Clinical and dermoscopic characterization of pediatric and adolescent melanomas: Multicenter study of 52 cases

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Background: Knowledge regarding the morphologic spectrum of pediatric melanoma (PM) is sparse, and this may in part contribute to delay in detection and thicker tumors.

Objective: To analyze the clinicodermoscopic characteristics of PM.

Methods: Retrospective study of 52 melanomas diagnosed in patients before the age of 20 years.

Results: On the basis of its clinical, dermoscopic, and histopathologic characteristics, PM can be classified as spitzoid or nonspitzoid. The nonspitzoid melanomas (n = 37 [72.3%]) presented in patients with a mean age of 16.3 years (range, 8-20) and were associated with a high-risk phenotype and a pre-existing nevus (62.2%). The spitzoid melanomas (n = 15 [27.7%]) were diagnosed in patients at a mean age of 12.5 years (range, 2-19) and were mostly de novo lesions (73.3%) located on the limbs (73.3%). Whereas less than 25% of PMs fulfilled the modified clinical ABCD criteria (amelanotic, bleeding bump, color uniformity, de novo at any diameter), 40% of spitzoid melanomas did. Dermoscopic melanoma criteria were found in all cases. Nonspitzoid melanomas tended to be multicomponent (58.3%) or have nevus-like (25%) dermoscopic patterns. Spitzoid melanomas revealed atypical vascular patterns with shiny white lines (46.2%) or an atypical pigmented spitzoid pattern (30.8%). There was good correlation between spitzoid subtype histopathologically and dermoscopically (κ = 0.66).

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Supported in part through the National Institutes of Health/National Cancer Institute Cancer Support Grant P30 CA008748. The research at the Melanoma Unit in Barcelona was partially funded by Spanish Fondo de Investigaciones Sanitarias grants PI12/00840, PI15/00716 and PI15/00956 and CIBER de Enfermedades Raras of the Instituto de Salud Carlos III, Spain. It was cofinanced by the following: European Development Regional Fund A Way to Achieve Europe ERDF; AGAUR 2014_SGR_603 of the Catalan Government, Spain; European Commission under the Sixth Framework Programme, Contract No. LSHC-CT-2006-018702 (GenoMEL) and the European Commission under the Seventh Framework Programme, Diagnoptics; a grant from Fundació La Marató de TV3, 201331-30, Catalonia, Spain; a grant from Telemaraton of Spain Todos somos raros; and a grant from Asociación Española Contra el Cáncer (AECC).

Conflicts of interests: None declared.

Accepted for publication September 28, 2017.

Graphical abstract available at http://www.jaad.org.

Reprints not available from the authors.

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Published online October 9, 2017.

0190-9622/$36.00

https://doi.org/10.1016/j.jaad.2017.09.065

Limitations: A retrospective study without re-review of pathologic findings.

Conclusion: Dermoscopy in addition to conventional and modified clinical ABCD criteria helps in detecting PM. Dermoscopy assists in differentiating spitzoid from nonspitzoid melanomas. (J Am Acad Dermatol 2018;78:278-88.)

Key words: childhood; dermoscopy; detection; melanoma; pediatric melanoma; Spitz; spitzoid.

Pediatric melanoma (PM) is a melanoma diagnosed during childhood or adolescence. It accounts for less than 3% of pediatric cancers and 1% to 4% of all melanoma cases. The incidence is not constant across the pediatric age spectrum, with melanomas during adolescence (15-19 years old) being 10 times more frequent than those in children (5-9 years old).[1,2] As in adult melanoma, the prognosis of PM depends on its American Joint Committee on Cancer staging.[3-5]

PMs are often thicker tumors at time of detection, in part because of delay in diagnosis and/or differences in growth dynamics. The low incidence of PM and the lack of classic melanoma (ABCD: asymmetry, border irregularity, multiple colors, diameter >6 mm) criteria in a subset of these lesions may help explain the delay in diagnosis.[6] Undoubtedly, dermatologists see an overwhelming number of nevi among pediatric patients, and rarely if ever, will they encounter a melanoma in childhood. Approximately 30% of pediatric dermatologic consultations are due to concerns regarding nevi.[7] And even among lesions in children that are sufficiently concerning to warrant a biopsy, the nevus-to-melanoma ratio is about 1:1000.[8]

To improve early detection of melanoma, a modified clinical ABCD rule consisting of "amelanotic, bleeding bump, color uniformity, and de novo lesion of any diameter" was proposed by Cordoro et al.[9] In addition, dermoscopy improves early detection of melanomas, at least in adults.[10] Scant literature describing the dermoscopic findings of PM exists. We present the clinical and dermoscopic findings from a cohort of PM cases.

CAPSULE SUMMARY

- Pediatric melanomas can be spitzoid or nonspitzoid; these have different dermoscopic features.
- Nonspitzoid melanomas bear morphologic similarity to superficial spreading melanoma, whereas spitzoid melanomas usually present as amelanotic papules.
- Both the classic melanoma ABCD criteria (asymmetry, border irregularity, multiple colors, diameter greater than 6 mm) and modified melanoma ABCD criteria (amelanotic, bleeding bump, color uniformity, de novo at any diameter) can assist in detecting pediatric melanoma. Dermoscopic criteria for melanoma are generally present.

METHODS

The institutional review board at Memorial Sloan Kettering Cancer Center approved this study. We solicited members of the International Dermoscopy Society to submit images and clinical data on PM cases. We asked contributors to send, via a secure file transfer system, the clinical and dermoscopic images of histopathologically confirmed PM in patients younger than 20 years. Patient demographic information and histopathologic information, including melanoma subtype, thickness, ulceration status, mitotic index, and whether there was an associated nevus, were also collected.

A total of 52 melanoma cases were collected from pigmented lesion clinics across 9 countries (Australia, Belgium, Brazil, France, Israel, Italy, Serbia, Spain, and the United States). One patient presented with 2 primary melanomas at the ages of 17 and 18. All lesions were diagnosed by dermatopathologists specialized in the diagnosis of melanocytic neoplasms at the originating institution. In line with the current classification of PM,[11] the melanomas in the data were classified as spitzoid melanomas or nonspitzoid melanomas (also termed *conventional* or *adult-like* melanomas, with most being of the superficial spreading type) on the basis of the original institutional histopathologic reports.

Clinical and dermoscopic images were evaluated jointly by 2 experienced reviewers (C.C. and A.A.M.). The clinical evaluation included the classic ABCD criteria—axis symmetry (0-2), border regularity (0-8), number, type of colors (black, dark brown, light brown, red, white, blue, and gray), and diameter. The overall clinical appearance was categorized, by gestalt impression of the reviewers, as melanoma-like, benign-appearing, and nodular/polypoid tumors. Lesions were also evaluated according to the modified ABCD criteria.[9]