

Medical > Ex Vivo > Melanocytic lesions

3

Correlation of histological and ex-vivo confocal tumor thickness in malignant melanoma.

Hartmann D, Krammer S, Ruini C, Ruzicka T3, von Braunmühl T. Lasers Med Sci. 2016 Apr 7.

ABSTRACT

The ex-vivo confocal laser scanning microscopy (ex-vivo CLSM) is a novel diagnostic method for fresh tissue examination, which has already shown promising results in the evaluation of healthy skin and different skin tumors. In malignant melanoma, the histological tumor thickness plays an essential role for further treatment strategies. The immediate perioperative measurement of tumor thickness by means of ex-vivo CLSM might accelerate the decision for further operating procedures in malignant melanoma. Ten histologically confirmed malignant melanomas from various donor sites were blindly examined by two investigators via ex-vivo CLSM and conventional light microscopy. The histopathological tumor thickness (HTT) and confocal tumor thickness (CTT) were measured independently and evaluated using correlation curves, Spearman's correlation coefficient, and Bland-Altman plots. Bland-Altman plots for HTT and reflectance-mode CTT, as well as for fluorescence-mode CTT, showed high correlations. Spearman's correlation coefficient of HTT and CTT was 1.00 in FM and RM. The mean difference of RM-CTT and FM-CTT versus HTT was 0.09 ± 0.30 mm and 0.19 ± 0.35 mm. In one case, the HTT was identical to the CTT in both modes. This pilot study shows high conformity of CTT and HTT measured in malignant melanoma underlining the potential of ex-vivo CLSM for perioperative decisions on safety margin excisions of malignant melanoma in the future.