

Allergic contact dermatitis caused by hypersensitivity to gold – description of a clinical case

Iwona Poziomkowska-Gęsicka¹, Burkhard Summer², Małgorzata Sokołowska¹, Peter Thomas² and Michał Kurek¹

¹Department of Clinical Allergology, PMU, Szczecin 70-111, Poland and ²Clinic of Dermatology and Allergology, University of Munich, 80337 Munich, Germany

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Correspondence: Iwona Poziomkowska-Gęsicka, Department of Clinical Allergology, PMU, 70-111 Szczecin al. Powstańców Wlkp. 72, Poland. Tel: +48 914661646; Email: allergy@pum.edu.pl

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Allergic contact dermatitis caused by gold is rare. Surrounding tissues, additives and the fineness of gold play key roles in gold allergy. Whereas elemental gold is almost inert, gold ions are very reactive. In the last three decades, cases of gold allergy resulting not only from occupational exposure, but also from frequent

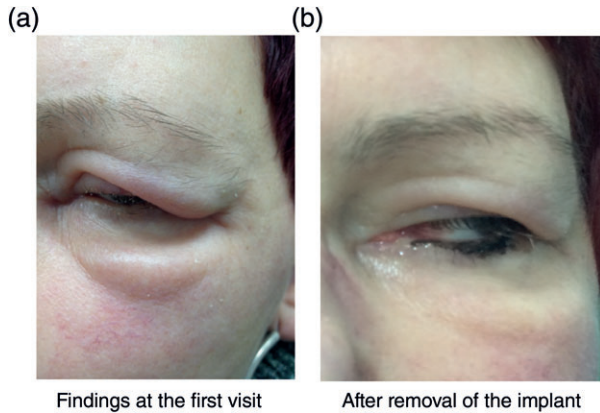


Fig. 1. (a) Findings at the first visit. (b) Findings after removal of the implant.

application of gold in dentistry and angioplasty have been reported (1, 2).

Case Report

A 50-year-old woman consulted us because of unilateral erythema and oedema of the left eyelid and accompanying discomfort (Fig. 1a). The persisting oedema had appeared 3 weeks after insertion of an implant into the left upper eyelid. The patient's history showed a road accident in January 2010 with craniocerebral trauma including subdural haematoma, central facial palsy on the left side of the face, third and fourth nerve paralysis on the left side, and left-sided hemiparesis. Then, in Autumn 2014, the patient had a gold plate implanted (with 999.9 fineness) into the left upper eyelid. The patient had tolerated jewellery, cosmetics and medicines until then, and did not have any dental gold.

Patch testing was performed with the Polish baseline series and a metals series, an occlusion time of 2 days, and readings on day (D) 2 and D3. Whereas the Polish baseline series yielded no positive reaction on D3, the metals series yielded positive reactions to gold sodium thiosulfate 0.5% pet. (+) and gold sodium thiosulfate 2% pet. (++) (Fig. 2). The lymphocyte transformation test (LTT) showed lymphocyte reactivity to gold in two concentrations, that is, 1×10^{-4} M [stimulation index (SI) of 4.83] and 5×10^{-5} M (SI of 3.42) (SI > 3 indicating positivity), and a negative control test result. No lymphocyte reactivity to other metals, such as nickel, chromium, and cobalt, was seen.

In May 2015, the gold implant was removed. Subsequently, the skin lesions were significantly reduced

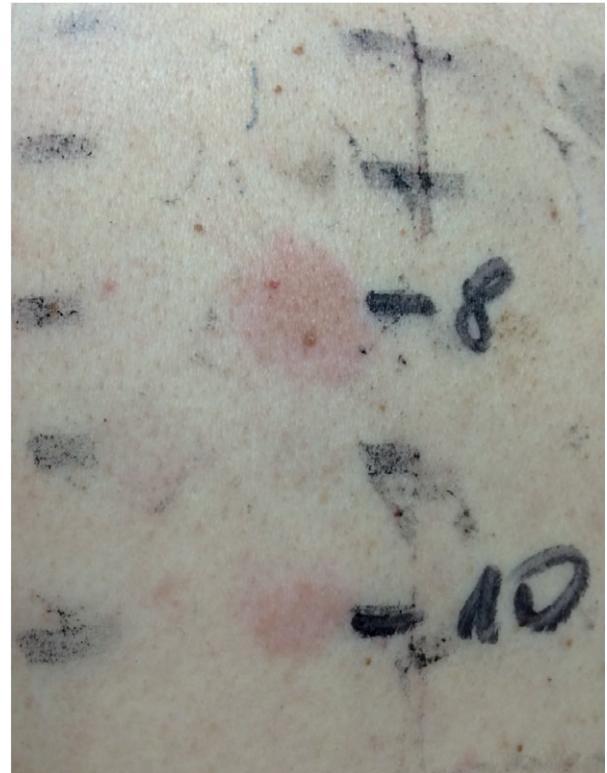


Fig. 2. Positive patch test reactions on day 2 to gold sodium thiosulfate 2% pet. and 0.5% pet.

after 2 months, and after another 12 months they had disappeared (Fig. 1b). The patient decided not to undergo surgery once again, as she no longer required treatment for insufficient eyelid closure (status January 2017).

Discussion

In our patient, the diagnosis of allergic contact dermatitis caused by gold was based on clinical symptoms that appeared after the implantation and disappeared after removal of the implant. It should be noted that the patient developed isolated hypersensitivity to one metal, namely gold, without developing hypersensitivity to other metals. In the literature, individual patients with hypersensitivity to gold confirmed by a positive LTT result have been reported (3, 4). Generally, the LTT and histopathological examination can help to confirm the diagnosis of allergy to gold and other metals (nickel, chromium, and cobalt) used in implants (5).

References

- 1 Ahlgren C, Ahnide I, Björkner B et al. Contact allergy to gold is correlated to dental gold. *Acta Derm Venereol* 2002; **82**: 41–44.
- 2 Stejskal V, Reynolds T, Björklund G. Increased frequency of delayed type hypersensitivity to metals in patients with connective tissue disease. *J Trace Elem Med Biol* 2015; **31**: 230–236.
- 3 Björkner B, Bruze M, Möller H, Salemark L. Allergic contact dermatitis as a complication of lid loading with gold implants. *Dermatitis* 2008; **19**: 148–153.
- 4 Summer B, Ständer S, Kapp F, Thomas P. Rolle des Lymphozyte-transformationstests zur Beurteilung einer Metallsensibilisierung. *Hautarzt* 2016; **67**: 380–384.
- 5 Thomas P. Update Metallimplantatallergie. *Hautarzt* 2016; **67**: 343–346.