

## A Case of Prurigo Pigmentosa Considered to be Contact Allergy to Chromium in an Acupuncture Needle

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**A 53-year-old male developed prurigo pigmentosa on his back, after undergoing acupuncture for 3 years. The eruptions were ceased on discontinuing the therapy but recurred with its resumption. The acupuncture needle contained 18.12% chromium. Erythema was induced by patch testing with potassium dichromate, and a flare-up was observed in the area of the patch test on resumption of acupuncture. We consider that the eruptions were induced by contact allergy to the chromium component of the acupuncture needles.**

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Prurigo pigmentosa has frequently been reported in Japan (1) but is rare in the Western world (2). The disease is an inflammatory disorder of unknown etiology characterized by the paroxysmal development of pruritic reddish papules followed by pigmentation in a reticular pattern. Here we report a case of prurigo pigmentosa associated with the use of an acupuncture needle.

### CASE REPORT

A 53-year-old male visited our Department in December

1987, complaining of pruritic erythema on his back. He had a history of dapsone allergy. He also had a 4-year history of lumbar pain and had undergone acupuncture therapy every 2 weeks for 3 years. Recently, he had developed pruritic eruptions on his back the day after acupuncture, with exacerbation and enlargement of the lesion observed with repetition of the therapy.

On physical examination, reticular pigmentation, reddish papules and wheals were observed on his back (Fig. 1). Clinical examination showed no abnormalities in the peripheral blood or urine, nor liver dysfunction, and IgE (RIST) was <500 U/ml. Histological examination of an excised biopsy specimen taken from a papule on his back disclosed hydropic degeneration of the basal layer and edema and lymphoid cell infiltration of the papillary dermis (Fig. 2).

Since the possibility of contact allergy due to environmental factors has been suggested as an etiologic mechanism of prurigo pigmentosa, patch tests were performed using European standard allergens. Erythema was observed in the patch test area of potassium dichromate after 7 days, and reactions to other allergens were negative. The erythema persisted for over 1 month and the pigmentation was still present after 2 months. The same results were obtained on repeating the patch test with potassium dichromate.

From these results, we concluded that the allergic reaction to the chromium component of the acupuncture needles had caused the prurigo pigmentosa. According to the manufacturer, the needles contained 18% chromium, 9% nickel, 70% iron and 1% manganese. Patch tests with iron and manganese proved negative. When acupuncture was suspended, and oral therapy of betamethasone (0.25 mg/day) and *d*-chlorpheniramine maleate (2 mg/day) was initiated, the eruptions gradually abated. Lumbar pain intensi-

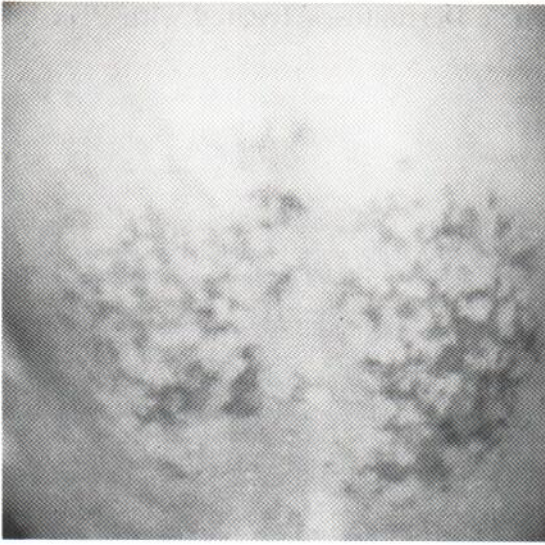


Fig. 1. Reticular pigmentation, reddish papules on the back.

fied 7 months after the suspension of acupuncture treatment, requiring resumption of acupuncture. However, on recommencing therapy, erythema was observed in the area of the chromium patch test performed 7 months previously. A biopsy study of this area showed mild lymphoid cell infiltration in the upper dermis. When acupuncture was repeated, a flare-up of erythema and wheals was observed over the entire back. Since the above course was strongly suggestive of the involvement of the acupuncture needles in prurigo pigmentosa, the therapy was discontinued. Eruptions had nearly healed 7 months after discontinuing the therapy.

#### DISCUSSION

The etiologies of prurigo pigmentosa suggested to date include irritation and allergy caused by clothes (sweaters, underwear, etc.) and detergents (1), but attempts to detect a specific contact allergen have not been successful. In our case, prurigo pigmentosa was considered to be a contact allergy to the chromium contained in the acupuncture needles, for the following reasons: 1) Eruptions developed after 3 years of acupuncture therapy, were alleviated after suspending the therapy, and flared up again on resuming the therapy; 2) the acupuncture needles contained 18.12% chromium, chromium patch test produced erythema, and a flare-up was observed in the old patch test area on resumption of the acupunc-

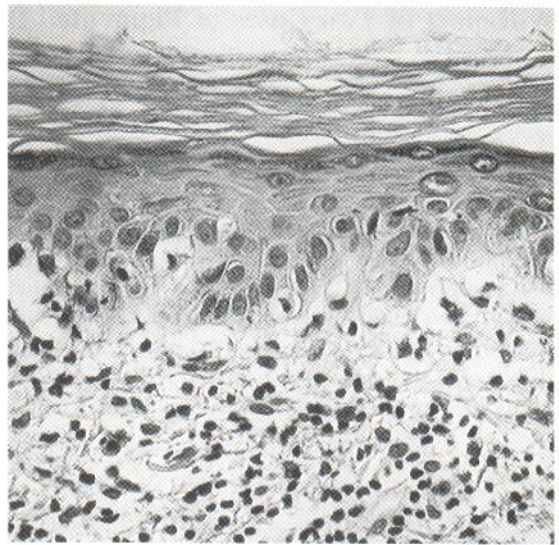


Fig. 2. Hydropic degeneration of the basal layer and lymphoid cell infiltration of the papillary dermis. H & E,  $\times 150$ .

ture. Acupuncture, developed in China, involves puncture of the body with fine metal needles and is performed widely for the treatment of lumbar pain, joint pain, vertigo, and headache. Nickel dermatitis due to acupuncture needles has been reported by Romaguera & Grimalt (3).

Prurigo pigmentosa and pigmented contact dermatitis (4, 5) resemble the physical findings of the eruptions and the subsequent reticular pigmentation and the histological finding of lichenoid reaction. Since the lesions in the present case are considered to be due to a contact allergy to chromium, the condition may more properly be regarded as pigmented contact dermatitis due to chromium.

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