

veloped a pruritic erythematovesicular eruption where the knee brace was in contact. Treatment with topical corticosteroids was effective. He had no reaction when he interposed a bandage between the skin and the knee brace. He had no previous history of reacting to other rubber products.

Patch tests with the GEIDC standard series were negative. Patch testing the 3 layers of the knee brace gave an allergic reaction (D2 ++, D4 ++). Patch tests with a rubber chemicals series (Marti-Tor) were positive only to diphenylthiourea (DPTU) (D2 ++, D4 +++). This rubber series, comprising 35 substances, includes 3 more thiourea compounds, dibutylthiourea (DBTU), diethylthiourea (DETU) and ethylenethiourea (ETU), as well as there being thiuram and carba mix in the standard series (Table 1).

Comment

This is the 1st case report of contact dermatitis from diphenylthiourea in a knee brace based on neoprene. 2 cases have been reported of knee brace dermatitis due to DETU (1) and ETU (3). Allergy to DPTU has been reported in Vulkan heat retainers (4), PVC adhesives (5), gloves (1) and pesticides (1).

Cross-reactions were not detected to DETU, ETU or DBTU, in accordance with other authors who recommend that each thiourea compound should be tested separately. Exposure to thiourea compounds is relatively widespread and it is often difficult to detect their source.

Table 1. Patch test results

Substance	D2	D4
diphenylthiourea 1% pet.	++	+++
dibutylthiourea 1% pet.	-	-
diethylthiourea 1% pet.	-	-
ethylenethiourea 1% pet.	-	-
carba mix	-	-
thiuram mix	-	-
knee brace	++	++

They should be tested in patients with suspected contact dermatitis exposed to rubber, PVC adhesives, diazo paper, pesticides, fungicides or anticorrosive agents.

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Lymphocytoma cutis involving the lower lip

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Case Report

A 30-year-old woman was referred with 2 asymptomatic eruptions on her lower lip, which had appeared a year ago and gradually enlarged. At almost the same time, pruritic eruptions had appeared under a necklace, her previous history revealing similar eruptions under metal accessories.

There were 2 erosive, reddish-purple, indurated nodules, 10 mm in diameter, on her lower lip (Fig. 1). There was a 12% peripheral blood eosinophilia with normal WBC, an increased serum IgE level of 548 U/ml, with specific IgE antibodies to house dust mite and Japanese cedar. She had no history of any chronic skin disorder, drug allergy or recallable injury to the lower lip.

Histologic examination revealed an acanthotic epidermis, lacking stratum granulosum and stratum corneum



Fig. 1. The 2 reddish-purple infiltrated nodules on the lower lip.



Fig. 2. Low-power view of the biopsy, showing well-formed lymphoid follicles (H&E $\times 100$).

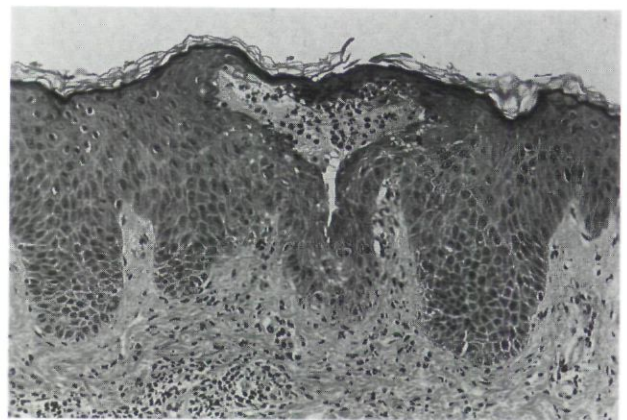


Fig. 3. Spongiotic vesicle, containing eosinophils, and lymphohistiocytic infiltrate with some eosinophils (H&E $\times 200$).

and a nodular dermal infiltrate partially forming lymphoid follicles. The infiltrate was mixed with numerous eosinophils (Fig. 2). Most of the cells in the lymphoid follicles expressed CD20, while those surrounding the follicles were mostly CD3⁺ and CD4⁺ T cells. On these histologic and immunohistologic findings, we diagnosed benign lymphocytic infiltration of the skin (1).

We performed patch tests with the following in water or petrolatum: 2% aluminium chloride, 0.2% gold chloride, 1% stannic chloride, 2% ferric chloride, 1% platinum chloride, 1% palladium chloride, 1% indium trichloride, 1% iridium tetrachloride, 2% zinc chloride, 2% manganese chloride, and 2% silver bromide. She showed a strongly positive reaction only to zinc chloride 2% aq., which consisted of an indurated erythematous patch studded with grouped tiny vesicles, and was still recognizable 2 weeks later. This positive patch test reaction showed a spongiotic vesicle in the epidermis, containing eosinophils, and dense perivascular lymphohistiocytic infiltration with some eosinophils (Fig. 3).

Metal analysis using an X-ray microanalyzer (2) suggested the presence of zinc and palladium, silver, tin, iron, copper, and gold in her 8 pieces of dental amalgam. The dentist who analyzed these metal fillings commented that, among her dental fillings, only the one containing zinc, which was in the right upper 2nd molar, had rusted, possibly due to metal solubilization. We were unable to persuade the patient to have this filling replaced.

Discussion

Since the 1st report of Fleischmann (3) of stomatitis and eczema caused by dental amalgam, allergic reactions to dental amalgam have been described to elicit, e.g., stomatitis (4), urticaria (5), lichen planus (6) and generalized dermatitis (7), for which Nakayama et al. (8) have proposed the term "dental metal eruption". According to Nogi (9), metal test samples frequently inducing "dental metal eruption" are mercury bichloride, stannic chloride, cobalt chloride, nickel sulfate, palladium chloride, and zinc chloride.

We speculate that the lymphocytoma cutis on our patient's lower lip was due to an allergic contact reaction

to zinc. There has been no previous report of lymphocytoma cutis due to dental amalgam, though 2 cases of swollen lips reported by Fujita et al. (10) as having granulomatous cheilitis had clinical and allergic features resembling those of our patient. Other reports (11–13) have included further verification of a relationship between amalgam allergy and oral or lip lesions.

Lymphocytoma cutis has been reported as caused by trauma (14), insect bites (15), tattoos (16), antigen injections (17, 18), UV light (19, 20), vaccinations (21), herpes zoster infections (22), and *Borrelia burgdorferi* (22, 23), though most cases are of unknown aetiology (20). Recently, cases induced by gold-pierced earrings (25, 26) have been reported.

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Chemical burn from acetic acid with deep ulceration

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Case Report

A 59-year-old woman developed severe pain, after twisting her left ankle while mountain climbing. She applied a home-made poultice to the affected site under occlusion with gauze, consisting of a 50:50 mixture of flour and rice vinegar, containing 4.5% acetic acid. She felt severe pain in the treated area, but kept the gauze on for approximately 2 h. When she removed it, the color of the treated area had changed to dark reddish and partially brown-black, and was edematous. She immediately washed the area copiously with water. The next morning, she consulted a local doctor, but the necrosis and ulceration had gradually progressed despite treatment with topical 0.1% gentamicin sulfate. Approximately 1 month later, she was referred for treatment of the deep ulcer. Examination revealed a deeply ulcerated lesion, involving the entire dermis and adipose tissue, on the dorsum of the left foot, 7 cm in diameter, its surface covered with yellowish necrotic tissue (Fig. 1). She was hospitalized and successfully treated with full-thickness skin grafting.

Discussion

Organic acids may be caustic, for example, glacial acetic, trichloroacetic acid, formic acid, carbolic acid and cresol.

Coagulative necrosis occurs in the tissues together with thrombosis of the vessels. The depth of necrosis in chemical burns depends on the concentration, duration of contact, quantity and type of action, and whether early effective washing off with water and neutralization with sodium bicarbonate solution or milk of magnesia has been used (1). Long duration of exposure under occlusion, even if with a weak acid such as acetic, may lead to serious injury requiring skin grafting, as in the present case.



Fig. 1. Deep ulcer on the dorsum of the left foot.

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