

A rare case report of primary uterine and vaginal lymphoma in the elderly

Journal of International Medical Research

2023, Vol. 51(3) 1–6

© The Author(s) 2023

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/03000605221147192

journals.sagepub.com/home/imr

Yu-Fei Gao¹ , Yong Wang² , Tao Wang³,
Li-Na Han⁴ and Hui Zhang¹

Abstract

Uterine lymphoma is rare and usually occurs in middle-aged women. The clinical symptoms lack any specific characteristics. Imaging characteristics usually include uterine enlargement with density and uniform signal soft tissue masses. Magnetic resonance T2 weighted imaging, enhanced scanning, diffusion weighted imaging and apparent diffusion coefficient values have certain characteristics. The gold standard for diagnosis remains a pathological examination of a biopsy specimen. The special feature of this current case was that the uterine lymphoma occurred in an 83-year-old female patient that presented with a pelvic mass for more than 1 month. Based on the imaging findings, a primary uterine lymphoma was considered, but her advanced age of onset did not match the disease. After pathological confirmation, the patient was diagnosed with uterine lymphoma and she received eight cycles of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone) plus local radiotherapy for the large masses. The patients achieved good results. Follow-up enhanced computed tomography imaging showed that the uterine volume had significantly reduced compared with before treatment. The diagnosis of elderly patients with uterine lymphoma can provide a more accurate plan for subsequent treatment.

Keywords

Primary uterine lymphoma, female reproductive system tumour, magnetic resonance imaging, computed tomography

Date received: 30 May 2022; accepted: 5 December 2022

¹Department of Radiology, The First Hospital of Hebei Medical University, Shijiazhuang, Hebei Province, China

²Department of Radiology, The First Hospital of Hebei Medical University, Shijiazhuang, Hebei Province, China

³Department of Endocrinology, The First Hospital of Hebei Medical University, Shijiazhuang, Hebei Province, China

⁴Department of Neurology, Hebei General Hospital, Shijiazhuang, Hebei Province, China

Corresponding author:

Hui Zhang, Department of Radiology, Hebei General Hospital, 348 Heping West Road, Xinhua District, Shijiazhuang, Hebei 050051, China.
Email: wszzzhui@163.com



Introduction

Primary uterine lymphoma is relatively rare and usually occurs in middle-aged women, accounting for only 1% of extranodal lymphoma.¹ The clinical symptoms lack any specific characteristics and imaging usually manifests as uterine enlargement with density and a uniform signal soft tissue mass.²⁻³ This disease rarely presents at an advanced age.⁴ This current case report describes an elderly female patient with a primary uterine and vaginal lymphoma that was treated with immunochemotherapy.

Case report

On 29 December 2019, an 83-year-old female patient presented to the Department of Radiology, Hebei General Hospital, Shijiazhuang, Hebei Province, China with a pelvic mass for more than 1 month. Her medical history included bladder cancer that was diagnosed more than 10 years previously at another hospital, for which she received bladder cancer electrocautery. The patient also received right nephrectomy and splenectomy more than 6 years previously. She had lymphatic tuberculosis more than 40 years previously.

During her hospitalization in the Department of Radiology, Hebei General

Hospital, magnetic resonance imaging (MRI) showed that the uterine volume was significantly enlarged, the endometrium and cervical mucosa were thickened, the vaginal wall was significantly thickened; and fluid and a small amount of haemorrhage were visible in the vagina. Part of the vaginal wall was unclearly separated from the urethra, the left posterior wall of the bladder and the anterior wall of the rectum. Diffusion weighted imaging showed an obvious high signal. The apparent diffusion coefficient (ADC) value of $0.531 \times 10^{-3} \text{ mm}^2/\text{s}$ was significantly reduced. After enhanced scanning, the lesion showed mild uneven enhancement and the degree of enhancement decreased with time (Figure 1). The density of the lesions before computed tomography (CT) enhancement was relatively uniform and the lesions showed mild uneven enhancement after the enhanced scan (Figures 2a–2c). A pathological investigation of a transvaginal biopsy demonstrated the following: (i) biopsy tissue from the left vaginal wall showed fibrous connective tissue under the microscope, local tissue necrosis, a small amount of lymphocyte infiltration in the interstitium and small blood vessel proliferation; (ii) three pieces of biopsy tissue from the right anterior wall of the vagina showed that one sample was necrotic with calcification and the other

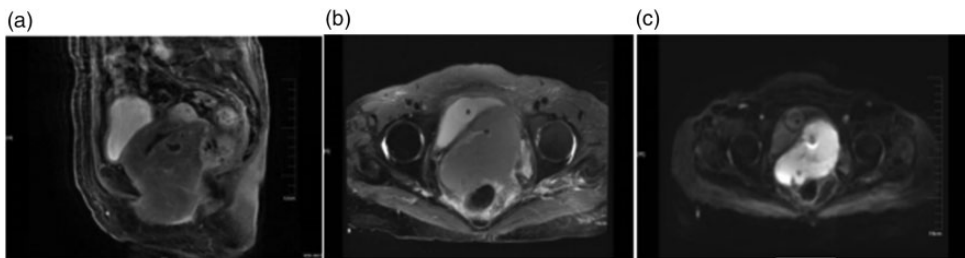


Figure 1. Magnetic resonance imaging scans of an 83-year-old female patient that presented with a pelvic mass for more than 1 month showed the following: (a) an enlarged uterus; (b) mild-to-moderate enhancement of the tumour on an enhanced scan. The enhancement was lower than that of the normal myometrium. There was no enhanced necrotic area in the lesion and (c) a high signal was observed on diffusion weighted imaging.

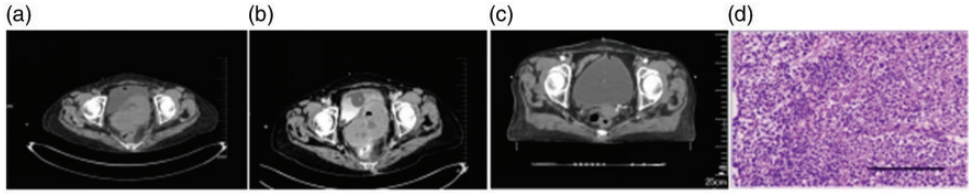


Figure 2. Computed tomography (CT) imaging scans and pathological findings of an 83-year-old female patient that presented with a pelvic mass for more than 1 month: (a) plain CT imaging showed an increased uterine volume, visible irregular soft tissue density mass shadow and an unclear boundary with the cervix; (b) enhanced CT imaging showed that the solid components of the lesion were slightly strengthened, the boundary was clear and no enhanced area was seen inside; (c) after treatment, enhanced CT imaging showed that the volume of the uterus had significantly reduced and (d) a representative pathological photomicrograph showing the focal proliferation of B lymphocytes (haematoxylin & eosin; scale bar 50 μm). The colour version of this figure is available at: <http://imr.sagepub.com>.

two pieces of tissue showed diffusely infiltrated mesenchymal heterogeneous cells suggestive of tumours of the lymphoid haematopoietic system (Figure 2d). The immunohistochemistry examination was consistent with a B-cell lymphoma.

The differential diagnosis of uterine lymphoma can be challenging because it presents with similar clinical manifestations to those of other common female reproductive organ tumours such as cervical cancer and uterine fibroids (e.g. irregular vaginal bleeding, lower abdominal pain and abdominal mass). The imaging characteristics are also relatively similar. All three of these conditions can manifest as an enlarged uterus with soft tissue masses, but uterine lymphomas are mostly soft tissue masses with uniform density or signal on imaging, with less necrosis, cystic transformation and mild enhancement.^{5,6} However, when cervical cancer and uterine fibroids are large in size, necrosis is common, and the enhanced scan is often obviously uneven. When any of the three conditions also has necrotic or cystic transformation, then it can be difficult to distinguish between them using routine imaging alone. When this situation arises, MRI is required for a differential diagnosis.³ A previous study determined that the ADC values of uterine fibroids and cervical cancer

were $1.15 \pm 0.18 \times 10^{-3} \text{ mm}^2/\text{s}$ and $0.99 \pm 0.18 \times 10^{-3} \text{ mm}^2/\text{s}$, respectively,⁷ which were far higher than the ADC of primary uterine lymphoma ($0.696 \times 10^{-3} \text{ mm}^2/\text{s}$).⁸ Moreover, the lesion in this current case was not only located in the uterus, but also visible in the vaginal wall area. Therefore, comparing the difference in ADC values between different tumours was helpful for the differential diagnosis, although the final diagnosis depended upon the pathological results.

As this current patient had a history of bladder cancer, it was essential that her physicians considered that the uterine mass could be a bladder cancer metastasis. Early stage bladder tumours may have uniform enhancement. When bladder cancer invades the surrounding tissues, the outline of the bladder becomes unclear or the bladder wall becomes unevenly thickened, the fat spaces around the bladder become blurred or even disappear, and enlarged lymph nodes are often seen in the pelvic cavity.⁹ This current case did not have any of these imaging characteristics, so her uterine mass was not considered to be a bladder cancer metastasis.

After the first pelvic CT and MRI examinations, and a diagnosis of uterine lymphoma was confirmed by the pathological

examination, the patient received eight cycles of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone) plus local radiotherapy for the large masses. A subsequent CT examination found that the size of the uterus was significantly reduced. The time course of the patient's treatment is shown in Figure 3.

Written consent was obtained from the patient for her treatment. All patient details have been de-identified in this case report. The patient's family members considered that the patient was old and did not want to undergo surgical treatment. After treating the patient with the R-CHOP regimen, the patient and her family members actively cooperated with the treatment plan. The reporting of this study conforms to the CARE guidelines.¹⁰

Discussion

The incidence of primary uterine (cervix/uterine body) and vaginal lymphoma is extremely low and it is rarely reported.¹ An analysis of 697 cases found that primary lymphoma of the female genital tract is rare, accounting for only 1% of extranodal lymphoma.¹ The clinical manifestations lack specific characteristics. Primary uterine and vaginal lymphoma usually manifests as

abnormal vaginal bleeding after menopause, which may be related to the changes in hormone levels in postmenopausal women, the endometrial loss of the support of periodic changes in hormones and excessive proliferation.¹¹ The macroscopic appearance is also easily confused with squamous cell carcinoma. The age of the patient with uterine lymphoma is related to the pathological type, with diffuse large B-cell lymphoma being more likely to occur between 35 and 45 years old; and follicular lymphoma usually occurs in women >50 years old.¹ Burkitt's lymphoma occurs in children between 5 and 10 years old.¹²

The imaging manifestations of primary uterine and vaginal lymphoma include the following: (i) CT shows a diffusely enlarged uterus, the boundary of the lesion is unclear and low-density areas occasionally show liquefied necrosis or cystic change. Enhanced scan lesions can be seen to be enhanced, because lymphomas are a collection of solid nodules with few blood vessels. The enhanced scan reflects the characteristic signs of fewer blood vessels, so they usually demonstrated enhancement. If there is liquefaction necrosis, bleeding or cystic change, the corresponding area may not be enhanced. Primary uterine and vaginal lymphoma can be accompanied by lymph

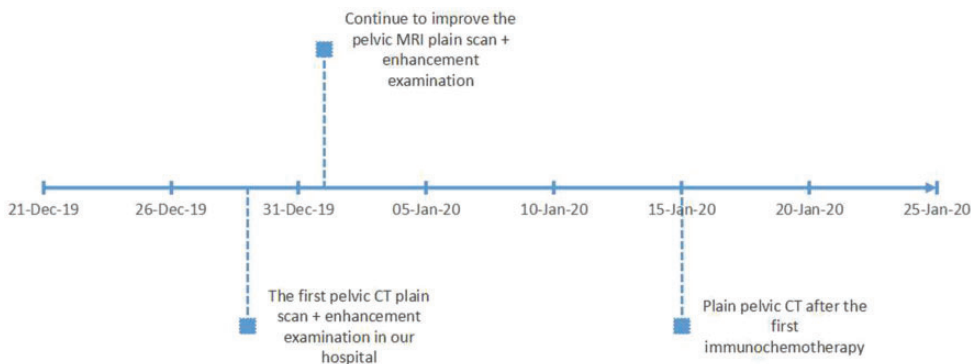


Figure 3. Time course of treatment of an 83-year-old female patient that presented with a pelvic mass for more than 1 month. MRI, magnetic resonance imaging; CT, computed tomography.

node metastasis in the retroperitoneum, inguinal femur and large vessels. Lymph nodes larger than 10 mm can be regarded as metastasis;^{2,3} (ii) MRI shows an obviously thickened myometrium, the tumour signal is uniform, T1 weighted images usually show a low signal, T2 weighted images usually show a slightly high signal, and the endometrium and cervical mucosa are continuous. The images are clearer on T2 weighted images so they are very useful in evaluating the morphology of uterine lymphoma and the degree of invasion into surrounding tissues.¹³ The uterine volume diffusely increases on MRI and the endometrial or cervical mucosa has a certain specificity for the diagnosis of uterine lymphoma.¹⁴

The pathological manifestations of primary uterine and vaginal lymphoma include the following: (i) uterine lymphoma originates from the uterine stroma and diffuse large B-cell lymphoma is the most common histological subtype of extranodal lymphoma;¹² (ii) the main manifestations are the abnormal proliferation of heterogeneous lymphocytes, the tumour cells are spindle in shape, relatively uniform in size and have light nuclear staining. Tumour cells are diffuse or nest-like infiltrating the uterine interstitium and even the full thickness of the uterine muscle wall; and extensive or clear sclerotic bands can be observed, with less cell matrix.¹³

The detection of uterine vaginal lymphoma in elderly patients can provide more accurate guidance for clinical radiotherapy and chemotherapy. According to the single-arm phase II GELA LNH 03-7B study, patients over 80 years of age are usually not suitable for standard dosage chemotherapy so the dose of R-CHOP was reduced to half or one-third of the standard dose.¹⁵ The role of surgery seems to be limited in uterine lymphoma.¹⁶ Immunochemotherapy regimens have demonstrated efficacy.³ Being able to initiate

prompt conservative immunotherapy in the asymptomatic early stages is a challenging task.¹³ In this regard, a successful pregnancy after treatment has been reported in the literature.¹⁷

In conclusion, this current patient was elderly and had a wide range of lymphomas, which is a relatively rare occurrence in clinical practice. With the increasing ageing population, when physicians encounter pelvic masses in elderly patients, they should consider the possibility of lymphoma and undertake a differential diagnosis.

Acknowledgements

The authors are grateful to all that contributed to this research.

Author contributions

Y.F.G: writing – original draft preparation; H.Z.: writing – review and editing; Y.W.: conceptualization; T.W: investigation; L.N.H.: evaluation of the imaging data.

Declaration of conflicting interests

The authors declare that there are no conflicts of interest.

Funding

This research received no specific grant from funding agency in the public, commercial, or not-for-profit sectors.

ORCID iDs

Yu-Fei Gao  <https://orcid.org/0000-0002-4160-6020>

Yong Wang  <https://orcid.org/0000-0001-5869-2044>

References

1. Nasioudis D, Kampaktis PN, Frey M, et al. Primary lymphoma of the female genital tract: An analysis of 697 cases. *Gynecol Oncol* 2017; 145: 305–309.
2. Sohaib SA, Verma H, Attygalle AD, et al. Imaging of uterine malignancies. *Semin Ultrasound CT MR* 2010; 31: 377–387.

3. Capsa C, Calustian LA, Antoniu SA, et al. Primary Non-Hodgkin Uterine Lymphoma of the Cervix: A Literature Review. *Medicina (Kaunas)* 2022; 58: 106.
4. Ensor AM, Sanchez CG, Ensor JE, et al. Primary diffuse large B-cell lymphoma of the uterus: A SEER database analysis. *Medicine (Baltimore)* 2021; 100: e27359.
5. Kuncman Ł, Danielska J, Kuncman W, et al. Synchronous occurrence of four malignancies in a 55-year-old woman with uterine cervical cancer. Case report and review of literature. *Ginekol Pol* 2016; 87: 314–317 [Article in Polish, English abstract].
6. Tyagi A, Abrari A and Mukherjee U. Primary diffuse large B-cell lymphoma masquerading as uterine fibroid: A pathologistsf diagnosis. *J Cancer Res Ther* 2021; 17: 288–290.
7. Lee EY, Yu X, Chu MM, et al. Perfusion and diffusion characteristics of cervical cancer based on intraxovel incoherent motion MR imaging – a pilot study. *Eur Radiol* 2014; 24: 1506–1513.
8. Mabray MC, Cohen BA, Villanueva-Meyer JE, et al. Performance of Apparent Diffusion Coefficient Values and Conventional MRI Features in Differentiating Tumefactive Demyelinating Lesions From Primary Brain Neoplasms. *AJR Am J Roentgenol* 2015; 205: 1075–1085.
9. van der Pol CB, Chung A, Lim C, et al. Update on multiparametric MRI of urinary bladder cancer. *J Magn Reson Imaging* 2018; 48: 882–896.
10. Gagnier JJ, Kienle G, Altman DG, et al. The CARE guidelines: consensus-based clinical case reporting guideline development. *Headache* 2013; 53: 1541–1547.
11. Weng X, Huang M, Zhang M, et al. Primary lymphoma of the uterine cervix: a clinico-pathologic study of 13 cases with review of additional 54 cases in the literature. *Virchows Arch* 2022; doi: 10.1007/s00428-022-03436-y.
12. Pinto E, Batista S, Lourenc C, et al. Gynecological lymphomas Linfomas ginecologicos. *Acta Obstet Ginecol Port* 2014; 8: 201–205 [Article in Portuguese, English abstract].
13. Gong J, Dong A, Wang Y, et al. Primary Uterine Peripheral T-cell Lymphoma: A Case Report of MRI and 18F-FDG PET/CT Findings. *Medicine (Baltimore)* 2016; 95: e3532.
14. Sugimoto M, Koyama K, Ichimura T, et al. Comparison of MR imaging features of uterine neuroendocrine carcinoma and uterine malignant lymphoma. *Abdom Radiol (NY)* 2019; 44: 3377–3387.
15. Peyrade F, Fain O, Fabiani B, et al. Long-term follow-up of the GELA LNH 03-7B study: A prospective phase II study of 150 patients over 80 years with diffuse large B-cell lymphoma (DLBCL) treated with RminiCHOP. *J Clin Oncol* 2013; 31: 8536.
16. Goda JS, Gaikwad U, Narayan A, et al. Primary diffuse large B cell lymphoma of Uterine Cervix: Treatment outcomes of a rare entity with literature review. *Cancer Rep (Hoboken)* 2020; 3: e1264.
17. Boussios S, Zerdes I, Vassou A, et al. Extranodal diffuse large B-cell lymphomas: A retrospective case series and review of the literature. *Hematol Rep* 2018; 10: 7070.