



A Case of Cutaneous Epstein-Barr Virus-Associated Diffuse Large B-Cell Lymphoma in an Angioimmunoblastic T-Cell Lymphoma

Mi-Hye Lee, Ik-Jun Moon, Woo-Jin Lee, Chong-Hyun Won, Sung-Eun Chang, Jee-Ho Choi, Mi-Woo Lee

Department of Dermatology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Dear Editor:

Angioimmunoblastic T-cell lymphoma (AITL) is a subtype of peripheral T-cell lymphoma (PTCL) accounting for 18% of all PTCL. Clinical features commonly include constitutional symptoms, lymphadenopathy, hepatosplenomegaly, polyclonal hypergammaglobulinemia, and skin eruptions¹. On rare occasions, B-cell lymphomas can develop in patients with AITL, and most of the subsequent B-cell lymphomas are known to be diffuse large B-cell lymphoma (DLBCL), which usually occur at lymph nodes or in bone marrows. Cutaneous DLBCLs originating from AITL are even rarer²⁻⁴. Here we report a patient who developed secondary cutaneous DLBCL in addition to underlying AITL.

In April 2010, a 77-year-old Korean man presented with a month-long complaint of skin rash and dry cough (Fig. 1A). Biopsy of the enlarged left cervical lymph node was performed. Hematoxylin and eosin-stained sections showed a dense cellular infiltration. The nodal architecture was partially effaced by a polymorphous infiltrate of small to medium-sized lymphoid cells. Immunohistochemical study demonstrated that the infiltrated cells were helper T cells (positive for CD3, CD4, CD10, Bcl-6 and negative for CD20, CD56, myeloperoxidase). (Fig. 2A~C). Additionally, Southern blot analysis demonstrated a clonal rearrangement of the T-cell receptor-gamma gene, and no Epstein-Barr virus (EBV)-infected cells were found by quantitative polymerase chain reaction

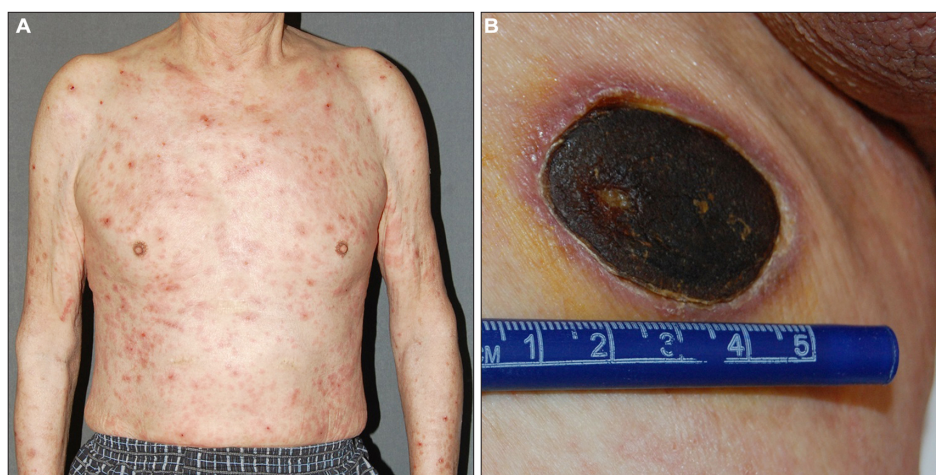


Fig. 1. (A) Clinical photographs of initial angioimmunoblastic T-cell lymphoma and (B) secondary cutaneous diffuse large B-cell lymphoma.

Received September 7, 2015, Revised November 10, 2015, Accepted for publication November 13, 2015

Corresponding author: Mi-Woo Lee, Department of Dermatology, Asan Medical Center, University of Ulsan College of Medicine, 88 Olympic-ro 43-gil, Songpa-gu, Seoul 05505, Korea. Tel: 82-2-3010-3460, Fax: 82-2-486-7831, E-mail: miumiu@amc.seoul.kr

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Copyright © The Korean Dermatological Association and The Korean Society for Investigative Dermatology

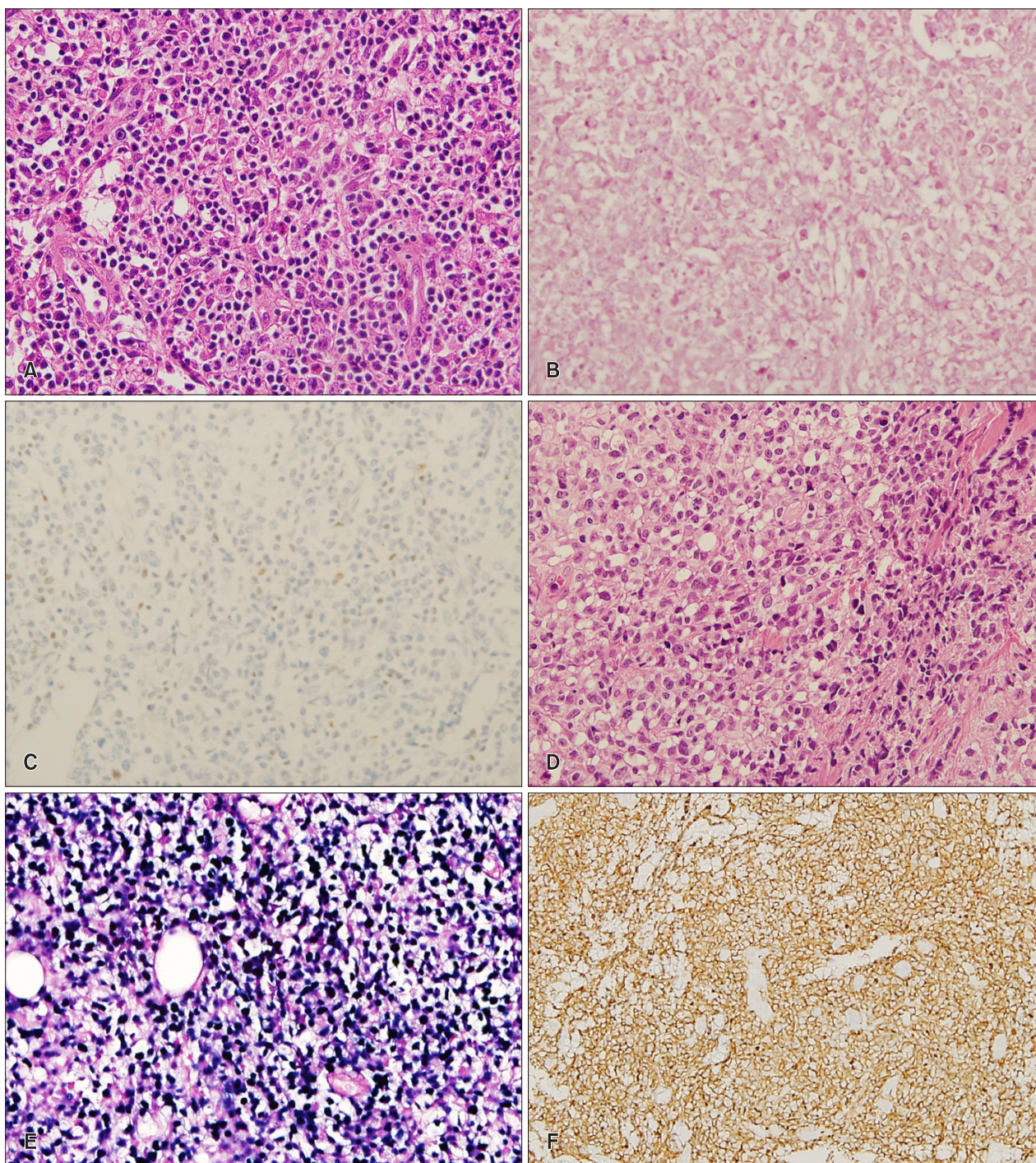


Fig. 2. Histopathological findings for initial angioimmunoblastic T-cell lymphoma (AITL) of lymph node (A~C) and secondary diffuse large B-cell lymphoma (DLBCL) of skin (D~F). (A) Polymorphic cellular infiltration in lymph node (H&E, $\times 400$). (B) Epstein-Barr virus (EBV)-positive cells were not detected by *in situ* hybridization for EBV RNA ($\times 200$). (C) Immunophenotype by staining for BCL-6, a marker of follicular helper T cells in AITL (immunoperoxidase stain for BCL-6, $\times 400$). (D) medium to large-sized cellular infiltration in dermis (H&E, $\times 400$). (E) EBV-positive cells were detected by *in situ* hybridization for EBV RNA ($\times 200$). (F) Immunophenotype by staining for CD20, a marker of B cells in DLBCL (immunoperoxidase stain for CD20, $\times 100$).

(PCR) assay in the bone marrow. However, an additional PCR assay using a blood sample showed 1,500 copies of EBV DNA per ml, positive for EBV infection. Based on the clinical

presentation and histological findings, the patient was diagnosed with stage IV AITL. Eight months after the initial diagnosis of AITL, the patient had a solitary plaque on his right

thigh (Fig. 1B). A skin biopsy revealed nodular infiltration of polymorphic cells in dermis, but this time the tumor cells were positive for CD20, PAX5, BCL-2, and EBV, but negative for CD3 and CD45RO (Fig. 2D~F). Three months after diagnosis of EBV-associated DLBCL of the skin, the patient died of respiratory failure caused by severe pneumonia.

To date, only two cases of cutaneous EBV-associated DLBCL in patients with AITL have been reported. In both reports, initial AITL was EBV-positive using special staining^{2,3}. Therefore, our case is the first report of cutaneous DLBCL originating from AITL, in which the initial AITL was EBV-negative.

Cases of both subsequent and concurrent developments of DLBCL in AITL have been reported, but only limited to journals of pathology²⁻⁵. Some of these cases showed absence of EBV infection in biopsy specimen of initial AITL, shedding light on some other possible etiologic factors of secondary lymphoma development². However, despite the absence of EBV-infected B-cells in the initial biopsy specimen of our present case, EBV infection was found by PCR testing of a blood sample. This suggests the importance of testing for EBV infection even when the initial AITL biopsy specimen does not yield EBV positivity.

Our case adds clinical evidence that EBV infection could be the culprit of DLBCL development in AITL patients,

and suggests that the detection of EBV infection using PCR on a blood sample can be a more sensitive tool than EBV staining of biopsy specimen.

REFERENCES

1. de Leval L, Gisselbrecht C, Gaulard P. Advances in the understanding and management of angioimmunoblastic T-cell lymphoma. *Br J Haematol* 2010;148:673-689.
2. Yang QX, Pei XJ, Tian XY, Li Y, Li Z. Secondary cutaneous Epstein-Barr virus-associated diffuse large B-cell lymphoma in a patient with angioimmunoblastic T-cell lymphoma: a case report and review of literature. *Diagn Pathol* 2012;7:7.
3. Hawley RC, Cankovic M, Zarbo RJ. Angioimmunoblastic T-cell lymphoma with supervening Epstein-Barr virus-associated large B-cell lymphoma. *Arch Pathol Lab Med* 2006;130:1707-1711.
4. Huang J, Zhang PH, Gao YH, Qiu LG. Sequential development of diffuse large B-cell lymphoma in a patient with angioimmunoblastic T-cell lymphoma. *Diagn Cytopathol* 2012;40:346-351.
5. Suefuji N, Niino D, Arakawa F, Karube K, Kimura Y, Kiyasu J, et al. Clinicopathological analysis of a composite lymphoma containing both T- and B-cell lymphomas. *Pathol Int* 2012; 62:690-698.

<https://doi.org/10.5021/ad.2016.28.6.791>



Lupus Miliaris Disseminatus Faciei with Extrafacial Involvement

Ju-Yeon Choi, Seoung Wan Chae¹, Ji-Hye Park²

Departments of Dermatology and ¹Pathology, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, ²Department of Dermatology, Samsung Medical Center, Seoul, Korea

Dear Editor:

A 25-year-old Korean woman presented with 3 months

history of multiple, symmetric, red-brown papules on face (Fig. 1A). Facial erythema, flushing and telangiectasia

Received October 19, 2015, Revised November 18, 2015, Accepted for publication November 20, 2015

Corresponding author: Ji-Hye Park, Department of Dermatology, Samsung Medical Center, 81 Irwon-ro, Gangnam-gu, Seoul 06351, Korea. Tel: 82-2-3410-3549, Fax: 82-2-3410-3869, E-mail: jh1204.park@samsung.com

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Copyright © The Korean Dermatological Association and The Korean Society for Investigative Dermatology