Case Report

Acquired reactive perforating collagenosis associated with sick euthyroid syndrome

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ABSTRACT

Acquired reactive perforating collagenosis is a rare skin disorder associated with several systemic diseases, particularly diabetes and chronic renal failure. A 52-year-old Saudi female patient with a known case of diabetes mellitus type II, chronic renal impairment, hypertension, peripheral vascular disease, congestive heart failure, stroke and left hemiplegia presented with multiple pruritic skin eruption on the trunk and extremities. We believe that this is the first case of acquired reactive perforating collagenosis in association with sick euthyroid syndrome to be reported.

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Reactive perforating collagenosis (RPC) was first described by Mehregan et al[1] as a distinctive form of transepidermal elimination of altered collagen related to superficial trauma. There are 2 known clinical variants of RPC, classical and acquired. We describe a 52-year-old female with acquired RPC associated with sick euthyroid syndrome.

Case Report. A 52-year-old Saudi female patient was admitted to the intensive care unit, for diabetic foot gangrene. She was referred for dermatological consultation because of multiple pruritic skin eruption on her trunk and extremities. Past medical history includes diabetes mellitus type II, chronic renal impairment, hypertension, peripheral vascular disease, congestive heart failure, stroke and left hemiplegia. On her skin examination, multiple, slightly tender, skin colored umbilicated papules and nodules with central crusts and red margins measuring 0.5-1 cm in diameter were noted over the extensor aspect of the lower limbs (**Figure 1**) and few over the trunk which showed koebnerization. Laboratory analysis of her blood revealed microcytic hypochromic anemia, fasting blood sugar 304 mg/dl, urea 134 mg/dl, and creatinine 1.63 mg/dl, sodium and potassium levels were found normal. There were raised levels of uric acid and phosphorus while calcium level was low. Marked increase in alkaline phosphatase was found. Thyroid function test showed low T3 (>25 ng/dl), normal T4 (3.7 ug/dl) and thyrotropin (1.4 uIU/ml). The protein level was high in urine with low creatinine clearance for 24-hour urine collection. Swab from gangrene diabetic foot showed growth of *Pseudomonas aeruginosa*. Chest x-ray showed right-sided pleural effusion. Abdominal ultrasound showed gall bladder calculi with signs of renal impairment and ascitis. Skin

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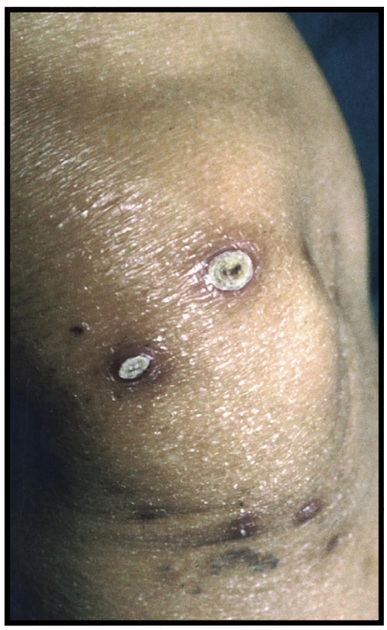

Figure 1 - Multiple, skin colored umbilicated papules and nodules with central crusts and red margins over the knee.

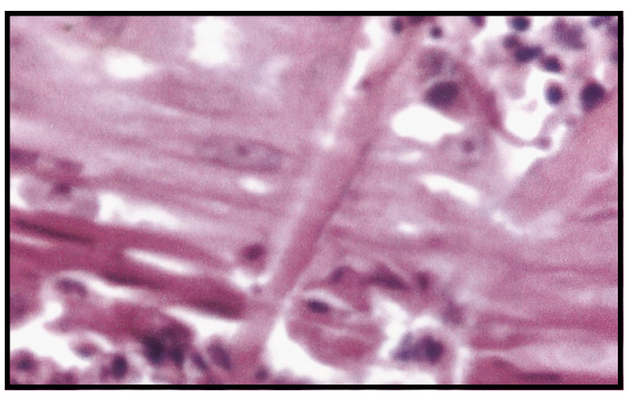

Figure 2 - Histopathological features of biopsy specimen showing a basophilic bundle of degenerated collagen extending in a vertical direction is being extruded from the dermis through a perforation in the epidermis (hematoxyllin and eosin x 400).

biopsy of one of the lesions showed compact ortho and parakerotic plug with an admixture of basophilic staining debris. A basophilic bundle of degenerated collagen extending in a vertical direction is being extruded from the dermis through a perforation in the epidermis (**Figure 2**). After the diagnosis of RPC was established, the patient was treated with topical 0.1% retinoic acid cream. Mild improvement occurred, however patient did not come for follow-up.

Discussion. Reactive perforating collagenosis is a rare perforating disorder characterized clinically by recurrent, umbilicated, crusted papules and histologically by the extrusion of collagen through the epidermis. The classic type occurs during childhood with genetic predisposition, while the acquired type occurs during adulthood and is associated with several systemic diseases, particularly diabetes and chronic renal failure. The following diagnostic criteria of acquired form of reactive perforating collagenosis (ARPC) were proposed by Faver et al[2] 1. Histological findings of transepidermal elimination of necrotic basophilic collagen bundles into a cup-shaped epidermal depression; 2. Umbilicated papules or nodules with a central adherent keratotic plug; and 3. Onset of the lesions after 18-years-old. Pruritis was present in all cases and is usually severe. The koebner phenomenon is characteristic and has been demonstrated experimentally.[3] The pathogenesis of RPC is unknown. It is possible that the extruded collagen is altered and is therefore rejected in a way similar to a foreign body reaction. However, microscopically altered collagen has not been demonstrated.[3] Other investigators considered trauma an insufficient etiologic factor for the development of the lesions.[2] Cochran et al[4] suggested that diabetic vasculopathy accompanied with trauma by scratching caused by diabetes and renal insufficiency may be the underlying factor in this condition, but this theory cannot explain the occurrence of the disease in non-diabetic patients. The disease was reported in association with diabetes mellitus and its complications (retinopathy, peripheral vascular disease, or cardiomyopathy), and also with renal impairment with or without dialysis, liver dysfunction, lymphoma, neurodermatitis, hypothyroidism, hyperparathyroidism and acquired immunodeficiency syndrome (AIDS).[4-10]

Our patient initially had the typical clinical and histologic findings of ARPC that meet Faver's criteria[2] and was associated with diabetes mellitus, renal impairment, hypertension, congestive cardiac failure, left side hemiplagia, peripheral vascular disease and gangrene of right foot. She was also found to have sick euthyroid syndrome.The term "sick euthyroid syndrome" refers to abnormalities in thyroid function that occur in patients with serious illness not caused by primary thyroid or pituitary dysfunction.[11] This condition is recognized in our patient as she was seriously ill and admitted in intensive care unit, and was found to have low T3 and normal T4 and thyrotropin. We believe that this is the first case of ARPC in association with sick euthyroid syndrome to be reported. This might be a coexistence or coincidence.

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