A 31-year-old Vietnamese woman presented with a 10-year history of asymptomatic plaques on her left ankle that had slowly increased in size. She denied prior trauma to this area. The lesion did not respond to topical corticosteroid treatment. Her general health was good without other diseases and she was not taking any medication. On examination, two erythematous, well-demarcated plaques with an irregular edge were seen on her left ankle (Figure 1A and B). The clinical appearance was similar to a keloid. Histological examination revealed a strikingly epidermotropic infiltrate of medium-sized atypical lymphoid cells (Figure 2A). The atypical cells, demonstrating pagetoid spread, had hyperchromatic nuclei and a perilymphocyte halo (Figure 2B). Aggregation of atypical cells into Pautrier’s microabscess was also noted. The papillary dermis was fibrotic and contained a band-like infiltrate of small lymphocytes and few atypical lymphoid cells. Immunohistochemical studies showed that most of these atypical cells in the epidermis were positive for CD30 (Figure 2C), weakly positive for CD4, and negative for CD7, CD8, and CD79a. The small lymphocytes that had infiltrated the papillary dermis were positive for CD4 or CD8, but negative for CD30. A systemic workup was negative for other sites of involvement and the results of laboratory examinations were within normal limits. The patient’s lesion was most consistent with a diagnosis of PR.

Our patient was treated with local electron-beam radiotherapy to her left ankle to a total of 40 Gy in 2-Gy fractions over a 2-month period. The skin lesions became much thinner and smaller in size after treatment (Figure 1C and D) without relapse during the 4-month follow up.

Pagetoid reticulosis (PR), also known as Woringer-Kolopp disease, is currently categorized as a variant of mycosis fungoides (MF) in the World Health Organization and the European Organization for Research and Treatment of Cancer (WHO-EORTC) classification for cutaneous lymphomas. It is a low-grade primary cutaneous T-cell lymphoma that typically presents as a localized, slow growing, erythematous patch or hyperkeratotic plaque on the distal extremities. Histologically, this disease has an acanthotic epidermis that is markedly infiltrated by atypical lymphocytes in a pagetoid pattern with variable immunophenotypes. CD7 expression is often either aberrantly decreased or completely absent, whereas CD2, CD3, and CD5 expression is preserved.

Although PR is currently classified as a variant of MF, there are several features distinct from classical MF. Clinically, PR typically presents as a solitary lesion with a predilection for the distal extremity, whereas classical MF usually has multiple lesions involving the trunk and proximal extremities. The clinical course of PR is more indolent and extracutaneous dissemination or disease-related death has rarely been reported. Histologically, although both diseases share similar findings with prominent epidermotropism, PR usually displays neoplastic proliferation that is almost exclusively confined to the epidermis, whereas MF tumor cells are present both above and below the dermoepidermal junction. Finally, in classical MF, the majority of the tumor cells have a CD4+/CD8− T-helper cell phenotype, whereas PR is characterized by a CD4+/CD8+ or CD4-/CD8+ subset.

Figure 1 (A and B) Two erythematous, well-demarcated plaques with an irregular edge on the left ankle. (C and D) The skin lesions became much thinner and smaller in size after 2 months of electron-beam radiotherapy.
Figure 2 (A) Acanthotic epidermis with atypical lymphoid cell epidermotropism in a pagetoid pattern, and fibrotic papillary dermis with a band-like infiltrate of small lymphocytes (hematoxylin and eosin; original magnification, 100×). (B) The atypical cells aggregate into Pautrier’s microabscess in some foci, have hyperchromatism, irregular nuclei, and a perilymphocyte halo (hematoxylin and eosin; original magnification, 400×). (C) Immunohistochemical stain revealed that most of these atypical cells were positive for CD30 (original magnification, 400×).

phenotype. Variable phenotypes have, however, been reported in PR, with the most frequent being CD4+/CD8+ T-cell, followed by CD4+/CD8− T-cell, and CD4−/CD8− T cell the least common.6 These immunophenotypes appear to have no prognostic significance.2,4

In PR there is strong CD30 expression of tumor cells in around 50% of cases,2,5 but this is unusual in MF. CD30 expression in MF mostly occurs during large cell transformation, but the immunoreactivity is confined to the dermal neoplastic lymphocytes, rather than to the intraepidermal component, as in PR.3 The extensive expression of CD30 of neoplastic cells in our case prompted a differential diagnosis with other primary cutaneous CD30+ T-cell lymphoproliferative disorders, including primary cutaneous anaplastic large cell lymphoma and lymphomatoid papulosis.

Anaplastic large cell lymphoma can be distinguished from PR by its rapid initial growth, predominant dermal and the subcutaneous involvement with minimal epidermotropism. It often shows CD4 immunoreactivity.5 In lymphomatoid papulosis, the infiltrate tends to be wedge shaped without striking epidermotropism and the phenotype is frequently CD8-negative.4 The clinical features of lymphomatoid papulosis typically consist of recurrent crops of papules that resolve spontaneously over weeks, which are distinctly different from PR. The indolent course combined with our immunohistochemical findings favor a diagnosis of PR in our patient.

Effective treatments for PR include surgical excision for small, localized lesions or skin-directed therapies, such as topical nitrogen mustard, high-potency topical steroids, phototherapy, or topical photodynamic therapy.4 For recalcitrant or severe cases, localized radiation therapy with either electron-beam or photon irradiation is the most effective treatment modality.8 Limited areas of disease may be treated with local electron-beam therapy, while in instances where there is extensive involvement of acral sites, photon irradiation is more preferable.4 The results of prior case reports suggested that total doses ranging from 15 to 41 Gy in 1.5- to 2-Gy fractions resulted in a rapid and long-lasting response without significant side effects.3,4,7 Local recurrence after treatment has rarely been reported.

PR should always be considered in the differential diagnosis of strikingly epidermotropic forms of cutaneous T-cell lymphoma. With appropriate diagnosis and treatment, patients with PR usually have an excellent prognosis.

References


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