



Figure 1. Crops of flat-topped, polygonal, red-brown and violaceous papules and plaques were originally centered at sites of acupuncture needle placement on the lower back (arrows) and then became more generalized.



Figure 2. The intensely pruritic eruption was most dense at the wrists (A) and ankles (B).

Our patient was treated successfully with a 1-month course of tapering systemic corticosteroids and subsequently with UV-A phototherapy in combination with oral psoralen. Six months after presentation, her eruption had improved, leaving only postinflammatory hyperpigmentation in previously active sites, and no new lesions had developed.

Comment. Lichen planus is a moderately common skin disease, with a prevalence of around 0.5%, occurring most commonly in middle-aged women. It is generally thought of as an autoimmune disorder, and there are associa-

tions with HLA-A3, -A5, -B8, -Bw35, and -DR1. In some centers there has been a reported association with hepatitis B and C infection, although the strength of this link remains to be assessed.

The Koebner phenomenon has been described following acupuncture in a patient with existing psoriasis.¹ In our case, however, the patient had no premorbid dermatosis and could not therefore koebnerize. We hypothesize that the acupuncture triggered the florid eruption either as an immune response to the skin trauma itself or potentially via a subclinical viral infection from inoculation. Lichen planus has been reported to occur following intramuscular injections² and vaccination,³ especially hepatitis B,⁴ potentially secondary to the inactivated hepatitis virus itself, as opposed to koebnerization. To our knowledge, however, this is the first reported case of lichen planus being triggered by acupuncture.

The cause of lichen planus is unknown, and the eruptive and florid disease described here suggests that a cutaneous insult such as acupuncture can be enough to act as a trigger. We hypothesize that evoked koebnerization may produce a reactive immunologic cascade leading to widespread lichen planus.

Acupuncture is practiced widely for its analgesic properties and in a multitude of ailments such as depression, diabetes mellitus, arthritis, and irritable bowel syndrome.⁵ We suggest that those practicing or undergoing acupuncture be made aware of the potential of needle placement to evoke this immune-mediated dermatosis.

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Fixed Drug Eruption on the Penis Due to Oxcarbazepine

Fixed drug eruption (FDE) is a common cutaneous drug adverse effect characterized by recurrent, sharply demarcated, red to livid maculae that evolve into plaque or bullae and erosions at the same skin or mucosal site after every intake of the causative drug.^{1,2} Common locations are the lips, oral mucosa, hands, geni-



Figure 1. Erythematous erosive patches on the glans penis induced by oxcarbazepine within 1 week of administration.

tals, and perianal area.² We report a genital FDE caused by the aromatic anticonvulsant oxcarbazepine.

Report of a Case. A 52-year-old man presented with a 48-hour history of burning, erythematous, erosive patches on his glans penis (**Figure 1**). He denied any history of venereal or skin diseases. The syphilis screening test result was negative. He had been hospitalized for 6 days at a psychiatric clinic to undergo withdrawal treatment for his alcohol addiction. He was given oxcarbazepine, piracetam, and prothipendyl.

We suspected an FDE and considered oxcarbazepine to be the most likely causative drug. Therefore, only the oxcarbazepine treatment was discontinued. The lesions healed within 1 week, aided by topical betamethasone, and left a brownish hyperpigmentation. We discovered that the patient had repeatedly undergone short-term treatment with oxcarbazepine. The last exposure to oxcarbazepine had occurred 2 years prior to presentation at our clinic.

After 8 weeks, we performed a topical provocation test at the site of a previous FDE lesion on the patient's glans penis using commercial oxcarbazepine, 5% (Trileptal; Novartis Pharmaceutical Industry, Basel, Switzerland), in saline solution. The test area was covered by the patient's foreskin. On the unaffected skin of his upper left arm, we used Finn Chambers on Scanpor (Epitest Ltd Oy, Tuusula, Finland), to conduct 2 occlusive patch tests, one using oxcarbazepine, 5%, in saline solution, and the other using oxcarbazepine, 5%, in petrolatum. Readings at 48 and 72 hours showed a positive allergic reaction of sharply demarcated erythema and mild infiltration (**Figure 2**) only in the old FDE lesion site of the patient's glans penis.³ An oral rechallenge was therefore deemed unnecessary.



Figure 2. Positive test reaction to oxcarbazepine, 5%, in saline solution in a previous fixed drug eruption lesion site 48 hours after administration.

Comment. Fixed drug eruption is a delayed type IV immune reaction in which cytotoxic T cells play a predominant role.² The exact pathogenic mechanism remains unknown. The histopathologic characteristics of FDE include lichenoid or erythema multiforme-like changes.²

Fixed drug eruption is usually diagnosed on the basis of the patient's clinical symptoms and medical history.¹ In cases of involvement of the genital mucosa, the differential diagnosis includes herpes simplex, early syphilis, infectious balanitis, plasma cell balanitis, erosive lichen planus, a limited form of Stevens-Johnson syndrome, pemphigus vulgaris, and Behçet disease. Oral or topical provocation tests with the suspected drug may be useful to confirm the diagnosis.^{2,4} Topical provocation testing for FDE is not standardized and should always be performed in a previous lesion site because memory T lymphocytes reside there.^{2,4} Usually, positive test reactions occur only in lesional skin.²

Aromatic anticonvulsants frequently cause cutaneous adverse reactions.⁵ In these patients, caution is advised when switching to a different aromatic anticonvulsant because of the high risk of an adverse skin reaction.⁵

Oxcarbazepine also must be considered a possible cause of FDE. Topical provocation testing in an inactive previous FDE lesion site may be a reliable test method and should be performed as a safe preliminary diagnostic step.

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Successful Laser Treatment of Vandetanib-Associated Cutaneous Pigmentation

Several patterns of cutaneous hyperpigmentation in patients receiving the multikinase inhibitor vandetanib (ZD6474) were recently described.¹ We describe herein a patient with perifollicular dark blue-gray macular hyperpigmentation secondary to vandetanib who was successfully treated with 755-nm Q-switched alexandrite laser.

Report of a Case. A 38-year-old woman with Fitzpatrick skin type II and Von Hippel-Lindau syndrome with associated clear-cell renal-cell carcinoma enrolled in a phase-2 study and received once-daily oral doses of vandetanib for treatment of her renal tumors. Within 2 weeks of initiating treatment, the patient developed an acneiform eruption of scattered erythematous papules and pustules on the face and trunk. After 7 months, she also developed multiple perifollicular 1- to 2-mm slate blue macules on the forehead, cheeks, neck, and conchal bowls at sites of existing scars and vandetanib-induced acneiform lesions (**Figure, A**). She was treated with doxycycline (100 mg, twice daily) and strict photoprotection. Her acneiform lesions improved substantially with doxycycline treatment but recurred when she discontinued therapy.

The patient was offered treatment with monthly Q-switched alexandrite laser therapy to address the blue facial pigmentation. A test region on the patient's forehead was treated with the 755-nm Q-switched alexandrite laser using the following settings: 7.5 J/cm², 3-mm collimated spot size, and 50-nanosecond pulse duration and showed demonstrable lightening of the blue macules. The entire face was treated on subsequent visits and showed marked improvement (**Figure, B**). After 4 monthly sessions, the treatments were temporarily discontinued, and the blue hyperpigmentation returned. At last follow-up, approximately 22 months after enrollment in the protocol, the patient continued vandetanib treatment.

Comment. The tyrosine kinase inhibitor vandetanib targets vascular endothelial growth factor receptor, epidermal growth factor receptor, and the *RET* protooncogene. Vandetanib is currently being investigated as a treatment in patients with several tumor types. This agent has been associated with acneiform lesions, eczematous skin changes, photosensitivity, and pigmentation.¹ Hyperpigmentation can present as blue pigmentation at the sites of prior scars, diffuse blue-gray pigmentation, diffuse brown pigmentation, and perifollicular dark blue-gray macules. Biopsy specimens of the perifollicular blue hyperpigmented skin stain negative with Perls Prussian blue and positive with Fontana-Mason stains.¹

Laser therapy has been used with varying success in the treatment of drug-induced hyperpigmentation. The Q-switched ruby, alexandrite, and Nd:YAG lasers have been used successfully for minocycline-induced and amiodarone-induced hyperpigmentation.²⁻⁴ We hypothesized that given the clinical similarity to type I minocycline hyperpigmentation and Fontana-Masson positivity, vandetanib-induced hyperpigmentation might respond similarly. The Q-Switched, 755-nm alexandrite laser was selected in this case because of its longer wavelength and greater dermal penetration compared with ruby or frequency-doubled Q-switched Nd:YAG lasers. Previously described laser energy, spot size, and pulse duration settings were used.²

The cause of the pigmentary changes induced by vandetanib has yet to be elucidated. Similarly, the mecha-



Figure. Vandetanib-associated perifollicular blue-gray macules. A, Scattered on forehead prior to laser treatment. B, Decreased macules on the forehead after 4 laser treatments.