

Allergic Contact Dermatitis Caused by Palladium-Containing Dental Implants

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PRECIS

We discuss the role of patch testing in elucidating the etiology behind an unusual presentation of contact dermatitis to palladium-containing dental implants.

DISCUSSION

Three years after the placement of dental implants, a 52-year-old woman with allergies to morphine and penicillin presented with chronic redness, irritation, and inflammation of the gingiva adjacent to the implants. The crowns were 80% palladium, 5% silver, 6.5% indium, 6.3% gallium, 1% zinc, less than 1% ruthenium, and less than 1% tin. She previously had other dental implants to which she experienced no adverse effects. Her history was also significant for a titanium wire inserted for temporomandibular joint disease and a titanium graft placed for spinal fusion. No problems were present at either site. Her physical examination revealed marked erythema and edema of the gingiva of the upper and lower front teeth. A sharp demarcation between the inflamed gingiva exposed to the dental implants and the normal-appearing, adjacent gingiva was observed (Fig. 1).

The patient was patch tested according to previously published methods. The following series were applied: North American Standard, dental acrylates, dental, fragrance, metals, and textile colors and finishes. The patch test readings were performed at 48 and 96 hours. The results were graded according to the criteria of the International Contact Dermatitis Research Group.¹ The patient showed 1+ reactivity to the palladium chloride in the dental screen and the metal panel at 48 hours and 2+ reactivity to the metal in the 2 panels at 96 hours. She exhibited no reactivity to nickel or the other materials on the tested panels. We concluded that the patient was allergic to palladium.

The patient was advised to discuss the results with her dentist. Her endodontist was not convinced that her condition was

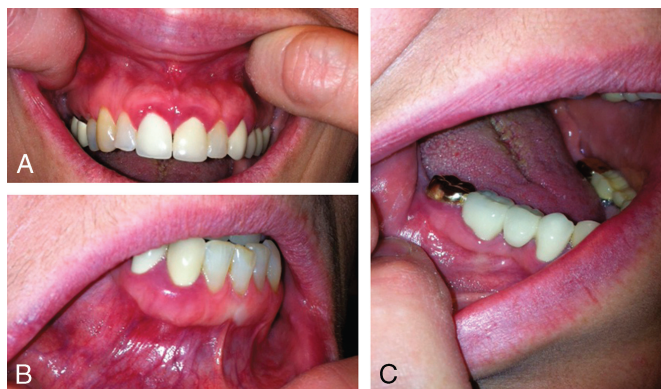


Figure 1. Erythematous, edematous, coalescing papules on the gingiva at the site of upper (A) and lower (B) dental implants. A sharp demarcation is present between the inflamed gingiva exposed to the dental implants and the normal-appearing adjacent gingiva (C).

secondary to allergic contact dermatitis. However, neither a course of low-dose doxycycline nor a trial of topical steroid improved her condition. Moreover, a workup for rheumatologic conditions by her primary care provider was negative, with serum CCP, ANA, and RF in the reference range.

Thus, the patient decided to have her palladium-containing implants removed. She experienced marked and localized clinical improvement after the removal of 2 implants. She is currently considering removal of the remainder of her implants.

Palladium is a silver-white metal in the platinum family. It is commonly used in dental materials. Elevated palladium concentrations have been found in the saliva of patients with metallic dental applications.² The metal is a known cause of contact allergy.³

The diagnosis of palladium-induced contact allergy in our patient could be established because of the oral symptoms that began after dental crown implantation and the well-demarcated gingivitis beginning at the site of the crowns. The remaining metals in the dental implants could be excluded because the patient exhibited reactivity to no other materials on the patch tests, although it remains possible that the patch tests were falsely negative.

Palladium patch testing is currently performed using 2% palladium chloride in petrolatum, but the clinical relevance of the test in patients with oral disease is controversial.⁴ With this communication, nonetheless, we draw attention to our patient who had palladium monosensitivity elucidated with 2 positive patch tests.

ZEBRA

Allergies to dental implants should be considered in the differential diagnosis of localized gingivitis.

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