

SHORT COMMUNICATION

Total Skin Electron Beam Therapy-Induced Erythrodermic Subacute Radiation Dermatitis in a 54-Year-Old Man with Underlying Cutaneous T-Cell LymphomaArthur M. Samia, MD¹, Frank A. Lacy, MD², Sam B. Wu, MD², Carolyn M. Ziemer, MD, MPH²¹ The University of Florida Department of Dermatology, Gainesville, FL² The University of North Carolina Department of Dermatology, Chapel Hill, NC

Radiation dermatitis is one possible side effect of external beam ionizing radiation, which encompasses several radiotherapy modalities used to combat underlying malignancies. One modality in particular – total skin electron beam therapy (TSEBT) – has been shown to produce clinically meaningful responses in advanced-stage mycosis fungoides (MF).¹ Though less toxic than conventional-dose modalities, dermatologic toxicities may occur following low-dose TSEBT.

We highlight a case of a patient transferred to our institution for the management of subacute radiation dermatitis (SRD) mimicking Stevens-Johnson Syndrome following low-dose TSEBT for MF. The patient's MF was being managed by his radiation oncologist at an outside hospital and the most recent staging of his disease three years prior was T2N0 disease without evidence of hematologic involvement. There was no record of PET/CT imaging upon admission. He presented with exfoliative erythroderma with areas of full-thickness epidermal loss over the trunk and extremities (**Figures 1 and 2**). There was prominent, diffuse, background, mottled hyper-, hypo-, and depigmentation. The vermilion lips had

erythema and hemorrhagic crust but no further mucosal involvement. No lymphadenopathy was appreciated. Skin biopsy was supportive of SRD without evidence of lymphoma. Flow cytometry supported the absence of Sézary Syndrome (SS). Thirteen days prior to admission, the patient initiated a course of low-dose TSEBT with a receipt of 1050 cGy over seven non-consecutive days. However, three years prior to admission, the patient underwent a first course of conventional-dose TSEBT totaling 3600 cGy, for a cumulative radiation dose of 4650 cGy. In addition to TSEBT, prior treatments included topical and oral steroids, interferon, and psoralen ultraviolet A therapy. After the diagnosis of SRD was made, discontinuation of TSEBT was recommended and the patient was managed with wound care and supportive therapies as well as topical steroids for inflamed areas. This resulted in significant improvement in erythema and desquamation.

Low-dose TSEBT has become increasingly favorable due to its side effect profile and can be particularly effective in patients with treatment-refractory SS.² However, it is important for dermatologists to recognize and be mindful that the toxicity of TSEBT is

subject to a patient's cumulative radiation dose.³ Additionally, a review of the literature suggests cessation of radiation therapy, appropriate wound care, and topical corticosteroids are mainstays of treatment for SRD.⁴ Cetuximab therapy should be considered in extreme cases until symptomatic control.⁵ In patients with SRD, monitoring for secondary infection of the skin is a critical concern.⁶ Overall, this case is a rare presentation of radiation dermatitis presenting as erythroderma and highlights the importance of appropriate consideration of these adverse events in patients receiving TSEBT.



Figure 1. Exfoliative erythroderma with areas of full-thickness epidermal loss over the trunk and extremities



Figure 2. Dorsal view.

Consent: The patient provided consent to use the photos included in the publication.

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