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Case Report

Precaval positive sentinel lymph node with bilateral negative pelvic sentinel lymph node in low-risk endometrial cancer patient

R. Montero Macias[a,*], V. Balaya[a,b], H. Bonsang-Kitzis[a,b], M. Deloménie[a,b], M. Gosset[a,b], M. Mimouni[a,b], V. Simon[a], C. Lecurieux-Lafayette[a], E. Larouzee[a], C. Ngô[a,b], As. Bats[a,b], F. Lécuru[a,b]

[a] Gynecologic and Breast Oncologic Surgery Department, European Georges Pompidou Hospital, 20, rue Leblanc, 75908 Paris Cedex 15, France
[b] Paris Descartes University, Sorbonne Paris Cité, Faculty of Medicine, Paris, France

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ABSTRACT

We here describe a case report of a positive precaval sentinel lymph node with negative pelvic sentinel lymph node in a patient with endometrial cancer. A 45-years-old woman was diagnosed with a grade 2 endometrioid carcinoma of the endometrium. She was treated with a hysterectomy and bilateral salpingo-oophorectomy, associated with dissection of sentinel lymph nodes (SLNs). We detected bilateral external and common bilateral iliac nodes and one precaval node. At pathological examination the pelvic nodes were non-metastatic, but the precaval node was positive. In this patient, sentinel node biopsy improved risk-assessment and adjuvant treatment.

Introduction

Endometrial cancer is the most common gynaecological malignancy. The incidence is thought to be increasing. According to the International Federation of Gynecology and Obstetrics (FIGO), the surgical treatment of endometrial cancer includes two components: treatment of uterus and adnexa, consisting in total hysterectomy with bilateral salpingo-oophorectomy [1], and nodal staging. For patients with low-risk and intermediate-risk, dissection of sentinel lymph node biopsy (SLN) is an option to identify the pelvic-node status, alternatively to pelvic lymphadenectomy [1,2]. Prospective multicenter studies have shown the feasibility of SLN identification in endometrial cancer [3,4]. In case of bilateral negative SLN, lymphadenectomy could be avoided [2]. We report the case of a 45-year-old woman who was diagnosed with grade 2 endometrioid carcinoma of the endometrium and who had bilateral pelvic negative SLN and one positive precaval lymph node.

Case report

A 45-year-old woman, obese (BMI 33) and nulliparous, was referred to our center for abnormal uterine bleeding and unusual features found by a transvaginal pelvic sonography performed for a fertility assessment.

According to IETA criteria (International Endometrial Tumor Analysis group), the endometrium was hypertrophic with 18 mm thickness (including both endometrial layer) and non-uniform without cystic areas. An intracavitary lesion was individualized with 'bright edge' between this lesion and the endometrium. The endometrial–myometrial junction was regular. There was no intracavitary fluid. The color score was 3 (moderate color). These findings suggested an endometrial pathology. An endometrial sampling was required but was not done due to cervical stenosis.

An hysteroscopy was performed and endometrial biopsies concluded to a grade 2 endometrioid carcinoma of the endometrium without loss of expression of mismatch repair protein.

Preoperative abdominal and pelvic magnetic resonance imaging showed myometrial infiltration of less than 50%. No adnexal or extra-uterine lesion and no lymph node involvement were suspected.

According to preoperative criteria (endometrioid histologic type, grade 2 and stage IA), this patient was classified as low-risk and, therefore, a hysterectomy with bilateral salpingo-oophorectomy and SLN biopsy by robot-assisted surgery was decided.

SLN were detected by using the fluorescence technique: 1ml-Indocyanine green (dilution 2.5 mg/mL) was injected using a 22 G needle into the cervix at 3 and 9 o'clock. First, the bilateral detection of ICG was assessed through an intact peritoneum. We performed the mobilisation the sigmoid colon and the cecum to

* Corresponding author.
E-mail address: rosaomsi@hotmail.com (R. Montero Macias).

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permit the correct evaluation the left lower para aortic and common iliac areas. We detected an external iliac left SLN (middle chain), an external iliac right SLN (lateral chain), a common iliac right SLN, a common iliac left SLN and one precaval SLN. The left pelvic peritoneum was opened, the ureter was identified, and we removed the fluorescent node (external iliac left node) and another adjacent SLN. The same procedure was done on the right side. The peritoneum incision was extended on both sides and the right and left common iliac SLN were removed. Removal of the precaval node was performed through a specific incision. The exploration did not detect other pathways or fluorescent nodes. Overall, 6 SLNs were removed and extracted in a protection bag. No suspicious node was detected. Memorial Sloan Kettering Cancer Center (MSKCC) algorithm was fulfilled and no supplementary sampling was done. Hysterectomy was performed as usual without any problems.

At final pathologic examination, the five iliac nodes were free of disease (3 left SLN and 2 right SLN) but the precaval node harbored a macrometastasis. The hysterectomy specimen examination confirmed endometroid adenocarcinoma of the endometrium grade 2 with myometrial infiltration of less than 50% without other extension. The tumour was extended from uterine isthmus until the fundus and spread in the both uterine horns. Lymphovascular space invasion was found. Surgical margins were not involved.

The uterine parameters classed this patient in the high-intermediate risk group of the ESMO classification [1], but the positive precaval node upstaged the patient in the FIGO Stage was IIIC2 and high risk group of the ESMO classification.

According to international [1] and national guidelines [2], the multidisciplinary oncologic meeting recommended post-operative chemotherapy, radiotherapy and brachytherapy. A complete pelvic and lombo-aortic dissection was not performed because the treatment would not change if there were other affected nodes since the goal of lymphadenectomies is staging, not therapeutic.

Discussion

Lymph node status is the most important prognostic factor in endometrial cancer, and the presence of metastatic lymph nodes is associated with an increased recurrence rate and death. Today, SLN biopsy is an alternative to pelvic lymphadenectomy. In this case, our patient was pre-operativeley considered at low-risk and had bilateral negative pelvic SLN but had finally positive precaval lymph node. This raises the added value of SLN detection in low-risk endometrial cancer patients.

Although endometrial cancer commonly spreads along the pelvic pathways, isolated metastases can occur in para-aortic lymph nodes. In a cohort of 112 patients who underwent hysterectomy and complete lymphadenectomy for endometrial cancer, Mariani et al. reported 35 patients with positive para-aortic lymph nodes. Among them, only 3 had bilateral negative pelvic lymph nodes (9%) All 3 patients with positive para-aortic LNs and negative pelvic LNs had tumour that did not invade the cervix. [5]. In a cohort of 734 patients who underwent hysterectomy and pelvic and para-aortic lymphadenectomy for endometrial cancer, Abu-Rustum et al [6]. found 12 patients (1.6%) who had positive para-aortic LNs with negative pelvic LNs. Among 640 cases who had at least 8 pelvic LNs removed, they reported 7 patients (1%) who had positive para-aortic LNs with at least 8 negatives pelvic LNs. Among these 7 cases, 3 patients were at intermediate-risk and 4 patients at high-risk. In cohort of 910 patients, Matsuura et al. found 14 patients (1.5%) who had a single para-aortic LN metastasis : on the right side 3 cases above the inferior mesenteric artery (IMA) and 3 cases below the IMA and on the left side, 4 cases above the IMA and 4 cases below the IMA [7]. Among these 14 cases, 4 patients were considered at low-risk preoperatively. Finally, only a small subset of patients has isolated para-aortic metastases.

The pathways of lymphatic spread in gynaecologic malignancies had been identified in different studies [8]. Endometrial cancer normally spreads along the pelvic pathways. In general, the lower and middle part of the uterus drain to the parametria and from there to the obturator lymph nodes (lateral route), which are the most frequently affected lymph nodes. The upper corpus and fundus drain to the junctional lymph nodes (interiliac) via the hypogastric route and from here to the common iliac lymph nodes and posteriorly to the para-aortic lymph nodes. Moreover, the fundus can spread lymphatic drainage towards the para-aortic pathway through the gonadal vessels and directly to the para-aortic lymph nodes. It is the reason because sometimes it's posible to detect isolated metastases in para-aortic lymph nodes, particularly the left para-aortic lymph nodes at the level of the renal hilum, in the absence of metastases to the pelvic lymph nodes. Consequently, para-aortic lymph nodes are admitted to be local (similar to the pelvic lymph nodes).

The patients has isolated para-aortic metastases there are generally not recognized by the pre-operative imaging and have not always the reported risk factors. SLN biopsy is a smart and effective technique to diagnose this small group of patients, much less aggressive than a complete lymphadenectomy.

In our case, we used ICG to detect SLNs and ICG has proved to be significantly better than isosulfan blue in identifying any SLNs and bilateral SLNs in women with cervical and uterine cancers [9]. Recent studies have described the lymphatic drainage pathway in endometrial cancer based on fluorescent mapping [10,11]. Three pathways were described : the upper paracervical pathway (UPP) which follows the uterine artery to reach medial external and/or obturator lymph nodes; the lower paracervical pathway (LPP) which goes through the sacrouterine ligament to the internal iliac and/or presacral basin; and the Infundibulo-pelvic pathway (IPP) with a course along the fallopian tube and upper broad ligament via the infundibulo-pelvic ligament to its origin (Fig. 1) [10]. Persson et al. proposed a surgical algorithm for detection of pelvic SLNs in endometrial cancer which reached a bilateral SLN detection rate of 96% (defined as at least one SLN per hemipelvis) [11]. According to this algorithm if the UPP and LPP were seen bilaterally by transperitoneal evaluation, the presacral avascular plane was opened for identification and removal of SLN in LPP and after that paravesical and pararectal avascular planes were opened to remove SLN in UPP. This case emphasizes the importance of the IPP exploration in addition to UPP and LPP. At the final pathologic examination of the hysterectomy specimen, the cancer involved the upper body and fundus. About the potential pathway implied in this case, lymphatic spread may course from the fundus through UPP to the common iliac LNs and then posteriorly to the para-aortic LNs or through the IPP and the gonadic vessels to the para-aortic LNs.

About injection site, we performed a usual cervical injection. In a systematic review about SN procedure [12] the authors found the para-aortic SLN detection rate was 39% (140 of 358 patients) after corporeal injection, 2% (24 of 966 patients) after usual cervical injection, and 17% (22 of 131 patients) after deeper cervical injection (3–4 cm). Only three studies include reported rates > 5% the incidence of isolated para-aortic SLNs and all these studies used deep cervical or corporeal injection. These finds are most unusual our case reported.

This patient received a treatment post-operative with chemotherapy, radiotherapy and brachytherapy because she we classed in IIIC2 FIGO Stage and high-risk group of the ESMO classification [1]. If we had not done the SN detection, she would have been classified in high-intermediate risk group of the ESMO classification and IA FIGO stage and she had received only radiotherapy, an incomplete treatment.

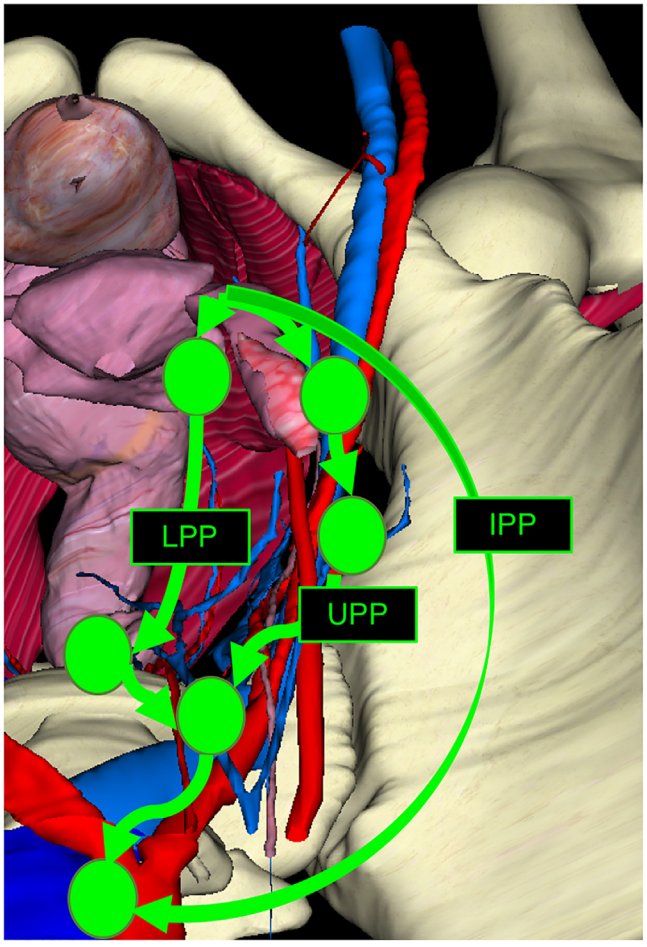

Fig. 1. Schematic overview of the uterine lymphatic pathways. UPP = upper paracervical pathway, LPP = lower paracervical pathway, IPP = Infundibulo-pelvic pathway.

Conclusion

Isolated paraaortic LNs metastasis with bilateral negative pelvic SLN in endometrial cancer is unusual, especially for low-risk cases. This case emphasizes the importance to evaluate precisely the UPP, LPP and IPP to reach the SLN. In this case, SLN biopsy upstaged the patient and deeply changed the treatment.

Conflict of interest

The authors have no conflict of interest.

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