

Cutaneous Squamous Cell Carcinoma Arising Within a Previously Irradiated Mycosis Fungoides Lesion

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Introduction

- Mycosis fungoides (MF) is the most common form of cutaneous T-cell lymphoma (CTCL), accounting for approximately 60% of cases.
- As a highly radiosensitive condition, radiotherapy (RT) is a frequently used treatment modality across all stages of the disease.
- Squamous cell carcinoma (SCC) is the second most common type of skin cancer in the United States, with over one million cases diagnosed each year.
- The most well-documented cause of SCC is cumulative UV sun exposure; Additional risk factors include Fitzpatrick skin types I-III, age, with an age of onset in the mid-60s, male sex, immunosuppression and organ transplant recipients, human papillomavirus, chronic scarring conditions, familial cancer syndromes, and environmental exposures.
- Rarely, SCC has developed in lesions of MF, potentially in relation to treatment of MF with UV radiation, topical phototherapies and systemic immunosuppression.

Case Discussion

- A 64-year-old male with a past medical history of mycosis fungoides presented to the outpatient dermatology clinic for evaluation of a new lesion on his back.
- On physical exam, the lesion was an erythematous, violaceous nodular plaque with central ulceration and purulent drainage.
- This lesion was observed within a scar due to localized radiation in 2006 and 2007 for mycosis fungoides.
- Of note, this patient has had a biopsy proven squamous cell carcinoma in situ treated with electrodesiccation and curettage (ED&C) in this same location, however the year of this treatment is unknown and records could not be obtained.
- Shave biopsy was obtained with differential diagnosis for CTCL, nodular CTCL, and non-melanoma skin cancer (NMSC).

Clinical Image



Figure 1 – SCC within a previously irradiated MF lesion

- Histopathological analysis revealed an atypical, moderately differentiated squamous cell proliferation invading the dermis accompanied by a dermal inflammatory cell infiltrate, consistent with moderately differentiated squamous cell carcinoma.
- The patient was referred to general surgery for excision and staging.
- Wide local elliptical excision under general anesthesia was performed and 10x20x2cm of skin and subcutaneous tissue was removed and linear, layered closure performed.
- Pathology indicated a well-differentiated SCC with peripheral and deep margins clear.

Discussion

- The risk of developing SCC can persist for over 40 years following radiation treatment, with the likelihood of occurrence peaking around 20 years post-exposure.
- A combination of a history of radiation, CTCL, sun exposure, and chronic scarring is likely to have contributed to SCC in this patient.
- This patient presentation underscores the critical importance of regular dermatologic screenings for all patients with a history of mycosis fungoides. Since the risk of developing SCC peaks years following radiation, long-term monitoring is essential to detect early signs of skin cancer.
- Furthermore, it is crucial to educate these patients about their heightened risk for NMSC, encourage regular self-examinations, and promote photoprotective measures including daily use of broad-spectrum sunscreen.

Conclusion

Mycosis fungoides is a cutaneous T-cell lymphoma frequently treated with radiotherapy. While effective, radiation is a known risk factor for squamous cell carcinoma, with risk peaking years after exposure.

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