Excimer Laser for Extremely Recalcitrant Psoriasiform Plaques with Clinical Suspicion of Mycosis Fungoides

A case report of successful management of a recalcitrant psoriasiform plaque in a patient with a history of MF.

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Narrow-band UVB is an efficacious, safe, and well-tolerated treatment for many dermatological conditions including psoriasis and early-stage mycosis fungoides. Since the 308nm velocity excimer laser delivers high dose, targeted narrow-band UVB phototherapy, it is a viable treatment option for these patients. We report herein a case of a single recalcitrant psoriasiform plaque with ambiguous histology, in a patient with history of patch-stage mycosis fungoides, treated successfully with the 308nm excimer laser.

Introduction
In 1997, Bonis et al. described the xenon chloride (XeCl) excimer laser as a new UVB delivery system, which has since become a highly efficacious option for psoriasis, mycosis fungoides (MF), and other conditions including vitiligo. XeCl emits a monochromatic, coherent 308nm beam of light. Compared to NB-UVB, excimer laser enhances skin penetration and apoptosis of T cells. This allows delivery of targeted, high NB-UVB doses, resulting in fewer treatments and a decreased cumulative UVB dose. We report a case of a very recalcitrant psoriasiform plaque, in a patient with history of patch-stage MF, treated successfully with the 308nm excimer laser.

Case Report
A 63-year-old Armenian female with history of patch stage MF, in remission, presented to our clinic with a pruritic plaque on her right dorsal forearm of 12 months duration. Examination revealed a well-demarcated, serpiginous, erythematous plaque with mild induration and scale (Figure 1A). Differential diagnosis included psoriasis, early plaque-stage MF, tinea, and syphilis. There was no lymphadenopathy or evidence of systemic disease. The plaque persisted despite topical antifungals, twice-daily clobetasol propionate ointment under occlusion, and intralesional 5mg/mL Kenalog.

Initial biopsy showed a band-like lymphocytic infiltrate (predominantly CD3(+) and CD4(+) with intermittent CD8(+) cells) with papillary dermal fibrosis, numerous intraepidermal lymphocytes, and many dyskeratotic keratinocytes (Figure 2A-2B). Treponema pallidum immunoperoxidase stain and PAS-D stain were negative. Polymerase chain reaction genotypic analysis revealed no clonal rearrangement of T-cell receptor genes. A second biopsy also showed lichenoid dermatitis with dyskeratosis and intraepidermal lymphocyte but had extensive psoriasiform epidermal hyperplasia beneath thick confluent parakeratosis laced with serum and neutrophils (Figure 3). Given the
history, the possibility of an unusual keratotic MF lesion was considered, although histology was not diagnostic.

The patient began twice-weekly 308nm velocity excimer laser treatment at 300mJ/cm², completing treatment after 14 sessions and final dose of 745mJ/cm² (Figure 1B). Dosing was increased as per protocol based on clinical observations and plaque response. The patient continued clobetasol ointment between laser treatments. Only occasional mild burning sensations and pruritus were reported. No phototoxic reaction was noted. At one month, the plaque remained mostly resolved with asymptomatic, focal 6mm macules (Figure 1C) treated as needed with once-daily clobetasol ointment.

Discussion
Excimer laser is appropriate for localized, recalcitrant plaque psoriasis and MF. Recently, Gattu et al. identified 18 clinical trials documenting effective psoriasis clearance with 308nm excimer laser treatment. The excimer laser is also an efficacious adjunct to PUVA, achieving remission in half the time and with half the cumulative UVA dose of PUVA monotherapy.

Evidence suggests that NB-UVB is also highly effective in early-stage MF in three-times-weekly treatments. Xiao et al. conducted a retrospective study of eight patients with early-stage MF treated with twice-weekly NB-UVB and reported complete remission in 75 percent of patients in mean 23.4 ± 8.5 treatments at mean 12.6 ± 4.7 J/cm² cumulative dose; the other 25 percent of patients achieved a partial response. Twice weekly NB-UVB was effective and well tolerated. These studies suggest that targeted, high dose NB-UVB with the excimer laser would also be effective for early-stage MF.

In this case, two separate biopsies indicated psoriasiform dermatitis and were inconclusive for MF. However, the patient’s previous history, nonspecific histology, and resistance to class I topical corticosteroid ointments under occlusion and intraleisional Kenalog put MF recurrence higher on our differential. Since the excimer laser demonstrates efficacy for both psoriasis and early-stage MF, it was a reasonable treatment for our patient and...
achieved near complete clearance of her recalcitrant plaque.

Conclusion

In the clinical practice of dermatology, one not infrequently encounters clinically and histologically ambiguous skin lesions where MF and psoriasis are on the differential. If resistant to the standard treatments, the 308nm excimer laser may represent a reasonable option—especially since it has demonstrated efficacy and safety for both diagnostic possibilities.

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