Primary diffuse large B cell lymphoma of the uterus: A case report and literature review

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Abstract

Objective: This report reports a case of primary uterine lymphoma that was initially misdiagnosed as uterine fibroids/uterine sarcomas. Through case report, the recognition of primary uterine lymphoma is strengthened. If MRI shows very high DWI signal in the tumor in future clinical work, it should be considered whether it is lymphoma.

Background: A 64-year-old woman who was found to have an abdominal mass on ultrasound was initially misdiagnosed with a uterine fibroid/uterine sarcoma. Clinical evidence: Pelvic MRI showed multiple soft tissue mass shadows in the pelvic cavity, and the larger shadows were approximately 14.2 cm × 9.7 cm × 15.6 cm, with clear boundaries dominated by an iso-long T1 and slightly longer T2, locally visible nodular long T2 and short T2 signal foci, and obvious high signals on DWI and decreased ADC signals. The enhancement of the densification was obviously non-uniform. The immunohistochemical results were positive for CD20, LCA, PAX-5+, CD43 +, c-myc, bcl2 and bcl6 and negative for SAM, Desmin, Myo D1, MPO, CD99, CD30, CD23, S-100, and CD10. The majority (90%) of tumor cells were positive for Ki-67. The diagnosis was a diffuse large b-cell lymphoma. Preoperative diagnosis of primary lymphoma of the uterus is difficult in clinical situations.

Introduction

The global incidence of non-Hodgkin’s lymphoma (NHL) is 3%, of which 1% comes from extranodal lymphoma [1]. Diffuse large b-cell lymphoma (DLBCL) is the most common histologic subtype in extranodal lymphoma, accounting for approximately 50% of cases [2]. Primary female genital system lymphoma (PFGSL) of the reproductive system is a rare disease, accounting for only 0.21-1.1% of extranodal lymphoma [2,3]. Frequently occurring parts include the ovary, uterus, vagina and vulva. This paper reports a case of primary lymphoma of the uterus that was misdiagnosed as uterine fibroids.

Case report

Clinical evidence: The female patient, who was 64 years old, was found to have uterine fibroids by a physical examination 23 years ago. Natural menopause occurred 11 years ago, with no abnormal vaginal bleeding after menopause. Over the past 2 months, the tumor in the lower abdomen was spontaneously palpable and hard, and a color ultrasound examination performed 4 days ago suggested a hypoechoic in the pelvic cavity, possibly fibroids with diameters of approximately 10 cm. The patient had no nausea and vomiting, occasional abdominal distension, no diarrhea, no abdominal pain, discomfort in the lumbosacral region, anorectal heaving and distension in January, as well as no frequent urination, urgent urination or pain; no insensitivity to urination; and no abnormal leucorrhea.

Gynecological examination: vulva development is normal; married and delivered; vagina unobstructed, smooth wall; cervical atrophy, incomplete exposure due to tumor compression, smooth palpation surface, no lift pain and sway pain; palpation of the uterus is not clear; the pelvic cavity touches a hard surface; irregular, movement is acceptable; the upper edge reaches the level of the umbilicus, no obvious tenderness; mild tenderness in the left adnexal region. No obvious abnormalities were found in the right accessory area.

Intraoperative observations: the uterus increases in size with, such as during pregnancy, and congestion, with a brittle, anterior wall only exposed at the bottom of the palace; most of the anterior wall had edema thickening and hardening of the urinary bladder as well as invasion adhesion coverage; double accessories were not observed, but there was an obvious abnormal appearance; the rectum anterior wall had bumps that were approximately 5cm in diameter; the oppressed rectum was larger than the other small intestine segments and was mesenteric was the greater omentum 0.88 cm in size with multiple lesions; most of the lines indicate a uterus excision and double appendix resection.

Imaging findings: there were multiple large soft tissue shadows in the pelvic cavity, and the larger ones were approximately 14.2 cm × 9.7 cm × 15.6 cm in size; the boundary was still clear. The lesions were characterized by an equal length T1 and slightly longer T2, with locally visible nodular long T2 and short T2 signal foci. The DWI signal was obviously high and the ADC signal was reduced. The part of the enhancement showed obvious non-uniform reinforcement. The uterus...
was imbedded, the normal musculoskeletal structure was unclear, and the posterior part of the lesion was closely related to the rectum, as shown in Figure 1.

Pathology findings: The uterine volume was approximately 6×6×5.5 cm, and the endometrium was smooth with a mass under the endometrium, with a volume of 14×13×10.5 cm. There were numerous white nodules in the left mesosalpinx, with a diameter of 0.1-1.3 cm, and the volume of the left ovary was 1.7×0.8×0.6 cm. There was one gray-white nodule in the mesosalpinx and the right ovary area each, a volume of 2.7×1.7×0.8 cm and 3.5×3.5×2.5 cm, respectively. The cut surface was all soft and gray-red, and there was 1 white fish-like nodule (mesenteric metastasis), with a volume of 3×2.5×1.2 cm, as shown in Figure 2. We concluded that the masses represented diffuse large b-cell lymphoma.

Immunohistochemical: CD20 +, PAX-5+, CD3 -, CD5 -, CD43 +, CD10 -, the Bcl - 6part +, scattered in weak MUM - 1 +, the Bcl - 2 +, cyclin D1 scattered +,CD23 -, CD30 -, c - myc part weak +, LCA +, CK-, Vimentin part +, SMA -, Desmin-, MPO -, Myo D1-, Myogenin -, CD99 -, S-100 -, ki - 67 approximately 90% (Table 1).

Discussion
PFGLS is a rare disease that is mostly associated with non-Hodgkin's lymphoma, usually diffuse large b-cell lymphoma [4]. Nasioudis et al. [3] found that 667 cases in the SEER database were primary tumors in female genital lymphoma from 1988 to 2012. The most common histological subtypes were diffuse large B cells (59.8%) and follicular lymphoma (11.9%), which occurred in the ovary (37%), cervix (21.4%) and uterus (16.5%). Of these, 62.8% underwent surgery. The majority of primary uterine DLBCL originated from endometrial stroma. The discovery of DLBCL in uterine fibroids has been reported only twice before. Zhao [5] reported a 73-year-old female with an endometrial mass of 17 cm, which was diagnosed as a primary DLBCL. The DLBCL originated from uterine fibroids, and the tumor extended to the adjacent myometrium, including intravascular tumor thrombosis. Alexandra Martin [2] reported a case with a uterine mass of 10×8×5.8
Gene expression profiles (GEP) can distinguish between DLBCL in the uterus often have no symptoms or non-specific abdominal symptoms, and diagnostic rate was improved. A preoperative diagnosis of primary lymphoma of the uterus was deepened, misdiagnosis was reduced, in these lymphomas [14]. Through this case report, the recognition of primary lymphoma of uterus was deepened, diagnosis was reduced, and diagnostic rate was improved.

Table 1. Description of the immunohistochemistry and its significance [2]

<table>
<thead>
<tr>
<th>Marker</th>
<th>Description</th>
<th>Status in our patient</th>
<th>Significance</th>
</tr>
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<tbody>
<tr>
<td>CD20</td>
<td>Pan-B-cell antigen</td>
<td>+</td>
<td>Indicates B-cell origin</td>
</tr>
<tr>
<td>CD138</td>
<td>Pan-T-cell antigen</td>
<td>+</td>
<td>Indicates T-cell origin</td>
</tr>
<tr>
<td>CD30</td>
<td>Tumor necrosis factor receptor; lymphocyte activation antigen</td>
<td>-</td>
<td>Used in diagnosis of Hodgkin's lymphoma</td>
</tr>
<tr>
<td>CD3</td>
<td>pan-T-cell antigen</td>
<td>-</td>
<td>Indicates T cell origin of lymphocytes</td>
</tr>
<tr>
<td>BCL6</td>
<td>Germinal center marker</td>
<td>+</td>
<td>positive in T-cell, DLBCL, Burkitt’s, Follicular, and Hodgkin's lymphomas</td>
</tr>
<tr>
<td>BCL2</td>
<td>Proto-oncogene; prevents cells from</td>
<td>+</td>
<td>positive in Follicular, Burkitt’s, DLBCL, Hodgkin's, Mantle Cell, and Marginal Zone lymphomas</td>
</tr>
<tr>
<td>Multiple Myeloma 1 (MM1)</td>
<td>Intra- and post-germinal center B-cell marker</td>
<td>+</td>
<td>Helps distinguish between germinal center and non-germinal center DLBCL</td>
</tr>
<tr>
<td>Ki-67</td>
<td>Labile, non-histone nuclear protein. Marker of cell proliferation</td>
<td>(90%)</td>
<td>Higher nuclear staining indicates more aggressive tumor</td>
</tr>
<tr>
<td>CD10</td>
<td>Cell membrane metalloepitidase; germinal center marker</td>
<td>-</td>
<td>positive in germinal center DLBCL, Burkitt’s, Hairy cell lymphomas. Occasionally expressed in uterine smooth muscle tumors</td>
</tr>
<tr>
<td>Smooth muscle actin (SMA)</td>
<td>Expressed by smooth muscle cells</td>
<td>-</td>
<td>Indicates smooth muscle origin</td>
</tr>
<tr>
<td>Desmin</td>
<td>Expressed by smooth muscle cells</td>
<td>-</td>
<td>Indicates smooth muscle origin</td>
</tr>
<tr>
<td>S100</td>
<td>Cytoplasmic EF-hand Ca2+-binding protein</td>
<td>-</td>
<td>Marker of neural tissue and melanocytic differentiation</td>
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</table>

cm, with white-brown orbicular nodules. The biopsy showed benign hysteromyoma accompanied by mucinous changes, and hysteroscopy showed abnormal nodules infiltrated by local lymphocytes. The tumor was composed of large atypical lymphocytes with an obvious enhancement of mitosis and active apoptosis in large nuclei and diverse nucleoli. Ana Regalo [6] reported a large b-cell lymphoma of the cervix. Pelvic MRI showed an uneven mass of the cervix, the size of which was 7.9x7.6x6.9 cm; interstitial destruction; and obvious involvement of the bladder. Patro [7] reported a case of uterine primary diffuse large b-cell lymphoma with a specimen size of 13.5 x10 x 8 cm. The myometrium was diffusely thickened, with a fish-like appearance. On immuno-histochemical evaluation, tumor cells were found to be immuno-positive for CD 20, and LCA and were immuno-negative for CD 3, CD 5, MPO, CD 23 and CD 10. The uterine DLBCL showed a worse prognosis than other lymphomas. Takuya [15] reported that Long-term intrauterine device (IUD) implantation and poor intrauterine environment may lead to chronic inflammation in the uterus,which resulted in DLBCL associated with chronic inflammation. Tarc [16] believes that DLBCL involvement in the uterus is associated with a high risk of secondary central nervous system involvement, and these patients should be considered for central nervous system staging and prevention. It was reported that the cumulative incidence of central nervous system recurrence was 44% in 4 years of uterine DLBCL (ovarian lymphoma with no recurrence), which would classify it as a high-risk site. The particular independent risk of lymphoma in the central nervous system may be related to the MCD(MYD88/CD79B mutation) genomic subtype that is prevalent in these lymphomas [14]. Through this case report, the recognition of primary lymphoma of uterus was deepened, diagnosis was reduced, and diagnostic rate was improved.

References
Wang Q (2019) Primary diffuse large B cell lymphoma of the uterus: A case report and literature review


