Usefulness of dermoscopy to improve the clinical and histopathologic diagnosis of skin cancers

Oriol Yélamos, MD,[a,b] Ralph P. Braun, MD,[c] Konstantinos Liopyris, MD,[a] Zachary J. Wolner, BA,[a] Katrin Kerl, MD,[c] Pedram Gerami, MD,[d] and Ashfaq A. Marghoob, MD[a,e]
New York and Hauppage, New York; Barcelona, Spain; Zürich, Switzerland; and Chicago, Illinois

Learning objectives
After completing this learning activity, participants should be able to describe the importance of learning dermoscopy from the dermatopathologist standpoint to guide step sectioning, enhance diagnosis and sample tumor areas to obtain tissue for biobanks and molecular studies; discuss the role of the clinician when providing dermoscopic images or descriptions; identify the dermoscopic findings that are relevant to dermatologists and pathologists; and describe the dermoscopic findings that have diagnostic and prognostic implications.

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Multiple studies have shown that dermoscopy increases the sensitivity and specificity for the detection of skin cancers compared with examination by the naked eye. Dermoscopy can also lead to the detection of thinner and smaller cancers. In addition, dermoscopy leads to the more precise selection of lesions requiring excision. In essence, dermoscopy helps clinicians differentiate benign from malignant lesions through the presence or absence of specific dermoscopic structures. Therefore, because most dermoscopic structures have direct histopathologic correlates, dermoscopy can allow the prediction of certain histologic findings present in skin cancers, thus helping select management and treatment options for select types of skin cancers. Visualizing dermoscopic structures in the ex vivo specimens can also be beneficial. It can improve the histologic diagnostic accuracy by targeted step-sectioning in areas of concern, which can be marked by the clinician before sending the specimen to the pathologist, or by the pathologist on the excised specimen in the laboratory. In addition, ex vivo dermoscopy can also be used to select tumor areas with genetic importance because some dermoscopic structures have been related to mutations with theragnostic relevance. In the second article in this continuing medical education series, we review the impact of dermoscopy on the diagnostic accuracy of skin cancer, how dermoscopy can affect the histopathologic examination, and which dermoscopic features may be more relevant in terms of histologic and genetic prediction. (J Am Acad Dermatol 2019;80:365-77.)

Key words: dermoscopy; histology; histopathology.

From the Dermatology Service, Memorial Sloan Kettering Cancer Center, New York[a] and Hauppauge[e]; Dermatology Department,[b] Hospital Clínic, Universitat de Barcelona; Department of Dermatology,[c] University Hospital Zürich, Switzerland; and the Department of Dermatology,[d] Feinberg School of Medicine, The Robert H. Lurie Cancer Center, Northwestern University, Chicago.

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Reprint requests: Oriol Yélamos, MD, Memorial Sloan Kettering Cancer Center, Dermatology Service, 16 E 60th St, 4th Fl, New York, NY 10022. Or Hospital Clínic de Barcelona, Dermatology Department, C/Villarroel 170, Escala 3 Planta 4, 08036, Barcelona, Spain. E-mail: oyelamos@gmail.com.

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Abbreviations used:

AK: actinic keratosis
BCC: basal cell carcinoma
BMR: benign to malignant ratio
EVD: ex vivo dermoscopy
NEE: naked-eye examination
SCC: squamous cell carcinoma

Dermoscopy has shown to increase the sensitivity for detecting skin cancers compared with naked-eye examination (NEE), and this increase is not occurring at the expense of lower specificity.[1] In essence, dermoscopy leads to biopsy specimens being obtained from a more selective group of lesions, and this is reflected in a reduction in the number of benign lesions from which biopsy specimens are obtained for every skin cancer found.[1-3] Dermoscopy helps distinguish benign from malignant lesions by revealing structures and patterns that are not visible with the NEE. Since these structures have direct histopathologic correlates (see the first article in this continuing medical education series), clinicians can more precisely predict histologic findings. In addition, visualizing dermoscopic structures in the ex vivo biopsy specimens can also be beneficial. This is particularly relevant when grossing skin cancers such as melanomas because there may be variability in tumor thickness across the tumoral area. In addition, some melanomas may be focally present within a nevus, and in this scenario the correct diagnosis will be contingent upon sectioning the tissue in the appropriate plane. In fact, dermoscopy can improve grossing because only about 0.1% of a 4-mm specimen actually gets presented to the pathologist on a glass slide.[4]

Multiple methods aimed at targeting the areas to step-section have been proposed by clinicians and pathologists. Clinicians can provide descriptions or pictures of the lesion to the pathologist or can mark the area directly on the specimen by suture, ink, or punch scoring before sending it to the laboratory.[4-9] Conversely, this marking can also be done in the laboratory by the pathologist or histologic technician because most dermoscopic structures can be identified on formalin-fixed tissue,[10] in a process called ex vivo dermoscopy (EVD) (Fig 1).[11] Dermoscopy-guided sectioning may reduce the number of slides necessary to render a correct diagnosis, and this can positively impact cost containment. In addition, studies have shown that select dermoscopic structures can predict a higher degree of atypia, genetic mutations, or certain histologic subtypes when evaluating lesions that are suspicious for skin cancers.[4,12-15] Therefore, dermoscopy-guided sectioning offers an exciting opportunity for research by selecting different samples for biobanks and allowing the detection of genetic mutations with theragnostic implications.

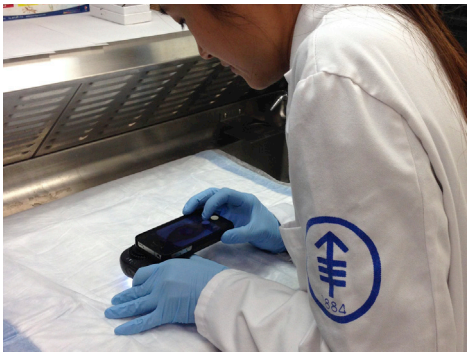


Fig 1. Evaluation of dermoscopic features on a formalin-fixed specimen (ex vivo dermoscopy) using a smartphone attached to a dermoscope.

USE OF DERMOSCOPY TO IMPROVE THE CLINICAL DIAGNOSTIC ACCURACY FOR SKIN CANCER DETECTION

Key points

- **Dermoscopy increases the sensitivity for skin cancer detection and lowers the benign to malignant biopsy ratio**
- **Limitations of dermoscopy include the learning curve and the occasional nonconformity of skin cancers to defined diagnostic criteria**
- **Ultimately, the decision to obtain a biopsy specimen from a lesion requires the integration of multiple parameters, including clinical information, morphologic analysis, and comparative and pattern analysis**

Advantages of dermoscopy

Melanoma can become an aggressive tumor, and maintaining a high sensitivity remains paramount; lesions that are clinically suspicious for malignancy should be excised. Some have suggested that it is justifiable to obtain biopsy specimens from >100 benign lesions in order to detect a single melanoma at an early stage.[16] This aggressive approach with the aim of maintaining high sensitivity fails to acknowledge the harmful consequences from having such a low specificity (ie, scarring, pain, wound infection, and patient fear/anxiety) and driving up the cost of health care.

Multiple metaanalyses have shown that dermoscopy improves user diagnostic accuracy for

diagnosing skin cancers.[1,17,18] In fact, dermoscopy enables the detection of melanomas with a sensitivity that is significantly higher than the NEE (90% vs 71%).[1] This is in part because of the misclassification of approximately 40% of melanomas as benign when using only the clinical ABCDE rule.[19] Dermoscopy also has a higher specificity compared to NEE (90% vs 81%).[1] This results in fewer biopsies/excisions necessary to find a skin cancer (4-5:1 with dermoscopy vs 12-15:1 with NEE alone[2,20]). One would think that reducing the benign to malignant biopsy ratio (BMR) may be at the cost of detecting more advanced cancers. However, dermoscopy detects skin cancers at an earlier stage compared with NEE.[3,21-24] Therefore, because dermoscopy has a high sensitivity for diagnosing skin cancers, it decreases the number of unnecessary biopsy specimens obtained, it identifies cancers earlier, and it results in a cost-effective cancer screening strategy.[25,26]

Limitations of dermoscopy

As with any diagnostic tool, dermoscopy requires training. During the training and learning phase, clinicians tend to increase their sensitivity but lower their specificity. In fact, during the first year after learning dermoscopy, generally the BMR increases.[18,27] However, after gaining some experience, the clinicians' specificity also increases and this results in improved BMR compared with predermoscopy use and NEE.[27]

It is important to highlight that dermoscopy should not be used without clinical history and clinical findings. The history and clinical features, such as degree of firmness and elevation, are important pieces of information that need to be placed in context with the dermoscopic morphology. The final decision on whether or not to obtain a biopsy specimen requires the integration of analytical data (ie, clinical ABCDE, dermoscopic features), comparative reasoning (ie, is the lesion new or changing compared to previous images), differential recognition (ie, ugly duckling, single vs multiple lesions), pattern recognition or gestalt, patient history (ie, age, gender, comorbidities), and "gut feeling."[28] This is important to appreciate because some skin cancers may lack specific dermoscopic features, making them impossible to diagnose based purely on dermoscopic morphology. In addition, dermoscopic features and patterns may vary based on age, skin type, location, and extent of sun damage, and this information also needs to be placed in context when interpreting dermoscopy. Despite these limitations, there is not a single study that has shown that dermoscopists perform worse when compared with nondermoscopists.

USING DERMOSCOPY TO IMPROVE HISTOLOGIC ANALYSIS

Key points

- **Dermoscopy can inform the pathologist on how best to process and section the tissue. This dermoscopic information can be provided to the pathologist via dermoscopic images or descriptions and by the clinician marking the area of most concern before submitting the specimen to the laboratory**
- **Most dermoscopic features are visible after formalin fixation, and therefore dermoscopy can be used to guide step sectioning in the laboratory in a technique called ex vivo dermoscopy**
- **Marking the specimen in vivo or ex vivo using dermoscopy improves the histologic diagnostic accuracy and potentially reduces the costs of histologic processing**

The role of the clinician

Dermoscopy is widely used by dermatologists and nondermatologists,[29,30] who are increasingly sampling a higher proportion of complex and histologic equivocal lesions. For such lesions the clinical information may greatly help the pathologist in rendering the most accurate diagnosis. Clinicians can provide pathologists with clinical images, dermoscopic images, and dermoscopic descriptions, or they may mark areas of interest before sending the specimen to the pathology laboratory.[6-8] However, dermoscopy images and descriptions are only useful if sent to dermatopathologists who understand the importance of clinical-dermoscopy-histopathology correlations and who have acquired at least some knowledge about dermoscopy and their association with disease. For specimens sent to dermatopathologists who have little or no knowledge about dermoscopy, the clinician may want to consider marking the area of interest or bisecting the specimen in the plane of interest so as to ensure that the area of clinical concern does in fact get sectioned. While these strategies have shown to improve the diagnostic accuracy of pathologists, currently they are rarely used outside of specialized cancer centers.[31] As the importance of clinical-dermoscopy-pathology correlation becomes more widely appreciated, it is likely that the aforementioned methods will be more widely adopted.

Benefits of including dermoscopic information or images as part of the pathology requisition form. As part of the pathology requisition form, an increasing number of clinicians are starting to add drawings, pictures, or dermoscopic

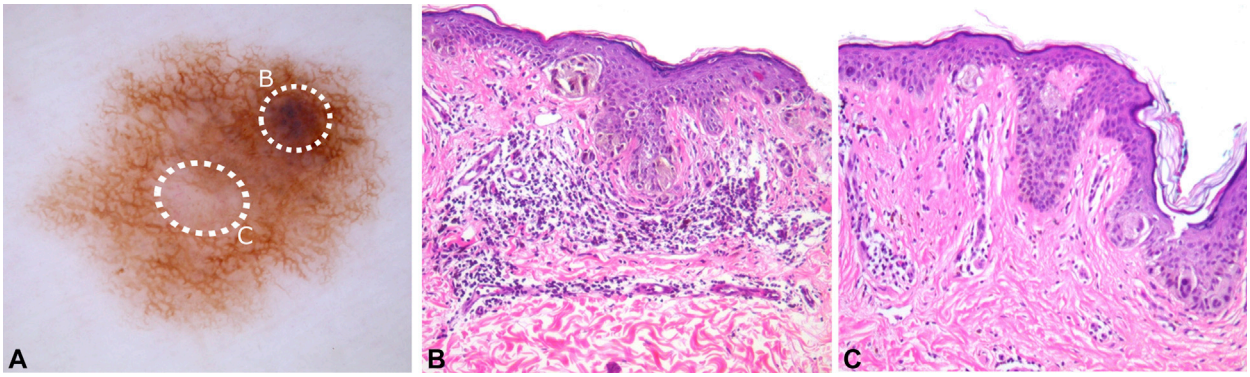


Fig 2. Pigmented lesion showing an overall reticular pattern with an off-centered area of atypical blue and gray dots and globules (**A**, upper circle) and an area with scar-like depigmentation (**A**, lower circle). Histopathologically, the area with atypical globules revealed a higher degree of atypia (**B**) as opposed to the area depicting scar-like depigmentation on dermoscopy (**C**). Dermoscopy can be useful in identifying the areas with higher degree of atypia.

descriptors to the clinical information of lesions being submitted. This added information improves the diagnostic accuracy of histologic analysis[32] because it directs the pathologic analysis and elicits a more careful examination of sections.[33] Ideally, pathologists should have access to clinical and dermoscopic images of complex melanocytic lesions to visually assess the areas of highest concern and determine the orientation of step sectioning. Contrary to a common misconception, access to additional information before histopathologic review is not associated with diagnostic bias and actually may be helpful,[5] even increasing the histologic interobserver agreement.[9]

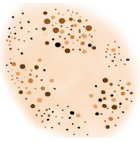
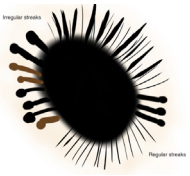
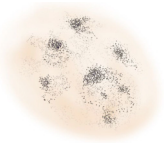
Advantages for the pathologist of highlighting the area(s) of clinical concern within the excised lesion. Before sending a specimen, clinicians have the opportunity to mark areas that display dermoscopic features that may have significance for the pathologist during the histopathologic analysis. Clinicians can mark the specimen in multiple ways, including using ink or nail varnish, placing a suture in the area of interest, scoring the area with a scalpel or a micropunch, or bisecting the specimen themselves.[4,6-8] Regardless of the method used, the mark left by the clinician may help identify small select areas that may have been otherwise missed during the conventional step sectioning procedure (Fig 2).[4] However, clinicians must be cautioned not to damage the scored tissue to such an extent as to compromise histopathologic analysis.[4]

The role of the pathologist

Dermatopathologists routinely evaluate full-thickness skin sections in the vertical plane of a small percentage of an entire specimen's volume, whereas dermoscopists evaluate the entire lesion in the horizontal plane but only to a maximum depth of the papillary dermis.[34] Therefore, both techniques are complementary and can be used in the laboratory to improve grossing. Toward this goal, pathologists need to acquire knowledge of the dermoscopy terminology and histology correlates, and dermoscopists need to acquire knowledge of histopathology (see the first article in this continuing medical education series).

Benefits of examining the ex vivo dermoscopy before step-sectioning. Dermoscopy is a diagnostic tool that is meant to be used in vivo directly on the patient's skin. However, dermoscopy can also be used on excised tissue because most dermoscopic features are visible even after formalin fixation.[10,11] This technique is called ex vivo dermoscopy (EVD),[11] and it can help guide specimen grossing. As discussed in the first article in this continuing medical education series, the colors and structures seen on dermoscopy have histopathologic correlates, which may have diagnostic and prognostic significance. For example, when grossing a pigmented melanoma, sections containing scar-like depigmentation or peppering on dermoscopy may underestimate the tumor thickness because they correspond to regression (Fig 2). Conversely, blue-gray areas indicate deep dermal melanocytes, and therefore this area will likely provide the most accurate indication of maximum tumor thickness.[35,36] EVD can also be useful to the pathologist when little or no clinical information is provided in the requisition form. In this scenario, reviewing the submitted specimen with a dermoscope before grossing the lesion has shown to improve the diagnosis of ambiguous melanocytic and nonmelanocytic lesions.[37-39] Haspeslagh et al[39] found that EVD improved the detection of positive margins in

Table I. Dermoscopic melanoma-specific structures and their odds ratios for melanoma

Schematic illustration	Metaphorical term	Description	Odds ratio for melanoma
 	Atypical pigment network and angulated lines	Network with increased variability in the color, thickness, distribution, or spacing of the lines; when angulated, typically they show gray color	2-9[43-47]
	Negative pigment network	Serpiginous interconnecting broadened hypopigmented lines that surround elongated and curvilinear globules	1.4-1.8[45,48]
	Irregular dots/globules	Clods with variability in color, size, shape, or spacing and distributed in an asymmetric fashion	1.7-4.8[43,44,49]
	Irregular streaks (pseudopods and radial streaming)	Radial lines with bulbous projections (pseudopods) or without (radial streaming) irregularly distributed	1.5-5.8[43,44-46,49]
 	Granularity/peppering and scar-like depigmentation	Granularity: blue-gray dots; scar-like depigmentation: white area lighter than surrounding skin devoid of vessels and shiny white structures	2-18.3[44-46,49]
	Blue-whitish veil	Homogenous white blue area overlying a raised area	1.74-13[44-46,49]

Continued

Table I. Cont'd

Schematic illustration	Metaphorical term	Description	Odds ratio for melanoma
	Shiny white streaks	Short white lines oriented parallel and orthogonal to each other (only seen in polarized dermoscopy)	2.5- 9.7[45,50]
	Irregular blotch	One off-centered blotch or multiple blotches	1.88-4.1[43-46]
	Polymorphous vessels	Simultaneous presence of multiple types of vessels	2.0-3.04[43,45,46]

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keratinocyte carcinomas from ~8% to ~13%. In melanocytic lesions, this technique led to the detection of a higher degree of atypia, ulceration, and higher mitotic rates.[39] In addition, Cabete et al[38] found that EVD elicited a change in the final diagnosis in ~14% of the studied cases, and EVD helped in the detection of melanomas missed with conventional step sectioning and improved the staging of melanomas. In addition, EVD has shown to decrease the diagnostic turnaround time,[39] a finding that indicates that EVD can potentially optimize step-sectioning and reduce the costs of histopathologic processing.

EVD has some differences compared with conventional dermoscopy. While EVD clearly identifies structures containing pigment, such as network, globules, or streaks,[10,11] some structures are less conspicuous. In EVD, there are more structureless areas and a decrease in the focus sharpness.[10,11,37] In addition, some colors may appear enhanced after fixation (blue, brown, white), while others colors, such as red, may be less conspicuous because of a poor or absent visualization of blood vessels and the degradation of hemoglobin after excision.[10,11,40] This makes EVD challenging in amelanotic lesions. Another way to evaluate the dermoscopic features of excised specimens can be through photographs of the dermoscopic image. A dermoscope can be attached to a camera[39] or smartphone (Fig 1). This results in a cleaner and safer method to evaluate lesions and provides an easy way to document the findings for future clinical, research, or academic purposes. EVD has a more important role in medium to large complex pigmented lesions or in wide excisions containing focal pigmented areas than on tiny specimens.[11] Regarding larger lesions, the same way clinicians may mark the area of concern, pathologists or histotechnicians can also mark the specimen in order to identify a given area under the microscope.[41] In fact, it has been suggested that the marking of the specimen should be performed in the laboratory to minimize tissue loss or destruction.[39,41]

In the era of targeted therapies, EVD also has exciting potential in research. Several dermoscopic structures have been correlated with select genetic mutations (see below). Therefore, EVD can be used as a tool to gross specimens and select areas that can later be tested for mutations or stored for future studies in biobanks. The dermoscopic image could then serve as an en face map of the clones present within a given lesion.[42]

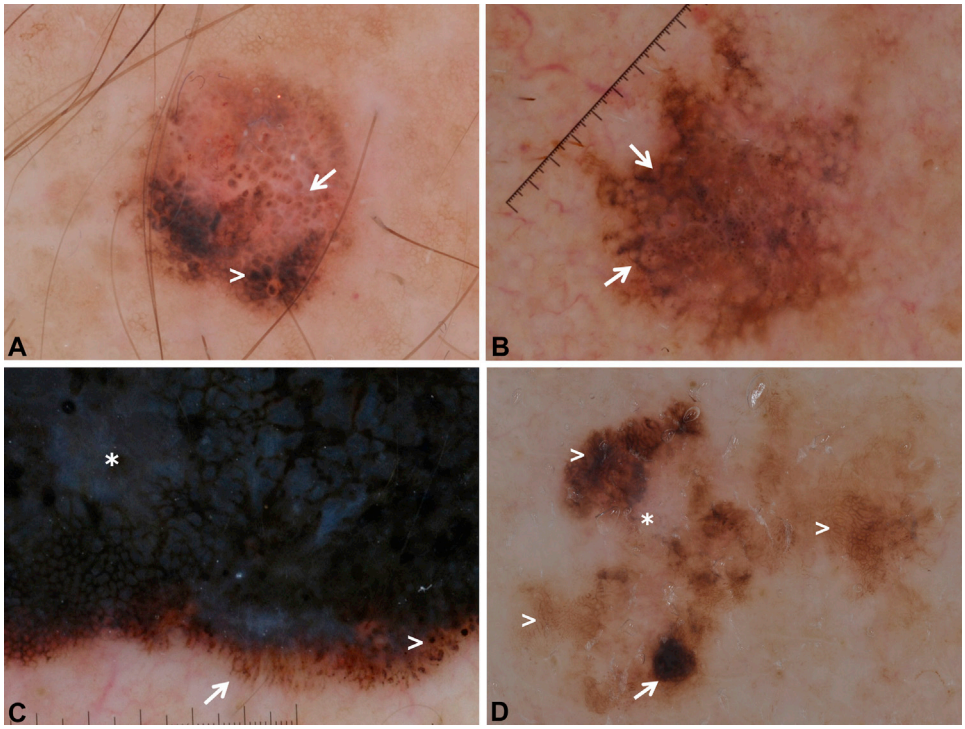


Fig 3. Dermoscopic images showing multiple melanoma-specific structures. **A**, Melanoma arising in a nevus presenting with negative network (arrow) and irregular globules (arrowhead). **B**, Lentigo maligna depicting angulated lines (arrows). **C**, Invasive melanoma showing blue-whitish veil (asterisk), streaks (arrow), and irregular globules (arrowhead). **D**, Regressed melanoma presenting with atypical network (arrowheads), scar-like depigmentation and peppering (asterisk), and an irregular blotch (arrow).

DERMOSCOPIC FEATURES WITH SPECIAL RELEVANCE FOR THE CLINICIAN AND THE PATHOLOGIST

Key points

- **Several dermoscopic features are highly specific for melanoma and are called melanoma-specific structures**
- **Select dermoscopic findings can predict the presence of aggressive melanomas and the presence of genetic mutations**
- **Dermoscopy can predict the indolent versus aggressive subtypes of keratinocyte carcinomas and may help triage lesions**
- **Although relatively specific, the structures suggestive for melanocytic lesions can be encountered in nonmelanocytic lesions, and this may explain the discordance between the clinical/dermoscopic and the final histopathologic diagnosis of many cases**

Dermoscopic features with special relevance present in melanocytic lesions

Melanoma-specific structures. Several dermoscopic features have been associated with a high odds ratio for melanoma when encountered in melanocytic lesions. These structures are collectively known as melanoma-specific structures. They include atypical pigment network, angulated lines, irregular streaks, negative pigment network, shiny white streaks, irregular dots and globules, irregular blotch, blue-white veil, regression structures (peppering and scar-like depigmentation), and polymorphous vessels. These features, which have well-established histopathologic correlates as noted in the first article in this continuing medical education series, are summarized in Table I and shown in Fig 3. We have described these features according to the 2016 International Dermoscopy Consensus on dermoscopic terminology.[51,52]

Dermoscopic structures associated with prognostic and therapeutic implications. A few dermoscopic structures have been shown to have clinical and prognostic significance with structures associated with melanoma arising in a nevus,[39,53] dermal invasion,[50] Breslow thickness >0.75 mm,[36,54-56] mitotic activity,[57,58] or the presence of lymph node metastases.[53] Other dermoscopic features may also be relevant for therapeutic purposes because they are associated with genetic

Table II. Dermoscopic structures that have been shown to be predictors of histologic and genetic alterations when present in melanocytic lesions

Histologic/genetic association		Dermoscopic predictors
Melanoma arising in a nevus[39,53]		Negative pigment network
Breslow depth >0.75 mm[36,54-56]		Blue-whitish veil
		Atypical vessels
		Abrupt cutoff
		>4 colors
		Streaks
		Milky red areas
		>2 dermoscopic structures
Dermal invasion[50]		Shiny white streaks
Mitosis in thin (<1 mm) melanoma[57]		Black color
		Peripheral streaks
Mitosis and ulceration[58]		Shiny white streaks
		Blue-whitish veil
		Milky-red areas
Positive sentinel lymph node[53]		Blotch
		Ulceration without a pigmented network
Genetic mutations	MAPK mutations (*BRAF*, *NRAS*)[13]	Peppering/granularity
	BRAF-mutated melanomas[12,15]	Irregular peripheral streaks
		Ulceration
		Blue-whitish veil
	BRAF wild-type melanomas[12]	Dotted vessels
	KIT mutations[57]	Dark homogeneous streaks

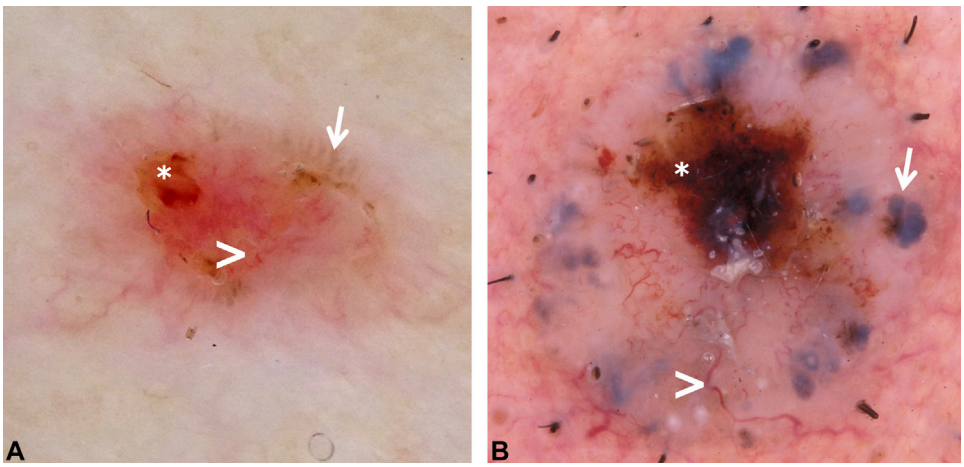


Fig 4. Dermoscopic images showing dermoscopic features associated with different basal cell subtypes. **A**, Superficial basal cell carcinoma presenting with an erosion (asterisk), serpentine vessels (arrowhead), and leaf-like areas (arrow). **B**, Nodular basal cell carcinoma presenting with an ulcer (asterisk), arborizing vessels (arrowhead), and blue ovoid nests (arrow).

mutations that are targetable by specific therapies.[12,13,15,59] These findings are summarized in Table II.

Dermoscopic predictors of basal cell carcinoma subtype

Dermoscopy can be used to predict the most common subtypes of basal cell carcinoma (BCC): nodular and superficial. Lallas et al[60] developed an algorithm in which the most relevant discriminator between superficial and nonsuperficial BCC was the presence of blue ovoid nests (in the nonsuperficial subtypes). They also found arborizing vessels and ulceration to be associated with nonsuperficial BCC. Conversely, the presence of leaf-like areas and serpentine vessels were associated with superficial

Table III. Dermoscopic structures associated with basal cell carcinoma subtypes

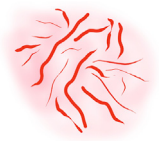
Basal cell carcinoma subtype	Dermoscopic predictors	Schematic
Superficial basal cell carcinoma[14,60]	Flat surface	
	Multiple small erosions	
	Serpentine vessels	
	Leaflike structures	
Non-superficial basal cell carcinoma[60]	Blue ovoid nest	
	Arborizing vessels	
	Ulceration	

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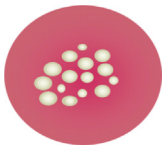
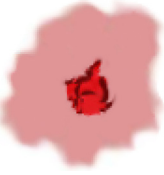
Table IV. Dermoscopic structures associated with subtypes of squamous cell carcinoma subtypes

Histologic subtype	Dermoscopic predictors	Schematic
Actinic keratosis[67]	Strawberry pattern	
Bowen disease[68]	Glomerular vessels	
	Dark dots/globules or round circles in linear arrangement	
Well-differentiated squamous cell carcinoma[67,69]	White circles	
	Looped vessels	
Poorly differentiated squamous cell carcinoma[70]	Vessels in >50% of the tumor surface Diffuse arrangement of vessels	
	Bleeding	

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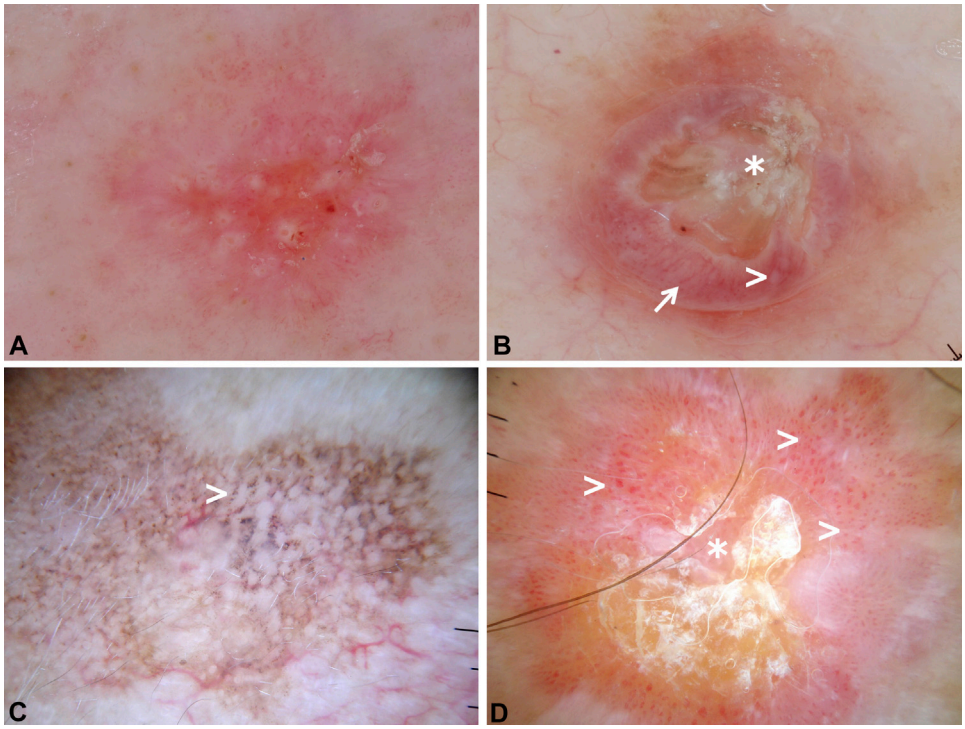

Fig 5. Dermoscopic images showing dermoscopic features associated with different squamous cell subtypes. **A**, Actinic keratosis presenting with an overall strawberry pattern. **B**, Well-differentiated squamous cell carcinoma presenting with central keratin plug (asterisk), looped vessels (arrow), and white circles (arrowhead). **C**, In situ squamous cell carcinoma depicting multiple linear black dots (arrowhead). **D**, Poorly differentiated squamous cell carcinoma depicting diffuse polymorphous vessels (arrowheads) and scale (asterisk).

BCC. Recently, Ahnlide et al[14] demonstrated that the presence of multiple small erosions in a flat lesion is predictive of superficial BCC in fair-skinned individuals.[14]

Therefore, the findings more commonly associated with superficial BCC are serpentine vessels, multiple small erosions, flat surface, and leaf-like/spoke wheel areas. The presence of blue ovoid nests, ulceration, and arborizing vessels are more common in nodular BCC (Fig 4, Table III). This distinction can determine management because superficial BCC can potentially be treated nonsurgically, streamlining the diagnostic and therapeutic process through a reduction in diagnostic biopsy specimens. However, caution is advised because small foci of invasion cannot be excluded dermoscopically, and therefore other techniques, such as reflectance confocal microscopy or optical coherence tomography, can be used to identify deep tumor components.[61-65] Interestingly, some dermoscopic findings have been described as therapeutic predictors. For example, the presence of ulceration in a nontreated BCC has been described to predict a good response to imiquimod, regardless of subtype.[66]

Dermoscopic predictors of the squamous cell carcinoma spectrum

The lesions included in the squamous cell carcinoma (SCC) spectrum share many dermoscopic features such as scale, rosettes, and vessels. However, other dermoscopic features can aid in differentiating actinic keratosis, Bowen disease, well-differentiated SCC, and invasive SCC. The findings are summarized in Table IV and shown in Fig 5.

CONCLUSION

In this continuing medical education series we have reviewed dermoscopic structures with their histopathology correlates and have shown that there exists an overlap between dermoscopy and histopathology. However, dermoscopy and histopathology are not equivalent. Histopathology holds an advantage over dermoscopy in that it evaluates vertical sections of tissue, which allows for the assessment of the full depth of the lesion from scanning magnification to cellular-level magnification. In addition, because histopathology is performed on paraffin-embedded tissue, it permits the use of immunohistochemical and molecular techniques to assist in diagnosis, which clearly

cannot be done with dermoscopy. Conversely, unlike histology, which evaluates <1% of the entire volume of the tumor, dermoscopy evaluates the entire surface area of the lesion in the horizontal plane, but only to the depth of the papillary dermis and not at cellular-level resolution. The ability to evaluate the lesion in the horizontal plane permits the identification of certain diagnostically important structures, such as streaks, that are not commonly seen on vertical section histopathology. In addition, dermoscopy has the advantage of allowing the observer to identify colors, which may prove important in rendering a diagnosis. Other advantages of dermoscopy include the ability to evaluate the context of lesions on the skin and to monitor lesions over time to determine their biology and dynamics.

Dermoscopy is an ideal tool to enhance the diagnosis of skin cancer and in fact has a high sensitivity for the diagnosis of skin cancers while retaining a high specificity, resulting in a low BMR. In addition, dermoscopy can identify areas within a tumor that have prognostic relevance for the pathologist when performing step sectioning. Therefore, dermoscopy can improve histologic diagnostic accuracy, reduce the costs of histologic processing, and offer research opportunities through informed sampling of specimens for genetic testing. However, an adequate knowledge of dermoscopy is required because exceptions occur. Nevertheless, dermoscopy can be a bridge between clinicians and pathologists that strengthens the clinicopathologic correlation.

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