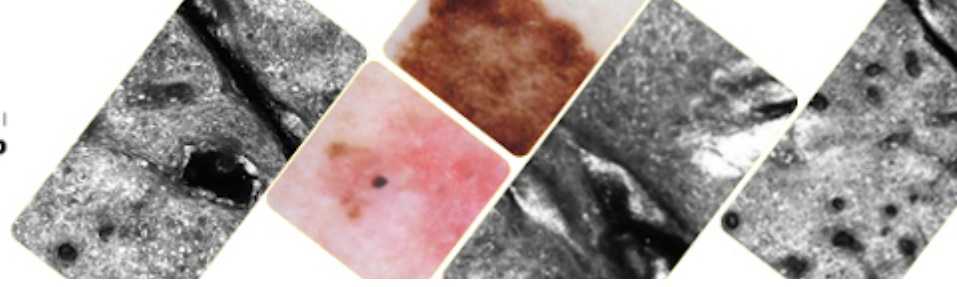
International Confocal Group



Three-dimensional total body photography, digital dermoscopy, and in vivo reflectance confocal microscopy for follow-up assessments of high-risk patients for melanoma

Sarah Hobelsberger, Frank Friedrich Gellrich
Department of dermatology, University Hospital Carl Gustav Carus Dresden

Introduction

The combination of total body photography (TBP) and digital dermoscopy (DD) for monitoring patients with a high risk for melanoma can allow early detection of melanoma (1-3). This study aimed to examine if the use of three-dimensional (3D)-TBP, DD, and reflectance confocal microscopy (RCM) for regular monitoring of patients at high risk for melanoma was beneficial in comparison to monitoring using dermoscopy alone.

Methods

The intervention group (IG) underwent 3D-TBP examinations at every visit, along with DD and/or RCM for diagnosis and/or monitoring of pigmented lesions if necessary. The control group (CG) underwent dermoscopy examinations alone.

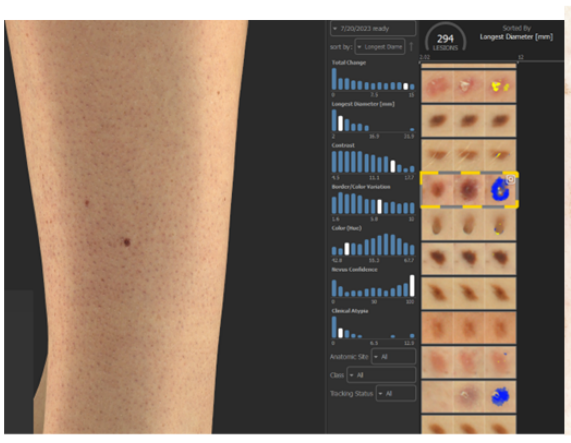


Fig. 1a

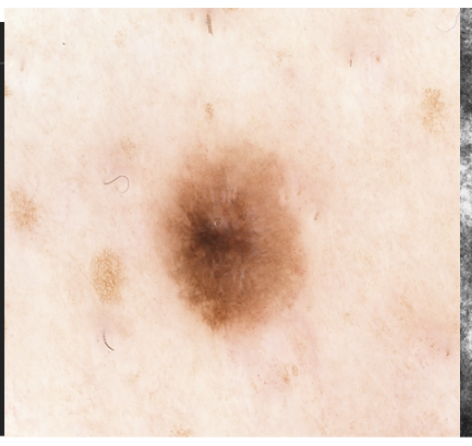


Fig. 1b

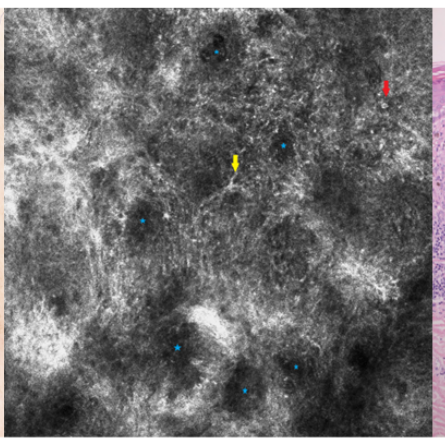


Fig. 1c

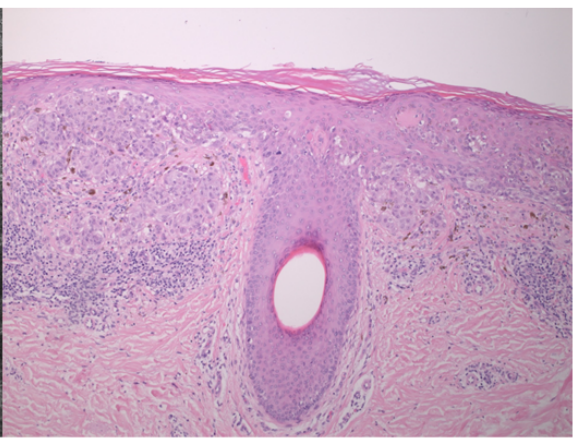


Fig. 1d

Results

A total of 600 patients (324 male and 276 female) were followed-up over a median period of 23 months (mean, 2.85 visits) in the IG and 22 months (mean, 2.74 visits) in the CG (p=0.009). DD and RCM monitoring were performed for 166 and 105 lesions, respectively. The number needed to treat (NNT) to diagnose melanoma with RCM was 2.83. The IG included more second primary melanomas (22 vs. 1, p=0.022) and more excised nevi (186 vs. 10, p<0.001), which consisted of more dysplastic nevi (137 vs. 2, p<0.001). Among the melanomas diagnosed in the IG, three were diagnosed directly with RCM, nine with a combination of 3D-TBP and RCM, and 10 with dermoscopy alone.

Conclusion

Follow-up assessments with a combination of 3D-TBP, DD, and RCM led to the detection of more melanomas in comparison to the CG. The use of RCM reduced the NNT for melanocytic lesions.

Figures:

Figure 1: 1a) 3D-total body photography: brown and greyish macule of the left lower leg with progression in size at the lower leg of a 36-year-old woman, 1b) digital dermoscopy: thickened reticulated pattern with greyish area and blurred pattern, 1c) in vivo reflectance confocal microscopy: dendritic cells (yellow arrow) and pagetoid cells (red arrow) with non-edged papillae (blue star) and an atypical, broadened, meshwork pattern at the dermoepidermal junction, 1d) histopathology (HE-staining) of a malignant melanoma with atypic melanocytes in the superficial epithelium and upper dermis with a Breslow thickness of 0.5 mm with infiltration into the papillary layer of the dermis.

References:

1. Salerni et al., Journal of the American Academy of Dermatology. Juli 2012;67(1):e17–27.

2. Malvehy et all, Clin Dermatol. 2002;20(3):297–304.

4. Salerni et al, Journal of the American Academy of Dermatology. November 2012;67(5):836–45.