

Occupational lichenoid allergic contact dermatitis caused by tin

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Allergic reactions to tin were previously reported in the literature (1,2). True cases of allergic contact dermatitis, however, are very rare.

Case Report

A 30-year-old male, with an unremarkable medical history, presented with a pruritic skin eruption, lasting for about three weeks. The patient exhibited monomorphous, symmetrical erythematous, papules of less than 1 cm size with a lichenoid resemblance, partly in a linear arrangement. Lesions had started on the dorsum of the hands, wrists, forearms and legs, spreading then to the nape of the neck, forehead and periorbitary area, thoracic and lumbar regions (Fig. 1, 2 and 3). The patient reported the onset of the dermatosis four weeks after starting to work full-time in a tin-smelting factory where he had already performed, for the last year, some occasional work shifts. In the factory, we worked at high temperatures and was exposed to tin-contaminated dust in a poorly ventilated space, without protective equipment. He reported improvement with topical corticosteroids and oral antihistamines and, especially, during the periods he was not working.

Skin biopsy of an anterior thoracic lesion revealed discrete acanthosis with parakeratosis and exocytosis without spongiosis; hydropic degeneration of the basal cell layer; lichenoid and perivascular lymphohistiocytic infiltrate in the superficial dermis, with diskeratotic or necrotic cells isolated in the epidermis (Online supplemental Fig. 4).

Patch testing with IQ Ultra chambers (Chemotechnique Diagnostics, Vellinge, Sweden) applied on the back and covered with Mefix (Mölnlycke Health Care, Göteborg, Sweden) was performed with the Portuguese Contact Dermatitis Group (GPEDC) baseline series and tin 50% pet. (by Chemotechnique Diagnostics). Readings were performed on day (D) 2 and D4. The only positive reaction was to tin, with a crescendo pattern (D2 +, D4 ++). Based on this, the diagnosis of occupational allergic contact dermatitis to tin was made (Online supplemental Fig. 5).

Topical methylprednisolone aceponate was prescribed and the patient was advised to change his working conditions. He started operating under lower temperatures and became significantly less exposed to tin oxide fumes and dusts, resulting in a clear improvement of his dermatosis. The patient presented only residual papules on the anterior forearms on the last visit, reporting, however, relapses when he was reexposed to tin. A repeat test with tin chloride 1% pet. was proposed. Unfortunately, once clinically improved and able to fulfill his adapted work tasks, the patient refused further testing in our department, missing successive scheduled appointments.

Discussion

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Although a repetition of the patch tests with tin chloride was not possible, the close relationship between the development of the dermatosis and the new occupational environment with regular and continuous exposure to tin oxide fumes and dusts, the clinical improvement during the days-off and with the change of the work conditions, and the positive patch test to this metal are, in our view, strongly support the diagnosis of occupational airborne allergic contact dermatitis.

Although allergic reactions have been described, there are scarce reports of established allergic contact dermatitis caused by tin (3,4). In our case, skin biopsy revealed a lichenoid reaction pattern, corroborating the clinical appearance of the lesions. In fact, albeit usually presenting as eczema, allergic contact dermatitis may rarely manifest as lichenoid reaction (5). Aggarwal et al reported an oral allergic lichenoid reaction to buccal amalgam restoration, with histopathological features of lichenoid contact mucositis, in a patient found to have a positive skin patch test to tin (6). However, to our knowledge, this is the first report of a lichenoid allergic contact dermatitis to tin.

In spite of the relative rarity of this diagnosis, tin must be considered a potential etiology of allergic contact dermatitis due to its ubiquity in everyday utensils and the morbidity associated with the clinical entity.

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Figure legends:

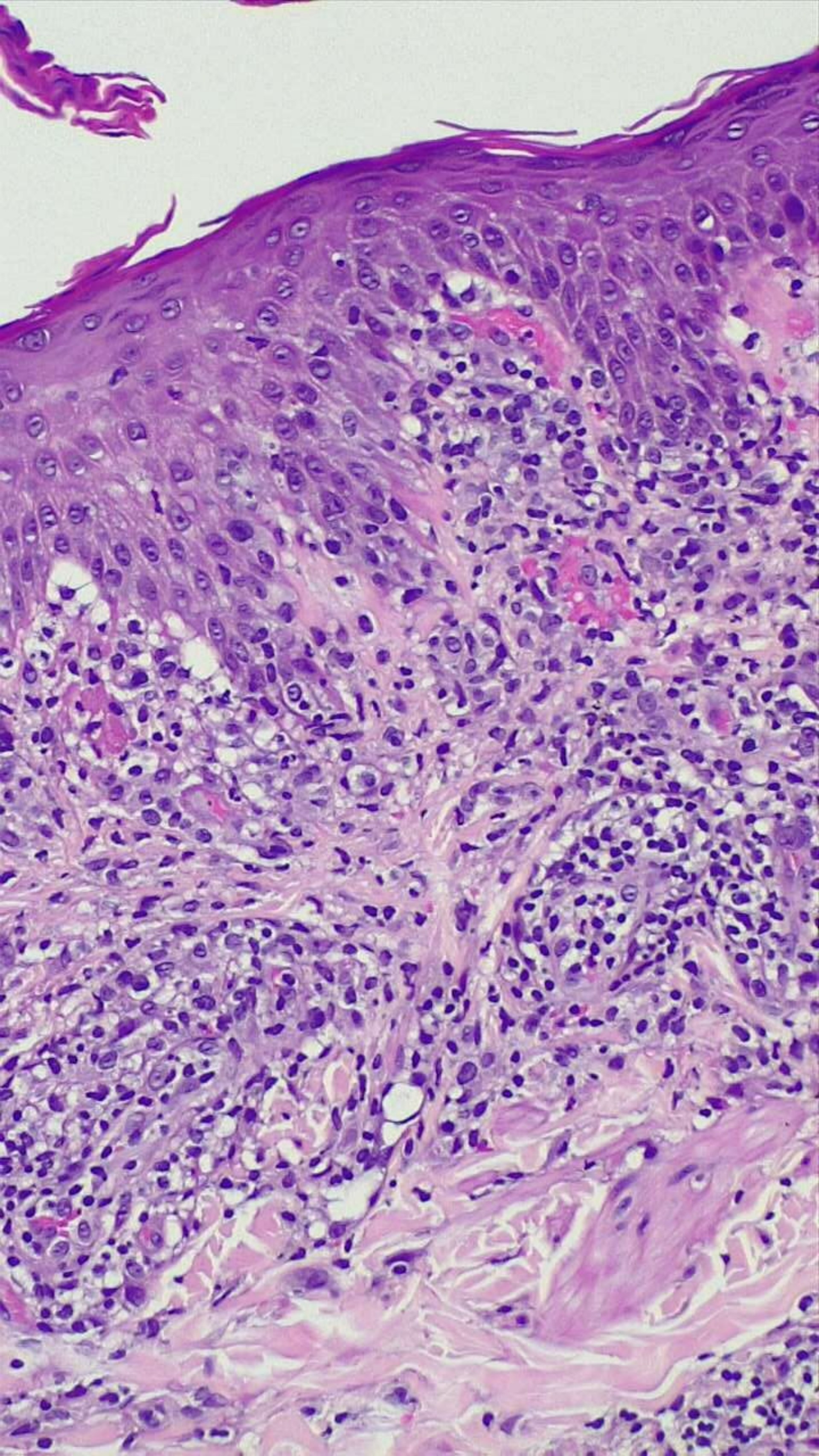
Fig. 1, 2 and 3. (A) Anterior right forearm, (B) forehead and periorbitally and (C) thoracic flat-topped papules.

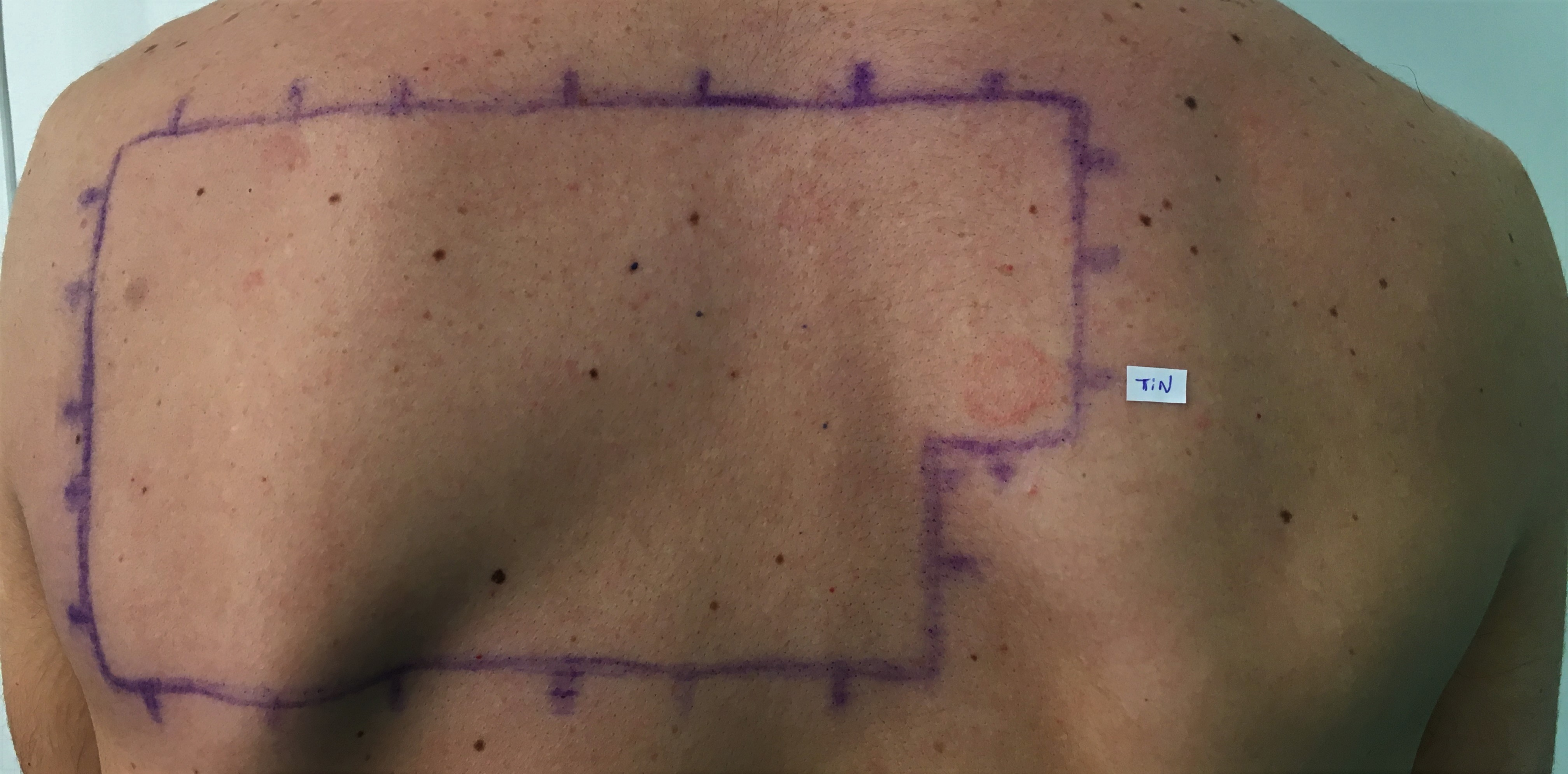






Online supplemental Fig. 4. Histological examination revealing a lichenoid tissue reaction (Haematoxylin / Eosin, x200).
Online supplemental Fig. 5. Positive reaction to tin (++) on day 4.





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