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Case Report

A rare case of metastatic uterine lymphoma in a renal transplant patient.

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ABSTRACT

Primary and disseminated lymphoma of the female reproductive tract are rare types of lymphoma. However, in the setting of solid organ transplant, recipients have an approximately doubled risk of acquiring and dying from malignancy. Multiple treatment modalities are available for post-transplant lymphoproliferative diseases (PTLD), including chemotherapy, radiotherapy, surgery, and immunosuppression radiotherapy. We report a case of a 61-year-old female with multifocal nodal diffuse large B-cell lymphoma and a history of a renal transplant secondary to IgA nephropathy who developed metastatic diffuse large B-cell lymphoma to the uterus. While the baseline incidence of PTLD is elevated when compared with lymphoma in the general population, metastatic uterine lymphoma is rare. Awareness of reproductive organ involvement by lymphomas and increased malignancy risk in organ transplant patients are important considerations for diagnostic evaluation, including radiologic assessment.

Introduction

Primary and disseminated uterine lymphoma are rare types of lymphoma [1,2]. Extra nodal lymphoma constitutes approximately 40% of primary lymphomas with uterine and cervical lymphomas comprising less than 1% of extra nodal lymphomas [3,4]. Following solid organ transplant or hematopoietic stem cell transplantation, post-transplant lymphoproliferative diseases (PTLD) range from indolent polyclonal proliferations to aggressive lymphomas [5,6]. The risk of PTLD after renal transplant is approximately 1%-5%, with most cases representing diffuse large B-cell lymphoma [7,8]. Numerous treatment options are available for PTLD including immunosuppression reduction, chemotherapy, radiotherapy and surgery [9]. With improving treatments

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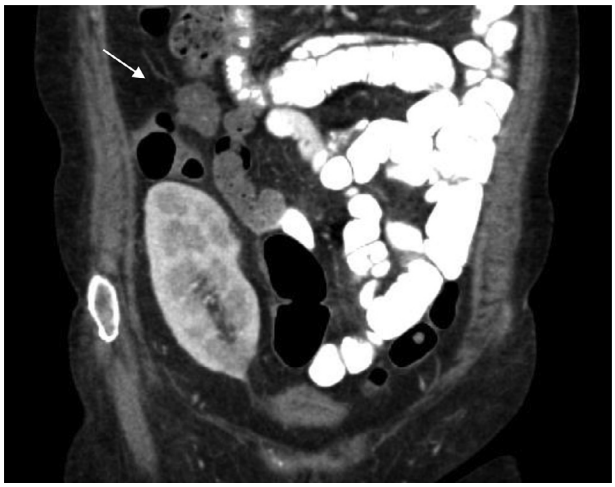


Fig. 1 – Coronal CT with IV and oral contrast from late 2020 after the resolution of the patient's ascending colitis shows her pelvic transplant kidney and biopsy proven RLQ lymphoma mass (white arrow [3.1cm]) radiologically stable from prior imaging with no evidence of an additional pelvic mass.

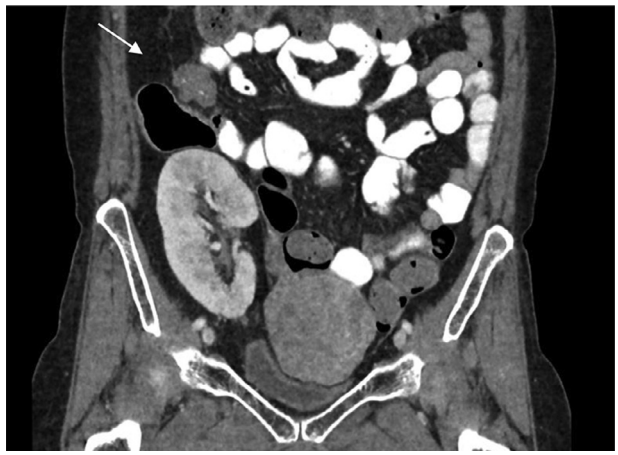


Fig. 2 – Coronal CT with IV and oral contrast one month after Fig. 1 shows the new heterogeneously enhancing 6.8 x 6.5 cm uterine mass. Also noted are the patient's stable RLQ mass (white arrow [3.1cm]) adjacent to the cecum and pelvic transplant kidney.

and increased survivability, it is important for gynecological oncologists and radiologists to be aware of imaging features and consider PTLD in post-transplant patients [10,11,12]. We present a case of recurrent extra nodal lymphoma in a post-renal transplant patient with uterine involvement.)

Case report

The patient is a 61-year-old female with a history of renal transplant in 2005 due to IgA nephropathy subsequently diagnosed with multifocal nodal diffuse large B-cell lymphoma (DLBCL) in 2019. She previously completed treatment with chemotherapy and initially showed complete radiologic response in early 2019 but had recurrent disease diagnosed later that same year when she developed right lower lobe pulmonary and right lower quadrant abdominal masses. She underwent multiple additional chemotherapy treatments which were not completed due to progressive cytopenia's.

In late 2020 the patient was admitted to the hospital for diarrhea and neutropenic enterocolitis due to viremia from cytomegalovirus (CMV). Imaging with a CT chest/abdomen/pelvis demonstrated cecal and ascending colitis with stable appearance of her right pulmonary and right lower quadrant abdominal masses. She was eventually discharged in stable condition with treatment for her CMV viremia. Follow up imaging one month later demonstrated resolution of the cecal and ascending colitis with no changes to her right pulmonary and right abdominal masses (Fig. 1).

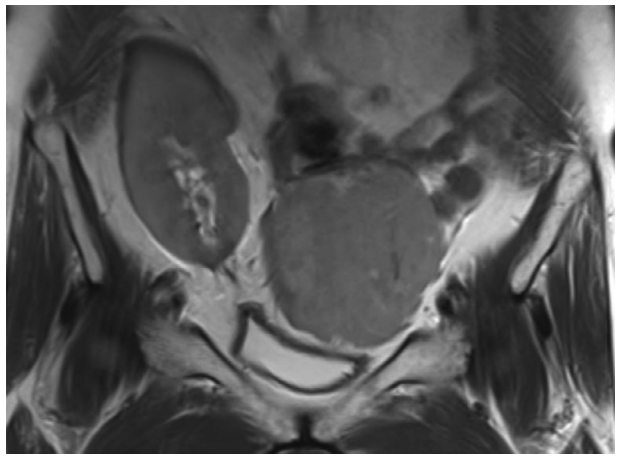


Fig. 3 – Coronal T2 Fast Spin Echo (FSE) one month after the CT demonstrates the T2 intermediate uterine mass which had increased in size to 8.0 x 7.4cm.

The patient developed progressive, worsening abdominal pain and emesis over the course of the next month in late 2020 and was evaluated with a CT of her abdomen and pelvis with IV and oral contrast. The CT demonstrated stable appearance of the right pulmonary and abdominal masses but a new large pelvic soft tissue mass originating from the uterus (Fig. 2). An MRI with contrast was also performed which better demonstrated the involvement of the uterus and ovaries by the mass with relative sparing of the cervix (Fig. 3-7).

An endometrial biopsy was attempted which did not obtain an adequate tissue sample for diagnosis. She

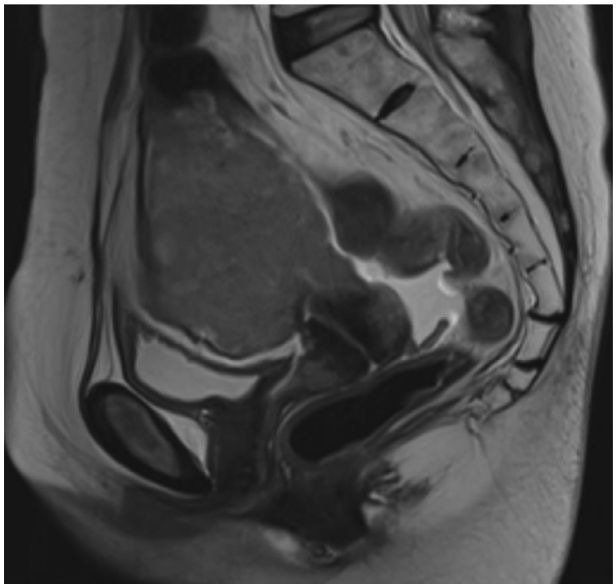
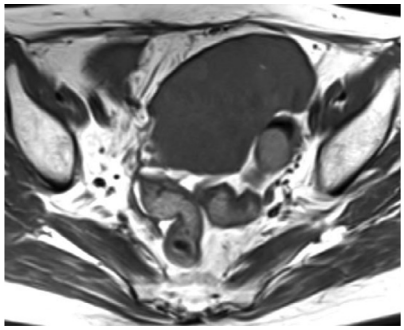


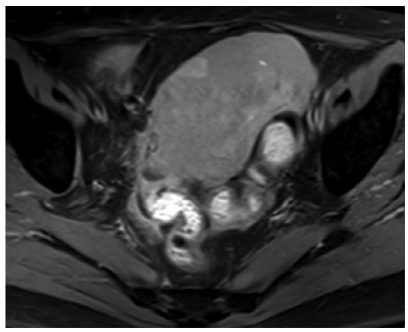
Fig. 4 – Sagittal T2 FSE demonstrates the T2 intermediate uterine mass with loss of zonal anatomy of the uterus and relative preservation of the cervical canal.



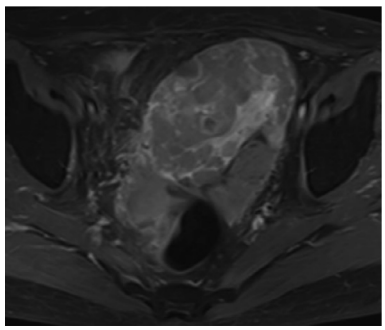
Figs. 5 – Axial T1 FSE demonstrates a homogenously hypointense uterine mass with areas of T1 hyperintensity suggestive of hemorrhage (Fig. 4) which are better demonstrated on axial T1 FSE fat saturated non-enhanced sequence (Fig. 5). The post contrast T1 FSE fat saturated sequence demonstrates globular areas of mildly enhancing soft tissue (Fig. 7).

subsequently underwent a diagnostic laparoscopy with biopsy of the mass. Direct visualization of the pelvic mass demonstrated a large, multi-lobed mass replacing any discernable uterine tissue. Normal-appearing bilateral fallopian tubes and ovaries were visualized protruding from uterine mass. (Fig. 8).

Final pathologic diagnosis from tissue samples of the uterine mass were consistent with diffuse large B-cell lymphoma (Fig. 9-11). The patient was repeatedly admitted to the hospital over the next two months with progression of her DLBCL, symptomatic pancytopenia, multiple infections and tumor lysis syndrome, while continuing her chemotherapy treatment. The patient eventually succumbed to septic shock



Figs. 6 – Axial T1 FSE demonstrates a homogenously hypointense uterine mass with areas of T1 hyperintensity suggestive of hemorrhage (Fig. 4) which are better demonstrated on axial T1 FSE fat saturated non-enhanced sequence (Fig. 5). The post contrast T1 FSE fat saturated sequence demonstrates globular areas of mildly enhancing soft tissue (Fig. 7).



Figs. 7 – Axial T1 FSE demonstrates a homogenously hypointense uterine mass with areas of T1 hyperintensity suggestive of hemorrhage (Fig. 4) which are better demonstrated on axial T1 FSE fat saturated non-enhanced sequence (Fig. 5). The post contrast T1 FSE fat saturated sequence demonstrates globular areas of mildly enhancing soft tissue (Fig. 7).

secondary to neutropenia related to her lymphoma treatment by the end of the year.(Fig. 5-Fig. 6 and Fig. 10)

Discussion

The female reproductive tract, including uterus, ovaries, and cervix are rare sites of DLBCL metastasis. Data compiled from an international database of women with DLBCL demonstrate that approximately 4% of those afflicted have internal reproductive organ involvement. The uterus is the most common site, with the ovary as the secondary most common site. Those with uterine DLBCL experience inferior progression-free survival and overall survival compared to those without reproductive organ involvement. Uterine involvement is also correlated with a high frequency of secondary CNS involvement of approximately 40%.

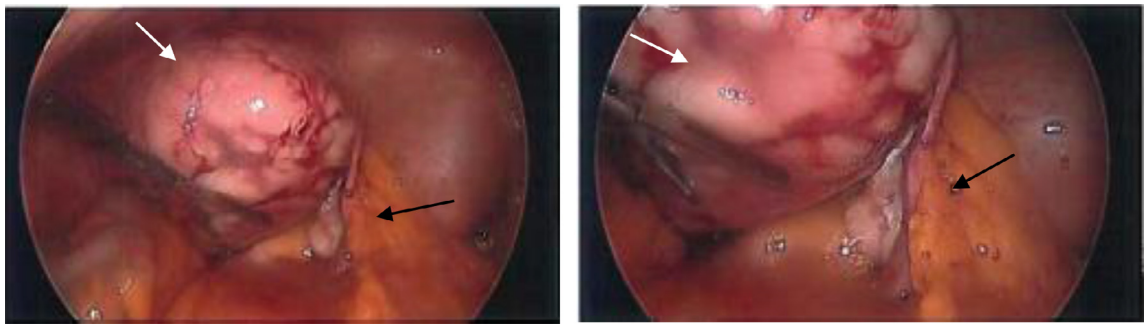


Fig. 8 – Intra-operative pictures of multi-lobed B lymphoid tissue replacing normal uterine tissue (white arrow). Otherwise, unremarkable adnexal structures including fallopian tube and ovary (black arrow) protruding from pelvic mass.

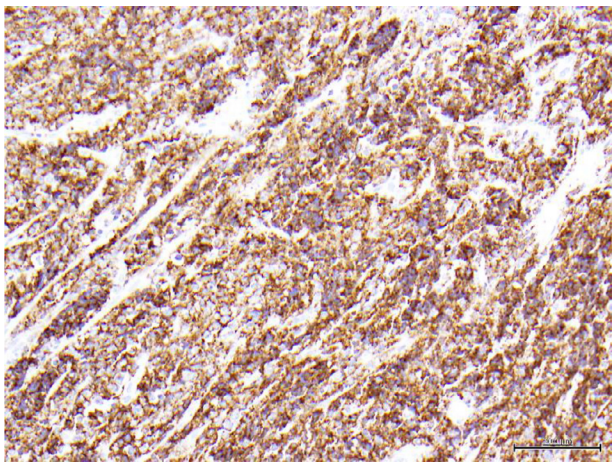


Fig. 9 – CD20 staining of surgical specimen showing positive (brown cells) markers for B-cell infiltration. This stain is 90% specific for B-cell Lymphoma. (Color version of figure is available online).

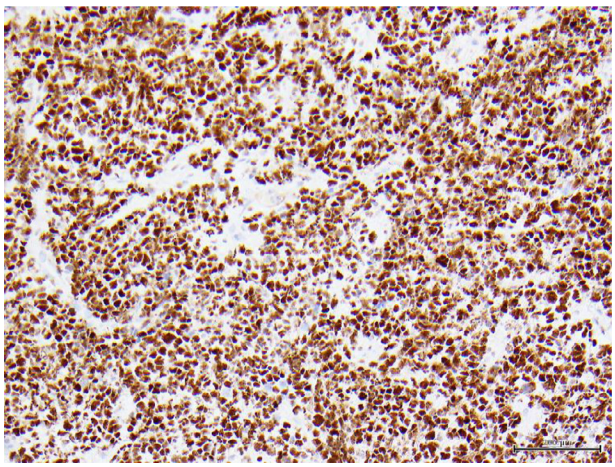


Fig. 10 – BCL-6 staining of surgical specimen showing a nuclear staining pattern of germinal center B-cells.

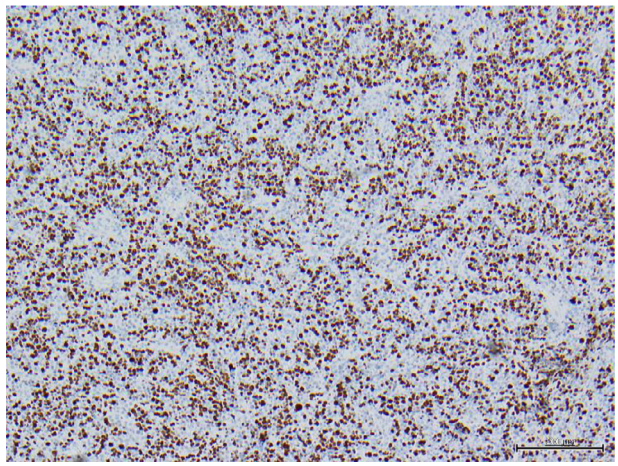


Fig. 11 – Ki-67 staining of surgical specimen demonstrating 70%-80% proliferative index. This is indicative of a high degree of proliferative activity and high grade disease.

This case represents timely detection and treatment of DLBCL of the uterus, initially detected through radiologic imaging and confirmed by laparoscopic biopsy. Despite the timely diagnosis and treatment, this patient succumbed to complications relating to the disease and its treatment within two months. Knowledge of worse prognosis and association with CNS involvement is important when tailoring treatment options and facilitating discussions regarding end-of-life care, and expectations with patients and their families. While uterine involvement does remain a rare manifestation of DLBCL, it is important to maintain awareness of this entity by oncologists and radiologists alike when developing a differential diagnosis, and plan of care.

Conclusion

While the baseline incidence of PTLD is elevated when compared with lymphoma in the general population, uterine lymphoma is rare in all women with DLBCL. Specifically in this case, the patient had previously exhibited complete

radiologic remission one year prior, followed by development of stable extra-pelvic lesions. Uterine disease progressed rapidly despite treatment and the patient succumbed to disease shortly after the confirmation of pelvic diffuse large B-cell lymphoma. This case is consistent with data demonstrating shorter disease-free interval and worse overall survival in women with uterine DLBCL.

Competing Interests

None of the authors have a financial or other conflict of interest.

Patient consent

Informed consent has been obtained by the patient described in this case report.

Disclaimer

"The views expressed in this abstract/manuscript are those of the author(s) and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the US Government"

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