

# Laparoscopic Sentinel Lymph Node Mapping with Surgical Staging Following Hysteroscopic Endometrial Resection in Endometrial Stromal Sarcoma

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## ABSTRACT

A 50-year-old woman presented with symptoms of abnormal uterine bleeding. Ultrasonography showed an intrauterine cavity nodule sized approximately 2 cm. A hysteroscopic resection was diagnosed. The histopathology revealed high-grade endometrial stromal sarcoma. The surgery was laparoscopic surgical staging with indocyanine green sentinel lymph node mapping. Two positive indocyanine green sentinel lymph node of the right and left pelvic nodes showed no nodal metastasis. Also, the five positive indocyanine green sentinel lymph node showed no nodal metastasis. The occult lymph nodes were dissected at the right and left pelvic nodes for nodes 4 and 9, respectively. Conclusively, hysteroscopic resection is beneficial for the diagnosis of uterine sarcoma. Notwithstanding, laparoscopy can be used for uterine cancer and the indocyanine green sentinel lymph node showed no false negative. The patient was stage IA.

**Keywords:** Endometrial stromal sarcoma, Sentinel lymph node, Laparoscopy, Uterine sarcoma

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## Introduction

Uterine sarcomas comprise 3.4% of uterine malignancies in terms of frequency. Endometrial stromal sarcoma (ESS) is a rare tumour comprising < 1% of uterine malignancies, while accounting for approximately 25% of true uterine sarcomas. Modern classification distinguishes ESS as a low-grade tumour from high-grade undifferentiated uterine sarcoma, previously referred to as high-grade ESS. High-grade cytology has >10 mitoses per 10 HPF, necrosis, and often lymphovas-

cular invasion (1). ESS patients are often incidentally diagnosed after surgery for presumed uterine fibroids. ESS has been an incidental finding in 42% of cases (2). Abnormal uterine bleeding in postmenopausal females should be evaluated appropriately with endometrial sampling and intravaginal ultrasound (TVS).

Recently, diagnostic hysteroscopy and resection has been used as a precise diagnostic procedure for uterine sarcoma. Surgery is the treatment of choice with a total hysterectomy. The rate of lymph node metastasis has been reported to range from 6% to 30% (3). Routine regional lymphadenectomy is not recommended for patients with adult soft tissue sarcomas, but consideration of bulky isolated metastases should be resected (4). Nevertheless, lymphadenectomy may be reasonable for consideration in deep stromal invasion or extensive LVSI patients.

Laparoscopic surgical staging in early-stage endometrial cancer has been the preferred surgical procedure to reduce postoperative pain as well minimise the length of hospital stay (5). From the perspective of lymphadenectomy, sentinel node mapping could be performed instead of no pelvic node sampling, though previous study has demonstrated that there is no therapeutic benefit to pelvic node excision for endometrial cancer (6). This case was diagnosed with endometrial stromal sarcoma by hysteroscopic resection, while treatment was laparoscopic sentinel node dissection with surgical staging.

## Case Report

A 50-year-old woman, Para 2 presented with a history of two caesarean sections and had hypermenorrhea for three

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months. Her body mass index (BMI) was 20.9 kg/m<sup>2</sup>. Ultrasonography showed an intrauterine cavity nodule sized approximately 2 cm. The hysteroscopic was used for diagnosis which showed an endometrial nodule of 2 cm. Subsequently, a 2 cm of the endometrial nodule was resection for tissue biopsy. Histopathology revealed high-grade endometrial stromal sarcoma (ESS). The treatment of plan was complete surgical staging while the patient had chosen laparoscopic surgical staging with the technique of indocyanine green (ICG) sentinel lymph node (SLN) mapping. The concentration used was 2.5 mg/mL. A 25 mg/vial with ICG powder was diluted in 10 mL of sterile water. The cervix was prepped and the ICG injected before the insertion of the Cohen uterine manipulator. The routine injection of 4 mL ICG solution was divided into the cervix at 3, 6, 9, and 12 o'clock positions. A 10-mm camera port was inserted at the midpoint between xiphoid and umbilicus, Lee-Huang point area. The four of 5-mm parallel ancillary ports was inserted, the two cannula ports at the left side abdomen and the two cannula ports at the right side abdomen. ICG SLN detection showed positive for two right pelvic nodes, two left pelvic nodes, and five para-aortic nodes (Figure 1,2). The full removal of lymph nodes during hysterectomy means for the clinical implication of a false negative test. Therefore, the negative ICG SLN were lymphadenectomy of the 4 right pelvic nodes and 9 left pelvic

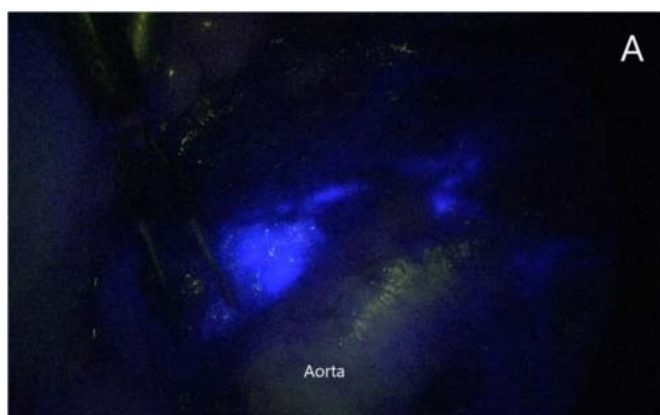
nodes. After the lymphadenectomy, the operation comprised hysterectomy with bilateral salpingo-oophorectomy. The uterus with both adnexa was removed via the transvaginal canal within an endo-bag effortlessly and without morcellation. Intraoperative blood loss was 50 ml without complications. The histopathology revealed high-grade endometrial stromal sarcoma of the uterus. Myometrial invasion was 89% of the myometrial wall thickness, presenting with lymphovascular invasion (LVSI). The positive ICG SLN revealed no nodal metastasis of the two right pelvic nodes and two left pelvic nodes. The negative ICG SLN revealed no nodal metastasis of the four right pelvic nodes and nine left pelvic nodes. The patient was given systemic chemotherapy due to undifferentiated high grade endometrial stromal sarcoma FIGO stage IA. The informed consent has been obtained from the patient and the study was exempt from the requirement for approval by the institutional review board of Chang Gung Memorial Hospital.

## Discussion

Abnormal uterine bleeding is generally the most common presenting symptom in ESS. The uterine curettage is the diagnostic purpose, but cannot be reliable because of various limitations of the blind technique. Further, the polypoid mass can-



**Figure 1:** The indocyanine green (ICG) sentinel lymph node (SLN) mapping showed positive at left pelvic nodes (A) during the left pelvic node dissection (B).



**Figure 2:** The indocyanine green (ICG) sentinel lymph node (SLN) mapping showed positive at para-aortic lymph node (A) during paraaortic lymph node dissection (B).

not be removed. Two consecutive fractional curettages were reported for negative histopathology. After that, the patient underwent hysteroscopic resection of the polypoid mass, while the histopathology revealed low-grade ESS (7). This case the patient had abnormal uterine bleeding with the ultrasonography showed endometrial nodule of 2 cm. The patient was given a hysteroscopic resection for diagnosis and tissue biopsy. The histopathology showed high-grade ESS, so the hysteroscopic resection was beneficial for the diagnosis of uterine sarcoma. Preoperative imaging for pelvic magnetic resonance imaging (MRI) may be of value for identifying uterine sarcomas and distinguishing them from benign uterine fibroids. Using various MRI specific criteria, sensitivity and specificity can identify uterine sarcomas ranging from 17% to 56% and 80% to 100%, respectively (8). Lymph node metastasis in soft tissue sarcoma is <3%. The rate for overall and occult lymph node metastasis in ESS is 16% and 6%, respectively. Deep myometrial invasion and extensive lymph-vascular space invasion (LVSI) further increases the risk of occult metastasis. However, the survival advantage is not clear in patients who have disease clinically confined to the uterus, for which routine lymphadenectomy may not offer benefits (9). Laparoscopic surgical staging is the treatment plan for this patient. Minimal access surgery is the preferred approach, with reduced pain, reduced hospitalisation, and earlier resumption of daily activities with no adverse effect on survival when compared to laparotomy (5). ICG SLN detection was used to remove all positive ICG SLN. Also, the occult pelvic and para-aortic lymph nodes were dissected. Histopathology showed no metastasis in any lymph nodes. Even though ICG SLN mapping showed no false negative, full lymphadenectomy should be performed to assess the diagnostic accuracy of the sentinel lymph node biopsy. The risk of recurrence or residual disease following surgery would be increased if full lymphadenectomy was not performed after the sentinel lymph node biopsy (10). Because ultrastaging of the sentinel lymph node is a limitation of micrometastasis in the pathological report, diagnostic accuracy remains controversial. The SLN mapping had reported in the uterine carcinosarcoma cases, SLN mapping represents an effective middle ground between under-staging through omission of lymphadenectomy, and over-treating by removal of more normal appearing nodal tissue than is required to obtain an accurate diagnosis (11).

## Conclusion

Hysteroscopic resection is the best option for diagnosis of uterine sarcoma. Nevertheless, laparoscopy can be used for uterine cancer and ICG SLN mapping has high accuracy for diagnostic lymph node biopsy if ultrastaging of the sentinel lymph node can report the micrometastasis node.

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