Sentinel node biopsy helps to diagnose spread of endometrial cancer. A case report

A.S. Bats[1], D. Clément[1], M.A. Le Frère-Belda[2], F. Larousserie[1], M.A. Collignon[3], C. Hignette[3], F. Lécuru[1]

[1]Gynecologic Oncology Department; [2]Pathology Department; [3]Nuclear Medicine Department "Georges Pompidou" European Hospital, and University of Paris-Descartes, Faculty of de Medicine, Paris (France)

Summary

Background: The sentinel lymph node (SLN) could improve the staging of endometrial cancer.

Case: In a patient with endometrial cancer, preoperative lymphoscintigraphy showed a highly radioactive SLN in the left external iliac chain and a radioactive SLN in the right external iliac chain and at the promontory. Intraoperative lymphatic mapping using blue dye and a hand-held gamma probe showed the same nodes, as well as a blue node near the vena cava. Selective removal of these nodes allowed detection of a micrometastasis in the left external iliac node. Pelvic node dissection was performed, and a micrometastasis was found in a left non sentinel iliac node.

Conclusion: The presence in our patient of micrometastases in a SLN and in a non-SLN belonging to the same chain confirms the value of SLN detection for diagnosing tumor spread.

Key words: Endometrial cancer; Sentinel node biopsy; Combined detection; Lymphoscintigraphy; Micrometastasis.

Introduction

The sentinel lymph node (SLN) was first described over half a century ago in patients with cancer of the parotid gland [1]. SLN biopsy is a validated procedure for reducing morbidity compared to nonselective node dissection. It is widely used in patients with cancer of the breast or vulva [2, 3]. In 1996, Burke et al. reported the first study of SLN mapping in patients with endometrial cancer [4]. Since then, many groups have used this technique to manage endometrial cancer, with promising results [5, 6]. Blue dye, radioisotopes, or both are used to detect SLNs, and these compounds are injected either into the cervix [7] or into the tumor [8].

Two main reasons support the use of SLN biopsy in patients with early endometrial cancer. First, SLN detection improves the accuracy of lymphatic drainage mapping compared to pelvic node dissection used alone [9]. Second, serial sectioning of SLNs followed by immunohistochemical studies in addition to conventional histology increases the likelihood of identifying micrometastases. Because these techniques are costly and time consuming, they are more easily used on SLNs than on nonselective lymphadenectomy specimens. The presence of micrometastases in early endometrial cancer may indicate an increased risk of tumor recurrence [10].

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Case Report

A 61-year-old primiparous woman was evaluated for postmenopausal vaginal bleeding. She was not using hormone replacement therapy. Her body weight was 65 kg and her height was 170 cm. Her medical history was unremarkable. Hysteroscopy revealed mucosal lesions consistent with cancer of the fundus. Biopsies showed grade 1 endometroid adenocarcinoma. The size of the uterus was normal on palpation, and no adnexal masses were felt. By magnetic resonance imaging, the uterus measured 68 x 35 x 55 mm and contained a 30-mm mass that extended beyond the junctional zone at the fundus. The cervix, vagina, adnexae, and ovaries were normal. No fluid was visible in the pouch of Douglas. Serum CA125 was normal before surgery.

The patient gave her informed consent to laparoscopic total hysterectomy, SLN detection, and pelvic lymphadenectomy. According to our routine protocol, she received an intracervical injection of a radioisotope on the day before surgery [11]. Lymphoscintigraphy performed on the morning of surgery showed a highly radioactive SLN in the left external iliac chain and two other radioactive nodes, one in the right external iliac chain and the other at the promontory (Figure 1).

During surgery, 2 ml of blue dye was injected into the cervix. The dye migrated to the middle part of the right external iliac chain, as well as along the right uterosacral ligament toward the promontory, where a blue node was seen (Figure 2). Beyond this node, the dye traveled to the paracaval chain, where another blue node was found. On the left, the dye migrated to the middle part of the external iliac chain. Examination using a hand-held gamma probe showed that three blue nodes were also radioactive, one in the middle of the right external iliac chain (75 cpm), one at the promontory (150 cpm), and one near the left iliac bifurcation (1000 cpm). The paracaval node was not radioactive. All nodes that were blue and/or radioactive were removed and subjected to ex vivo radioactivity counts. After

Fig. 1

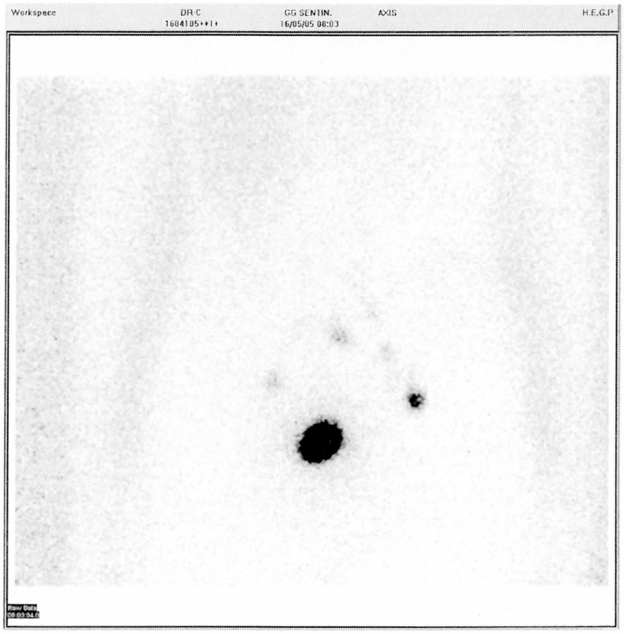
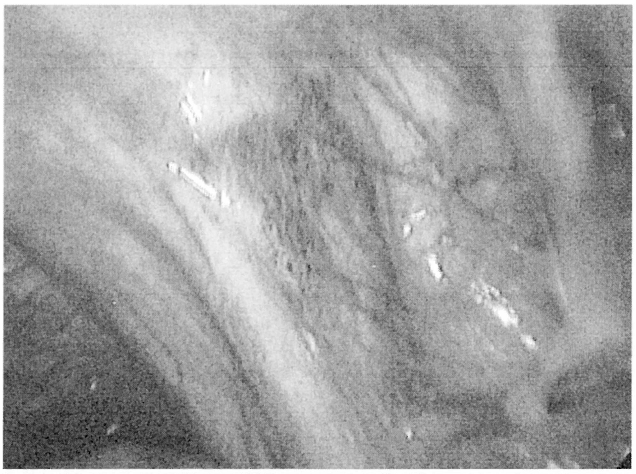


Fig. 2



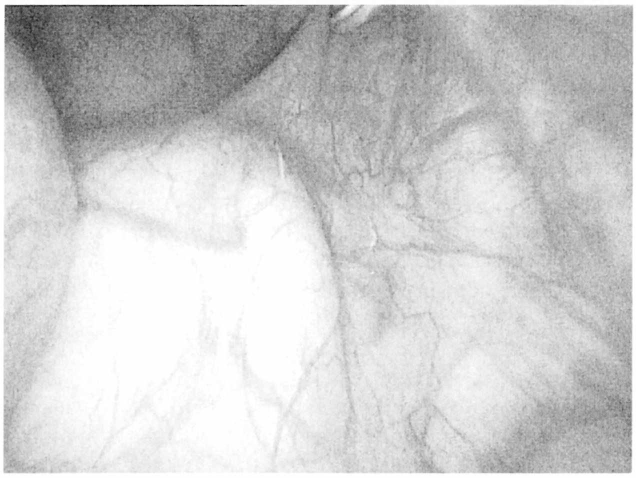


Figure 1. — Preoperative lymphoscintigraphy.

Figure 2. — Blue lymphatics and blue staining of a radioactive node at the promontory.

Figure 3. — Micrometastasis in the left external iliac sentinel lymph node (HES X 40).

Figure 4. — Micrometastasis in a non-sentinel left external iliac lymph node (HES X 40).

Fig. 3

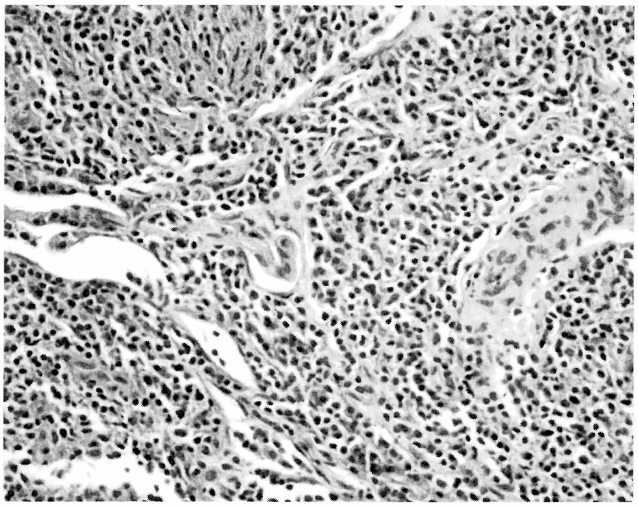
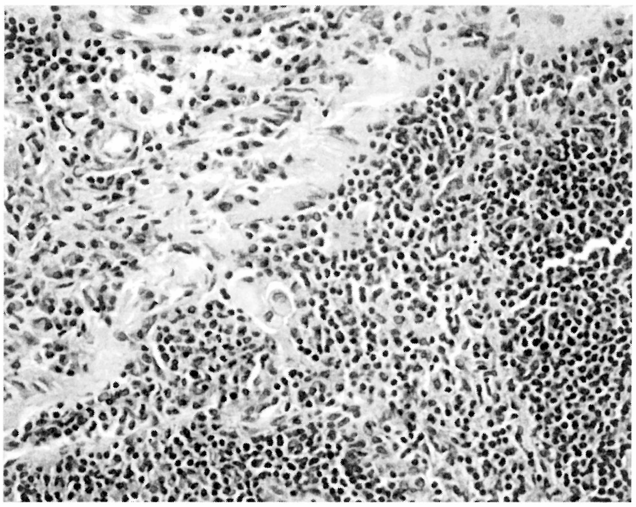


Fig. 4



this procedure, no residual radioactivity was detected, and no blue lymphatics or nodes were visible.

Bilateral pelvic lymphadenectomy was performed, followed by total laparoscopic hysterectomy. The postoperative course was uneventful. Histology showed an endometroid adenocarcinoma with a grade 3 squamous component invading the myometrium over more than 50% of its thickness at the uterine fundus, as well as numerous tumor-cell emboli within the blood vessels. The lamina propria of the cervix, adnexal, and peritoneal cytology findings were normal.

The SLNs measuring more than 3 mm were cut in two; each node or half node was then cut into five 250-μm slices, of which four were stained with hematoxylin-eosin-saffron (HES) and one was used for immunohistochemistry with anti-AE1/AE3 antibody (a broad-spectrum anti-cytokeratin antibody) [11]. Seven SLNs were identified by histology. The blue hot node at the left iliac bifurcation contained a micrometastasis (Figure 3). Examination of the lymphadenectomy specimen showed 11 intact nodes on the right and six on the left, as well as a left external iliac node containing a micrometastasis (Figure 4).

Adjunctive pelvic radiation therapy was given. The patient was in complete remission at last follow-up 12 months after surgery.

Discussion

The SLN technique has produced encouraging results in endometrial cancer [5, 7, 8, 11]. In our patient, SLNs were identified by preoperative lymphoscintigraphy and intraoperative detection. Drainage occurred to the external iliac nodes on both sides and directly to the promontory along the right uterosacral ligament. The protocols currently used in Europe would not have led to removal of all the SLNs found in our patient [12]. Thus, SLN detection helps to determine the appropriate extent of lymphadenectomy. This fact confirms the value of SLN detection for mapping the extrapelvic drainage of endometrial cancer [13].

SLN has been reported to improve the detection of node micrometastases. In one study of endometrial cancer, micrometastases were identified in 12.5% of nodes that appeared normal by standard histology [14]. Yabushita *et al.* [10] demonstrated that the presence of micrometastases was associated with an increased recurrence rate in patients with early endometrial cancer. In their study of 36 patients with Stage I endometrial cancer, 14 patients had nodal micrometastases and 37 of 225 nodes contained micrometastases. Recurrences were more common in the group with than without micrometastases (5/14 and 0/22, respectively). In patients with breast cancer, the presence of circulating tumor cells and of micrometastases is taken into account for staging, although their prognostic significance remains debated [15, 16].

Lymphoscintigraphy and intraoperative detection identified SLNs and produced concordant results in our patient. For intraoperative detection, we routinely use both blue dye and a gamma probe, which is probably the most sensitive method for SLN detection. Intracervical injection, which we use routinely, is controversial for the detection of paraaortic SLNs but performs well for detecting pelvic SLNs [8]. In our patient, the hottest SLN by preoperative lymphoscintigraphy and intraoperative detection was the node that contained a micrometastasis. Correlations between radioactive counts and presence of micrometastases have not been reported in patients with uterine cancer. They deserve to be investigated.

In our patient, SLN detection and histology supplied proof of nodal spread: the micrometastasis in the left external iliac SLN was accompanied with a micrometastasis in an ipsilateral non-sentinel node removed during pelvic lymphadenectomy. In patients with breast cancer, axillary node metastases (of any size) are found in 10% to 15% of patients with SLN micrometastasis [17]. Their prognostic significance has been debated [18].

Our report of a patient with isolated tumor cells within a non-sentinel node on the same side as a SLN micrometastasis supports the use of SLN detection and histology in patients with endometrial cancer.

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Address reprint requests to:
F. LÉCURU, M.D.
Service de Chirurgie Gynécologique
et Cancérologique
Hopital Européen Georges Pompidou,
20 rue Leblanc - 75015 Paris (France)