A case of cutaneous variant of intravascular large B-cell lymphoma in which dermoscopy revealed telangiectasias associated with erythematous induration

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Abstract

Intravascular large B-cell lymphoma (IVLBCL) is a rare type of extranodal, diffuse, large B-cell lymphoma characterized by the selective growth of lymphoma cells within the lumen of small blood vessels, with no lymphadenopathy or masses. Herein, we report a cutaneous variant of IVLBCL that is rare in Asia. A healthy 73-year-old Japanese woman presented to our hospital with painful erythematous indurations and telangiectasia of the lower extremities, which was confirmed on dermoscopy. Physical examination revealed no systemic involvement, and laboratory parameters were within normal ranges. No abnormal fluorodeoxyglucose (FDG) uptake was detected on 18FDG positron emission tomography/computed tomography. Histopathological examination revealed proliferation and dilatation of blood vessels in the subcutis layer, occluded by CD20-positive atypical lymphoid cells. Thus, the patient was diagnosed with a cutaneous variant of IVLBCL without systemic symptoms. In conclusion, it is important to confirm telangiectasia using dermoscopy and perform skin biopsies in patients presenting with sudden-onset erythematous induration.

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Introduction

Intravascular large B-cell lymphoma (IVLBCL) is a rare type of extranodal diffuse large B-cell lymphoma characterized by the selective growth of lymphoma cells within the lumen of small blood vessels, with no lymphadenopathy and masses.[1,2] IVLBCL can be clinically classified into two types: an "Asian variant" characterized by systemic symptoms and hemophagocytic syndrome and a "Western variant" characterized by skin lesions and central nervous system symptoms.[3] In the Western variant, IVLBCL that presents with only skin lesions is classified as a "cutaneous variant", which is rare in Asian countries.[1-9] Herein, we report a patient diagnosed with the cutaneous variant of IVLBCL who presented with erythematous induration and telangiectasia on both thighs. After administration of rituximab, cyclophosphamide, vincristine, doxorubicin, and prednisone (RCHOP) chemotherapy, the skin rashes resolved promptly.

Case Report

A 73-year-old healthy Japanese woman was referred to our hospital with a cold that occurred one month before, which was followed by painful, erythematous, indurated lesions over bilateral lower extremities. Physical examination revealed no systemic symptoms, such as fever, malaise, or neurological deficits. Irregularly shaped, painful, pale, erythematous, indurated lesions mimicking erythema nodosum were observed on the medial aspect of both thighs (Figure 1a-b). A dermoscopy revealed telangiectasias with pale erythematous indurated lesions over both thighs (Figure 1c). She had a history of uterine fibroids at 40 years of age, breast cancer at 43 years of age (surgical treatment only), and angina at 70 years of age. All laboratory parameters were within the normal range, except for a mild elevation in lactate dehydrogenase levels (LDH: 322 U/L). Based on the patient's history and clinical symptoms, erythema nodosum was suspected. A skin biopsy of the erythematous indurated lesion was performed. Histopathological examination of the specimen revealed prolifer-

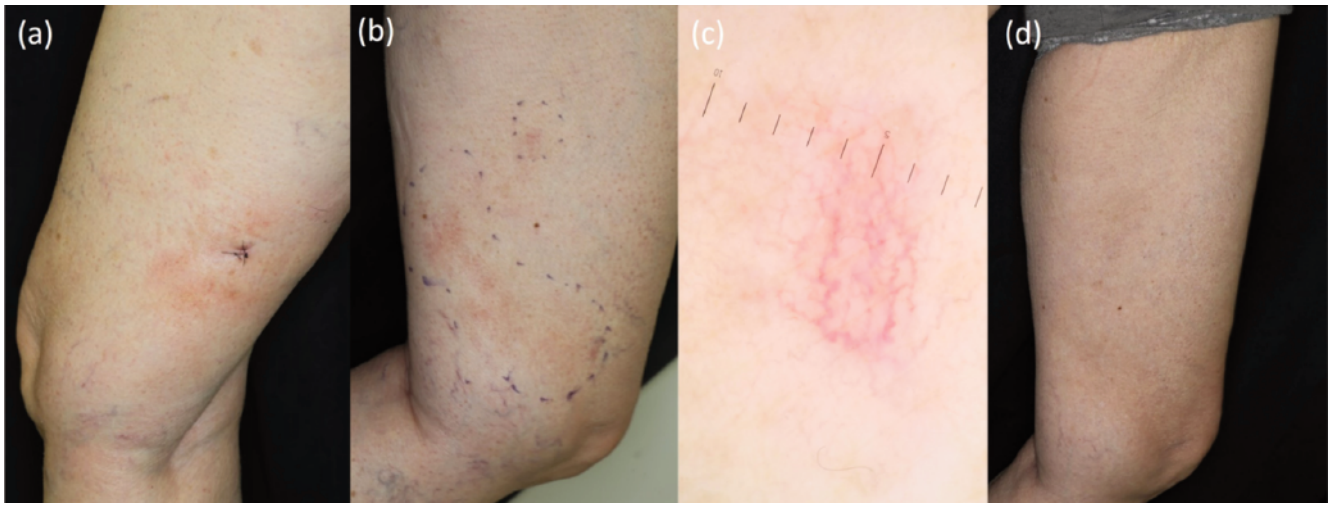

Figure 1. Clinical and dermoscopic images. **a**) Before treatment: irregularly shaped, pale, erythematous indurations mimicking erythema nodosum were visualized over the right thigh; **b**) left thigh: similar large, irregularly shaped, erythematous indurations were observed. The lesions have been outlined using black dots; **c**) dermoscopy showing telangiectasia with pale erythematous indurations over both thighs; **d**) after three courses of chemotherapy, the erythematous indurations and telangiectasia disappeared, leaving minimal pigmentation.

ation and dilatation of blood vessels in the subcutis, with no remarkable changes in the epidermis and dermis. The vessels were completely or partially occluded with atypical lymphocytes, which were larger than the normal lymphocytes and had distinct nuclei (Figure 2). Immunohistochemical staining of the tumor cells was positive for CD20, CD79a, and multiple myeloma 1 and negative for CD3, CD5, CD10, and B-cell leukemia (BCL)-6 (Figure 3). No abnormal fluorodeoxyglucose (FDG) uptake was observed in the skin lesions, internal organs, or lymph nodes on 18FDG positron emission tomography/computed tomography (PET/CT). Bone marrow aspiration revealed no tumor cell infiltration or hemophagocytosis. Therefore, the patient was diagnosed with a cutaneous variant of IVLBCL. After one cycle of R-CHOP (rituximab, cyclophosphamide, doxorubicin hydrochloride (hydroxydaunorubicin), vincristine sulfate (Oncovin), and prednisone) chemotherapy, the lactate dehydrogenase (LDH) levels decreased to within the normal range. The skin lesions disappeared after six cycles of R-CHOP (Figure 1d). There was no recurrence of symptoms over the next 6 months.

Discussion

IVLBCL is a rare type of extranodal diffuse large B-cell lymphoma characterized by the selective growth of lymphoma cells within small blood vessel lumens, without lymphadenopathy or masses.[1,2] The clinical progression and treatment outcomes of IVLBCL vary, suggesting differences in clinical and histopathological features between the Asian and Western populations.[3]

The Asian variant of IVLBCL often presents as multiorgan involvement and hemophagocytic syndrome without skin rashes.[1-4] Random skin biopsies are an effective diagnostic method; however, the disease is often advanced at the time of diagnosis and has a poor prognosis. The Western variant of IVLBCL often presents with skin lesions and central nervous system symptoms in the early stages, in addition to multiorgan involvement or hemophagocytic syndrome. In contrast, the cutaneous variant has a bet-

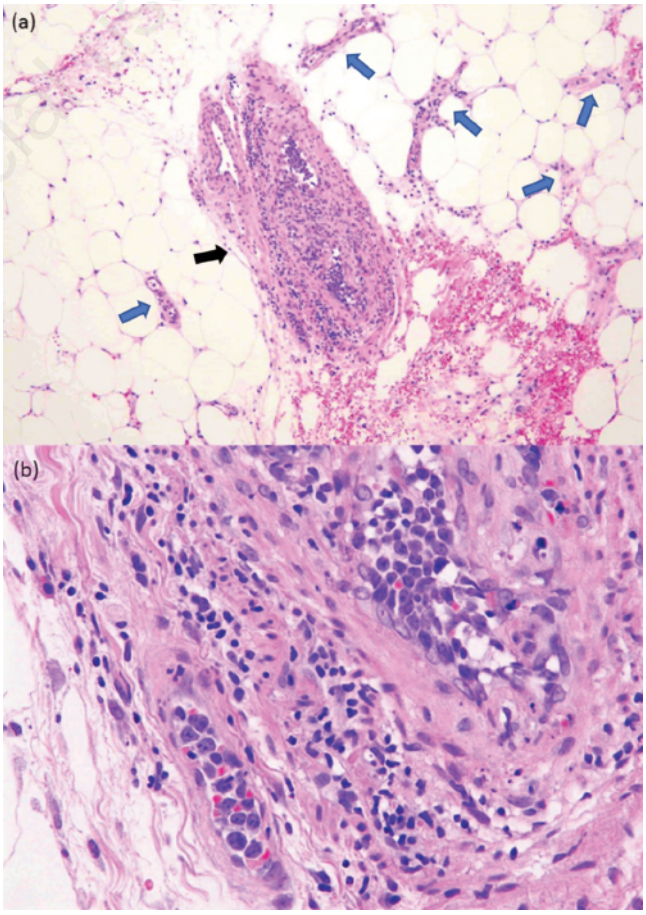

Figure 2. Histopathological findings. **a**) Proliferation (blue arrow) and dilatation (black arrow) of the blood vessels were observed in the subcutis (hematoxylin-eosin staining magnification 100×); **b**) blood vessels were occluded by large, atypical lymphoma cells with clear nuclei (hematoxylin-eosin staining, magnification 400×).

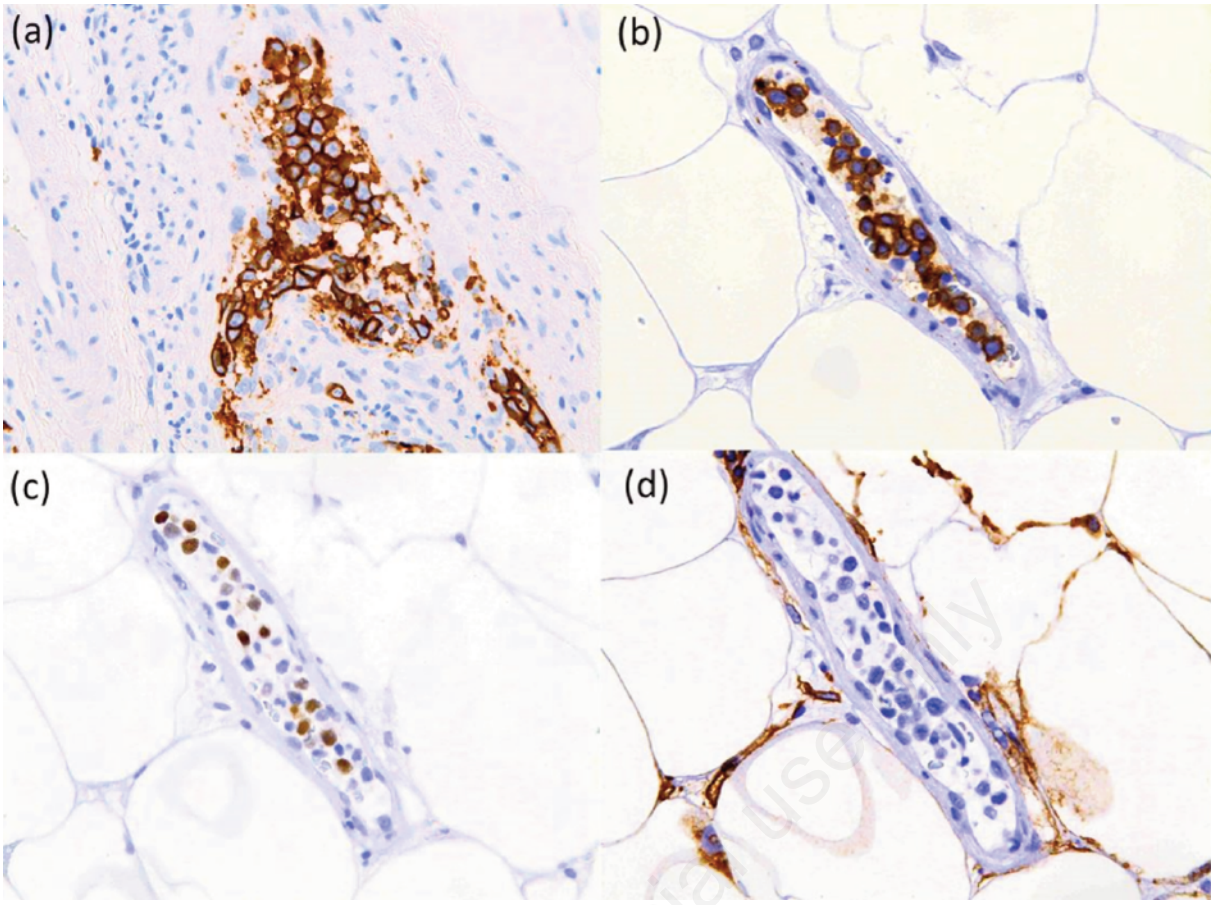

Figure 3. Immunohistochemical staining. Atypical lymphoma cells were found in the small subcutaneous vessels, which were positive for: **a**) CD20; **b**) CD79a; **c**) multiple myeloma 1; and negative for **d**) CD10 (magnification 400×).

ter prognosis than The Western variant with system symptoms.[1-9] However, the skin rashes in the cutaneous variant of IVLBCL lack specificity and can be diverse. According to a review of 81 cases of IVLBCL by Röglin *et al.*, skin rashes predominantly present over the thigh (41%), followed by the leg (35%), arm (15%), and buttocks (7.5%); in our case, the anteromedial part of the thigh was afflicted.[10] Furthermore, the commonly encountered lesions are nodules or plaques (49%), followed by induration (27.5%), macules (22.5%), and telangiectasias (20%).[10] Additionally, the most common concomitant symptoms are edema of the legs (27.5%) and pain (24%).[10]

Induration occurs when the vessels in the deep dermis or subcutaneous tissue are occluded by lymphoma cells. Telangiectasias are caused by the recanalization of the occluded vessels and the promotion of neovascularization.[10,11] Because the cutaneous form of IVLBCL shows diverse cutaneous manifestations, it can be misdiagnosed as thrombophlebitis, erysipelas, livedo racemosa, leukocytoclastic vasculitis, or erythema nodosum.[10]

In Asian countries, the cutaneous variant of IVLBCL is rare (including our case), and 20 of the 24 cases of cutaneous variants showing telangiectasia with/without erythema or induration have been reported in "Ichu-shi web" and Medline.[5-9] Additionally, a search of Medline did not reveal any reports of dermoscopy for erythema nodosum. We only found a textbook description of milky-white and brownish areas without telangiectasia in leprosy erythema nodosum.[11] Thus, as erythematous induration with telangiectasia is considered specific, it could be a novel diagnostic parameter. A previous report suggested that compensatory and reversible capillary vasodilation occurs owing to vascular occlusion caused by lymphoma cells in the subcutaneous tissue.[9] In our case, this dilation gradually disappeared after chemotherapy.

Conclusions

The cutaneous variant of IVLBCL initially presents with only skin lesions and lacks systemic involvement or abnormal laboratory findings. Early diagnosis and prompt initiation of chemotherapy improve the condition of such patients. Thus, it is important to confirm telangiectasia by dermoscopy and perform skin biopsies in patients presenting with sudden-onset erythematous induration.

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