Pityriasis Lichenoids Chronica as a Paraneoplastic Dermatoses for Primary Splenic Diffuse Large B Cell Lymphoma

Ying-Yi Lu · Jia-Bin Liao · Chieh-Shan Wu ·
Chien-Hui Hong

Received: 29 September 2013 / Accepted: 15 January 2014 / Published online: 5 February 2014
© Indian Society of Haematology & Transfusion Medicine 2014

Abstracts Paraneoplastic dermatosis is defined as both benign skin lesions and internal malignancy existing at the same time with parallel clinical courses. Herein, we report a 91-year-old male who presented as pityriasis lichenoids chronica (PLC) concomitantly with a primary splenic diffuse large B cell lymphoma. Surgical removal of the spleen cleared his skin lesions dramatically. However, seven months later, the splenic lymphoma relapsed in concordance with the recurrence of the skin lesions of PLC. To our knowledge, he is the first case that PLC is the leading presentation and paraneoplastic manifestation of primary splenic large B-cell lymphoma.

Keywords Papulosquamous disorder · Pityriasis lichenoids chronica · Paraneoplastic dermatosis · Primary splenic diffuse large B-cell lymphoma

Introduction

Paraneoplastic dermatoses (PD) occur as non-neoplastic skin lesions developing in the context of an underlying malignancy with a parallel course. The well-known PD are

tripe palms, Bazex syndrome, paraneoplastic pemphigus, dermatomyositis, erythema gyratum repens, necrolytic migratory erythema and hypertrichosis lanuginosa acquisita [1]. PDs are associated mostly with solid organ cancers and only a few of them are associated with hematological malignancies. Moreover, PD rarely manifests as pityriasis lichenoids chronica (PLC). The following case highlights PLC as a PD with the development of primary splenic large B-cell lymphoma, an aggressive lymphoma.

Case Report

A 91-year-old male patient had developed multiple scattered asymptomatic and erythematous papules and plaques with centrally adherent micaceous scales on the back, chest and axillae 6 months previously (Fig. 1a, b). He had had coronary artery disease for seventeen years and chronic renal insufficiency for twelve years respectively. No hyphae or fungal elements were identified on potassium hydroxide smear and microscopy examination. Serology tests for syphilis were nonreactive and antinuclear antibodies were negative. Based on the clinical findings, a diagnosis of pityriasis lichenoides chronica (PLC) was considered. He received skin biopsy, which showed focal parakeratosis and spongiotic epidermis with lymphocyte exocytosis, interfaced vacuolated changes and perivascular lymphocyte inflammation in the dermis (Fig. 2a, b). Periodic acid-Schiff stain did not reveal fungal hyphae or spores. These histopathological findings were compatible with PLC. Immunohistochemical exams showed most of the cells in the infiltrate were CD4 positive (Fig. 2c). The skin lesions persisted and even progressed despite treatments with topical antifungal agents, topical corticosteroids, systemic corticosteroids and broad-band ultraviolet

Y.-Y. Lu · C.-S. Wu · C.-H. Hong (✉)
Department of Dermatology, Kaohsiung Veterans General Hospital, No. 386 Ta-Chung 1st Rd, Kaohsiung City 81362, Taiwan
e-mail: actinpactin@yahoo.com.tw

J.-B. Liao
Department of Pathology and Laboratory Medicine, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

C.-H. Hong
School of Medicine, National Yang-Ming University, Taipei, Taiwan

Fig. 1 Multiple scattered erythematous papules and plaques with centrally adherent micaceous scales on **a** back, **b** a close-up view

Fig. 2 **a** Histopathology of skin biopsy showed parakeratosis and spongiotic epidermis with lymphocyte exocytosis, interfaced changes and perivascular inflammation in the dermis on low-power field

($\times 100$); **b** High-power view showed interfaced changes and perivascular lymphocyte infiltrate and red blood cell extravasations in the dermis ($\times 400$) (H&E)

B phototherapy three times weekly for half a year at the outpatient clinic.

Because of the protracted course, he underwent further clinical, biochemical and imaging examinations. Examinations for hemogram, complete biochemistry, IgE and tumor markers were all unremarkable. However, abdominal ultrasonography revealed one hypoechoic mass in the spleen (Fig. 3a). Further computed tomography (CT) showed one

solitary splenic tumor sized 5.6 cm without lymphadenopathy (Fig. 3b). A laparoscopic splenectomy was then performed. The pathology exam of the splenic tumor demonstrated diffuse large CD20+ lymphoid cells with highly polymorphic nuclei, indicating a diagnosis of diffuse large B-cell lymphoma (Fig. 3c–e). Disease extension workup, including bone marrow aspiration, biopsy and neck-to-pelvic CT, showed negative findings. Hence, primary

Fig. 3 **a** An abdominal ultrasonography revealed a hypoechoic mass in the spleen; **b** Abdominal computed tomography showed one solitary splenic tumor, size 5.6 cm, without lymphadenopathy; **c** Microscopically, the splenic mass showed diffuse large lymphoid

cells with highly polymorphic nuclei on low-power field ($\times 40$) and **d** high field ($\times 400$). **e** CD20 (pan B-cell marker) was diffusely positive in tumor cells

splenic diffuse B-cell lymphoma was diagnosed. Considering his functional organ reserves at this age, he did not receive further adjuvant chemotherapy. Interestingly, 3 weeks after splenectomy, his skin lesions disappeared dramatically (Fig. 4). He then had a relapse-free period for 7 months until the lymphoma relapsed with several retroperitoneal para-aortic lymphadenopathies when he had poor appetite and generalized weakness. Interestingly, the skin lesions of PLC recurred in concordance with the relapse of the lymphoma. One month later after relapse, hypercalcemia of malignancy developed with persistent left flank pain. Complicated acute pancreatitis occurred thereafter 4 months later with progression of hypercalcemia despite medical managements. Pancreatitis rapidly progressed and was complicated with the development of pneumonia and septic shock, resulting in the patient expiring.

Discussion

In this report, the skin lesions of PLC responded poorly despite several standard treatments in the beginning. Because of the protracted course, the patient received further investigations that identified primary splenic large B-cell lymphoma. He then underwent splenectomy that not only directly removed the tumor burden but also

Fig. 4 Three weeks after splenectomy, his skin lesions disappeared dramatically

incidentally cleared the refractive skin lesions of PLC. Thus, PLC manifested as a paraneoplastic dermatosis in primary splenic large B-cell lymphoma, a rare lymphoma with aggressive nature.

Paraneoplastic dermatoses can precede, occur concurrently with, or follow the diagnosis of neoplastic disease. Both conditions start approximately at the same time and run a parallel course [2]. The skin lesions not only represent the first clinical sign of underlying malignancy but can also herald the relapse of previous cancer [3]. The well-known PDs are tripe palms, Bazex syndrome, paraneoplastic pemphigus, dermatomyositis, erythema gyratum repens, necrolytic migratory erythema and hypertrichosis lanuginosa acquisita [1]. They are mostly associated with cancers of the solid organs [4] especially those of lungs and gastrointestinal system [5]. Neutrophilic dermatoses (Sweet syndrome, pyoderma gangrenosum), vesiculobullous disorders (paraneoplastic pemphigus) and vasculitis (leukocytoclastic vasculitis, polyarteritis nodosa) are among the few PD that are associated with systemic hematological malignancy [3], including acute or chronic myelogenous leukemia, non-Hodgkin's lymphoma, and multiple myeloma [4]. The pathophysiology of PD is not fully understood, although aberrant immunological regulations appear to be one of the most important factors that contribute to the pathogenesis of PD [6].

Pityriasis lichenoides chronica is an uncommon inflammatory dermatosis [5, 7, 8]. PLC is usually regarded as a benign disease; nonetheless, it may undergo malignant transformation *de novo*. For example, transformation of PLC to cutaneous T-cell lymphoma has been reported [5, 9]. However, PLC is rarely presented as paraneoplastic dermatosis. In fact, only two case reports have been described to date. One 37-year-old female had oncocyoma of kidney concurrent with PLC, which was improved after nephrectomy [9]. Another 21-year-old female had PLC that responded well in the beginning, but deteriorated concomitantly with the development of a low-grade lymphoma of lung. The skin lesions improved in accordance with the successful tumor remission by chemotherapy [5]. In our case, PLC presented with the primary splenic lymphoma, a high-grade lymphoma, which has never been reported to date.

Primary spleen lymphoma (PSL) is a rare entity with an incidence of less than 1 % in lymphoma, which is defined firstly by Das Guspa et al.[10] as only involvement of the spleen. Microscopically, diffuse large cell morphology has been reported in 22.4–33.3 % of the cases which have poor outcomes [11–16]. In contrary to systemic diffuse large B-cell lymphoma, localized splenic disease has a relatively favorable clinical course [17]. Furthermore, splenectomy followed by combination chemotherapy results in excellent survival rates [11–16, 18].

In summary, skin manifestations of malignancy are variable. It is important to consider protracted dermatoses as possible paraneoplastic dermatoses as in this patient.

Early recognition of underlying disease prompts appropriate therapy and clears the skin lesions earlier [2]. It is worth recognizing refractive pityriasis lichenoides chronica may be the leading sign of an occult neoplasm.

References

1. Fitzpatrick TB, Wolff K (2008) Fitzpatrick's dermatology in general medicine, 7th edn. McGraw-Hill Medical, New York, pp 240–243 1493–1507
2. Boyce S, Harper J (2002) Paraneoplastic dermatoses. *Dermatol Clin* 20(3):523–532
3. Zappasodi P, Forno C, Corso A, Lazzarino M (2006) Mucocutaneous paraneoplastic syndromes in hematologic malignancies. *Int J Dermatol* 45(1):14–22
4. Cohen PR, Kurzrock R (1997) Mucocutaneous paraneoplastic syndromes. *Semin Oncol* 24(3):334–359
5. Panizzon RG, Speich R, Dazzi H (1992) Atypical manifestations of pityriasis lichenoides chronica: development into paraneoplasia and non-Hodgkin lymphomas of the skin. *Dermatology* 184(1):65–69
6. Kempf W, Kutzner H, Kettelhack N, Palmedo G, Burg G (2005) Paraneoplastic pityriasis lichenoides in cutaneous lymphoma: case report and review of the literature on paraneoplastic reactions of the skin in lymphoma and leukaemia. *Br J Dermatol* 152(6):1327–1331
7. Khachemoune A, Blyumin ML (2007) Pityriasis lichenoides: pathophysiology, classification, and treatment. *Am J Clin Dermatol* 8(1):29–36
8. Bowers S, Warshaw EM (2006) Pityriasis lichenoides and its subtypes. *J Am Acad Dermatol* 55(4):557–572 quiz 573–6
9. Lazarov A, Lalkin A, Cordoba M, Lishner M (1999) Paraneoplastic pityriasis lichenoides chronica. *J Eur Acad Dermatol Venerol* 12(2):189–190
10. Dasgupta T, Coombes B, Brasfield RD (1965) Primary malignant neoplasms of the spleen. *Surg Gynecol Obstet* 120:947–960
11. Grosskreutz C, Troy K, Cuttner J (2002) Primary splenic lymphoma: report of 10 cases using the REAL classification. *Cancer Invest* 20(5–6):749–753
12. Han SM, Teng CL, Hwang GY, Chou G, Tsai CA (2008) Primary splenic lymphoma associated with hemophagocytic lymphohistiocytosis complicated with splenic rupture. *J Chin Med Assoc* 71(4):210–213
13. Kim JK, Hahn JS, Kim GE, Yang WI (2005) Three cases of diffuse large B-cell lymphoma presenting as primary splenic lymphoma. *Yonsei Med J* 46(5):703–709
14. Ambulkar I, Kulkarni B, Borges A, Jagannath P, Advani SH (2006) Primary non-Hodgkin's lymphoma of the spleen presenting as space occupying lesion: a case report and review of literature. *Leuk Lymphoma* 47(1):135–139
15. Healy NA, Conneely JB, Mahon S, O'Riardon C, McAnena OJ (2011) Primary splenic lymphoma presenting with ascites. *Rare Tumors* 3(2):e25
16. Kehoe J, Straus DJ (1988) Primary lymphoma of the spleen. Clinical features and outcome after splenectomy. *Cancer* 62(7): 1433–1438
17. Wu CM, Cheng LC, Lo GH, Lai KH, Cheng CL, Pan WC (2007) Malignant lymphoma of spleen presenting as acute pancreatitis: a case report. *World J Gastroenterol* 13(27):3773–3775
18. Ng AK (2007) Diffuse large B-cell lymphoma. *Semin Radiat Oncol* 17(3):169–175