

A Case Report: Persistent Acantholytic Dermatitis in Chronic Renal Failure

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Abstract

Introduction: This is the second case of persistent acantholytic dermatitis in a patient with chronic renal failure, seen at the same institution in 2 years. **Clinical Picture:** A 70-year-old Chinese man with end-stage renal failure on continuous ambulatory peritoneal dialysis for 6 months presented with pruritic rashes over the scalp and chest for 3 months. Histologically, the lesions resembled Darier's disease. Differential diagnoses include Darier's disease, Grover's disease and perforating dermatosis in chronic renal failure. **Treatment:** The patient was treated with anti-histamines, topical steroids and emollients. **Outcome:** Resolution of pruritus was documented. However, the extensive hyperkeratotic papules remained persistent. **Conclusion:** A chronic non-remitting course is to be expected for this dermatoses in which the aetiology is unknown.

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Key words: Acantholytic cells, Corp ronds and grains, Darier's disease, Grover's disease

Case Report

A 70-year-old Chinese man with end-stage renal failure (ESRF), who has been on continuous ambulatory peritoneal dialysis for 6 months, was referred by the renal physician for pruritic rashes over the scalp and chest. The rashes were first noted about 3 months ago. They initially involved the scalp, but progressively spread to affect the neck, chest, and upper back as well. No spontaneous resolution of any of the lesions was reported by the patient.

The patient's other medical problems include diabetes mellitus requiring insulin, hypertension, ischaemic heart disease with history of congestive cardiac failure (ejection fraction 35%) and hyperuricaemia. His medications include subcutaneous injections of Humulin, aspirin, sorbitrates, sublingual nitrates, amlodipine (Norvasc), pravastatin (Pravachol), allopurinol, and calchichew. He has been on these medications for more than a year, and this render the likelihood of drug eruption less likely.

Physical examination revealed a sallow and anaemic patient. His blood pressure was 150/85 mmHg, and pulse rate was 88/min. Multiple brownish to brownish-black warty papules (more than 50 in number) were noted on the scalp, neck, chest and upper back (Fig. 1). The size of the lesions ranged from 2 to 5 mm. There was some degree of xerosis over the lower limbs. No clinical evidence of significant solar damage was present. Apart from leuconychia, there were no other nail changes of note. Examination of the cardiovascular and respiratory system, and abdomen was unremarkable.

Peripheral glove-and-stocking neuropathy secondary to diabetes mellitus was present.

Punch biopsy of a representative lesion was performed in view of the extensive involvement. Histology of the skin lesion showed suprabasal clefts, acantholytic cells, corp ronds and grains, with orthokeratosis (Fig. 2). These histological findings resembled Darier's disease. Direct immuno-fluorescence was not performed on the tissue specimen. Initial blood investigations included a full blood count, urea and electrolytes, and a liver function test. His white cell count was $9.4 \times 10^9/L$, haemoglobin was 11.2 g/dL and the platelet count was $289 \times 10^9/L$. The serum electrolyte panel revealed urea 11.2 mmol/L, sodium 136 mmol/L, potassium 3.8 mmol/L, chloride 98 mmol/L, bicarbonate 26.8 mmol/L, and creatinine 531 $\mu\text{mol/L}$. The liver function test was essentially normal except for mild hypoalbuminaemia of 32.6 g/L.

The patient was a retired businessman and there was no excessive sun exposure previously. There was no family history of any acantholytic disorders. He was an ex-smoker, and there was no history of alcohol consumption.

The patient was treated with anti-histamines, topical steroids and emollients, with resolution of pruritus. The hyperkeratotic papules, however, remained persistent. We propose a diagnosis of persistent acantholytic dermatitis in chronic renal failure, or possibly, a Darier's-like dermatosis in chronic renal failure.

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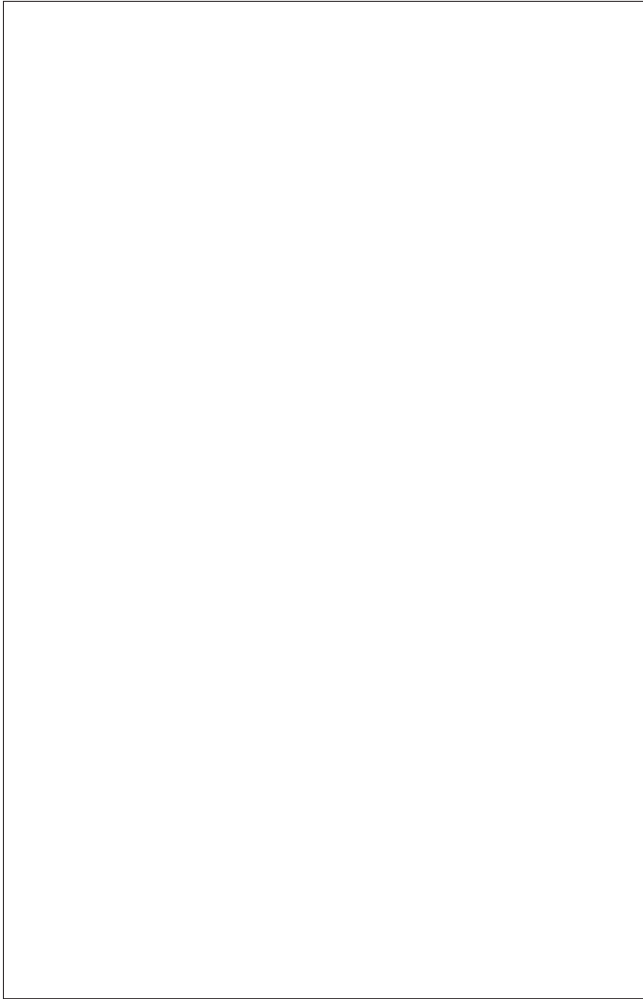


Fig. 1. Multiple brownish to brownish-black warty papules on the scalp, neck and chest.

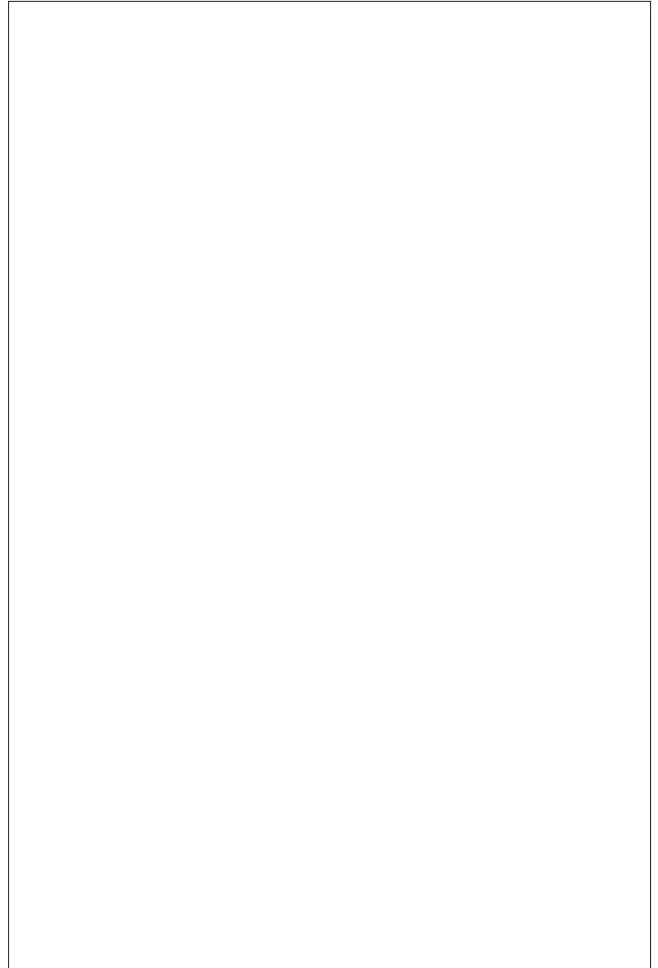


Fig. 2. Acantholysis with suprabasal cleft, dyskeratotic cells, corp ronds and grains (Haematoxylin and eosin x100).

Discussion

Grover's disease (transient acantholytic dermatosis), first described by Grover¹ in 1970, is an acantholytic disease characterised by pruritic, discrete papules and papulovesicles distributed mainly on the trunk. These lesions resemble Darier's disease histologically. The lesions are self-limiting and resolved spontaneously within weeks (majority lasts less than 3 months) with no recurrence. Differential diagnoses include actinic keratoses in photodamage, Darier's disease and Hailey-Hailey disease.

Persistent acantholytic dermatosis represents a variant of Grover's disease with a chronic persistent course. It was first described by Simon et al² in 1976. Since then, several other cases have been reported under various terminologies, such as benign papular acantholytic dermatosis, benign chronic acantholytic dermatosis and papular acantholytic dyskeratosis. The rash is often monomorphic, with smooth or slightly scaly erythematous papules, usually 3 to 5 mm in diameter. It usually affects middle-aged or elderly men,

with lesions occurring on the trunk. Most patients give a history of prolonged sun exposure, and very often multiple actinic keratoses and skin malignancy are also present, representing significant degree of solar damage. Hence, actinic damage has been implicated as an initiating or exacerbating factor. Exposure to sun,³ heat,⁴ sweating,⁵ and ionising radiation⁴ have been reported as precipitating factors.

Several unusual dermatoses in patients with chronic renal failure have been reported. These include acquired reactive perforating dermatoses,^{6,7} porphyria cutanea tarda and calciphylaxis. However, the association of *persistent acantholytic dermatosis in chronic renal failure*⁸ was first reported in 1997 by Chua and Giam, who described a man with chronic renal failure on haemodialysis who presented with multiple discrete, pruritic, brownish scaly papules on the nape and ears. Histology of these lesions resembled Darier's disease, with suprabasal clefts, focal acantholysis with corp ronds and grains. The patient had the lesions excised without recurrence. The clinicopathologic

correlation of the chronic discrete papules in our patient and acantholytic dyskeratosis, resembling Darier's disease, is consistent with persistent acantholytic dermatosis. This is the second case report, over a span of 2 years, from the same centre, of an acantholytic dermatosis with histological features of Darier's disease in the setting of chronic renal failure. It may be a variant of persistent acantholytic dermatosis that is associated with chronic renal failure or it may be a Darier's-like dermatosis in patients with renal failure.

The aetiology of this group of acantholytic dermatoses is still largely unknown. It has been postulated that sweat urea may cause acantholysis,⁵ and urea has been shown to be capable of causing acantholysis *in vitro* in 1957. Recent literature implicate sweat gland in the pathogenesis of the lesions,⁹⁻¹² but various authors have reported inconsistent results. In a recent review of 72 cases by Davis et al from Mayo clinic,¹³ where known sweat gland markers were used to stain the biopsy specimens, BRST-2 or CAM 5.2 were negative. CD44 stained the acantholytic areas in addition to sweat glands in 25%. The transmembrane proteoglycan molecule CD44, an adhesion molecule, is expressed on a wide variety of cell types,¹⁴ and its expression becomes widespread on membranes of keratinocytes and on infiltrating lymphocytes¹⁵ in inflammatory or neoplastic process. Hence, CD44 glycoprotein expression in the acantholytic areas may be a non-specific marker of keratinocytes responding to cellular events occurring in Grover's disease. Electron microscopic studies have demonstrated that dissolution of desmosomal attachment plaques is the probable cause of acantholysis in Grover's disease.¹⁶ Immunohistochemical studies showed the loss of intracellular desmosomal proteins desmoplakin I and II, and intercellular desmosomal protein desmoglein from the desmosomes as well as their diffusion into the cytoplasm of the acantholytic cells.

Further studies of the pathogenesis of this acantholytic dermatosis are needed. The predisposing conditions, site of involvement, and relapsing nature of the disorder may implicate acrosyringeal dysfunction as the cause. The occurrence of persistent acantholytic dermatosis in patients with chronic renal failure may be secondary to the metabolic derangement from uraemia and dialysis. An intrinsic or inherited abnormality in the desmoglein and desmoplakin protein may have predisposed some patients to this condition.

In mild cases of acantholytic dermatosis, symptomatic treatment of pruritus and the use of topical steroids will suffice. In more troublesome cases, etretinate,^{12,15,17} isotretinoin,¹⁸ systemic steroids¹⁷ and PUVA¹⁹ have been

used. In view of the extensive involvement and his underlying medical problems, we chose to treat this patient symptomatically with anti-histamines, topical steroids, and emollients. A chronic persistent course without spontaneous remission is to be expected.

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