

Palladium Sensitization in the United States: Dermatology and Dentistry Connection

To the Editor:

In their important review article on palladium sensitization in United States, Durosaro and el-Azhary¹ found that the frequency of palladium allergy detected by patch testing with palladium chloride 2% in petrolatum in a retrospective cohort of 910 US adults was 12.1% (110 of 910 patients). The authors noted an increased frequency of palladium allergic sensitization among patients with oral disease (ie, burning mouth syndrome [BMS] and stomatitis) as compared with patients who have skin manifestations (ie, hand or body dermatitis).¹ As they noted, allergy to palladium among the patients with oral pathology was twice as high as among those with skin disorders. We wish to raise some points regarding this interesting article. In the introduction, the authors state that “Dental alloys may contain up to 10% palladium.”¹ As far as we are aware, palladium-based dental prosthesis alloys may contain large amounts of palladium, up to 95% by weight²; this may increase the possibility of the release of palladium into the oral cavity.

These elevations of saliva palladium levels as well as palladium accumulation into oral mucosa may also facilitate the sensitization to palladium, possibly leading to oral disease. Interestingly, hypersensitivity to palladium occurred in 15.1% of patients with clinically definite oral lichen planus.¹ The authors' findings are in agreement with those of an earlier investigation that we conducted.³ Similarly, in our cohort of patients with clinically apparent oral lichenoid stomatitis with histologically confirmed disease, 14.63% of patients (6 of 41) had an allergy to palladium.³ By using skin patch testing, 2 of 6 patients

(33.3%) in the palladium-allergy subgroup were found to have monosensitized palladium allergy.³ The point of interest is that both patients (a 58-year-old woman and a 70-year-old woman) with lichenoid contact stomatitis associated with monosensitization to palladium—with patch-test allergen palladium chloride 2% in petrolatum—had received a large number of palladium dental crowns as compared to patients with concomitant reactivity to nickel or simultaneous sensitization to other multiple metals. Extensive co-reactivity exists between palladium and nickel in various populations.⁴ It is difficult to explain, but it may be related to nickel-specific T-lymphocyte clone cross-reactivity between nickel and palladium.⁴

With regard to the clinical relevance of positive patch-test reactions to palladium in our group, we were able to trace the source of palladium in their palladium-based dental alloy or dental amalgam fillings (which contain palladium up to 1% by weight). We therefore observed in our patients a current relevance of these positive responses to palladium chloride, which have provided evidence confirming the putative causal relation between the allergic sensitization to palladium alloy and oral disease. In our case series on treatments for lichenoid contact stomatitis or BMS associated with palladium allergy, our data yielded somewhat different clinical outcomes.³ By comparing lichenoid contact stomatitis with BMS linked to palladium sensitization, we noted clinical improvement or remissions in patients with lichenoid contact stomatitis, at 1 year after the total removal of palladium-based dental alloys. By contrast, some cases of BMS related to palladium allergy have been refractory to palladium-removal treatment.² The emerging view of palladium is that, following gold⁵ and mercury,⁵ it has increasingly become the subject of intense interest to us—both dermatologists and dentists.

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Figure 1. Oral lichenoid lesions associated with palladium allergy. The photograph shows the clinical appearance of the right buccal mucosa in close topographic contact with high-concentration palladium-based alloy. Note the erythematous reaction involving the central area with surrounding flat white striae. This clinical lesion is typically seen in patients with lichenoid reactions to dental alloys. The patient was a 58-year-old woman with monosensitization to palladium allergen (++ patch-test reaction). She developed lichenoid lesions months after the insertion of 16 palladium-based crowns.

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