

Pityriasis rubra pilaris following exposure to dolomite

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In this case report, we present a 30-year-old man who developed pityriasis rubra pilaris (PRP) following exposure to Dolomite. The diagnosis of PRP was confirmed histologically and the patient was successfully treated with acitretin and cyclosporine.

Key words: Dolomite, occupation pityriasis, rubra pilaris

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CASE PRESENTATION

A 30-year-old man was referred to St-Alzahra Hospital dermatology clinic, Isfahan, Iran in 2010 because of erythematous, scaly, and slightly itchy eruption all over the body. The eruption had started about 4 months ago from the scalp and progressed to involve other parts of the body in the cephalocaudal pattern.

In physical examination, numerous papules with central keratotic plug were found on the upper chest, upper back, neck, arms, and face [Figure 1].

Palms and soles were hyperkeratotic with yellow-orange hue and the nails were hyperkeratotic and thickened [Figure 2].

The patient stated that the lesions developed following contact with dolomite as he was truck driver in a dolomite factory.



Figure 1: Erythematous, hyperkeratotic plaques over the extremities

He had no family history of pityriasis rubra pilaris (PRP) and in past medical history, he revealed no history of the recent infection or fever or use of any medication.

A clinical diagnosis of PRP was suggested for the patient and a biopsy was performed from the hand.

In histological examination, psoriasiform dermatitis along with parakeratosis and orthokeratosis and focal acantholytic changes consistent with PRP was found.

He was treated with Oral acitretin (Actavis UK Ltd) (50 mg/day) with minimal improvement and therefore oral cyclosporine (Novartis, UK) (300 mg/day) was added to his regimen.

After 3 months, (about 70%) of his lesions resolved but he returned to his job in dolomite factory and his lesions



Figure 2: Closer view of the figure 1

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recurred again.

This time, in addition to acitretin and cyclosporine, Narrow Band UVB (starting dose of 50 (mJ/cm²)) was started for the patient and the patient was advised not to have more contact with dolomite. He was visited monthly during treatment course.

Following this treatment protocol, the lesions cleared almost completely during 15 weeks (30 sessions of Narrow band UVB).

DISCUSSION

The etiology of PRP remains elusive. Immune up-regulation caused by an antigen trigger from infection is one of the leading theories.^[1]

Many reports have described development of the PRP following streptococcal or HIV infection.^[2]

Our patient had no history of recent infection or family history of PRP and the lesions developed after exposure to dolomite.

Dolomite is the name of sedimentary carbonate rock and a mineral both composed of calcium magnesium carbonate CaMg(CO₃)₂ found in crystals.^[3]

One hypothesis is that PRP may be related to an abnormal immune response to an antigenic trigger. Most environmental allergens are haptens i.e., simple chemical that require proteins to be a composite antigen before sensitization.^[4]

These antigenic substrates are phagocytosed by Langerhans cells and presented to lymphocyte, which release cytokines responsible for the inflammatory response.

We suggest antigen-trigger immune reaction as a possible trigger mechanism to PRP which showed itself as an erythematous desquamation pattern and follicular hyperkeratosis.

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