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Development of conjunctival intraepithelial neoplasia following phototherapy for mycosis fungoides

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1. Case report

A 48-year-old white male presented with a leukoplakic conjunctival growth (Fig. 1) 3 months after total body phototherapy with narrow band ultraviolet B (nbUVB), including to the face, for a biopsy-proven diagnosis of mycosis fungoides (MF). When treated to the face area, UV protective eyewear (National Biological Corp, Beachwood, OH, USA), specific for this indication, were used. The patient underwent excisional biopsy followed by adjuvant cryotherapy, and histopathology and immunohistochemistry disclosed non-invasive atypical squamoid cells (Fig. 2; hematoxylin and eosin staining), but also a moderate amount of T cells (Fig. 3; CD3 staining) within the tissue. Further investigation using polymerase chain reaction (PCR) gene rearrangements demonstrated a polyclonal T-cell profile in the conjunctival lesion (Fig. 4), in contrast to a monoclonal one in the previously-biopsied skin lesion (Fig. 5), ruling out conjunctival lymphoma and supporting a diagnosis of conjunctival intraepithelial neoplasia (CIN). On ocular examination, 3 months after the conjunctival biopsy, no signs of conjunctival tumor relapse was found, and systemically the patient remains on remission).

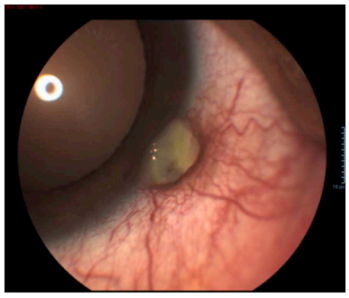

Fig. 1. Clinical appearance of the conjunctival lesion.

2. Discussion

Mycosis fungoides is a primary non-Hodgkin cutaneous T-cell lymphoma characterized by localization of malignant T-lymphocytes to the

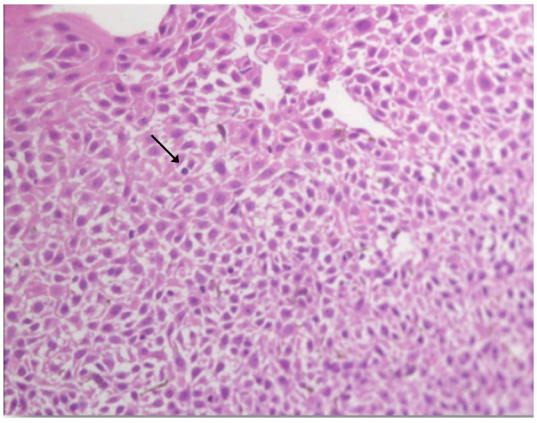

Fig. 2. Hematoxylin and eosin staining demonstrated atypical epithelial cells and lymphocytes (arrow) within the tissue.

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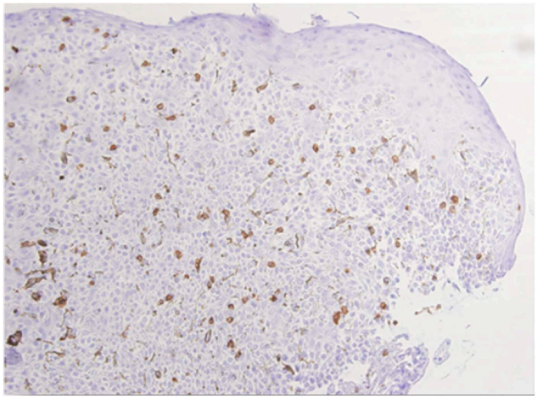

Fig. 3. CD3 immuno-staining showing T-cells lymphocytes.

skin.[1] Although uncommon, however MF may involve ocular structures, and present as a conjunctival lesion.[2] Phototherapy, mainly in the UVB spectrum, and specifically nbUVB frequency (311–312 nm), is the main treatment used for MF.[1] An effective modality for this entity, however that may result with iatrogenic skin cancer, including melanoma, basal and also squamous cell carcinoma.[3] To the best of our knowledge, ocular surface squamous neoplasia in these patients, whether invasive (i.e. squamous cell carcinoma) or non-invasive (i.e. CIN), was not reported following phototherapy to the face area, as reported herein.

In the present case, histopathology and immuno-stains were found helpful in characterizing the conjunctival lesion, but were insufficient for definite diagnosis. In this context, PCR testing was found to have added value as an accurate diagnostic tool, differentiating between the squamous and lymphoid neoplasia.

UV light is a known risk factor for CIN development. Although it cannot be unambiguously proven, however, the chain of events imply

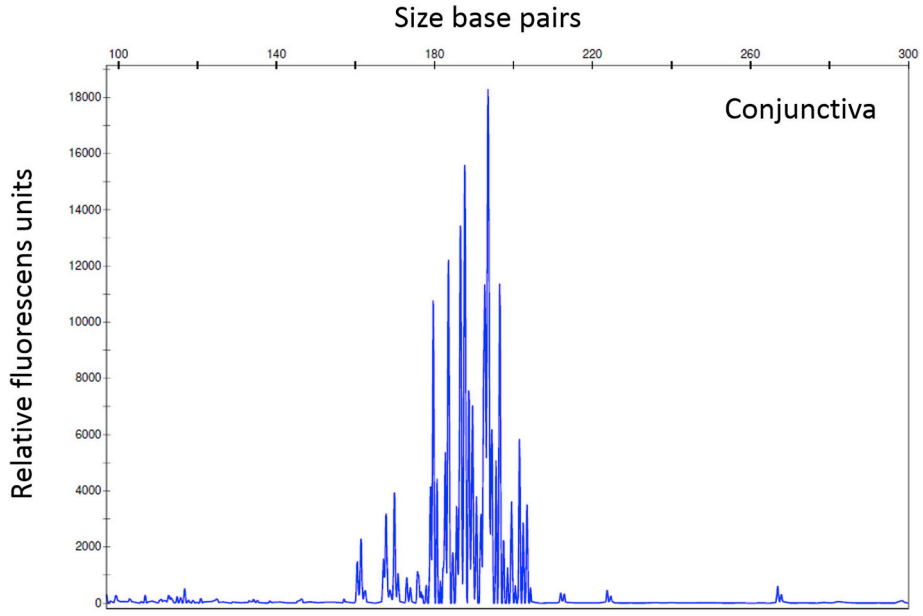

Fig. 4. Polymerase chain reaction gene rearrangements showing a polyclonal profile of T-cells in the conjunctival lesion.

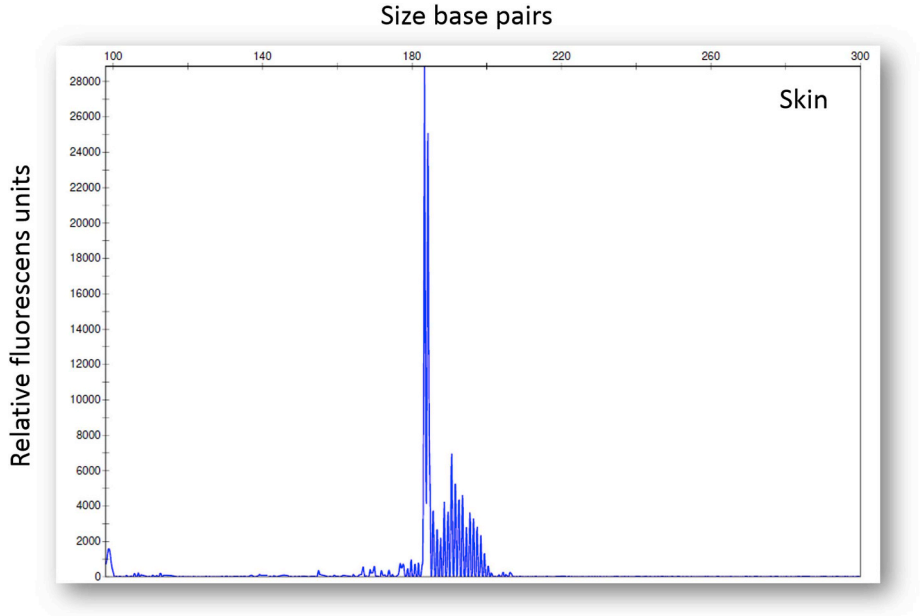

Fig. 5. Polymerase chain reaction gene rearrangements showing a monoclonal peak in the skin lesion.

of a possible cause and effect relation, suggesting that the phototherapy may have contributed to the development of the squamous neoplasia in this patient. In terms of mechanism, possible etiologies include use of damaged eyewear or eyewear that were not properly used.

3. Conclusion

The present case demonstrates that PCR can be done in an adjuvant setting in conjunctival lesions where lymphoproliferative disorders may not have been initially considered.

Phototherapy to the face as treatment for mycosis fungoides skin lesions is a possible risk factor for CIN development, as was shown for the first time in the present case. Ophthalmologists, dermatologists and patients with mycosis fungoides undergoing phototherapy should be aware of this potential risk. Protective measures in the form of UV blocking eyewear should be used, appropriately, and screening eye examination should be considered following treatment.

Conflicts of interest

The authors have no potential conflicts of interest.

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Patient Consent statement: The patient gives his consent to publish the image and his case.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ajoc.2019.03.012.

References

1. Trautinger F, Eder J, Assaf C, et al. European Organisation for Research and Treatment of Cancer consensus recommendations for the treatment of mycosis fungoides/Sézary syndrome – update 2017. *Eur J Cancer.* 2017;77:57–74.
2. Cook BE, Bartley GB, Pittelkow MR. Ophthalmic abnormalities in patients with cutaneous T-cell lymphoma. *Ophthalmology.* 1999;106(7):1339–1344.
3. Maiorino A, De Simone C, Perino F, Caldarola G, Peris K. Melanoma and non-melanoma skin cancer in psoriatic patients treated with high-dose phototherapy. *J Dermatol Treat.* 2016;27(5):443–447.