

A Case of Granuloma Faciale Showing Unusual Histopathological findings

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Granuloma faciale is an uncommon localized form of small-vessel vasculitis characterized by single or multiple lesions on the face in middle-aged whites, especially males. Histopathological examination demonstrates a dense polymorphous cellular infiltrate consisting of neutrophils, eosinophils, lymphocytes and histiocytes in the upper two thirds of the dermis. A characteristic subepidermal Grenz zone separates the infiltrate from the epidermis. We report a case of granuloma faciale, showing interesting evidence of palisaded granuloma-like pattern in the serial biopsy specimen at 3-year interval. (Ann Dermatol 14(3) 174~177, 2002).

Key Words : Granuloma faciale, Palisaded granuloma

Granuloma faciale (GF) is a rare chronic and persistent disorder characterized by asymptomatic papules, nodules, and plaques on the face in middle-aged whites, especially males^{1,2}. It is considered a variant of leukocytoclastic vasculitis confined to the skin. Histopathologically, a dense polymorphous inflammatory infiltrate distributed in the upper two thirds of the dermis sparing a narrow Grenz zone under an unaffected epidermis^{1,3}. Herein we report a 64-year-old man presenting as multiple, erythematous and facial papules, and describe the histopathological findings uncommon to GF, such as folliculitis, follicular mucinosis and palisaded neutrophilic granulomatous dermatitis (Churg-Strauss granuloma).

CASE REPORT

A 64-year-old man came to our department of

dermatology presenting as 1-month history of multiple and erythematous papules on the face. Because the lesions were pruritic, some were excoriated and crusted. The lesions had never been vesicular. He was treated with topical steroids at a local clinic but there was no improvement. He had suffered from diabetes mellitus and had been treated with oral hypoglycemic agents for 10 years. Skin examination revealed multiple, 3-5mm in diameter, round, and erythematous papules asymmetrically distributed on the forehead, upper eyelids, both cheeks and nose (Fig. 1).

We performed a punch biopsy on the forehead. Histopathological findings showed a dense polymorphous infiltrate, mainly located in the upper and mid-dermis, and separated from the flattened epidermis by a Grenz zone (Fig. 2A). Focal necrosis of the epidermis secondary to excoriation, and subepidermal cleft were present. At high power view, fibrinoid degeneration in the dermal vessel walls and neutrophils around the capillaries were present, which was consistent with leukocytoclastic vasculitis (Fig. 2A, inset). The neutrophils, nuclear dusts and degenerated collagens were diffusely infiltrated within the dermis, within which the histiocytes were infiltrated in palisaded pattern resembling palisaded neutrophilic granulomatous der-

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matitis(Churg-Strauss granuloma)(Fig. 2B), and the lymphohistiocytic cells were infiltrated around superficial and deep perivascular spaces and subcutaneous fat. Many eosinophils were intermingled with the infiltrates. There was a focal infiltration of inflammatory cells in the pilosebaceous units, which accompanied follicular mucinosis (Fig. 2C). Results of a complete blood cell count, blood chemistry, urinary analysis, and chest X-ray were

either within normal limits or negative. A diagnosis of granuloma faciale with atypical features of follic-

ular mucinosis and Churg-Strauss granuloma was made.

Initially, he had been treated with minocyclin 100mg daily, topical metronidazole gel and topical antifungal agent for 1 month. However, there was no improvement. And then he had been treated with dapsone 50mg daily and topical steroids intermittently. On 3-year follow-up, the lesion has been persistent without any change. In June 2001, a punch biopsy was performed on the forehead again. Histopathological examination revealed that more neutrophils and eosinophils were diffusely infiltrated within the dermis than in the former (Fig. 3). Lymphohistiocytic cells were infiltrated around the vessels and hair follicles. Follicular mucinosis was also observed. He is regularly followed-up without treatment.

DISCUSSION

Granuloma faciale (GF) was first reported by Wigley⁴ in 1945 under the title of eosinophilic granuloma. Lever and Leeper⁵ separated GF from other eosinophilic granulomas in 1950. Finally, Pinkus⁶ suggested the present name of GF in 1952. GF is an uncommon, benign but chronic dermatosis characterized by isolated or disseminated, reddish brown papules, nodules, and plaques on the face³. However, extrafacial locations such as the trunk, upper extremities, scalp, and thighs have been reported very rarely². The lesions are usually asymptomatic, but pruritus and tenderness have been reported like our case. Enlarged follicular orifices and telangiectases are sometimes seen on the surfaces of individual lesions. Ulceration generally does not occur⁷. The disease is more commonly seen in white middle-aged adults and appears to have a higher incidence in men. The clinical differential diagnosis in our case includes acne rosacea, folliculitis, atypical form of tinea faciei, polymorphous light eruption, lymphocytic infiltrate of Jessner, sarcoidosis, lupus erythematosus, lymphoma cutis, and leukemia cutis. Because the clinical features of tinea faciei vary considerably and complaints of itching, burning, and exacerbation after sun exposure are common, we should be considered in the differential diagnosis of facial eruption⁸. Although we did not perform KOH preparation and fungal culture, the stationary clinical behavior regardless of various treatments and the absence of fungal organisms in

both specimens favor GF over tinea faciei.

The etiopathogenesis of GF remains unclear. It has been postulated that it may be a localized persistent Arthus-like immune complex disease or a persistent allergic hypersensitivity reaction to a retained antigen^{2,7}. Although spontaneous regression or partial remission was reported, the lesions are notoriously resistant to many physical and medical treatment modalities such as dapsone or antimalarial medication, dermabrasion, CO₂ laser, cryotherapy, systemic and intralesional corticosteroid therapy, and topical photochemotherapy (PUVA)^{1-3,7}.

The classic histopathological findings are (1) a polymorphous infiltrate consisting of neutrophils, eosinophils, lymphocytes, and histiocytes in the upper dermis; (2) sparing of the epidermis and appendages, with a notable Grenz zone; (3) some evidence of vasculitis in the dermal capillaries; and (4) perivascular immunoglobulin (usually IgG) and complement deposits, as seen by direct immunofluorescence^{1,7}. In our case, there were several unusual findings to GF, such as focal necrotic epidermis, subepidermal cleft, follicular involvement and follicular mucinosis. We thought that moderately severe pruritus and excoriation could lead to crust formation clinically and epidermal changes histopathologically. The second biopsy specimen showed the sparing of the entire epidermis. As to follicular involvement, Pedace and Perry¹ reported that a diffuse infiltrate involved not only the dermis but also a hair follicle in one of 21 cases, emphasizing sparing of the epidermis. Follicular mucinosis is regarded as a premalignant manifestation of mycosis fungoides and Hodgkin's lymphoma, or a nonspecific reaction pattern that may be seen in a variety of unrelated conditions⁹. To our knowledge, there is no report of coexistence of GF and follicular mucinosis. A bandlike dermal lymphocytic infiltrate, cytologic atypia of the infiltrate, epidermal lymphocytic exocytosis, and perhaps lack of eosinophils suggest mycosis fungoides associated with follicular mucinosis¹⁰. However, no specific histopathological characteristic is reliable in differentiating benign follicular mucinosis from that associated with malignant diseases¹¹. Therefore, the use of multiple histological criteria and review of additional biopsy specimens are needed. In our case, dermal neutrophilic and eosinophilic infiltration, and leukocytoclastic vasculitis observed in the serial biopsies favor benign follicular mucinosis but regular fol-

low-up is needed.

Erythema elevatum diutinum (EED) can be confused with GF. It is especially in these cases of extrafacial GF, where a diagnosis of EED may be suggested². Ackerman¹² believed that EED and GF represent different parts of the spectrum of the same disease, leukocytoclastic vasculitis. However, EED is clinically characterized by multiple lesions localized on the extensor surfaces of the extremities, in an acral, bilateral and symmetrical distribution^{2,13,14}. Bulla formation and hemorrhagic crusting may be seen. Facial lesions are rare. Not infrequently EED is associated with systemic conditions (gammopathies, HIV infection), and an excellent response to dapsone is the rule². The main differentiating histopathological features are predominance of neutrophils and involvement of the papillary and perifollicular adventitial dermis in EED and abundant eosinophils, sometimes sparing of these areas (a Grenz zone) in GF^{5,13,14}. LeBoit et al¹⁴ demonstrated the evolution of lesions in EED, which begin as leukocytoclastic vasculitis, develop into a nodular neutrophilic dermal infiltrate, and resolve as scars. Sangüeza et al¹³ reported several cases with unusual histopathological features of EED, one of whom was characterized by a palisaded arrangement of histiocytes disposed at the periphery of areas of collagen degeneration, resembling palisaded neutrophilic and granulomatous dermatitis (PNGD). Finan and Winkelmann¹⁵ first reported PNGD under the name of Churg-Strauss granuloma or cutaneous extravascular necrotizing granuloma in 1983. PNGD is a condition found in patients with collagen vascular diseases in which immune complexes are found and in which leukocytoclastic vasculitis occurs in dermal venules and leads to degeneration of collagen and a granulomatous reaction to the injured dermis¹⁶. Our case showed a palisaded granuloma-like pattern in the earlier lesion. Furthermore, GF, EED, and PNGD are immune-complex mediated dermatoses^{7,13,15}. We suggest that GF as well as EED may be portions of a spectrum of PNGD in etiopathogenetical and histopathological aspects. However, there has been no study about the relationship among GF, EED, and PNGD, which is needed.

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