

Case Report

Generalised perforating granuloma annulare mimicking papulonecrotic tuberculid

泛發性穿通性環狀肉芽腫疑似丘疹壞死性結核疹

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A 45-year-old man presented with a six year history of erythematous umbilicated papules on trunk and limbs. An initial diagnosis of papulonecrotic tuberculid was made but he did not respond to anti-tuberculosis chemotherapy. Finally, the diagnosis of perforating granuloma annulare was reached after the fourth skin biopsy. He was successfully treated with topical steroid.

45 歲男患者於軀幹及四肢出現紅色臍狀丘疹達 6 年。初步診斷為丘疹壞死性結核疹，但經抗結核治療其病情並無好轉。最後經第四次皮膚活檢診斷為穿通性環狀肉芽腫。患者經用局部類固醇皮質激素成功治癒。

Keywords: Perforating granuloma annulare

關鍵詞：穿通性環狀肉芽腫

Introduction

Granuloma annulare is a benign, usually self limiting dermatosis of unknown cause, characterised by necrobiotic dermal papules that often assume an annular configuration.

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Clinically, granuloma annulare can be divided into a number of distinct types: localised, generalised, subcutaneous, perforating, macular and erythematous. Generalised perforating granuloma annulare is an unusual variant of granuloma annulare. It presents with flesh- or red-coloured papules with central umbilicated crust or scale, usually involving the trunk and extremities.

Case report

A 45-year-old man presented to Yaumatei Dermatology Clinic in January 2005 with a six year history of multiple erythematous papules and nodules on his trunk and proximal limbs

but sparing his face and acral sites. These papules and nodules were only mildly pruritic and improved with sun exposure. He was a van driver and had no significant past medical history and did not smoke or drink alcohol. He had tried over-the-counter topical medications without any improvement and did not take any regular oral medication.

Physical examination revealed multiple umbilicated erythematous papules and nodules with a necrotic crusted centre mainly over the trunk and proximal limbs sparing his face and acral sites (Figure 1). These lesions were polymorphous and were in different stages of evolution (Figure 2). There were no nail changes or regional lymphadenopathy. Differential diagnoses included pityriasis lichenoides et varioliformis acuta, lymphomatoid papulomatosis, perforating dermatosis, papulonecrotic tuberculid, eczema, sarcoidosis, granulomatous vasculitis and repeated insect bites.

Blood tests including complete blood picture, liver and renal function tests were within normal limits. Fasting glucose was 5.2 mmol/L. Chest radiograph showed fibrotic shadow at right middle zone and lower zone suggestive of healed pulmonary tuberculosis.

A skin biopsy was performed in February 2005 and it showed features suggestive of lichen nitidus but since this was inconsistent with the clinical picture, a second biopsy was taken in March 2005. The second biopsy showed a wedge-shape area of necrosis in the superficial dermis with granulomatous inflammation and occasional multinucleate giant cell. Ziehl-Neelsen stain for acid fast bacilli and Grocott-Stain for fungus were both negative. A histological diagnosis of papulonecrotic tuberculid was made initially.

As a result, the patient was put on isoniazid, rifampicin, pyrazinamide and ethambutol in April 2005 for a presumed diagnosis of cutaneous



Figure 1. Multiple erythematous papules and nodules with occasional crusted centre on chest.



Figure 2. Polymorphous erythematous papules and nodules in different stages of evolution.

tuberculosis. However, his skin condition did not improve and a third biopsy was taken in October 2005 which showed similar changes that was consistent with papulonecrotic tuberculid. Polymerase chain reaction for mycobacterium tuberculosis was performed and it was negative. Because of poor clinical response to anti-tuberculosis chemotherapy, his treatment was stopped after nine months and a fourth biopsy was performed in April 2006.

The fourth biopsy showed a central nodule that consisted of keratin, serum, necrotic debris, degenerated collagen and neutrophils with transepidermal elimination (Figure 3). In the edge of the specimen, there was a small focus of necrobiotic granuloma with palisade of histiocytes around (Figure 4) and the overall histology was consistent with perforating granuloma annulare. He was put on topical 0.0125% flucinolone acetonide twice daily with good response.

Discussion

Perforating granuloma annulare (PGA) is a rare subtype of granuloma annulare named in 1971 by Owens and Freeman,¹ although probably Pinkus in 1934² and Civatte in 1952³ presented cases that were compatible with PGA under the name of tuberculolucous forms of granuloma annulare. It is characterised histologically by necrobiotic areas surrounded by histocytes and lymphocytes with transepidermal elimination. PGA tends to appear in children and young adults and being more common in women. The localised form is located mainly in the upper limbs especially on the back of the hands. The generalised form occurs more frequently and present in the abdominal area, trunk and proximal limbs as seen in our patient. It is usually asymptomatic but 25% of patients report pruritus. The cause of PGA is unknown but ultraviolet light, insect bite, trauma, viral infection, thyroiditis, diabetes and vitamin D have been implicated⁴ and some cases are associated with diabetes.⁵

Clinically, it usually appears as crops of red-coloured papules, sometimes with crusting, scaling and umbilication. Pustule-like papules are also seen and they correspond to the creamy, viscous material of degenerated collagen extruding through the epidermis. These lesions pass through four stages⁶ of development: (Stage one) erythematous or skin colour papules which evolve into (Stage two) pustular-like lesions that exude thick, creamy, or clear, viscous material forming

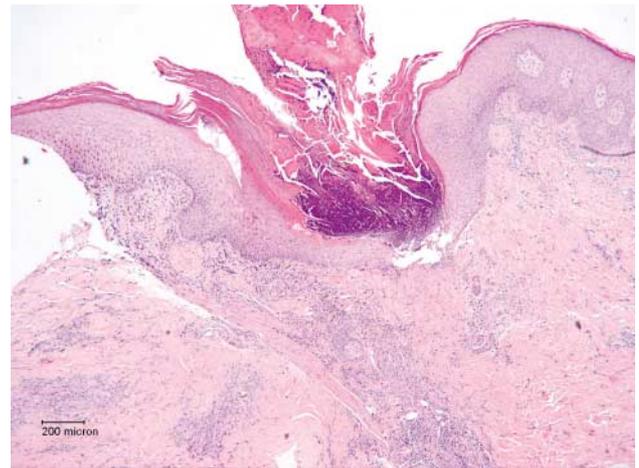


Figure 3. There is a cup shape indentation on the epidermis with central crust containing degenerated collagen suggestive of a perforating process.

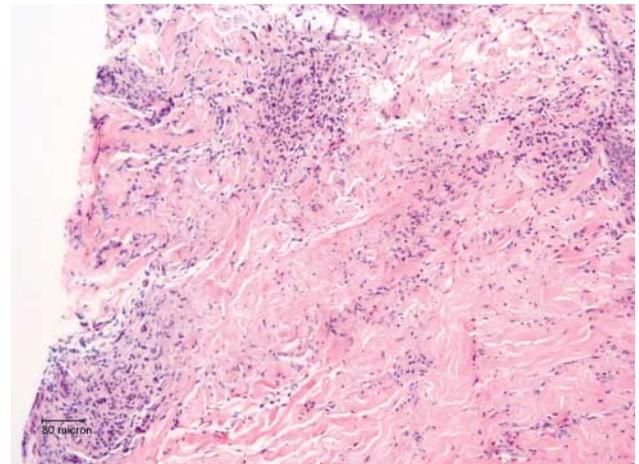


Figure 4. In the edge of the specimen, there is a small focus of necrobiotic granuloma with palisade of histiocytes around. Mucin stain shows slight increase in mucin in this area.

(Stage three) umbilicated or crusted popular lesions that heal leaving (Stage four) atrophic hypo- or hyperpigmented scar.

The characteristic histological features of PGA are palisading granulomas consisting of necrobiotic collagen, fibrin, and mucin deposits, partially surrounded by infiltrates of histiocytes and lymphocytes with transepidermal elimination of necrobiotic material in umbilicated lesion.

Papulonecrotic tuberculid is a worrisome differential diagnosis as highlighted in our case since clinical presentation is similar and histologically they could be confused. However, papulonecrotic tuberculid typically respond rapidly to anti-tuberculosis chemotherapy and most lesions will resolve within eight weeks.⁷ Sarcoidosis can be difficult to differentiate from GPA on both clinical and histological grounds but this condition is very rare in Hong Kong. Other clinical differential diagnoses include pityriasis lichenoides et varioliformis acuta, lymphomatoid papulomatosis, perforating dermatosis, eczema, granulomatous vasculitis and repeated insect bites which can be differentiated upon clinical history and histology with relative ease.

Spontaneous resolution in PGA was often seen in patients who did not receive any treatment.⁵ Topical, intralesional or oral steroids had been

reported to be useful.^{1,4} Other reported successful therapeutic options for PGA include systemic retinoid⁸ and phototherapy.^{9,10}

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