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In vivo and ex vivo confocal microscopy for the evaluation of surgical margins of melanoma

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ABSTRACT

We report the first series of melanomas (MMs) where the surgical margins were evaluated both by ex vivo confocal microscopy (EVCM) and in vivo reflectance confocal microscopy (RCM). We evaluated the surgical margins of 42 cutaneous MMs of lentigo maligna/lentigo maligna melanoma type and 2 mucosal MMs with EVCM. Cutaneous MMs also underwent RCM mapping. Imaging results were compared with histopathology. The rate of correct identification of the tumor margins (invaded or not invaded) was 97.6% for RCM (evaluations of cutaneous MMs) and 95.5% for EVCM (evaluations of both cutaneous and mucosal MMs). Our study showed that the MM extension is visible under EVCM and that the combination of in vivo RCM and EVCM can be a new strategy for the evaluation of surgical margins of MMs.

Keywords: ex vivo; histopathology; in vivo; lentigo maligna; melanoma; mucosa; reflectance confocal microscopy; surgery. © 2020 Wiley-VCH GmbH.