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Systemic contact dermatitis in a gold-allergic patient after treatment with Aurocard®

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ABSTRACT

Medicinal gold therapy may induce various adverse skin reactions. There are homeopathic medicines containing gold, but in general homeopathic medicines are considered to be very safe by the alternative medicine specialists and patients. We describe patient with pruritic dermatitis with systemic symptoms that began during treatment with homeopathic medication containing gold. Patient has strong contact allergy to gold sodium thiosulphate revealed on patch testing. All her symptoms (widespread dermatitis, fever, general malaise) resolved after she had stopped using the gold-containing medication. Patient could not be patch tested with dilution series and provoked with gold because of unexpected death not related to her allergy. This case illustrates that even small amounts of gold, found in homeopathic medication, may induce systemic immune response in the allergic person.

Key words: gold, homeopathic medicine, systemic contact dermatitis, gold allergy

Capsule summary

- Medicinal gold therapy may induce adverse skin reactions, but homeopathic medicines are considered to be very safe.
- Small amounts of gold (III) present in homeopathic medicine may induce systemic contact dermatitis in a gold-allergic patient.
- Even small amounts of gold taken systemically could be harmful for gold allergic patients.

CASE REPORT

A 76-year-old female was referred to us for investigation because of an intensely pruritic eruption. Three month prior to the referral she developed itching of the perianal area and was treated for infectious dermatitis with various antibacterial topical creams, but experienced relief only after topical moderately strong corticosteroids. After one month she started to develop itching lesions on the inner sides of the forearms, décolleté, and eyelids. She felt general malaise, had subfebrile temperature, and general weakness also. She was extensively investigated by her family physician for a malignant tumour but tests were negative. The patient was treated for her dermatitis by various dermatologists with moderately strong and strong topical corticosteroids which gave only symptomatic relief. Topical pimecrolimus and oral antihistamines were ineffective. She denied having concomitant illnesses or using other medications and had no known allergies to medicines or chemicals with exception that she could not wear several earrings made from “yellow metal”(which contain gold) since youth because of the swelling of the earlobes. She tolerated her golden wedding ring and neck chain. She denied smoking. Few years before presentation her only dental gold crown, which she had had for 20 years without any problems, was removed due to new prosthesis, which did not contain any gold material, made. On examination she presented with infiltrated maculopapular eruption with small vesicles on the inner forearms and décolleté, upper eyelids and perianal area. She was patch-tested with the Swedish baseline series and in addition with gold sodium thiosulfate 2% petrolatum. She was positive only to gold sodium thiosulfate at day 3 with a very strong, spreading and oozing 3+ reaction. Repeated questioning revealed that the patient was using the homeopathic medication Aurocard® for “heart strengthening” for approximately 4 months. She did not inform any doctor about it because she thought that “homeopathic drugs are very safe, not like chemical ones”. It appeared that Aurocard® according to the leaflet contains gold, so the patient was asked not

to use it anymore. Mometasone furoate cream and emollients were prescribed for her eczema. After two days patient reported that her perianal itching was gone and she was clear from her eczema after four weeks completely. The presence of gold in Aurocard[®] was investigated by an Atomic Absorption Spectrometer equipped with Zeman correction and a Graphite Furnace (AAnalyst 800, THGA Graphite Furnace, Perkin Elmer Instruments, Norwalk, USA) using gold hollow cathode lamp with wavelengths 242.8 nm. It was confirmed that the actual concentration of the elemental gold in Aurocard[®] is 5 µg/ml. The patient was contacted five months later and she was still clear from skin lesions and not using Aurocard[®].

DISCUSSION

Medicinal gold is available in oral or parenteral form and mainly used for the treatment of various rheumatological diseases. Nowadays gold is under research as a promising agent in imaging, diagnostics and therapies of cancer.¹ Ear piercing and dental gold has been shown to be a risk factor for gold sensitization and elicitation of dermatitis.^{2,3} Moreover, patients treated with gold-plated cardiac stents more frequently develop contact allergy to gold and a correlation to an increased risk of restenosis has also been found.⁴ It is strongly indicated that slow leaching of gold salts in the oral cavity may provoke an allergic reaction and trigger oral lichen planus.⁵

Gold therapy may induce various adverse skin reactions including systemic contact dermatitis, which may occur in contact-sensitized persons when they are exposed to the haptens systemically.⁶ There are published cases of lichenoid dermatitis after consumption of gold-containing liquor. Three patients drinking schnapps with golden flakes in it received as little as 125 µg of elemental gold per week. Researches found elevated gold blood levels and increased concentration in urine in some of their patients.⁷

Mucocutaneous reactions may begin at any time during treatment with systemic gold preparations and have occurred from 1 month to 10 years after the start of therapy.⁸

Aurocard[®] is produced by the German company Deutsche Homöopathie-Union . It is an over-the-counter medication, indicated for the complex treatment of the early stages of heart insufficiency.⁹ As mentioned in the preparate characteristics, there are no contraindications and no adverse reactions to it are revealed, but at the beginning of the treatment the general condition may worsen. Besides herbal components (i.e., *Crataegius* [hawthorn], *Convallaria majalis* [lily of the Valley] and *Arnica Montana* [mountain arnica]), it contains gold (III) chloride. It is advised to take it before meals and keep under the tongue for a while for better absorption.⁹

According to the recommendations in leaflet, when using 20 drops three times daily our patient received 449.3 µg of elemental gold per month. Our patient started to experience the first symptoms of perianal dermatitis after a month of medication, but she still continued for another 3 months.

Investigating oral drugs containing gold (e.g., auranofin) it was shown that about 85-95% of gold is excreted in feces and the remaining in urine.⁸ Testing with the dilution series showed that some extremely sensitized patients may react even to 0.016% concentration of gold sodium thiosulfate, which is consistent with 0.96 µg of the elemental gold.¹⁰ Excretion of gold via feces and a high sensitivity to gold could be the explanation to the perianal dermatitis in our patient, which could result from the direct contact with the small amount of the excreted gold.

Exposing patients to a total amount of 900 µg of gold through the skin, lead to a 10-fold increase of the gold concentration in the blood, and a correlation between blood gold concentration and the intensity of the patch test reaction to gold was found.^{11,12} It is described that gold accumulates in different organs including skin and remains detectable in tissue samples taken from patients who had been treated with gold years earlier.⁸ So it could be speculated that our patient constantly receiving gold for several months had an increased gold

blood concentration, it accumulated and challenged her immune system, and that caused her dermatitis to be active. Unfortunately, we were unable to test her gold blood concentration and also to test her with a serial dilution to gold to pin point her patch test reactivity and also to provoke her systemically with gold.

There is no specific laboratory test to confirm the diagnosis of gold-induced dermatitis yet.

Therefore, diagnosis of gold induced dermatitis relies on clinical suspicion, establishing of contact allergy, demonstration of present exposure and assessment of clinical relevance.¹⁵

Rechallenge with Aurocard[®] was not undertaken in our patients, but she had had golden dental crown, which probably was the cause of her sensitization to gold, and a very strong positive patch test to gold sodium thiosulfate 2% pet. She was cured by stopping taking gold containing medication and using even weaker topical corticosteroid as previously. She was free from dermatitis symptoms a few months later, so this speaks in favour that her dermatitis was caused by Aurocard[®]. Besides, patient continued to use herbal constituents of Aurocard[®] like drops/teas without any adverse reactions also after healing of the dermatitis. Hence we suppose that our patient with strong contact gold allergy suffered from systemic contact dermatitis induced by homeopathic medicine containing gold.

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