CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 4 (2013) 809–812

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Sentinel node mapping in high risk endometrial cancer after laparoscopic supracervical hysterectomy with morcellation

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ARTICLE INFO

Article history:
Received 10 February 2013
Received in revised form 7 June 2013
Accepted 10 June 2013
Available online 16 July 2013

Keywords:
Sentinel node mapping
High risk endometrial cancer
Supracervical hysterectomy
Morcellation

ABSTRACT

INTRODUCTION: Occult endometrial cancer after supracervical hysterectomy is very uncommon. Even if optimal management of those rare cases is still unproven, to guide the need for further therapies, restaging should be recommended in this situation.
PRESENTATION OF CASE: We report of a 60-year old woman with occult high risk endometrial cancer after supracervical hysterectomy with morcellation. We describe the feasibility of laparoscopic intraoperative sentinel node identification with cervical stump removing to restage the suspicious early stage high risk endometrial cancer.
DISCUSSION: In high risk endometrial cancer surgical restaging is important, considering that 10–35% of cases can present pelvic nodal metastasis. To reduce the treatment related morbidity maintaining the benefit of surgical staging, with a negative preoperative PET/CT, we performed a laparoscopic SN mapping with cervical stump removing.
CONCLUSION: This report highlight the fact that SN mapping with cervical injection is a feasible and safe technique also without the uterine corpus after supracervical hysterectomy with morcellation.

1. Introduction

Despite endometrial cancer represents the most common gynecologic malignancy in the developed countries, with the majority of women presenting with early stage disease and usually favorable prognosis,[1] unexpected endometrial cancer after supracervical hysterectomy is very uncommon. Usually it occurs in unevaluated postmenopausal women operated for suspicious benign disease and optimal management of these cases is still unproven. However, to tailor postoperative therapies, restaging should be recommended in this situation.

Complete surgical staging in early stage disease is still argument of debate, with no clear improvement of patients survival. In order to reduce the associated morbidity of comprehensive lymphadenectomy, without losing important information regarding the extent of lymphnode involvement, sentinel node (SN) mapping appears to be a feasible and reliable treatment option for early-stage endometrial cancer.

We describe the feasibility of laparoscopic intraoperative sentinel node identification with cervical stump removing for the treatment of occult high risk endometrial cancer after supracervical hysterectomy with morcellation.

2. Case report

A 60-year old woman came to our attention after she had undergone a laparoscopic supracervical hysterectomy due to multiple uterine myomas with laparoscopic morcellation. Our internal histopathologic examination demonstrated a poorly differentiated endometrial adenocarcinoma. Deep of myometrial infiltration could not be defined due to the fragmentation of the sample. Colpocytology and cervical biopsy after hysteroscopic evaluation of the stump were negative with rare atypical aspects of cells. The 18 F-FDG PET/CT scan was negative for suspicious nodal involvement. A laparoscopic removing of the cervical stump with intraoperative sentinel node detection and pelvic lymphadenectomy was considered, and the patient gave her written consent.

After the approval of the Internal Review Board for performing the technique of sentinel node identification, the preoperative protocol of sentinel node in endometrial cancer was applied as already described.[2]

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2210-2612
http://dx.doi.org/10.1016/j.ijscr.2013.06.010

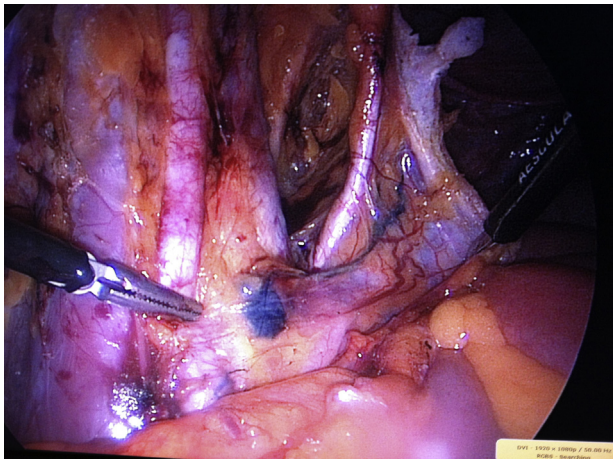

Fig. 1. A left iliac blue sentinel lymphnode.

The day before surgery, 4 submucosal cervical injections of 200–300 μmCi radiolabeled filtered technetium 99 m Tc albumin nanocolloid in 0.2–0.3 mL volume using 22-gauge spinal needles were performed, followed 3 h later by a SPECT/CT study with a hybrid system composed of a dual-head gamma camera with a low-dose X-ray tube installed in a gantry (Infinia Hawkeye 4, GE Medical Systems). Under general anesthesia just before surgery, the cervix was injected at 3 and 9-o'clock positions with a total of 2 mL of methylene blue dye (methylene blue 1%, Biondustria L.I.M., Novi Ligure, Italy). The abdominal cavity was inspected and pelvic and abdominal cytological washing were performed. First, the pelvic and aortic regions were carefully explored by a laparoscopic 10-mm OmniProbe EL 90-degree detection system (C-Track Galaxy CW4000 System, Southern Scientific Ltd., UK). Afterwards, peritoneum was opened and paravesical and pararectal spaces were delivered. Two hot and blue sentinel nodes were detected in the ventral aspect of the left external iliac vessels and in the right superficial common iliac lymphnode (see Fig. 1). Complete pelvic bilateral lymphadenectomy was performed and the cervical stump was finally removed as in the class A Querleu-Morrow classification with 0.5–1 cm of vaginal segment. The vaginal cuff was closed vaginally using a running suture with polyglicactin 2-0. The operative time was 140 min. No intraoperative or postoperative complications occurred and the patient was discharged the day after surgery.

The hystopathologic examination showed a 3.5 cm × 1.6 cm cervical surgical specimen negative for residual disease. The two sentinel node were negative for metastasis after hematoxylin and eosin (H&E) staining and cytokeratin immunohistochemical analysis. All pelvic lymphnode (15/15) were negative for metastasis. Peritoneal washing was also negative. At last follow-up visit, one year after surgery, the woman has no evidence of recurrence.

3. Discussion

After introduction from Semm of first uterine morcellator in 1991, laparoscopic supracervical hysterectomy is still performed for a variety of benign indications including both patients and surgeons preferences. The risk of morcellation during laparoscopic surgery is that small tissue fragments may be dispersed and remain into peritoneal cavity and abdominal wall. This can be detrimental if occult uterine malignancy is discovered. Endometrial cancer after supracervical hysterectomy for benign conditions is very uncommon, and the optimal management of this condition is still unproven because the small amount of reported experiences in the literature.[3–5] When surgery is performed by laparoscopy and the uterus is removed from the abdominal cavity with morcellation, treatment strategy must take in account some important issues: (1) the impossibility to determine the deep of myometrial infiltration and risk factors on the surgical specimen, that are directly associated with the risk of lymphnode metastasis, (2) the true extent of disease and the regional spread are unknown, and (3) the risk of dissemination of cancer cells in the abdomen during morcellation. As stipulated by the American Joint Committee on Cancer (AJCC), all patients in this clinical situation must be surgically staged in order to receive appropriate adjuvant treatment.[3]

However, the appropriate extent of surgical staging in endometrial cancer remains controversial due to the negative results of randomized trials lacking to demonstrated the therapeutic role of lymphadenectomy in early stage disease. However, in suspicious stage I high risk endometrial cancer there is a 10–35% probability of pelvic nodal metastasis, and many gynaecologic oncologists still consider mandatory an extensive retroperitoneal staging.

To reduce the treatment related morbidity, maintaining the benefit of surgical staging, in the last decade the clinical research was focused on the sentinel node mapping and on the introduction of innovative and more accurate preoperative imaging as 18F-FDG PET/CT.

In the concept of detecting lymphnode metastasis to guide the need for further therapy, SN concept has received increasing attention in endometrial cancer. The SENTI_ENDO multicentric prospective study[6] and more recently the study of Khoury-Collado et al.[7,8] demonstrated that applying a SN algorithm approach in endometrial cancer patients has an high detection rate of micrometastasis by serial sectioning and immunohistochemical ultrastaging, which may otherwise be missed with routine H&E.

18F-FDG PET/CT has proved high performance in the detection of nodal metastases and recurrent endometrial cancer. In our prospective study on 37 high risk endometrial cancer, PET/CT demonstrated a high negative predictive value (NPV) for the preoperative evaluation of pelvic node metastasis, with a patient-based sensitivity of 77.8% and NPV of 97.2%.[9]

A recent review of the literature confirms the reliability of a positive PET/CT to detect nodal involvement in patients with untreated endometrial cancer, helping surgeons in selecting appropriate patients on whom perform extensive lymphadenectomy.[10]

To improve the diagnosis of micro metastases under the PET/CT spatial resolution of 5 mm, we introduced in our clinical practise the SN mapping. Over 60 patients (20 in the high risk group) with endometrial cancer were surgically treated with SN biopsy and systematic lymphadenectomy: no false negative cases occurred over the last two years. Five out of twenty patients in high risk subgroup (25%) had nodal metastasis, of which two detected with both PET/CT and SN and three only by SN. Consequently the introduction of SN mapping had dramatically implemented the surgical staging also compared with traditional lymphadenectomy. According to our results and the emerging literature data, we have just adopted an innovative algorithm for the treatment of endometrial cancer, based on the integration of 18F-FDG PET/CT and SN mapping (see Fig. 2).

To our knowledge, this is the first report of SN mapping in a case of high risk endometrial cancer after laparoscopic supracervical hysterectomy with morcellation. Similar to our experience, the report of Diaz-Feijoo et al.,[11] recently described a successful case of radical trachelectomy with SN identification in a case of cervical stump tumor after open subtotal hysterectomy.

In the largest series of Einstein et al., in surgically restaged uterine cancer after supracervical hysterectomy, 15% of cases (2 patients) were upstaged, and both had a leiomyosarcoma after laparoscopic uterine morcellation. None of 8/17 women with endometrial adenocarcinoma were upstaged and/or presented lymphnode metastasis.[3] Notwithstanding, the importance of