Cutaneous Plasmacytosis
— Report of a Case —

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A 30-year-old Taiwanese man presented with wild spread brown-black papules and plaques on his trunk and extremities for 7 years. Physical examination showed generalized lymphadenopathy. A skin biopsy specimen revealed dermal infiltrates of many mature plasma cells. The immunohistochemical study showed polyclonal origin of the plasma cells, and the immunoglobulin heavy chain gene rearrangement study excluded the possibility of lymphoma. There was no evidence of autoimmune disease or any infection sign. The patient also had IgA nephropathy and polyclonal hypergammaglobulinemia. This unusual condition has been reported as cutaneous plasmacytosis in Japanese literature. The clinicopathological features of this entity are described to document its occurrence in Taiwan. (Dermatol Sinica 21:97-101, 2003)

Key words: Cutaneous plasmacytosis, Hypergammaglobulinemia, Nephrotic syndrome

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Introduction
Cutaneous plasmacytosis is a disorder characterized by peculiar skin lesions, and usually associated with superficial lymphadenopathy, and polyclonal hypergammaglobulinemia. Similar cases had been already reported in Japanese-language literature in the past. It was first described in the English-language literature by Watanabe et al. in 1986. Watanabe reported two patients with multiple pigmented skin lesions, generalized lymphadenopathy and polyclonal hypergammaglobulinemia. Up to date, more than 40 cases with similar presentations have been reported. We report a similar case first encountered in Taiwan and the literatures are reviewed.

Case Report
A 30-year-old Taiwanese man developed many asymptomatic papules on his body 7 years ago. Foamy urine was noted 4 years ago and was diagnosed as having nephrotic syndrome at that time. The patient refused renal biopsy and other invasive studies. He had lost follow-up until he suffered from intermittent fever and abdominal fullness 2 weeks before his admission in August, 2001.

On physical examination, multiple, discrete, and infiltrated brown to black papules and plaques, measuring from 0.5 to 3 cm, were found on his trunk and extremities (Fig. 1). Many enlarged lymph nodes were noted on the bilateral cervical, supraclavicular, axillary, and inguinal areas. Abdominal sonography revealed mild hepatomegaly and marked splenomegaly. Laboratory tests revealed microcytic microchromic anemia (Hb 4.3 g/dL, MCV 59.8 fL, MCH 16.6 pg). Hemoglobin electrophoresis showed no evidence of thalassemia. Biochemical analysis revealed hypoalbuminemia (2.1 g/dL), hyperproteinemia (13.6 g/dL), and polyclonal hypergammaglobulinemia: IgG 8540 mg/dL (680-1530), IgA 390 mg/dL (74.7-373.5), IgM 289 mg/dL (40.2-167.5), IgE 4880 mg/dL (<90). There was no paraprotein identified in the serum. Liver function tests revealed only mild elevation of the alkaline phosphatase (347 U/L) and normal level of aminotransferases. Renal function test was within normal limit. Urinalysis revealed proteinuria with daily protein loss of 4.2 g/day. Bence-Jones protein was not detected in the urine. C-reactive protein was high (195.6 mg/L) Chest x-ray revealed a picture suggestive of chronic obstructive pulmonary disease.

The patient was referred to hematologist. Bone marrow aspiration and biopsy revealed hypercellular marrow with plasmacytosis and iron depletion (iron store grade: 0-1). Biopsy specimen of the right inguinal lymph node revealed normal lymph node architecture, scattered germinal centers, and numerous plasma cells. Renal biopsy specimen demonstrated IgA nephropathy. Focal aggregates of mature plasma cells were found in the interstitial areas with deposition of IgA (2-3+) and IgM (1+) in the mesangium. Serological examinations for syphilis, cytomegalovirus, hepatitis virus type B and C and HIV-1 and 2, and HTLV-1 were all negative. Antinuclear antibody and rheumatoid
factor were also negative. Blood culture for bacteria revealed no growth. A biopsy of the abdominal skin showed pigmented basal cell layer and many plasma cells and lymphocytes around the dermal vessels (Fig. 2). There were two small lymphoid follicles surrounded by plasma cells. Immunohistochemical study revealed a meshwork of CD21+ follicular dendritic cells colonized by small CD20+ B cells. Both of κ+ and λ+ plasma cells were present. An immunoglobulin gene rearrangement for B cell lymphoma was germline. Additional immunochemical stain revealed that the plasma cells were positive for IgA, IgM, IgG. We conclude that the plasma cell infiltrates were polyclonal and not lymphomatous and diagnosed as a case of cutaneous plasmacytosis accompanied by polyclonal hypergammaglobulinemia and nephrotic syndrome.

Discussion

Cutaneous plasma cell infiltration of the skin may be due to a variety of etiologies, including chronic infection, connective tissue disease, plasma cell neoplasm and other disorders with plasma cell proliferation. Our patient did not have any evidence of infection, and the clinical and laboratory features did not favor any association with connective tissue disease. Besides, the plasma cell infiltrate was polyclonal. Neoplastic plasma cell disorders with monoclonal type proliferation, including extramedullary plasmacytoma, plasma cell leukemia with secondary skin involvement, lymphoplasmacytic lymphoma and Waldenstrom’s macroglobulinemia could be excluded. These diseases have occasional atypical cells which were not found in our case. Generalized cutaneous lymphoid hyperplasia was not considered and the patient did not have any drug history.

Cutaneous plasmacytosis is a rare clinical entity occurring without any known underlying disease, which was reported mainly in Japanese patients. The age of onset ranged from the second to the sixth decade of life. The male to

![Fig. 2A](image1.png)

Acanthosis, pigmented basal cell layer and many plasma cells around dermal vessels in dermis. (H & E, 100x)

![Fig. 2B](image2.png)

Close-up view of the skin lesions

![Fig. 2B](image3.png)

Higher magnification showing mature plasma cells without atypia. (H & E, 400x)
female ratio was about 1 : 0.6. The disease is characterized by skin lesions consisting of multiple red-brown to dark-brown nodules and plaques, scattered over the whole body. The disease is usually associated with polyclonal hypergammaglobulinemia and superficial lymphadenopathy. Our case fulfilled the same clinicopathological features.

Histologically, the skin lesions contained a dense perivascular infiltrate of mature polyclonal plasma cells without any atypia or mitosis and intermingled with lymphocytes and histiocytes. Sometimes, the infiltrating cells form structures resembling lymph node follicles, which may be mistaken for a marginal zone lymphoma. We have excluded the latter possibility by immunoglobulin gene rearrangement study and immunohistochemical demonstration of polyclonality of the plasma cells.

Organs other than skin and lymph node might be affected. Increased bone marrow plasma cell infiltrates and hepatosplenomegaly were common. There were also case reports of lung involvement showing lymphoid interstitial pneumonia (LIP), and periureteric fibrous mass infiltrated diffusely by mature plasma cells. Systemic plasmacytosis was first proposed by Watanabe et al in 1986, indicating those cases that had more than two organs involved, including skin and lymph node. Our patient had renal involvement manifesting as nephrotic syndrome. Some patient might have constitutional symptoms such as fever and malaise. Other laboratory abnormality includes anemia and elevation of erythrocyte sedimentation rate and C-reactive protein (CRP) level. Fever, anemia and elevated CRP level were all noted in our patient.

The peculiar skin manifestation of the cutaneous plasmacytosis should be differentiated clinically from other pigmented disorders. Post-inflammatory hyperpigmentation always follows resolution of specific skin eruptions, such as contact dermatitis or atopic dermatitis. Erythema dyschromicum perstans or ashy dermatosis, presented with a flat red macule with gray hue and slightly raised margin, has a tendency to coalesce. It could be differentiated from the mild elevated, infiltrated and discrete lesions of the cutaneous plasmacytosis. Urticaria pigmentosa often has characteristic Darier’s sign. Finally, lymphoma or leukemia cutis may be taken into consideration clinically. A skin biopsy with ancillary studies will make the distinction.

The etiology of cutaneous plasmacytosis is unknown. Elevation of the interleukin-6 (IL-6) level was observed in some cases. IL-6 is a cytokine that induces the terminal differentiation of B cells to plasma cells. The clinical course in most reported cases was chronic and benign. However, a few cases developed leukemia or lymphoma several years after the diagnosis of cutaneous plasmacytosis. Complication of visceral organ involvement, such as respiratory failure as a result of LIP had also been reported. We do not know what will happen to our patient.

The skin lesions always showed no response to various cytostatic or immunosuppressive treatment. Our patient did not improve on systemic corticosteroid treatment (30 mg/day). Some authors suggested that radiotherapy or PUVA therapy are effective for the skin eruptions.

In summary, this is a rare and peculiar cutaneous plasma cell disease with unique disseminated pigmented skin eruptions of unknown etiology without any effective treatment. It is documented for the occurrence in Taiwan.

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