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Case Report

Recurrent Diffuse Large B-Cell Lymphoma with the Initial Manifestation of Retinal Involvement

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Abstract

Diffuse large B-cell lymphoma (DLBL) is a common hematological disorder that frequently presents with fever and lymphadenopathy initially. Here, we present an unusual case of a 43-year-old female with a history of breast DLBL in remission. She visited the ophthalmologist 9 years after remission with the chief complaint of ocular congestion, watery discharge, and blurred vision for weeks. The optical coherent tomography revealed hyper-reflective material accumulation in the intraretinal and subretinal pigment epithelial spaces. Then, she received a retinal biopsy to confirm the etiology, and the pathology report revealed necrosis with atypical lymphocytes with CD20 positivity. Thus, the intravascular lymphoma was impressed. The whole-body positron emission tomography/computed tomography revealed no hypermetabolic extracranial malignancy. Hence, the patient received six cycles of systemic chemotherapy along with intrathecal chemotherapy and refused either radiation therapy or bone marrow transplantation. The patient achieved complete remission with no recurrence for 3 years until the present.

Keywords: Diffuse large B-cell lymphoma, recurrence, retina

Introduction

Diffuse large B-cell lymphoma (DLBL) with central nervous system involvement is rare with a poor prognosis.[1] Intravascular lymphoma (IVL), which is classified as a form of non Hodgkin's lymphoma with immune-privileged sites, is fatal with characteristics of lymphoma proliferation within blood vessels[2,3] without an obvious extravascular tumor mass or circulating lymphoma cells.[4] It often affects the brain and skin.[5] Patients always present with the sign and symptoms of intermittent fevers and encephalopathy with multifocal neurologic damage.[6,7] The eye may be affected by visual field defects.[8,9]

Here, we present a rare case of recurrent DLBL with the first manifestation of retinal involvement.

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Case Report

A 43-year-old female was diagnosed with DLBL of the left breast by excisional biopsy in 2010 and had received rituximab, cyclophosphamide, epirubicin, vincristine, and prednisone chemotherapy for six cycles with complete remission. Then, she was lost to follow-up for the subsequent years. No hospitalization records were obtained during this period.

In 2019, the patient presented with ocular congestion with watery discharge and blurred vision and visited the ophthalmologist in our hospital. Headache, dizziness, tinnitus, fever, chillness, chest tightness, dyspnea, limb pitting edema, abdominal discomfort, dysuria, arthralgia, weakness, or body weight loss were not observed. She denied any trauma or travel history.

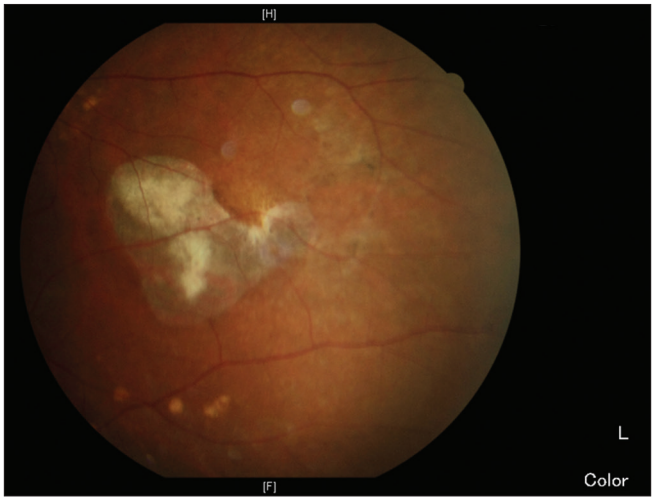

Figure 1: Fundus color photo showed lymphoma choroidal infiltration OD. OD: Oculus dexter

The ophthalmology checkup revealed a visual acuity of 0.6 (NC)/1.0 and an intraocular pressure of 16 OU. The Fundus color photo revealed right eye lymphoma choroidal infiltration [Figure 1]. The optical coherent tomography revealed hyper-reflective material accumulation in the intraretinal and subretinal pigment epithelial spaces [Figures 2 and 3]. Then, she received a retinal biopsy, and the pathology reported retina and right necrosis with atypical lymphocytes [Figure 4]. The immunohistochemical study revealed CD20 (+) and CD3 (−) for apoptotic bodies. The brain magnetic resonance imaging revealed high signal lesions on the T2-weighted image at bilateral centrum semiovale, corpus callosum splenium, and subcortical region of the left frontal and right parietal lobe. The whole-body positron emission tomography/computed tomography revealed no hypermetabolic extracranial malignancy [Figure 5]. Therefore, the patient was diagnosed with IVL [Figure 6].

The blood and biochemistry laboratory data were normal on admission. The cerebrospinal fluid (CSF) analysis revealed a white blood cell count of 4/μL (lymphocyte of 97%), glucose of 66 mg/dL, and total protein of 28.1 mg/dL. The CSF cytology identified only rare atypical lymphocytes with enlarged, irregular, air-dried nuclei. The bone marrow examination revealed no evidence of lymphoma cell involvement [Figure 7].

The patient elected to immediately pursue chemotherapy but refused radiation therapy. Then, she received the chemotherapy with rituximab, etoposide, epirubicin, cyclophosphamide, vincristine, and prednisone_ regimen and intrathecal chemotherapy (cytarabine and methotrexate). She completed the six cycles of chemotherapy with complete remission. The patient refused autologous stem cell transplantation (ASCT). She has been disease free for 3 years with regular follow-ups.

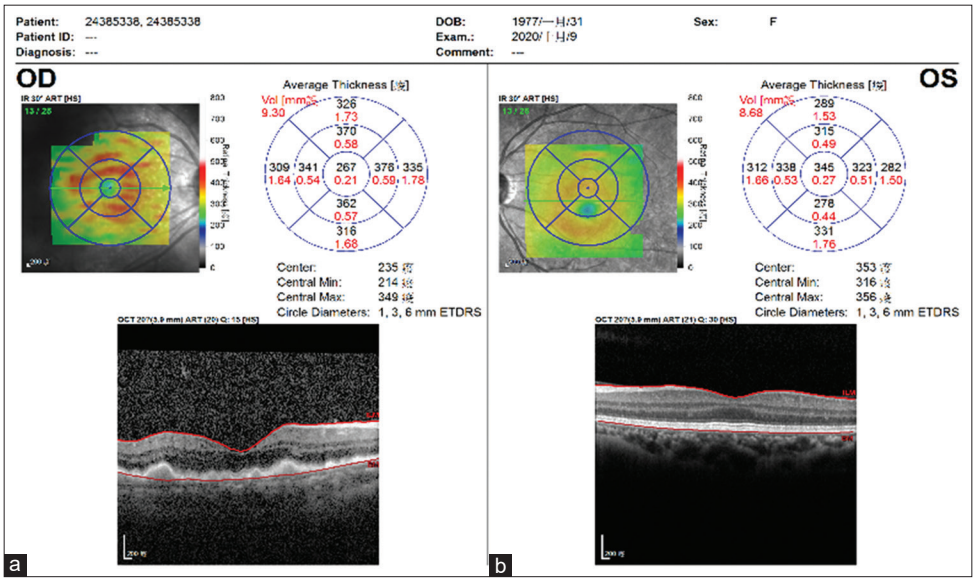

Figure 2: (a) OCT OD showed hyper-reflective material accumulation in the intraretinal and subretinal pigment epithelial spaces, (b) OCT OS showed no abnormality. OS:Oculus sinister

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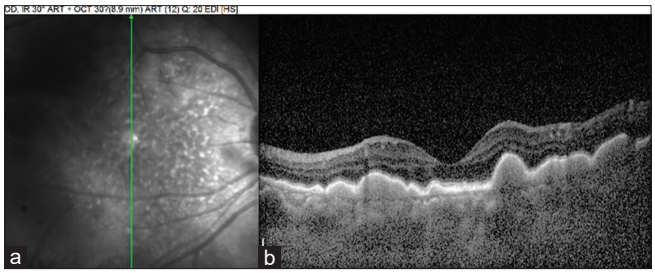

Figure 3: (a) Location of OCT image, (b) OCT showed hyper-reflective material accumulation in the intraretinal and subretinal pigment epithelial spaces. OD: Oculus dexter, OCT: Optical coherent tomography

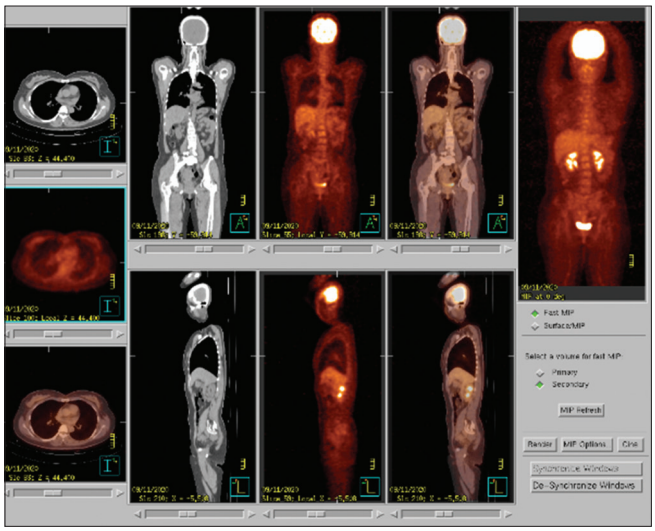

Figure 5: Whole-body PET-CT. PET-CT: Positron emission tomography/computed tomography

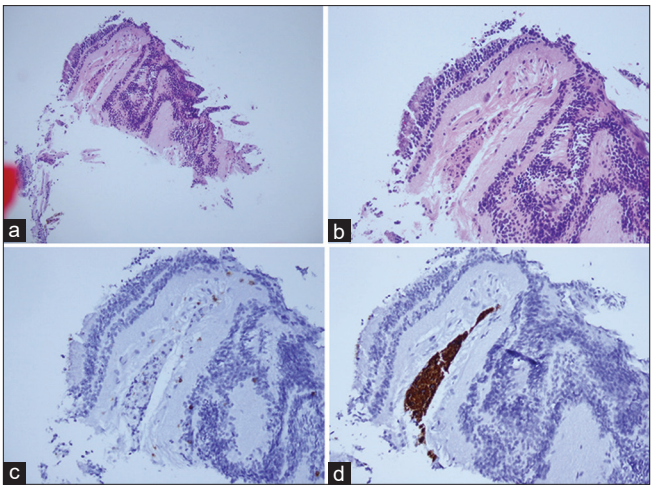

Figure 4: Retinal biopsy. (a) Retinal biopsy ×100, (b) Retinal biopsy ×200, (c) Retinal biopsy CD3(-), (d) Reitnal biopsy CD20(+)

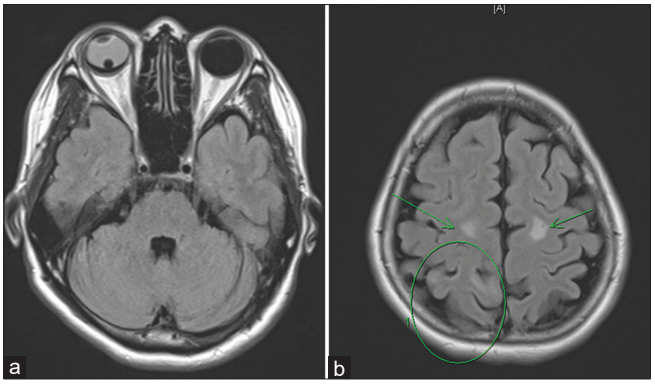

Figure 6: (a) IVL involved the right eye,(b) IVL involved the brain

Discussion

Here, we present an interesting case of recurrent IVL with the initial presentation of retinal involvement 9 years after the complete remission of breast DLBL. The IVL involves the intraluminal proliferation of lymphoma cells within blood vessels. It usually affects the elderly, with a reported median age of diagnosis of approximately 70 years.[4] Earlier studies reveal that IVL tends to affect female patients.[10] However, recent reports suggest no significant gender difference.[4,11] In addition, the incidence is <1/million.[12] A Japanese study revealed an increased incidence of IVL in Asian populations.[10]

Intravascular lymphomatosis, which is a rare subtype of large-cell lymphoma, is characterized by the predominant proliferation of large lymphoid cells within the lumen of blood vessels.[13] Intraocular lymphoma is located inside the eye, including the retina, the uvea (extremely rare), or metastasis.[14] Increased serum lactate dehydrogenase and β2-microglobulin levels are seen in >90% of patients.[15] Intravascular large B-cell lymphoma (IVLBCL) is regarded as a systemic disease and any organ may be involved.

The symptoms associated with ocular involvement (ocular congestion with watery discharge and blurred vision) in our case were the first clinical manifestations. This is relatively uncommon and accounts for <1% of all intraocular tumors.[16]

Most of the reported IVLBCL cases first presented with skin or central nervous system involvement,[17] but it can present with ocular involvement, as in this case. Therefore, physicians should always be aware of these clinical findings.

Patients' survival rates can be improved by timely diagnosis and immunochemotherapy, in particular, with the rituximab target agent.[11,18,19] The prognosis of IVL is improved with the use of combination chemotherapy, with a complete remission rate of 40%.[2]

Previous studies revealed that the combination of chemotherapy and ASCT may be beneficial to the patient's outcome in IVL.[20,21] However, ASCT remained controversial with some success.[22,23] A recent case report indicates that ASCT combined with chimeric antigen receptor T-cell immunotherapy might be another choice for relapsed/refractory IVLBCL treatment, as it allowed the achievement of a lasting complete remission.[24]

Our patient has received a complete course of chemotherapy along with intrathecal chemotherapy, which she tolerated well. She has been disease free for 3 years so far.

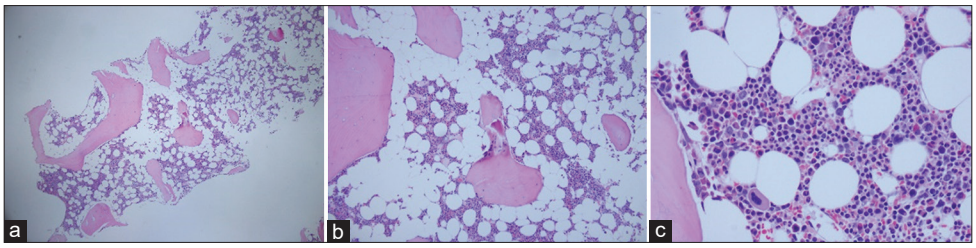

Figure 7: Bone marrow biopsy. (a) Bone marrow ×40, (b) Bone marrow ×100, (c) Bone marrow ×400

Conclusion

Our case is unique and, to our knowledge, relapsing IVLBCL from a previously diagnosed extranodal DLBL is very rare. This case highlights the importance of timely diagnosis and intervention with a combination of systemic and intrathecal chemotherapy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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