

**Purpose:**Our aim was to dynamically investigate Mycosis fungoides(MF) lesions using in vivo reflectance confocal microscopy (RCM) and to evaluate whether RCM could be used in the follow-up of MF.

**Methods:**After written informed consent obtained, a total of 7 lesions from 7 patients with a history of biopsy-proven MF were enrolled in the study. The lesions were imaged with RCM monthly for 6 times followed each time by a skin biopsy. Then the images of RCM were correlated with the HE images. The dynamic changes of cell infiltration in epidermis and superficial dermis is highly concentrated.

**Results:**In plaque-type MF lesions, at the level of the epidermis, the weakly refracted oval to round structures on RCM images corresponded to epidermotropic lymphocytes on histopathology, and vesicle-like dark spaces filled with collections of monomorphous weakly refracted oval to round cells corresponded to Pautrier's microabscesses on histopathology. During the treatment, 5 of the 7 cases showed dynamic reduction of monomorphous cells in epidermis and superficial dermis, while the other 2 cases showed no significant changes about the monomorphous cells in epidermis, which correlated well with the histopathology results.

**Conclusions:**Features correlating well to histopathology are observed on dynamic RCM of MF lesions, and the RCM could be used in the dynamic evaluation of MF lesions during the treatment, which may provide a new, non-invasive method for MF follow-up. However, because of the limited imaging depth, the RCM could not be used in the follow-up of the dynamic changes of the deep dermis.