

Remission of Cutaneous Involvement in Splenic Marginal Zone Lymphoma after Splenectomy

Shoko MAI¹, Ken NATSUGA^{1*}, Souichi SHIRATORI², Yoshimasa TAKAHASHI³ and Hiroshi SHIMIZU¹

¹Department of Dermatology and ²Department of Hematology, Hokkaido University Graduate School of Medicine, North 15 West 7, Sapporo 060-8638, and ³Kitago Dermatology Clinic, Sapporo, Japan. *E-mail: natsuga@med.hokudai.ac.jp

Accepted May 29, 2018; Epub ahead of print Jun 1, 2018

Marginal zone lymphoma (MZL) is an indolent neoplasm that originates from lymphocytes of the marginal zone. MZL is classified into 3 subtypes: extranodal MZL of mucosa-associated lymphatic tissue (MALT), splenic MZL (SMZL) and nodal MZL (1). Although skin involvement often occurs in MALT lymphoma, infiltration of SMZL to the skin is quite rare (2). We describe here a 70-year-old man with cutaneous involvement in SMZL, which disappeared after splenectomy.

CASE REPORT

A 70-year-old man presented with numerous plaques and papules on his trunk and limbs, which had developed over an approximately 4-month period (Fig. 1A). He reported having had no fever, night sweats, weight-loss or bleeding. Physical examination revealed erythematous to violaceous plaques and papules on his chest, abdomen, back, buttocks and extremities. Some of the eruptions were accompanied by ulceration or crust formation. The initial clinical diagnosis was pityriasis lichenoides et varioliformis acuta (PLEVA). Histopathological examination of biopsy specimens revealed dense, band-

like infiltrates of small monomorphic lymphocytes in the papillary dermis and reticular dermis, and patchy perivascular infiltration in the deep dermis (Fig. 1B) to the subcutaneous fat tissue (not shown). The dermo-epidermal junction was blurred, and the monomorphic lymphocytes infiltrated the mid-epidermis (epidermotropism), resembling mycosis fungoides. The atypical cells were positive for CD20 and bcl-2, but negative for CD3, CD10 and cyclinD1. Ki-67 positivity was approximately 30%. The kappa;lambda light chain ratio could not be evaluated due to poor labelling of either kappa or lambda. Eosinophils were not observed in the infiltrates in the specimens. The pathological diagnosis of the skin specimens was low-grade B-cell lymphoma. PCR analysis of immunoglobulin heavy-chain (IgH) gene rearrangement confirmed the monoclonality of the tumour cells (VH-FR1, VH-FR2 and VH-FR3). A complete blood count revealed thrombocytopenia (62,000/mm³). Bone marrow biopsy specimens showed lymphoid aggregates, suggesting the involvement of lymphoma. Positron emission tomography-computed tomography (PET-CT) revealed massive splenomegaly (Fig. 1C). Due to the thrombocytopenia and the possibility of splenic

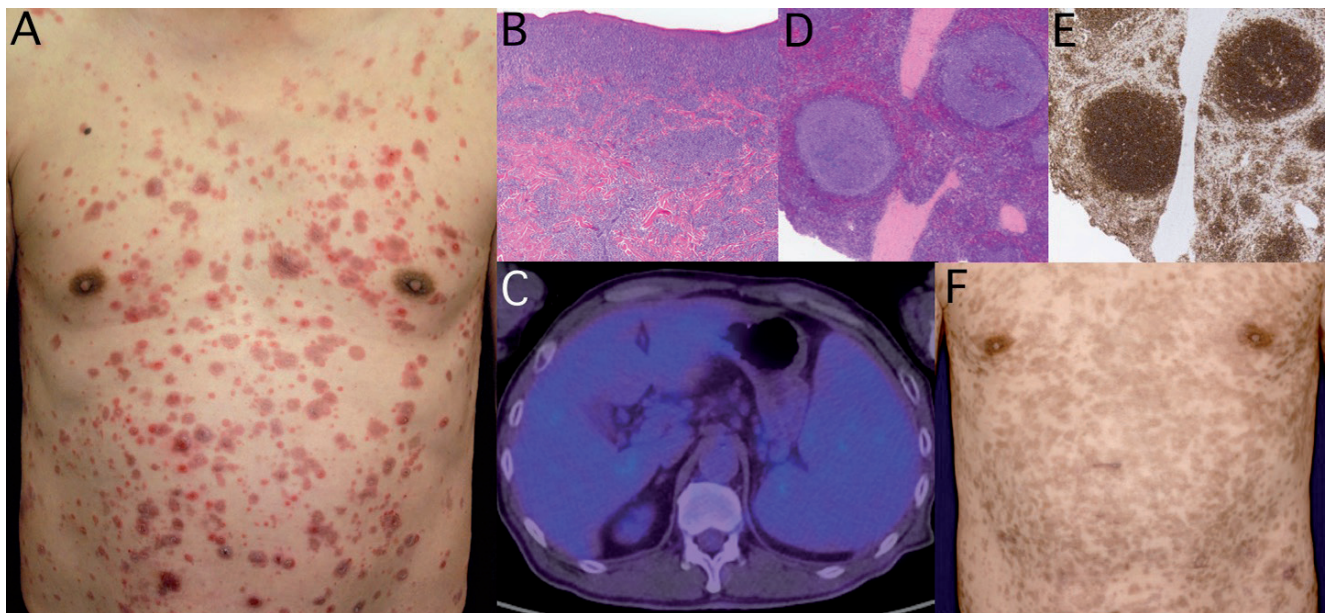


Fig. 1. (A) Scattered erythematous to violaceous plaques and papules on the chest and abdomen. (B) A skin biopsy specimen from the abdomen shows dense, band-like lymphocytic infiltrates in the epidermis and superficial dermis, as well as patchy perivascular infiltration in the deep dermis. (Haematoxylin and eosin (H&E) $\times 40$). (C) An axial fused positron emission tomography – computed tomography (PET/CT) image of the abdomen reveals marked splenomegaly. (D, E) Histological findings of spleen specimens. Predominant white pulp involvement by atypical cells (H&E $\times 100$) (D). (E) Tumour cells positive for CD20. (F) The skin lesions have disappeared after the splenectomy, leaving pigmentation (45 days after the procedure).

lymphoma, a splenectomy was performed as the initial treatment. The resected spleen was enlarged, weighing 2,050 g (normal spleen 80–120 g). Histopathological examination of the splenic specimens showed that atypical lymphocytes had predominantly infiltrated to and almost replaced the white pulp, together with some red pulp involvement (Fig. 1D). A majority of the neoplastic cells were small, with round, regular nuclei. The phenotypes of the tumour cells were CD20⁺ (Fig. 1E), CD3⁻, CD5⁻, CD10⁻, CD23⁻ and CyclinD1⁻. Karyotype analysis revealed partial trisomy of chromosome 3. The skin lesions disappeared completely one month after the splenectomy (Fig. 1F) and the thrombocytopenia also resolved within one month. A diagnosis of SMZL with cutaneous involvement was made. No relapse in either the skin or other organs was observed at 21-month follow-up.

DISCUSSION

The median age of occurrence of SMZL is approximately 65 years, with equal distribution between men and women. Most patients present with splenomegaly (almost 100%), and the bone marrow (95%) and peripheral blood (75%) are commonly involved (3). Typically, B symptoms are not present in patients with SMZL. Peripheral lymphadenopathy is uncommon, but involvement of the splenic hilar lymph nodes is seen in the majority of cases. Anaemia and thrombocytopenia frequently accompany SMZL, but they generally result from hypersplenism rather than bone marrow infiltration. Skin involvement is quite uncommon in SMZL, but has been reported in a few cases (2, 4–6). The diagnosis of SMZL with secondary skin involvement in our case was based on the preceding thrombocytopenia, massive splenomegaly and remission of the skin lesions after splenectomy. The resemblance of PLEVA in the clinical manifestations also contributed to the difficulty of the diagnosis, although the skin eruptions persisted longer than is typical for PLEVA cases. Histopathology does not differentiate primary cutaneous MZL from secondary MZL; however, the epidermotropism can be the hallmark of secondary cutaneous lesions of SMZL, although this histological

finding is rare in primary cutaneous MZL (4). Recent studies have revealed that CXCR3 plays a role in the epidermotropism of MZL, and this can be used as a marker for B-cell lymphoma with epidermotropism (7).

Most patients with SMZL are asymptomatic at diagnosis, and some cases are managed with a “watch and wait” policy (3). When treatment is required, splenectomy and/or a combination of rituximab and chemotherapy (cyclophosphamide, doxorubicin, vincristine and prednisone) are used. The current case is the first to show complete remission of cutaneous lesions secondary to SMZL without relapse, with splenectomy as the only treatment, in contrast to previous cases of SMZL with skin involvement that warranted chemotherapy subsequent to splenectomy due to early relapse (2). Clinicians should observe the clinical course of SMZL with cutaneous involvement and SMZL with other organ involvement after splenectomy cautiously in order to avoid unnecessary treatment when complete remission is achieved.

The authors have no conflicts of interest to declare.

REFERENCES

1. Swerdlow SH, Campo E, Pileri SA, Harris NL, Stein H, Siebert R, et al. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. *Blood* 2016; 127: 2375–2390.
2. Gómez-de la Fuente E, Villalón LB, Calzodo-Villarreal L, Pinedo-Moraleda F, López-Estebananz. Splenic marginal zone B-cell lymphoma with epidermotrophic skin involvement. *Actas Dermosifiliogr* 2012; 103: 427–431.
3. Oscier D, Owen R, Johnson S. Splenic marginal zone lymphoma. *Blood Rev* 2005; 19: 39–51.
4. Mollejo M, Algara P, Mateo MS, Sánchez-Beato M, Lloret E, Medina MT, et al. Splenic small B-cell lymphoma with predominant red pulp involvement: a diffuse variant of splenic marginal zone lymphoma? *Histopathology* 2002; 40: 22–30.
5. Cohen J, Nazarian R, Ferry J, Takvorian R, Carter J. Rare presentation of secondary cutaneous involvement by splenic marginal zone lymphoma: report of a case and review of the literature. *Am J Dermatopathol* 2015; 37: e1–4.
6. Chiang S, DiCaudo DJ, Valdez R, Swanson DL. Cutaneous B-cell lymphoma with histologic features of mycosis fungoides. *J Am Acad Dermatol* 2010; 62: 320–323.
7. Magro CM, Momtahan S, Lee BA, Swanson DL, Pavlovic MD. Epidermotropic B-cell lymphoma: a unique subset of CXCR3-positive marginal zone lymphoma. *Am J Dermatopathol* 2016; 38: 105–112.