CASE REPORT

Uterine presentation of an intravascular large B-cell lymphoma diagnosed by PET/CT and histology

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Abstract

Intravascular B-cell lymphoma is a rare entity, and its location in the uterus unusual. We report a case of a woman with an intravascular B-cell suspected as a primary lymphoma of the uterus with neurological symptoms. The diagnosis was suspected on positron-emission tomography. Pathological examination established the diagnosis of intravascular B-cell lymphoma involving the uterus. After hysterectomy, with intravenous and intrathecal combination of chemotherapy with rituximab, her neurological symptoms disappeared.

Key words

Intravascular B-cell lymphoma, Lymphoma of the Uterus, Neurological symptoms, Positron-emission tomography computed tomography

1 Introduction

Malignant lymphoma can be found in the female genital tract [1], and cervical or uterine localization occurs in approximately 0.5% of cases. The most frequent symptoms associated with these sites are abnormal vaginal bleeding and abdominal pain [2]. Most reports, approximately 150 cases, have concerned primary cervical cases, the corpus uterine location is less frequent. We report a case of an intravascular large B-cell suspected as a primary lymphoma of the uterus with neurological symptoms but no gynecological symptoms. The tumor was diagnosed suspected by positron-emission tomography (PET) / Computed Tomography (CT). With surgery and pathological examination we refined the diagnosis for a systemic disease, an Intravascular Large B-cell lymphoma (IVLBCL) involving the uterus.

2 Case presentation

A 66-year-old woman presented at our institution with weight loss, asthenia, fever, and nonspecific neurological symptoms (bradykinesia, hypokinesia, memory disorders, frontal syndrome, and speech disorders). An inflammatory syndrome without any infectious disease was found, HIV status was negative. Abdominal CT and cerebral magnetic resonance imaging (MRI) were interpreted as normal. The initial bone narrow biopsy and lumbar puncture were negative.

18-fluorodeoxyglucose (FDG) PET/CT showed an intense FDG uptake in the uterus and in the left pelvic lymph node (see Figure 1).

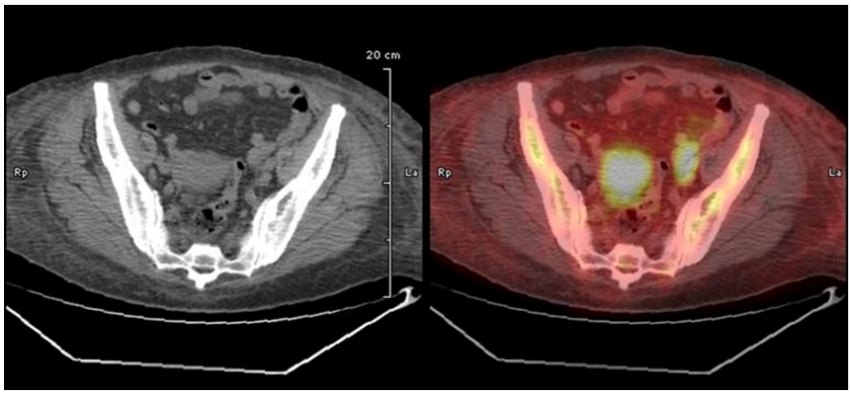

Figure 1. PET CT of the pelvis

Pelvic MRI showed an enlarged uterus without a defined mass but with a loss of differentiation of the myometrium. The diagnosis of primary lymphoma of the uterus was suspected on PET CT and MRI examination. The endometrial biopsy was not informative. We decided to perform a total abdominal hysterectomy, a bilateral salpingo-oophorectomy, and peritoneal and PET-positive node biopsies. A pathological examination showed a diffuse large B-cell lymphoma of the uterus (see Figure 2). It reveals a global organomegaly and white suspicious nodule in the anterior wall of the uterine corpus.

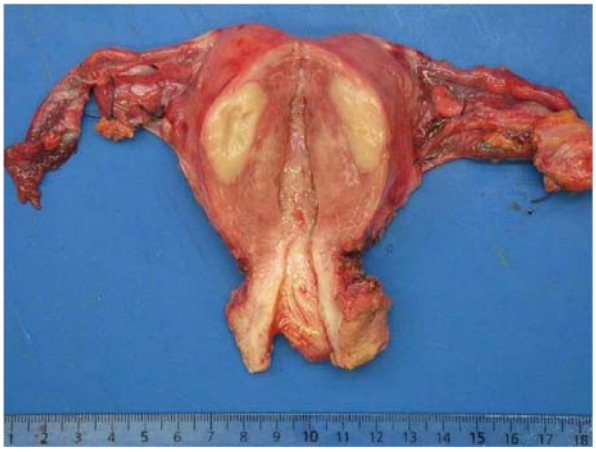

Figure 2. Macroscopical examination of the hysterectomy specimen

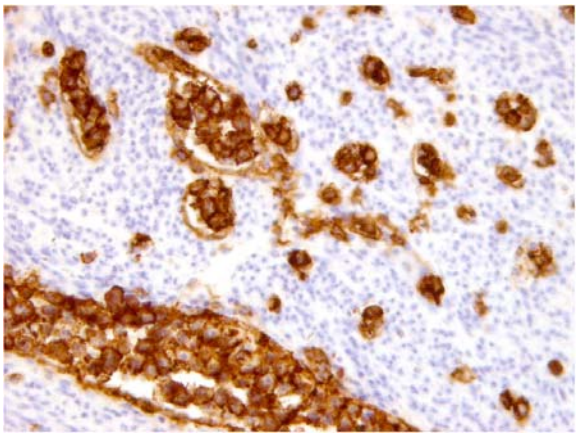

Figure 3. Immunochemistry of the IVLBCL (×20)

Note. The tumour cells are hightlighted by staining for CD20

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Immunohistochemistry confirmed the diagnosis with CD45+ cells expressing the B cell antigen CD20 but CD5, CD79a and CD10 antigens were not expressed (see Figure 3). Massive invasion of the peritoneum was evident, but no tumor was observed in the pelvic node. The major part of this lymphoma was an IVLBCL, a rare subtype of diffuse large B cell lymphoma (DLBCL). DLBCL is defined by large cells, with one or more prominent nucleoli, scant cytoplasm, and frequent mitotic figures; IVLBCL is defined by proliferation of this type of cells within the lumina of small vessels. Because of the persistence of neurological symptoms, a repeat lumbar puncture was performed, and lymphoma cells were found in the cerebrospinal fluid.

The patient received intravenous (Ifosfamide, Etoposide, and Methylprednisolone) and intrathecal (Adriamycin and Mabthera) chemotherapy. Most of her neurological symptoms disappeared with treatment.

3 Discussion

Primary malignant lymphomas of uterus are rare and are metastatic in most cases [3]. Fox and More defined primary malignant lymphoma of the uterus with three criteria: 1) clinically confined to the uterus; 2) no evidence of leukemia; 3) a fairly long interval between the primary uterine lymphoma and the secondary tumor. In the present case, the initial bone narrow biopsy showed dysmyelopoiesis but neurologic site initially defined as a secondary site dominated the presentation.

In the present case, the difficult diagnosis was primarily because the neurological symptoms were in the foreground. Generally, gynecological symptoms such as abnormal vaginal bleeding or pelvic pain lead to hysterectomy, and a pathological analysis of the hysterectomy specimen reveals lymphoma. In the present case, hysterectomy was performed because of the rapid worsening of the patient's neurological symptoms and the findings of the pelvic radiological examinations (PET/CT and MRI). PET/CT with Fluorine-18 fluorodeoxyglucose is now used in the diagnosis and staging of lymphoma [4]. It provides informations about lymphomatous extranodal involvement [4]. Maximum standard uptake value (SUVmax) increases with aggressiveness of the lymphoma [5]; for high-grade Non Hodgkin Lymphoma (NHL), median SUVmax is about 20.6+/-14.2 [4]. IVLBCL is an aggressive sub-type of DLBCL, but the role of PET/CT in the diagnosis is not well established [6]. In endometrial cancer, in advanced FIGO stage or high grade, SUVmax is often around 20 too [7]. In our case, SUVmax was 29 in the uterus and 41.9 in left pelvic lymph node, so we can just conclude about the aggressiveness of the tumor. MRI appears to be one of the best imaging methods for pelvic disease, particularly endometrial cancer, but in this case, MRI was relatively nonspecific, demonstrating dedifferentiation in the myometrium (disappearance of the junctional zone) and organomegaly, which is almost always associated with lymphoma. However, these PET/CT findings associated with MRI suggested a diagnosis of lymphoma.

In a study by Harris NL *et al*. the histopathology of the primary lymphomas of the uterus was DLBCL in 67% and follicular lymphoma in 28% [9]. The histological examination showed an intravascular uterine and peritoneal lymphoma without lymph node metastasis. IVLBCL is rare disease entity of NHL, an aggressive sub type of DLBCL [8]. Since 2005, six cases of IVLBCL involving uterus have been described [10-15]. Tumor cells can invade any organ, causing various systemic symptoms, such as fever of unknown origin, general fatigue, marked deterioration in performance status, and neurological alteration. Organ biopsies are mandatory for the accurate diagnosis of IVLBCL. In our case, the diagnosis of IVLBCL was made following radical surgery, as was also shown by Fujiwara, Lanoo and Sur [10-12]. Diagnosis of IVLBCL involving the uterus remains a challenge.

Due to the low incidence of lymphoma of the uterus, there are no guidelines for its treatment. However, based on the literature, treatment combining surgery (hysterectomy and bilateral salpingo-oophorectomy) and chemotherapy is typically recommended. For IVLBCL, the most frequent recommended treatment option is chemotherapy with rituximab [8]. Our patient received a chemotherapy based on intrathecal administration of rituximab. The clinical outcomes of IVLBCL were extremely dismal before the rituximab era, and patients were often diagnosed with IVLBCL post-mortem.

After uterine imaging suggested the possibility of lymphoma, the management of this patient was relatively rapid and permitted the improvement of her medical status. Gynecologists should be aware of the possibility of patient referrals from neurologists and intensivists when a patient with a suspicious uterine lymphoma is referred for hysterectomy.

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