

Lymphomatoid contact dermatitis induced by gold earrings

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Metallic gold has long been regarded as a relatively safe material when in contact with the skin and mucosal membranes, with only sporadic reports of allergic contact dermatitis or stomatitis. This is probably due to its stability and low tendency to ionization. Lymphomatoid reactions have been described in cutaneous responses to several products. We report a patient who developed bilateral nodules on the earlobes at the sites of piercing earrings. Histologically, these lesions presented a lymphomatoid appearance, with a T-cell diffuse infiltrate. The patch test

demonstrated a strong reaction to 1% gold sodium thiosulfate.

Key words: dermatitis; allergic contact; gold; gold sodium thiosulfate; patch tests; pseudolymphoma.

Metallic gold has long been regarded as a relatively safe material when in contact with the skin and mucosal membranes, with only sporadic reports of allergic contact dermatitis or stomatitis (1). Orbaneja et al. described under the denomination 'Lymphomatoid contact dermatitis' a group of contact dermatitis that clinically and histologically simulate mycosis fungoides (2). This can be produced by gold, being a rare entity characterized by nodules at sites of piercing with gold jewellery (3).

Case Report

A 61-year-old woman was referred to our department because of cutaneous lesions on her ear lobes. They had appeared 1 year before and had slowly grown. She had no history of dermatitis on contact with jewellery at other body sites. Examination showed violaceous nodules on both ear lobes (Fig. 1). These were pea-sized, firm and non-tender. There were no surface eczematous changes.

A biopsy of a nodule was performed. A dermal infiltrate was found; it was wedge-shaped, diffuse and mainly composed of lymphocytes (Fig. 2). Multinucleated giant cells were present around this infiltrate, showing birefringent inclusions (Fig. 3). Epidermis was spared. Immunohistochemistry showed that the lymphoid cells were T-cells (there was positivity



Fig. 1. Violaceous nodule on the earlobe at pierced site.

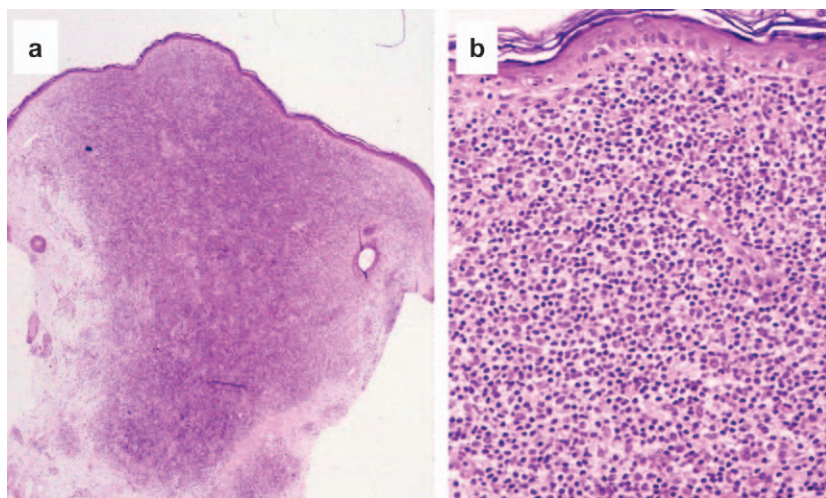


Fig. 2. Biopsy of the nodule. **a** Wedge-shaped dermal infiltrate (haematoxylin and eosin $\times 40$). **b** Dense infiltration of lymphocytes in the dermis impinging subcutaneous tissue (haematoxylin and eosin $\times 100$).

to CD45 and CD3 and negativity to CD20).

The patient was patch tested to the European standard series and metal series, demonstrating a strong reaction to 1% gold sodium thiosulfate and a less intense reaction to cobalt chloride and nickel sulfate. Histological examination of the positive patch test reaction showed spongiosis of the epidermis, upper dermal oedema and a moderate infiltrate around blood vessels. These features were consistent with an allergic contact dermatitis reaction.

Discussion

Lymphomatoid reactions have been described in cutaneous responses to several products like vaccines, injected pollens, tattoos and rarely in allergic contact dermatitis from gold (3). The low incidence of contact dermatitis from gold is presumable due to its

stability; it has less tendency towards ionization than nickel. However, it might be less stable in the dermis and it might ionize more in dermis than in epidermis (4).

In our case, clinical and histological findings were suggestive of lymphomatoid contact allergic dermatitis to gold. Patch test confirmed this diagnosis. This clinical manifestation is probably due to the presence of the allergen in the dermis. This could generate continuous solubilization of a small amount of gold into the tissue fluid (5). Multinucleated giant cells showing birefringent inclusions were present, probably containing gold. Gold sodium thiomalate appeared to bind persistently in the skin after intradermal tests and to accumulate in the macrophages of susceptible individuals, inducing pseudolymphoma formation (6).

In our patient, the response to patch test was purely eczematous, in contrast with the reaction to the gold earrings. When gold penetrates via the epidermis, an eczematous allergic contact reaction is induced. This indicates that the cellular response in the dermis with continuous antigen exposure is distinct from that characterized by contact sensitivity in the epidermis (7). It has been reported that positive patch test reactions to gold sodium thiosulfate are always eczematous. For gold to induce a contact dermatitis reaction, it must be converted in small amounts into a soluble form, probably by the action of amino acids in sweat and absorbed into the skin (8).

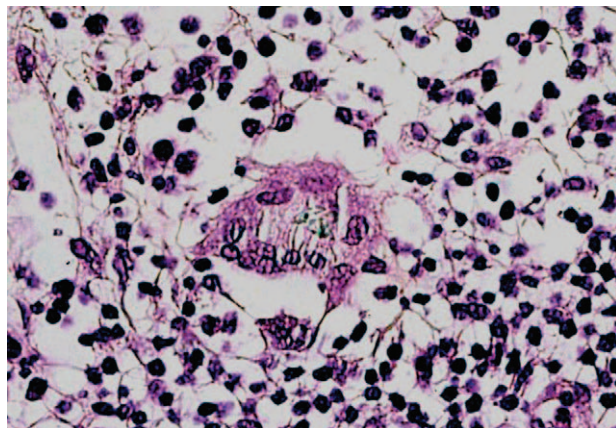


Fig. 3. Multinucleated giant cells with birefringent inclusions (haematoxylin and eosin $\times 200$).

With regard to the substance recommended to demonstrate allergy to gold, the monovalent salt gold sodium thiosulfate is nowadays the best option. Metallic (elemental) gold almost always tests negative and gold trichloride has been demonstrated to elicit more false-negative and false-positive reactions (9).

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