A case of eruptive melanocytic nevi in an 8-year-old healthy boy

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INTRODUCTION

Eruptive melanocytic nevi (EMN) represent a phenomenon of a simultaneous and abrupt development of numerous benign melanocytic nevi on previously unaffected healthy skin. The lesions are usually dark brown to black in color[1]; however, reports of pink to skin-colored papules are reported.[2] EMN resulting in hundreds of nevi is a rare phenomenon with largely unclear pathogenesis. Mutations in *NRAS*, *HRAS*, and *BRAF* have been identified in activating the mitogen-activated protein kinase pathway, resulting in development of benign nevi.[3] There are no clear predisposing factors, but reported associations include diminished immune surveillance, genetic susceptibility, and adverse drug effects.[4,5] Furthermore, various triggers including light exposure, cutaneous injury, bullous dermatoses, biologic chemotherapeutics, increased hormone levels, atopic dermatitis, postoperative fever, and seizures were implicated.[1]

Abbreviation used:

EMN: eruptive melanocytic nevi

CASE REPORT

A previously healthy 8-year-old Hispanic boy presented to the outpatient clinic with numerous 1- to 3-mm brown and black macules that involved the face, neck, axillary vault, scrotum, and penis. (Figs 1, 2, and 3). The oral mucosa was unaffected. The family denied any recent injuries, infections, or medications. The patient's father reported that the boy went to sleep without lesions, and the following morning he thought an ink pen had exploded on his son because of the numerous new brown and black lesions. The patient had developed more nevi gradually, but the initial onset of most nevi was suddenly overnight. Results of a review of systems were negative. Results of a complete blood count, comprehensive metabolic panel, blood cultures, qualitative mononucleosis, and immunoglobulin E allergy profile obtained by the primary care physician were unremarkable. Before presentation at our office, evaluation occurred at a separate dermatology clinic. The previous dermatologist made a diagnosis of lentigines, and treatment with Excel V532 (Cutera, Brisbane, CA) laser was attempted. This resulted in a slight decrease in diameter of 2 test lesions, with unsatisfactory cosmetic results. The largest lesion from the upper back was biopsied via the shave method in our office (Figs 4 and 5). A second lesion was biopsied on the posterior portion of the upper thigh approximately 11 months later to confirm the previous findings.

Histopathologic examination of the first biopsy sample showed a small, symmetric, well-demarcated melanocytic neoplasm composed of junctional melanocytes arranged in small nests along the dermoepidermal junction. Melanocytes exhibited heavily pigmented cytoplasm but without cytologic atypia. There was a brisk inflammatory cell infiltrate associated with the nevus with numerous, heavily pigmented melanophages. Results of *BRAF* testing were negative. Histopathologic examination of the second biopsy showed similar findings confirming diagnosis. The diagnosis of a pigmented spindle cell nevus (Reed nevus) was certainly considered, especially given the presence of numerous melanophages surrounding the lesion. However, melanocytes exhibited banal morphology, with small round

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Fig 1. The patient before he developed numerous nevi.

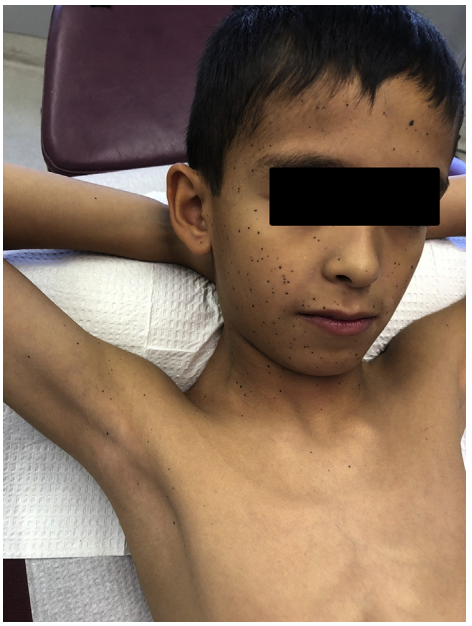

Fig 2. The first visit with patient after he developed numerous nevi.

nuclei with inconspicuous nucleoli and scant cytoplasm, rather than epithelioid/spindled phenotype with increased nucleus-cytoplasm ratio and

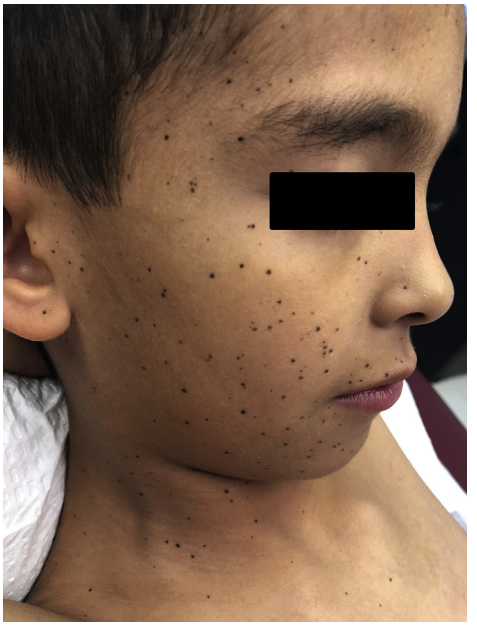

Fig 3. Numerous brown to black macules on the patient's face.

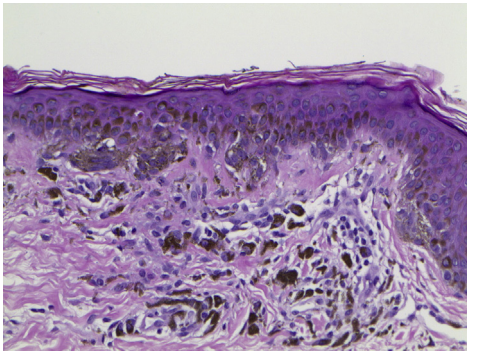

Fig 4. Small, symmetric, well-demarcated melanocytic neoplasm composed of junctional melanocytes arranged in small nests along the dermoepidermal junction.

prominent nucleoli. Therefore, despite heavy pigmentation, the diagnosis of pigmented spindle cell nevus was not favored in this case.

DISCUSSION

Our patient developed EMN without any apparent triggers, which is a rare and unusual phenomenon. Recently, Lee et al[1] reported a case of a healthy 5-year-old Asian girl who developed more than 200 nevi without any obvious triggers. Test results for *BRAF* V600E were also negative in this patient. Very few reported cases of idiopathic EMN in children are available, suggesting that it is relatively uncommon but may be underreported due to insufficient recognition by practitioners, absence of close dermatologic monitoring, and presumed benign course.[5]

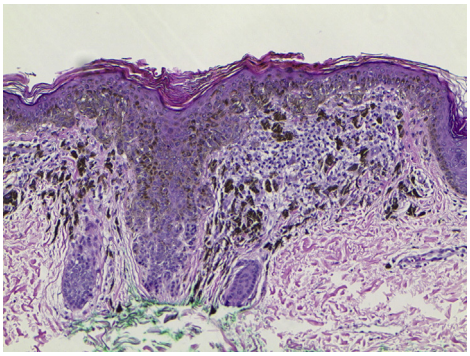

Fig 5. Melanocytes exhibited heavily pigmented cytoplasm but no cytologic atypia. There was a brisk inflammatory cell infiltrate associated with the nevus with numerous, heavily pigmented melanophages.

Previous reports of affected children include those of Korean and Italian ethnicity, without any indication that ethnicity influences frequency. Further understanding of the complex nevogenesis pathway is needed to identify possible mutations to explain the sudden eruption of nevi and provide applicable treatment. Currently, there are no reports of regression of EMN, in contrast to a report by Bhoyrul et al[6] of a 4-year-old boy with more than 100 eruptive disseminated Spitz nevi who had spontaneous regression 8 years after onset. There has been no regression in our patient over the last year. There are no reported incidences of malignant transformations of eruptive disseminated Spitz nevi or EMN.[7] Nevertheless, given the unusual and poorly understood phenomenon of EMN with possible underlying genetic mutation link, regular annual screening for dysplastic nevi and melanoma is recommended.[4]

REFERENCES

1. Lee WK, Jin H, You HS, et al. Eruptive melanocytic nevi without any trigger in a 5-year-old healthy girl. *Ann Dermatol*. 2017;29(5):644-646.
2. Zalaudek I, Moscarella E, Sturm RA, et al. 'Eruptive' amelanotic compound nevi in children with facial freckles and pale skin colour: more than an occasion? *J Eur Acad Dermatol Venereol*. 2013;27(12):1583-1585.
3. Ross AL, Sanchez MI, Grichnik JM. Mol nevogenesis. *Dermatol Res Pract*. 2011;2011:463184.
4. Yang T-H, Wang K-H, Tsai H-H, Chu J-S. Eruptive melanocytic nevi with malignant transformations and the connection to BRAF and p16 mutations. *Dermatologica Sinica*. 2017;35(1):30-33.
5. Tareen A, Pallesen K, Vestergaard T. Eruptive nevi after burn injury. *Dermatol Pract Concept*. 2018;8(1):66-67.
6. Bhoyrul B, Tang DYL, Carling EE, Harikumar C, Newton-Bishop J, Carmichael AJ. Regressing eruptive disseminated spitz nevi. *Pediatr Dermatol*. 2015;32(4):e181-e183.
7. Ricci F, Paradisi A, Annessi G, Paradisi M, Abeni D. Eruptive disseminated Spitz nevi. *Eur J Dermatol*. 2017;27(1):59-62.