Epworth's experience of pelvic sentinel lymph node detection in endometrial cancer with the introduction of near infra-red imaging.

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Introduction

- Endometrial cancer is the most common gynaecological malignancy and the 5th most common cancer in women.
- Lymph node status is prognostic and allows tailored adjuvant therapy with radiation and/or chemotherapy.
- Sentinel lymph node dissection (SLND) during surgical staging aims to reduce morbidity associated with complete pelvic lymph node dissection (PLND) whilst maintaining optimal oncologic information.
- The technique for SLND involves an intraoperative cervical injection of indocyanine green (ICG) dye which is then viewed with a near infra-red (NIR) laparoscope.
- Using Stryker AIM laparoscopic cameras and DiVinci robotics, SLND has been available at Epworth since 2019.

Figure 1 – Example of Near infra-red imaging and removal of mapped sentinel lymph node from pelvic side wall using Indocyanine Green (ICG) Dye - Courtesy Dr Lamont

Aims

- Assess the rates of both PLND and SLND dissection performed at time of minimally invasive hysterectomy for endometrial cancer.
- Assess the anatomical location of detected sentinel lymph nodes

Methodology

- Retrospective audit of patients undergoing minimally invasive hysterectomy for endometrial cancer between Jan 2019 – Sept 2021

Inclusion criteria

- Robotic/ Laparoscopic hysterectomy
- Histologically confirmed endometrial carcinoma

Results

Minimally invasive hysterectomy	2019 N=135	2020 N = 126	2021* N = 99	Total N = 360
- Robotic	53	34	28	115
- Laparoscopic	82	92	71	245
Nodal assessment (SLND +/or PLND)	99/135 (73%)	98/126 (78%)	78/99 (79%)	275/360 (76%)
SLND - ICG dye administered	15/135 (11%)	33/126 (26%)	51/99 (52%)	99/360 (28%)
PLND	84/135 (62%)	65/126 (52%)	27/99 (27%)	176/360 (49%)

Histology	Total N=360	SNLD N=99
Endometroid	295 (82%)	89 (90%)
Serous	27 (8%)	1 (1%)
Carcinosarcoma	14 (4%)	3 (3%)
Clear Cell	12 (3%)	2 (2%)
Mixed	6 (2%)	3 (3%)
Other (I.e. stromal)	6 (2%)	1 (1%)

FIGO Stage	Total N=360	SNLD N=99
IA	236 (66%)	63 (64%)
IB	60 (17%)	20 (20%)
II	17 (5%)	2 (2%)
IIIA	10 (3%)	1 (1%)
IIIB	6 (2%)	1 (1%)
IIIC1	27 (8%)	11 (11%)
IVB	4 (1%)	1 (1%)

Results (continued)

- 360 women
- 99 underwent attempted SLND with ICG administration
- Median Age: 66 (IQR 58 – 73)
- Median BMI: 30 (IQR 26 – 37)

SLND - 99 women, 198 hemipelvis		PLND - 191 women
ICG given	198	
LN mapped with ICG	176	
Biopsy taken	176	375
Nodal tissue present	167	375
Of patients having ICG - Both sides successful - One side successful - None successful	 77 % 16 % 7 %	
Successful SLND (map & LN tissue)	84%	
If no node mapped, - PLND - Paraaortic dissection - No further action	22 - 18 - 0 - 4	
Positive SLND detected per - Hemipelvis - Patients - Cancer stage was upgraded from I/II	21 positive nodes 16/198 (8%) 11/99 (11%) 8/99 (8%)	33 positive nodes 23/375 (6%) 19/191 (10%) 11/191 (6%)
Number of nodes removed per hemipelvis (median, IQR)	SLND 1 (IQR 1 – 2)	PLND 6 (IQR 4 – 8)

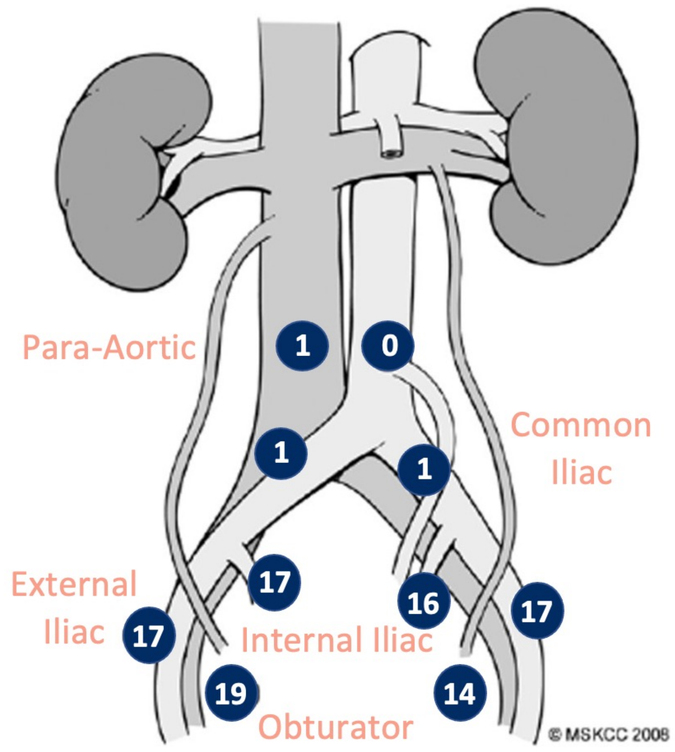

Figure 2 – Distribution of Sentinel lymph node mapping in each hemipelvis.
Adapted from Figure 2 in Journal of Obstetrics and Gynaecology Research, Volume 40, Issue:2, Pages 327 – 334, First published 26 November 2013, DOI:(10.1111/jog.12227)

Conclusions

- Uptake of SLND using near infra-red technology has increased since 2019 from 11% to 52% with a respective decreased in pelvic lymph node dissection.
- Overall percentage of women having nodal assessment (either SLND or PLND) remains stable.
- The number of cases with positive nodes was equivalent in SLND and PLND, which gives confidence that SLND provides adequate lymph node assessment
- Positive SLND upstaged cancer diagnosis from Stage I/II to IIIC in 8% of women.

References

Rossi EC , Kowalski LD , Scalici J , Cantrell L , Schuler K , Hanna RK , et al. A comparison of sentinel lymph node biopsy to lymphadenectomy for endometrial cancer staging (FIRES trial): A multicentre, prospective, cohort study. Lancet Oncol. 2017;18:384–392.28159465

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