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Allergic contact dermatitis caused by essential oil of Hinoki (*Chamaecyparis obtusa*) on the periungual area

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Case Report

A 59-year-old woman presented with a 2-week history of pruritic, eczematous dermatitis affecting the periungual area of her first and second toes (Fig. 1). Twenty-one days previously, she had begun using over-the-counter Hinoki essential oil on a nightly basis, in an attempt to treat her athlete's foot and toenail onychomycosis. After several days of applying the oil, she developed a pruritic, erythematous periungual eruption. She was treated in our department with a potent topical steroid and oral terbinafine at 250 mg daily. The eruption resolved within a few days. Patch testing was performed with the TRUE Test[®] and the patient's own products (5% of the essential oil preparations in pet.) by the use of Finn Chambers[®] on Scanpor[®] tape. The patch tests were applied to the upper back, and were occluded for 48 hrs. Readings were performed according to the guidelines of the ICDRG on day (D)2 and D4. Among the TRUE Test[®] allergens, nickel sulfate and colophonium caused weak positive reactions (+). There was an extreme positive reaction (+++) to the essential oil of Hinoki (*Chamaecyparis obtusa*) (Fig. 2; tested 5% pet.). To rule out a strong irritant reaction, we patch tested 8 healthy volunteers with Hinoki essential oil 5% pet., and all were negative. The patient was informed about her contact allergy to Hinoki essential oil, and provided with a card on which this was stated.



Fig. 1. Brown to yellow scaly patches and dermatitis of the periungual area of the first and second toes.



Fig. 2. Extreme positive patch test reaction to Hinoki essential oil (5% pet.).

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Discussion

Hinoki essential oil is a yellowish essential oil from the *C. obtusa* tree of Japan. In Asian countries, Hinoki essential oil is traditionally considered to have relaxing effects on the body, helping to relieve tension and stress. The main components of *C. obtusa* essential oil are bicyclo[2.2.1]heptan-2-ol (18.75%), (+)-2-carene (17.41%), and sabinene (12.84%) (1). Yang et al. reported that the essential oil of *C. obtusa* showed relatively strong antibacterial activity against Gram-positive bacteria, and good antifungal activity (2). These properties have led patients with recalcitrant acne, tinea pedis and onychomycosis to use Hinoki essential oil, potentially leading to an increased incidence of allergic contact

dermatitis caused by this oil. Allergic contact dermatitis caused by other essential oils used in cosmetics has been reported (3, 4). We have presented what we believe to be the first case of contact allergy caused by Hinoki essential oil. Sensitization to Hinoki essential oil may be more common than previously thought, and we recommend patch testing with 5% pet.

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