Update on AK Dermoscopy and Impact on Management

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Validation of Dermoscopy as a Real-time Noninvasive Diagnostic Imaging Technique for Actinic Keratoses

Maria Harris-Bergman, MD, PhD; Alina Clinu, MD, PhD; Jana Burkle, MD, PhD;
Cristina Fierro, MD; Tuomas Auranen, MD; Tero Rissanen, MD; Terhi Kauranen, MD, PhD; Alexander Rassieg, MD, PhD

Objective: To validate dermoscopy as a real-time diagnostic imaging technique for actinic keratoses.

Design: Prospective study to validate a diagnostic test

Setting: Dermatology department of a tertiary university hospital in Finland

Patient: A total of 198 patients with a clinical diagnosis of AK participated in the study.

Maria Giselle I Giacomel: The independent blinding consultant for the study who did the trichrome sections for the diagnosis of AK. All the patients underwent both diagnostic tests.

Results: The number of errors reduced from 12 to 1.

Strawberry pattern

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**Dermoscopic grading of actinic keratosis**

Zabourdek et al. Clinics in Dermatology 2014  
Courtesy Iris Zabourdek

**Progression model of AK**

**Dermoscopy case of the month**

**Clues for differentiating discoid lupus erythematosus from actinic keratosis**

Amolto, Gallo, M.D., Ippolito, M.D., Giuseppe Amendola, M.D., Grazia Monacelli, M.D., Caterina Russo, M.D., and Iris Zabourdek, M.D.


PAK = 67, LMLMM (20) and LPLK (2)
- Slate-grey dots (70%)
- Annular-granular pattern (36%)
- Rhomboidal structures (36%)
- Pseudonetwork (30%)
- Black globules (34%)
- Slate-grey globules (33%)
- Black dots (30%)
- Asymmetrical pigmented follicular openings (25%)
- Hyperpigmented rim of follicular openings (21%)
- Slate-grey areas (18%)
- Streaks (3%)


Dermoscopic features indicating Lentigo maligna melanoma (LMM)
- Asymmetric pigmented follicular openings
- Slate-grey dots and globules
- Dark rhomboidal structures
- Homogeneous areas
- Asymmetrical pigmented follicular openings
- Dark rhomboidal structures
- Homogeneous areas

Model of progression


Dermoscopic features indicating Lentigo maligna melanoma (LMM)
- Circles, circle in a circle (Isobar) pattern

Original article

Inner gray halo, a novel dermoscopic feature for the diagnosis of pigmented actinic keratosis: Clues for the differential diagnosis with lentigo maligna


Model of progression

Asymmetric pigmented follicular openings
Dark rhomboidal structures
Homogeneous areas


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Model of progression
presented in Tables 4 and 5 and yielded a sensitivity of 78% and an AUC of 0.95%.

Conclusions

A novel clues for differentiating LM from PAK. Conversely, intense pigmentation and grey rhomboidal structures were significantly reduced in AK and subclinical AK. In RCM at week 8 = 4, the keratinocyte atypia seen to a varying degree.

Field carcinogenesis is of 66% and a specificity of 93.4%.

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Field carcinogenesis

Field carcinogenesis in AK and pigmented AK

Field carcinogenesis in LMM

Confocal microscopy

Histology
Dermoscopic and reflectance confocal microscopy for monitoring the treatment of actinic keratosis with ingenol mebutate: report of two cases

Caterina Longo
Elvira Moscarella
S. Borsari

Dermoscopic features in AK and pigmented AK

Dermoscopic features in LMM

Local skin reactions to ingenol mebutate should not be considered an indication for discontinuation, with subsequent eradication of treated lesion, as observed in this study. The use of Ingenol mebutate confirm that it induces rapid lesion regression and pustule formation.

Treatments for the so-called field cancerization: Ingenol mebutate is a valuable tool for management of preinvasive skin cancer with prolonged clinical follow-up and may represent an alternative to conventional treatments in cases of field cancerization.

At baseline, RCM (0.5 mm depth) revealed dermoscopic features of AKs, such as the presence of pleomorphic and hyperchromatic keratinocytes, and the presence of irregularly shaped and enlarged keratinocytes. After 7 days’ treatment with ingenol mebutate, a treated area is seen, with absence of residual AKs.

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Histopathology of skin biopsies of AK and SCC are indistinguishable at a cellular level. Both AK lesions and SCC are characterized by a variety of structural changes, including epidermal hyperplasia, cytological atypia, genomic instability, and altered protein expression. These features, together with clinical and subclinical features, allow for the early detection of subclinical AK.

The key RCM features of AK include the presence of pleomorphic and hyperchromatic keratinocytes, irregularly shaped and enlarged keratinocytes, and disruption of the normal epidermal architecture. These features, together with clinical and subclinical features, allow for the early detection of subclinical AK.

Clinical and subclinical lesions to be assessed. High-resolution imaging of skin tissue is required to assess the full extent of a patient’s disease burden. This includes the detection of subclinical AK and in situ SCC.

Optical coherence tomography (OCT) is a non-invasive imaging technique to assist in the diagnosis of AK with a high level of contrast due to keratin and the typical shape. In contrast, in the image of normal skin, the epidermis is typical shape. In contrast, the confocal image on the right shows a typical honeycomb.

High-definition optical coherence tomography slice imaging of normal skin (left) and subclinical actinic keratosis (right) of the same site in a patient before and after treatment. The image shows a misfit. On the left side, the changes associated with subclinical actinic keratosis are atypical honeycomb with irregularity in the size and shape of corneocytes. In contrast, the confocal image on the right shows a typical honeycomb.