

# Sentinel Node Mapping Using Indocyanine Green for Uterine Malignancies: Three-Year Experience with the da Vinci Xi System

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## Objectives

Lymphadenectomy (LND) is essential when evaluating the stage and need for adjuvant treatment in endometrial cancer. However, its therapeutic value is still open. In cervical cancer, the role of LND in treatment selection is much more established. In the surgical treatment of both cancers, the sentinel lymph node (SLN) procedure has gained interest and many centers are validating its use. The aim of this study was to evaluate indocyanine green (ICG) and near infrared (NIR) fluorescence mapping used consecutively during the first three years both in uterine confined endometrial and cervical cancer at our institution.

## Methods

This is a cohort study of patients with clinical stage I endometrial (n=178) and cervical (n=28) cancer undergoing robotic surgery (da Vinci Xi, Intuitive Surgery, Sunnyvale, CA, USA) in Kuopio University Hospital between February 2016 and 2019. ICG tracer (Verdye, 1.25 mg/ml) was injected into the cervix at the 3 and 9 o'clock positions submucosal and stromal. Haematoxylin-eosin and immunohistochemical stainings were used for the histopathological and ultrastaging analyses.

## Results

SLN was detected bilaterally in 84% of the patients, and at least unilaterally in 97%. On pathologic evaluation, sentinel node included lymph node tissue in 98% of the cases. In 31 (15%) patients, SLN harbored metastasis. In endometrial and cervical cancer, the metastasis was observed in 14% and 21% of the cases, respectively. In those patients (n=124) having intermediate or high-risk disease and fit for completion lymphadenectomy, non-SLN harbored metastasis in six patients (4.8%) although SLN did not. Accordingly, the false negative rate was 13.9%. The SLN was the only metastatic node in 13 patients (6%). Sensitivity to detect node-positive disease was 86% (95% CI 72.1-94.7%) and a negative predictive value was 93.6% (95% CI 87.5-96.9%).

## Conclusions

SLN detection using ICG and da Vinci NIR technology proved to be feasible and accurate. The results correlate with previous single institution studies and meta-analyses.

Table 1. Patients with endometrial cancer (n=178).

Age at diagnosis, median (min-max)	69 (37-86)
Preoperative risk type	n (%)
low	69 (39)
high	109 (61)
Histology	
endometrioid	160 (90)
serous	10 (6)
clear cell	6 (3)
carcinosarcoma	2 (1)
Grade	
1	38 (21)
2	101 (57)
3	39 (22)
Myometrial invasion	
none	2 (1)
< 50%	98 (55)
>50%	78 (44)
Figo stage	
IA	82 (46)
IB	49 (28)
II	8 (4)
IIIA	5 (3)
IIIC	31 (17)
IV	3 (2)
LVSI	
negative	124 (70)
positive	54 (30)

Figure 1. Sentinel node.

