The spectrum of dermatoscopic patterns in blue nevi

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Background: Blue nevi are congenital or acquired, dermal dendritic melanocytic proliferations that can simulate melanocytic and nonmelanocytic lesions including melanoma, cutaneous metastasis of melanoma, Spitz/Reed nevi, and basal cell carcinoma.

Objective: We sought to investigate global and local dermatoscopic patterns of blue nevi compared with melanomas and basal cell carcinomas.

Methods: We retrospectively analyzed global and local features in 95 dermatoscopic images of blue nevi and in 190 melanomas and basal cell carcinomas that were selected as control lesions on the basis of similar pigmentation. Lesion pigmentation was classified as monochromatic, dichromatic, or multichromatic.

Results: A global pattern characterized by homogeneous pigmentation was observed in all of 95 (100%) blue nevi. Eighty of 95 (84.2%) blue nevi presented a homogeneous pattern consisting of one color (blue, black, or brown) or two colors (blue-brown, blue-gray, or blue-black). Fifteen of 95 (15.8%) blue nevi had a multichromatic (blue, gray, black, brown, and/or red) pigmentation. In all, 47 of 95 (49.5%) blue nevi were characterized by pigmentation in the absence of pigment network or any other local dermatoscopic features. And 48 of 95 (50.5%) blue nevi showed local dermatoscopic patterns including whitish scarlike depigmentation, dots/globules, vascular pattern, streaks, and networklike pattern.

Limitations: The study was retrospective and involved only Caucasian people of Italian origin.

Conclusion: The characteristic feature of blue nevi is a homogeneous pigmentation that is blue, blue-gray, blue-brown, or blue-black. We showed that a wide spectrum of local dermatoscopic features (whitish scarlike depigmentation, dots/globules, peripheral streaks or vessels) may also be present. In such cases, clinical and dermatoscopic distinction from melanoma or nonmelanocytic lesions may be difficult or impossible, and surgical excision is necessary. (J Am Acad Dermatol 2012;67:199-205.)

Key words: basal cell carcinoma; blue nevi; dermatoscopy; local features; melanoma; pigmentation.

Blue nevi are benign, congenital or acquired, dermal dendritic melanocytic proliferations that present as single or multiple, firm papules, nodules, or plaques of blue, blue-gray, or blue-brown color. Blue nevi preferentially occur on the extremities and face, but they may be found in extracutaneous sites such as oral cavity, genitalia, or conjunctiva.[1,2] Differential diagnosis of blue nevi includes numerous melanocytic and nonmelanocytic cutaneous lesions, such as nodular melanoma and cutaneous metastasis of melanoma, Spitz/Reed nevi, pigmented basal cell carcinoma (BCC), pigmented dermatofibroma, and trichilemmal cyst, all of which may present as plaques or nodules with the exclusive characteristic of a blue homogeneous or variegated pigmentation.[3-7]

In most cases clinical and dermatoscopic findings allow the final diagnosis to be established with a high degree of certainty. Blue nevi show a global pattern characterized by a homogeneous bluish or steel-blue

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pigmentation in the absence of pigment network or any other distinctive dermatoscopic structure.[3,8-10] An uncommon but well-known additional dermatoscopic finding is the presence of whitish areas of hypopigmentation that histopathologically correspond to dermal fibrosis.[9] Other features that have been described in blue nevi are blue globules, dots, pseudopods, pigment network, and networklike areas.[11-14] However, to our knowledge, no study has analyzed the dermatoscopic profile of blue nevi with a specific focus on global and local features.

We conducted a retrospective study on histopathologically proven blue nevi compared with control groups of similarly pigmented melanomas and BCCs to identify dermatoscopic patterns that could be useful for the diagnosis and differential diagnosis of blue nevi.

CAPSULE SUMMARY

- Dermatoscopy is a useful tool to diagnose cutaneous melanocytic lesions including blue nevi.
- The characteristic dermatoscopic feature of blue nevi is a homogeneous steel-blue pigmentation; however, a combination of local features can be found.
- Lesions showing the combination of multichromatic pigmentation with local features typical of melanocytic skin lesions are the most challenging to diagnose.

METHODS

Lesions selection

We retrospectively analyzed dermatoscopic images of all histopathologically proven blue nevi that were collected at the outpatient clinic of the Department of Dermatology, University of L'Aquila, Italy, and included in our digital database from January 2003 to August 2008. Equal numbers of melanomas and BCCs were selected from the same digital database based on the presence of a similar pigmentation to blue nevi. Demographic data such as age, sex, and number and site of all lesions were collected for each patient included in the study.

Dermatoscopic images were scored by one observer (A. D. C.) for global and local features according to previously described patterns.[7,8,15,16] Lesions were classified according to their color as monochromatic, dichromatic, or multichromatic (≥ 3 discernible colors).

Dermatoscopic equipment

Dermatoscopic images had been obtained using one of the following systems: (1) Nevuscreen (Arke' sas, Avezzano, Italy); (2) Dermogenius (1.6-SP2 Version, Linos AG Co, Goettingen, Germany); or (3) Dermaphot (Heine Ltd, Herrshing, Germany). For better visualization of vascular structures in the lesion, a thin layer of ultrasound gel and light pressure were applied to the skin before dermatoscopic examination.

Statistical analysis

Prevalence of global and local dermatoscopic features was compared among the 3 lesion groups (blue nevus, melanoma, and BCC) using the χ^2 test. Fisher exact test was also used when appropriate. All P values cited are two-sided, and values of P less than .05 were considered statistically significant. Data analysis was carried out using statistical software (Stata, Release 11, StataCorp LP, College Station, TX).

RESULTS

Patients and lesions

We analyzed 3 sets of dermatoscopic images, comprising a total of 285 images of surgically excised pigmented cutaneous lesions from 285 patients. All patients were white and of Italian origin.

The blue nevi series consisted of images of 95 lesions from 95 patients (52 female [54.7%] and 43 male [45.3%]), ranging in age from 13 to 79 years (mean age: 45.0 years). Individual lesions were located on the lower extremities (37/95; 38.9%), upper extremities (25/95; 26.3%), trunk (21/95; 22.1%), scalp (9/95; 9.5%), and face (3/95; 3.2%).

The melanoma series consisted of images of 95 melanomas from 95 patients (48 female [50.5%] and 47 male [49.5%]), ranging in age from 19 to 81 years (mean age: 49.7 years). The median Breslow thickness was 1.2 mm (range: in situ to 5.5 mm). The lesions had been excised from the lower extremities (39/95; 41.1%), trunk (38/95; 40%), upper extremities (9/95; 9.5%), face (7/95; 7.3%), and scalp (2/95; 2.1%).

The third set of images consisted of 95 BCCs from 95 patients (39 female [41.0%] and 56 male [59.0%]), ranging in age from 45 to 90 years (mean age: 65.3 years). BCCs were localized on the trunk (62/95; 65.3%), face (21/95; 22.1%), scalp (6/95; 6.3%), upper extremities (4/95; 4.2%), and lower extremities (2/95; 2.1%).

Dermatoscopic features of blue nevi

Under dermatoscopic examination, all of the blue nevi (95/95; 100%) showed a global pattern that was characterized by homogeneous pigmentation with a