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PHOTOLETTER TO THE EDITOR

Exfoliative cheilitis associated with titanium dental implants and mercury amalgam

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Abstract

Exfoliative cheilitis is an uncommon chronic inflammatory condition that generally affects the vermilion of the lips. Its cause is still largely unknown an there is no effective treatment. Here we report of a case of exfoliative cheilitis possibly caused by mercury-containing dental amalgam in close proximity to dental titanium implant in a 41-year-old woman. By patch-testing, she was tested positive to thimerosal, palladium, gold, nickel, and copper. There was a strong temporal relation between last titanium dental implant and the onset of exfoliative cheilitis. Clinicians should be aware that exfoliative cheilitis might be associated with an allergy to intraoral dental metals and that titanium dental implant should not be implanted in the vicinity of the mercury-containing dental amalgam filling, even in presence of mercury amalgam as root-end filling material. (*J Dermatol Case Rep*. 2011; 5(4): 89-90)

Key words:

adult, cheilitis chemically induced/metal, female, lip disease, lip inflammation, metal allergy

Exfoliative cheilitis is an uncommon chronic inflammatory condition that affects the vermilion of the lips. The cause of exfoliative cheilitis is still unknown and there is no effective medical intervention. Some forms of exfoliative cheilitis may result from allergy and exposure to intra-oral metals.

In April 2009, a 41-year-old woman presented to our dermatologic department with a one-year history of inflammation of the lips. In 2008, one week after she received a titanium dental implant, a severe cheilitis had subsequently developed. There were typical signs of eczematous cheilitis: painful swelling of her lips with white flat-topped papules on the vermilion lip, on the right. Also, yellow-brownish crust were seen on her upper lip (Fig. 1). No other oral lesions were noted, except for an amalgam tattoo. She had history of asthma, amenorrhea, migraine headache and photosensitivity to daylight, which aggravated her migraine. There was no history of cheilitis before her dental procedures.

She had four mercury dental amalgam fillings and one root-end filling material. Five mercury amalgams were removed one year before she had dental implants surgery. One week early before the start of oral symptoms, she received a titanium alloy implants grade 5 (V) (titanium 90 percent, aluminium 5.5-6.5 percent, and vanadium 3.5-4.5 percent). Subsequently to the third titanium implant in her left upper maxillary canine area, (Fig. 1) she developed a burning mouth episode, especially on her tip of the tongue but it resolved spontaneously within 3 months. A physical examination was unremarkable. She did not have gastrointestinal disorders. A lip biopsy was proposed but she refused. Also, the patient refused to undergo a blood test for hematinic deficiencies (vitamin B12, iron, and folate). The patient was on a strict vegetarian diet for ten years. She did not smoke cigarettes or have lip habits (e.g., biting or sucking). A lip swab specimen yielded a positive culture for

Staphylococcus aureus as well as *Streptococcus* bacteria. For one year, she was treated with topical use of antibiotics and steroids as well, which had little or no effects. Toothpaste was withdrawn but was unhelpful. To demonstrate an association between cheilitis and adverse reaction to dental alloys, we did patch testing with general and dental series. She displayed multiple positive patch test reactions to metals: cobalt (++), gold (++), nickel (++), palladium (++), chromium (+), thimerosal (+), copper (+), at 96 hours. In view of the strong and multiple allergy to metals in this patient, the close temporal relationship between last titanium dental implant and the onset of cheilitis, our early surgical intervention approach seems to be justified. Thus, she was advised to remove completely all 3 titanium implants along with removal of both mercury amalgam and mercury-based root-end filling material, which she declined.

Patients with pathological features similar to those in this patient has been reported previously.[1,2] Between 2001 and 2010, in our cohort, the incidence of cheilitis associated with alloy-based dental restorations was 6.7 percent (33 of 492 patients, median age 51 years and 75,76% were women).[2]

Patient-related risk factor for cheilitis-associated to metals include mainly orthodontic appliances,[2,3] dental titanium implants,[1] and/or mercury amalgam.[2] Removal of dental metal restorations is recommended and this approach has resulted in improvements in the clinical outcome in these patients.[2] To our knowledge, exfoliative cheilitis related to titanium implants and mercury amalgam as never been linked. Titanium and mercury constituents are released into oral cavity and may cause specific immune responses, eliciting tissue inflammation and/or local toxic reactions, or both.[2,4,5,6,7] We hypothesize that the titanium implant placed in the vicinity of dental amalgam may have triggered multiple sensitization to amalgam alloy, which is known to cause cheilitis.[2] In our patient, 5 of 6 metal tested positive (thimerosal, palladium, gold, nickel, and copper) were associated with mercury amalgam. Trace amounts of nickel, cobalt, chromium, and palladium might be present in titanium implants.[8] At the last follow-up, in absence of alloy removal, signs and symptoms of chronic exfoliative cheilitis persisted unchanged throughout the period of observation of three years.

In conclusion, clinicians should be aware that titanium dental implant should not be implanted in the vicinity of the mercury-containing dental amalgam filling, even in presence of mercury amalgam as root-end filling material.

Figure 1

Severe exfoliative cheilitis developed after titanium dental implant, which was inserted near to mercury amalgam. Inset, left, X-ray panorex showing titanium implants in close proximity to mercury amalgam filling material. The image showing a large exfoliation area on the vermilion border, on the right. Swelling of the lips, superficial erosion, crusting, and fissuring of upper lip. Secondary bacterial infections were found in patient's lips. Note the lip eversion and perioral dermatitis.

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