

A new ERA for global Dermatology 10 - 15 JUNE 2019 MILAN, ITALY

DERMOSCOPY AND SKIN IMAGING

REFLECTANCE CONFOCAL MICROSCOPY OF ACUTE GRAFT-VERSUS-HOST DISEASE: CORRELATION TO HISTOPATHOLOGY AND INTERRATER REPRODUCIBILITY

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Background: Reflectance confocal microscopy (RCM) has been applied to inflammatory skin diseases, but some classic inflammatory histopathology features, such as necrotic keratinocytes, have not yet been described. Interobserver reproducibility remains an important question. No systematic studies have shown RCM correlation to histopathology in acute graft-versus-host disease (aGVHD).

Objective: To test the correlation of RCM to histopathology features in aGVHD as a representative inflammatory skin disease, as well as the interobserver reproducibility of these RCM features.

Materials and Methods: For 16 biopsied lesions of active aGVHD from 11 patients, we determined (1) the RCM expert consensus correlation to histopathology, and (2) the interobserver agreement of RCM. Four experts blinded to histopathology independently evaluated the presence or absence of 18 RCM features in eight 1.5x1.5 mm2 RCM images per lesion. An RCM feature was determined as present in a lesion when marked by most experts (expert vote). Two dermatopathologists blinded to clinical and confocal information determined the presence or absence of 19 histopathology features, as well as the Lerner aGVHD grade.





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Results: The following RCM features showed 100% agreement between RCM expert vote and histopathology: (1) vacuolization, (2) necrotic keratinocytes, and (3) dermal inflammation. By contrast, satellite necrosis had <20% agreement between RCM and histopathology. The highest confocal image interobserver agreement (i.e. most experts agree in >95% of images) was achieved in the assessment of exocytosis, dermal inflammation, and the presence of vesicles and colloid bodies.

Conclusions: We report interobserver reproducibility of specific inflammatory skin disease RCM features and correlation to histopathology. Necrotic keratinocytes, satellite necrosis, and colloid bodies are described for the first time by confocal microscopy. We show that RCM enables accurate assessment of the main Lerner grade 1-2 aGVHD features.



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