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Dermoscopy features of acquired reactive perforating collagenosis: a case series

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Introduction

Reactive perforating collagenosis (RPC) is a rare disorder in which abnormal collagen fibers extrude through the epidermis. In the acquired form, erythematous keratotic papules and plaques with firmly adherent central crust and ulceration develop, commonly on the trunk and extremity extensor surfaces, and often at sites of superficial trauma [1]. Intense itch is common. Acquired RPC is often associated with long-standing diabetes and chronic renal failure, particularly in patients undergoing dialysis [2,3].

However, because RPC is uncommon, the clinical presentation can vary between patients, and it can be difficult to differentiate clinically from other conditions, the true diagnosis is often missed or delayed. Differential diagnosis includes ecthyma, prurigo nodularis, perforating granuloma annulare, dermatitis artefacta, and other perforating diseases [4]. Clinical diagnosis of RPC is supported or confirmed by characteristic histopathological features in most cases, although repeated biopsies may be required. Histological features vary according to stage of disease; in the early stages degenerate collagen fibers accumulate in dermal papillae and epidermal hyperplasia may be seen. In more established lesions a cup-shaped depression of the epidermis develops with an overlying keratin plug containing inflammatory cells, keratinous debris, and collagen fibers [4,5]. Vertically oriented collagen fibers, stained red by elastic van Gieson staining or blue by Masson's trichrome stain, are extruded through the epidermis and there may be a mild perivascular lymphohistiocytic infiltrate.

Dermoscopy is a noninvasive technique which is now a standard tool used in the preoperative clinical diagnosis of skin tumors [6]. It is also increasingly used to aid in the diagnosis in other dermatological conditions including inflammatory dermatoses [7,8]. To our knowledge, the dermoscopic features of RPC have been described in 2 previous case reports [9,10]. Here we report the dermoscopic findings in a series of 5 patients with RPC.

Case Presentations

We identified 5 patients with a diagnosis of acquired RPC in our department over the past 2 years. Case notes, pathology

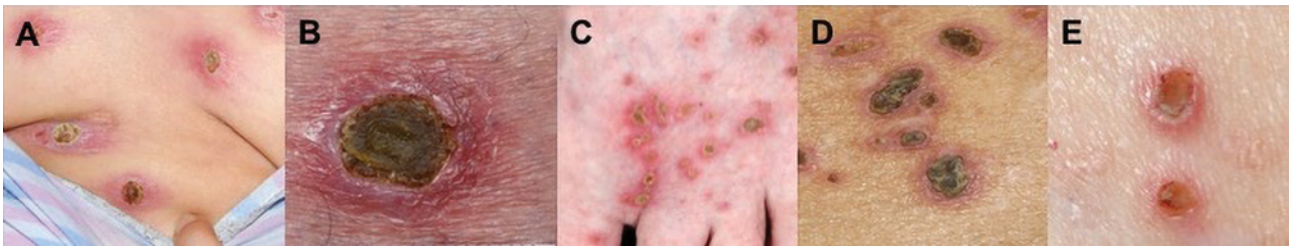

Figure 1. Macroscopic images of the rash in each of the 5 patients (patients 1-5, labeled A-E). [Copyright: ©2018 Ormerod et al.]

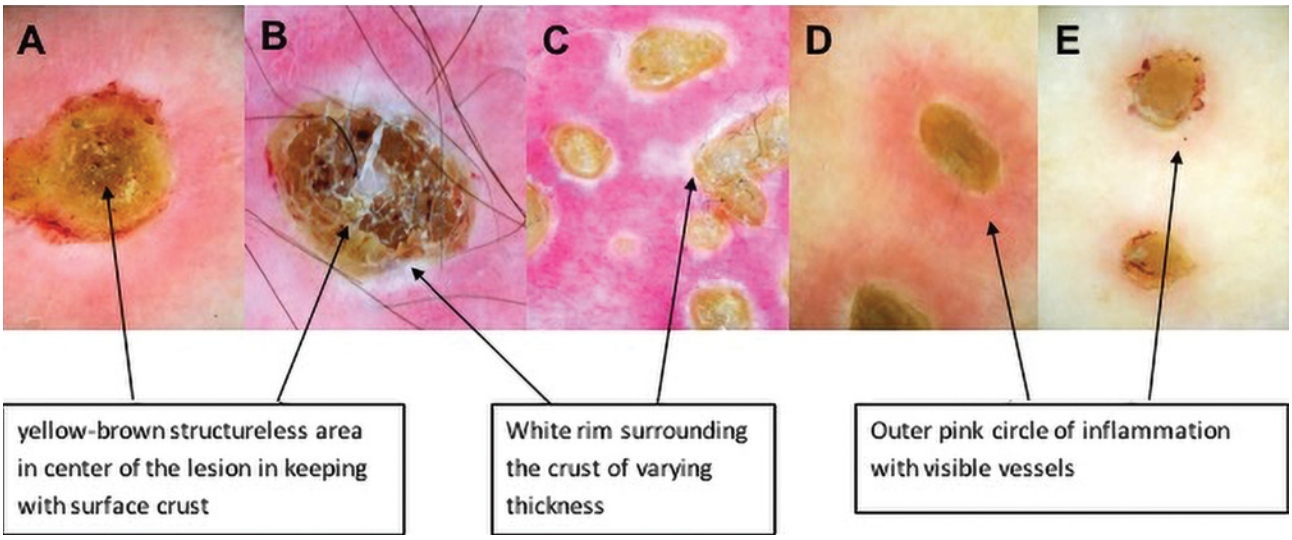

Figure 2. Dermoscopic images of a typical lesion from the rash in each of the 5 patients (patients 1-5, labeled A-E). [Copyright: ©2018 Ormerod et al.]

reports, and dermoscopy pictures were analyzed. Dermoscopic images were taken using a digital dermoscopy system (Nikon D33S camera [Nikon, Tokyo, Japan]; Heine Delta® 20T Dermatoscope [Heine Optotechnik, Herrsching, Germany]). Minimal pressure was applied and ultrasound gel was used during the process to help preserve vessel morphology as much as possible.

There were 3 female and 2 male patients, with age ranging from 53 to 83 years. All of them gave a history of a very itchy rash, affecting the trunk and/or lower limbs. The rash had a similar appearance in all patients, with erythematous nodules of varying sizes and central keratin plug (Figure 1).

The diagnosis of RPC was suspected clinically in all patients and confirmed histologically in 4 of the 5 cases (in 1 patient, biopsy was felt to be inappropriate).

Patient 1. A 53-year-old woman had a 20-year history of type 2 diabetes mellitus, peripheral vascular disease, and ischemic heart disease. Her medications included metformin, clopidogrel, bisoprolol, and lisinopril. Routine blood values, including renal function, were normal, and skin biopsy was consistent with RPC, showing vertical collagen orientation.

Patient 2. A 67-year-old man was diagnosed with bilateral pulmonary embolism at approximately the same time as the onset of his skin problems; he subsequently started a regimen of low molecular weight heparin. Routine blood values, including renal function, were normal. Skin biopsy showed ulceration of epidermis, acute and chronic inflammation at the ulcer base with leukocytoclasis, and a perivascular chronic inflammatory infiltrate in the mid-dermis.

Patient 3. A 58-year-old man with a previous diagnosis of sarcoidosis was taking no regular medications. Routine blood values at the time of presentation were normal. Skin biopsy from an ulcer showed florid reactive changes and vertically oriented collagen fibers at the ulcer base consistent with RPC. Renal function was normal.

Patient 4. An 83-year-old woman was housebound and unable to attend the dermatology clinic. She was referred via teledermatology for review of her images and clinical history. She had a history of an aortic aneurysm, hypertension, atrial fibrillation, and transient ischemic attack. Blood tests revealed microcytic anemia but normal renal function. Biopsy was not felt to be appropriate for this patient; the diagnosis was made from classic clinical and dermoscopy features.

Patient 5. An 80-year-old woman had a history of long-standing type 2 diabetes mellitus, ischemic heart disease, and hypertension. Medications included lercanidipine, furosemide,

nicorandil, candesartan, and atenolol. Blood values were normal apart from an elevated HbA1c in keeping with her known diabetes. Histology showed focal necrosis, ulceration and epidermal inflammation, with perivascular chronic inflammatory cell infiltrate in the dermis. Dermoscopic images showed almost identical features in all 5 patients (Figure 2).

The 3 clear, consistent features were (1) a yellow-brown structureless area in the center of the lesion in keeping with surface crust; (2) a white rim surrounding the crust which can vary in thickness between patients and in a single lesion, possibly correlating to epidermal invagination or keratinous debris; and (3) an outer pink circle of inflammation with visible vessels, commonly short looped vessels centrally and dotted vessels peripherally. These features are similar to those previously described in 2 separate reports of single cases with RPC [9,10].

Conclusions

RPC is an unusual condition that can mimic other conditions and is often initially misdiagnosed. The dermoscopic findings in our cases reinforce the features described in previous reports [9,10] and indicate that dermoscopy in RPC gives a very characteristic, consistent appearance and can therefore be a useful and quick aid to make the diagnosis. Dermoscopy of RPC is particularly helpful in cases in which biopsy is not possible or is nondiagnostic.

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