

lenalidomide maintenance therapy was initiated in addition to zoledronic acid at tri-monthly intervals for the prevention of skeletal fractures. At her 3-month bone marrow biopsy and 1-year follow-up following stem cell transplantation, the patient continued to be in a stringent complete first response. She continues to tolerate maintenance treatment well and follows up with her oncologist intermittently.

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Solar urticaria to visible light triggered by light-emitting diode therapy

To the Editor: Light Emitting Diodes (LEDs) are increasingly used for many conditions, including wound healing and treatment of photoaging skin. They are said to be a safe procedure without side effects. We report a case of solar urticaria to visible light induced by LED therapy.

A 55-year-old woman with no history of urticarial rash following previous sun exposures was treated with a 415-nm LED for mild rosacea. During the LED exposure an intense urticarial reaction of the face with burning sensation developed on her face necessitating discontinuation of the session. There were no concomitant respiratory or digestive symptoms. Following this session, she reported a photosensitivity that impaired her quality of life, and



Fig 1. Phototesting in a patient with solar urticaria following light-emitting diode therapy. Erythema and edema were observed 5 minutes after exposure to visible light (left) and 415 nm blue light (right).

she was referred to our department. Results of routine laboratory blood studies were normal, including antinuclear antibodies and porphyrin levels. The patient was phototested in the solar UV domain using a solar simulator (Oriel Newport, model 92292, high-pressure Xenon lamp) with a WG320/1.6 mm and UG11/1 mm filter combination (no visible light emitted). Phototests in UVB and UVA spectrum (exposure to six increasing doses, from 9.2 mJ/cm² to 28.2 mJ/cm²) and UVA spectrum alone (33 J/cm²) did not induce any abnormal reaction. On the contrary, explorations using total visible light (ultra-high-pressure mercury lamp, 126 J/cm²) as well as blue light (wavelength 415 nm, 42.3 J/cm²) induced an erythematous and edematous reaction at the end of exposure, with itching and burning sensations (Fig 1). Thus, phototesting confirmed the diagnosis of solar urticaria to visible light induced by blue LED therapy. Antihistamines combined with hydroxychloroquine and use of a broad-spectrum sunscreen did not improve the solar urticaria. A desensitization phototherapy, according to a well-defined protocol,¹ allowed a marked regression of the symptoms.

Initially used for their healing properties, LEDs have many well demonstrated biological effects in vitro that suggest they have potential therapeutic value. However, it is difficult to extrapolate these in vitro data to clinical practice because many factors must be taken into consideration, such as wavelength, irradiance, and the interaction with whole human skin.² Unfortunately, except in cases of wound healing, clinical studies of good methodology are lacking.^{3,4} Despite the absence of clinical evidence, use of LEDs is becoming increasingly popular. Their safety profile is described as excellent in the literature; only cautions concerning epileptic and photophobic

patients are mentioned.⁵ This reputation of harmlessness has favored the development of this technique, not only among dermatologists but also among other specialists. Its use today extends beyond the medical field, and several beauty salons also offer LED therapy.

Solar urticaria is a rare form of physical urticaria induced by sun exposure and must be distinguished from other photodermatoses. The condition can be disabling and remains difficult to manage. Our case suggests that solar urticaria is a previously unrecognized side effect of LED therapy that physicians should be aware of. This case also pleads for clinical studies with robust methodologic quality to explore the efficacy and side effects of LEDs in dermatologic indications.

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Cheilitis and urticaria associated with stannous fluoride in toothpaste

To the Editor: A 55-year-old woman presented with recurrent idiopathic urticaria and cheilitis. Her symptoms began 2 years ago following dental work, with intermittent lip swelling and daily hives occurring over 10 months. She received 5- to 7-day tapered courses of 40 mg prednisone on 8 occasions during this time, and her symptoms ultimately remitted spontaneously. Prior allergy workup for urticaria, including patch testing (via TRUE test) was mildly positive only for thimerosal and fragrance. Prick testing for environmental allergens was negative.

One month before initial evaluation, the patient underwent implantation of new dental resin fillings in place of older amalgam fillings. She tolerated lidocaine during the procedure without difficulty. The patient awoke 6 hours later with lip and oral swelling. On presenting to the emergency department, she received epinephrine and intravenous steroids, and completed a course of prednisone. In the weeks thereafter, she continued to experience intermittent lip swelling, facial dermatitis, and urticaria.

She consulted the allergy clinic. Pulmonary function testing revealed normal spirometry; skin prick testing and intradermal testing with lidocaine, mepivacaine, and proparacaine yielded negative results. Based on the temporal correlation between her dental work and symptom onset, the patient was referred for expanded patch testing. Immediate patch testing interpretation to detect urticaria was not performed. Testing results at 96 hours revealed no positive reactions to fragrance or flavoring chemicals. The patient had 1+ methyldibromoglutaronitrile, 1+ lidocaine, 1+ dodecyl gallate, and 1+ tin reactions (Fig 1). Lidocaine was relevant to her episode of oral swelling occurring hours after her dental procedure. The reactions to dodecyl gallate and methyldibromoglutaronitrile were not relevant.

It is possible that the patient's persistent symptoms occurred due to allergy to tin. Her exposures included prior amalgam dental fillings (which typically contain mercury, silver, copper, and tin) and Crest Pro-Health toothpaste with the active ingredient stannous fluoride (Tin (II) fluoride). Upon discontinuation of this toothpaste, the patient's episodic lip swelling and urticaria resolved. She was symptom-free for 8 weeks, when an inadvertent reexposure to the same toothpaste was associated with recurrence of urticaria and lip swelling within a few hours. After subsequent avoidance of the suspected toothpaste, she again experienced remission of symptoms. We postulate that the stannous fluoride in the toothpaste may be the cause of her urticaria, although it is possible that another ingredient, such as a flavoring agent, is responsible.