Dermatoscopic differentiation of dermal nevus and seborrheic keratosis

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Abstract

The majority of seborrheic keratoses can be reliably differentiated clinically from a melanocytic nevus. In case of difficult findings, for example at unusual localization, dermatoscopy is the key method for diagnosis. In the near future, developments in artificial intelligence (A.I.) might help to classify the findings. Initial results from studies are promising in this regard.

Introduction

Seborrheic keratoses are the most common benign skin tumors seen in daily practice. In general, they are clearly classifiable, but differentiation from melanocytic nevi or even malignant melanoma may be clinically difficult in individual cases. The differential diagnosis between a melanocytic nevus and a seborrheic keratosis is clinically well possible in the majority of cases due to the characteristic morphology. However, in a few individual patients - especially with lesions in the face - the differentiation can be difficult. The age of the patient, the localization, the size and morphology can help in the classification, but they are not specific. Dermatoscopy, as a noninvasive method, detects characteristics beyond that which can be seen with the naked eye. The differentiation of a melanocytic lesion from a seborrheic keratosis is usually unambiguous. Following a number of factors should be explained, which allow a better classification.[3,5]

Clinical aspects

Melanocytic nevi develop mainly from early childhood to young adulthood. After an initial uniform growth lasting approximately two years, the nevi enter senescence. Interestingly, acquired melanocytic nevi show molecularly partly identical mutations (B-RAF), as they can also be detected in a substantial part of melanomas. In older age, some nevi are known to degenerate into and become clinically undetectable. Seborrheic keratoses usually appear from adulthood onwards; their occurrence and frequency increase with older age. The pathogenesis of seborrheic keratoses is not fully understood. Cumulative UV exposure and aging processes of the skin are considered risk factors. Both melanocytic nevi and seborrheic keratoses typically occur on the trunk and extremities, while seborrheic keratoses often occur on the back, neck and face. Dermal nevi are found less frequently here and manifest rather as junctional or compound lesions. The palms and soles are not affected by seborrheic keratoses; pigmented skin lesions here are usually classified as melanocytic. Likewise, the mucous membranes are excluded from seborrheic keratoses. Both nevi and seborrheic keratoses can manifest with a wide variability in horizontal size. Typically, individual nevi are between 2 mm and 2 cm in size.[5,6,7]

Exceptions to this are large congenital nevi, but these are present at birth. Seborrheic keratoses also regularly present between a few millimeters and 1-2 cm in size. Thus, size is not an appropriate variable to differentiate between seborrheic keratoses and melanocytic nevi. Seborrheic keratoses are usually sharply demarcated from the surrounding skin, roundish, usually raised, broad-based tumors. Their surface is often cerebriformly fissured, and scaling may occur if necessary. Flat seborrheic keratoses, on the other hand, often appear as smooth plaques that rise only slightly above the level of the skin. Their color varies from skin yellowish to gray-brown and black. Sometimes they present clinically with a sebaceous oily surface, which ultimately led to the term "seborrheic keratosis." However, it is not a definite diagnostic criterion.[1,3-7]

Dermatoscopy

Based on these criteria, many lesions can be classified as seborrheic keratoses or melanocytic nevi. In cases where a pigment lesion cannot be reliably classified clinically, dermatoscopy may provide a decisive contribution to the diagnosis. This is especially true in special localizations such as the face. In dermatoscopy the use of an immersion fluid (water, disinfectant solution or oil) and a glass plate or polarized light can achieve a 20- to 40-fold magnification of the findings with better resolution of the structures and colors. The application of an appropriate algorithm is particularly useful in the diagnosis of melanocytic lesions. In a first step, characteristic features of melanocytic and non-melanocytic lesions are identified.[2-5]

Melanocytic lesions can be identified unambiguously by:

- the presence of a pigmented grid
- clods or globules
- homogeneous areas with branched stripes
- steel-blue areas

Non-melanocytic lesions are suggested by:

- pseudo-horn cysts
- pseudo-follicular openings (seborrheic keratoses)
- red or blue lacunae (angiomas)
- tree-like vessels
- leaf-like structures (basal cell carcinoma)

If a lesion cannot be clearly assigned by pattern analysis, a melanocytic lesion is assumed by definition. Seborrheic keratoses are characterized by pseudofollicular openings and multiple pseudohorn cysts. In some seborrheic keratoses, a cerebriform pattern (gyrus and sulcus pattern) is seen dermatoscopically; in flat lesions finger-print-like structures and a sharp, moth-ridged border are seen. Sometimes flat seborrheic keratoses are clinically difficult to distinguish from lentigo maligna. Hyperpigmented, asymmetric follicular openings and a discrete anular-granular pigment pattern are indicative of the latter.[4,6,7]

Conclusions

Differentiation between a dermal nevus and a seborrheic keratosis is almost always possible for an experienced dermatologist by visual inspection, especially by dermatoscopy. If the seborrheic keratosis presents in such a way that it could be mistaken for melanoma, the indication for excision should be made very generously.

Conflicts of interest

Dr. Carolina Diamandis is part of Lazar Research and the dermatology company Scanoma.

Ethical standards and patient's rights

This article is about scientific facts based on research literature. It is not reporting on a clinical trial, especially not a prospective one. Our research work is always conducted in accordance with the Declaration of Helsinki.

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