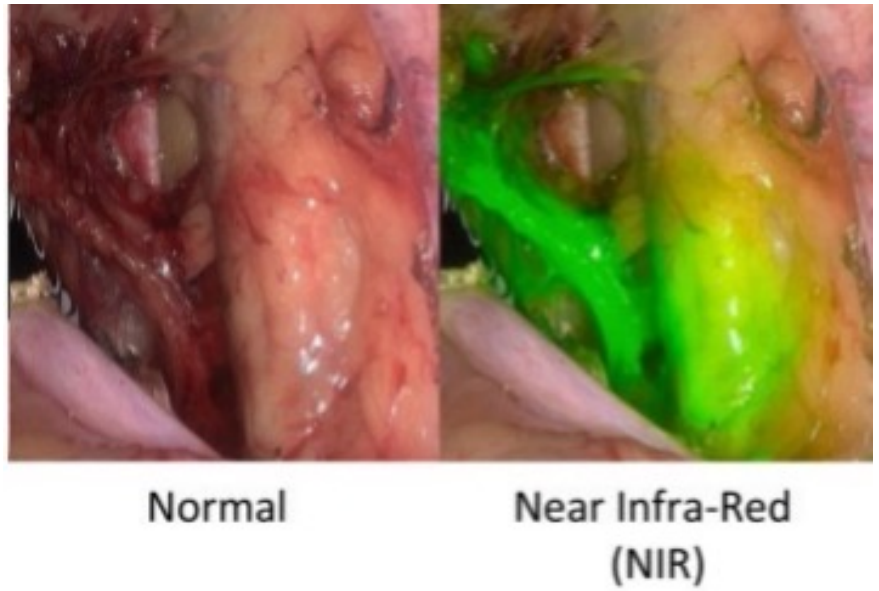
Superficial 1-3 mm
Deep 1-2 cm
(0.5-1 ml)

How to SLN mapping

NCCN GUIDELINES

3. A near-infrared (NIR) camera for localization





How to SLN mapping

NCCN GUIDELINES

4. Common location of SLNs

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

Most common location

- Medial to external iliac vessels
- Ventral to the hypogastric vessels
- Superior part of the obturator space

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

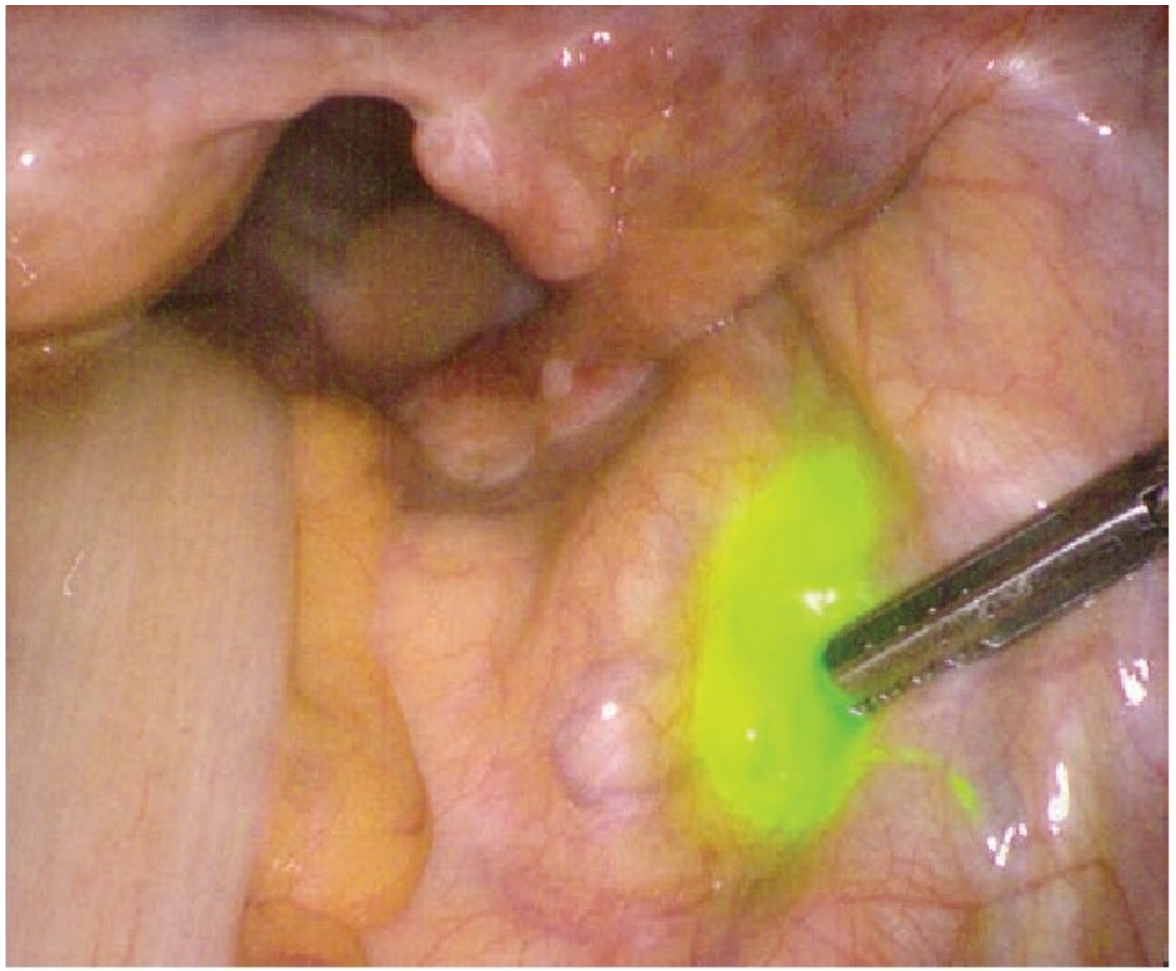
Less common location

- The mesoureter cephalad to common iliac vessel
- Presacral sentinel lymph nodes

How to SLN mapping

NCCN GUIDELINES

4. Common location of SLNs



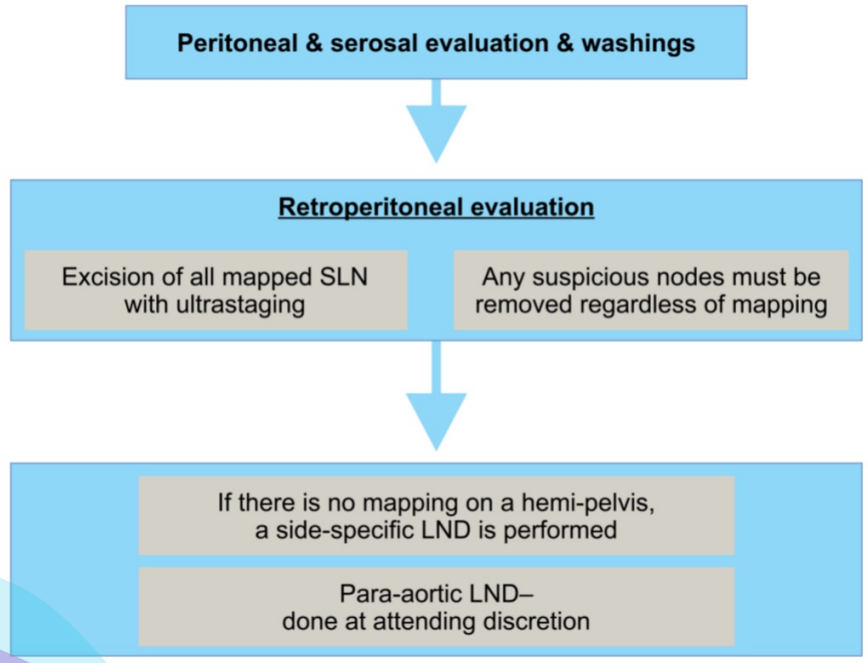
How to SLN mapping

NCCN GUIDELINES

5. Mapping Failed -> Side specific LND

PRINCIPLES OF EVALUATION AND SURGICAL STAGING WHEN SLN MAPPING IS USED

Figure 4: The SLN algorithm for surgical staging of endometrial cancer[b]



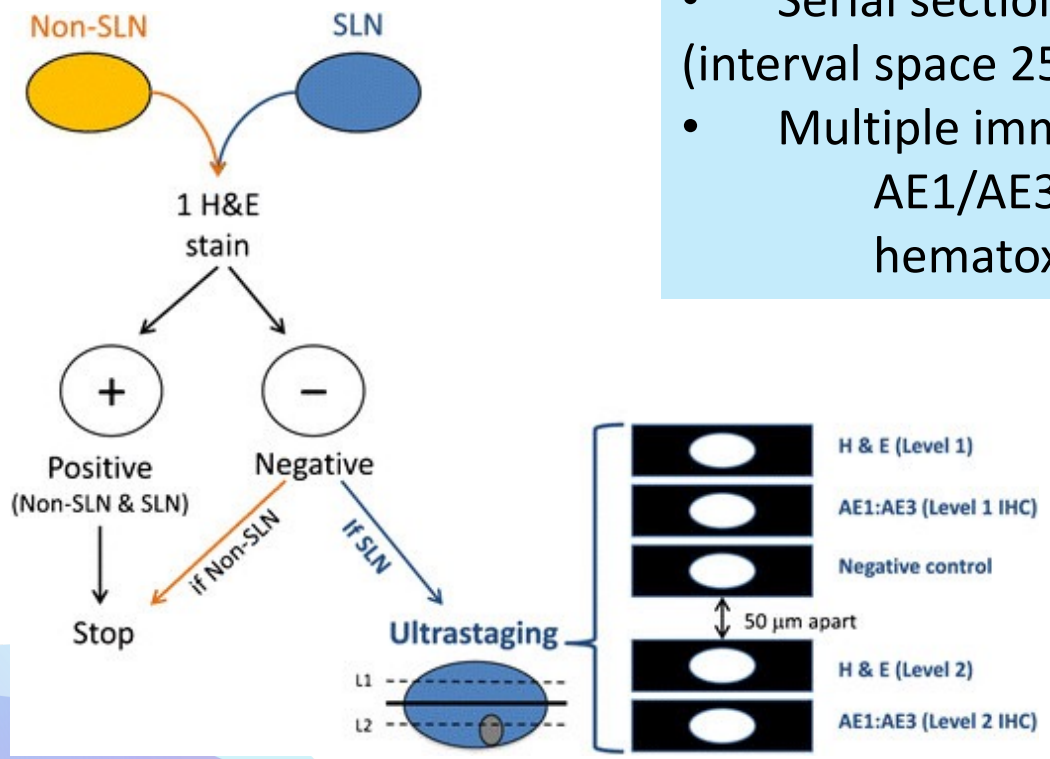
Up to 6% of cases.

- Lymphatic obstruction by bulky tumor
- Obesity
- Use of blue dye only

How to SLN mapping

NCCN GUIDELINES

6. Ultrastaging for detect low volume metastais



- Gross section 2 mm
- Serial sectioning of each at multiple levels (interval space 250 um)
- Multiple immunohistochemical staining
  - AE1/AE3
  - hematoxylin and eosin (H&E)-stained

Interpretations

- **Negative**
- **Isolated tumor cells (ITCs)(pN0(i+))**

No stage change

  tumor deposit no greater than 0.2 mm (<200 cells)
- **Micro-metastases (MIC)**
  tumor deposit greater than 0.2 and up to 2 mm
- **Macro-metastases (MAC)**
  tumor deposit greater than 2 mm

Further Clinical trials

ON GOING Trial

ALICE trial
Expected 2027

Non-inferior RCT 1:1

- Question : The oncological outcomes of SLN biopsy without lymphadenectomy ??
- Objective : To confirm SLN biopsy without systematic node dissection
- NO negatively impact oncological outcomes.

HIR, HR :
- HG type
- EEC Gr 1-2 with MI>50%
- Cervical stromal invasion

(Clinically suitable to undergo systematic lymphadenectomy)
Excluded extrauterine disease, LN enlarge

→

SLN mapping + Bx + ultrastaging (ITC=+)
Vs
SLN mapping with systematic lymphadenectomy (PLND+PAND)

→

- 3 year DFS
- 5 year OS
- Morbidity
- QOL

Recommendation

	NCCN	ESGO	SGO	JSGO
▪ **Stage I-II** (uterine confined) ▪ **LR/IR**	May be considerd	Can be considerd	Can be performed	Can be considerd
▪ **High grade** (Gr3/clear cell/serous/carcinosarcoma) ▪ **I-HR / HR**	Potential alternative to full LND	Acceptable alternative to full LND in stages I-II	Feasible with completion of full LND + PAND	Not mentioned
Tracer	ICG : high detection rate Tc99 : MC used	ICG : high detection rate	ICG : high detection rate	Not mentioned
Injection site	Cervix (superficial and deep)	Cervix	Cervix (superficial and submucosa)	Not mentioned
Failed mapping	Side-specific LND	Side-specific LND in I-HR / HR	Side-specific LND	Not mentioned
Ultrastaging	✓	✓	✓	Not mentioned
Positive pelvic SLN	PAND	PAND	PAND	Not mentioned
Frozen section of SLN	Only if suspicious	Not mentioned	Only if suspicious	Not mentioned

Take home message

Candidates

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- Stage I-II
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- Tracor : ICG at cervical injection with Near Infrared Camera Technique
- If failed mapping -> Side specific LND
- Ultrastaging for detection of low volume metastasis
- Positive pelvic SLN -> Para-aortic node LND

THANK YOU