Pediatric Melanoma, Moles, and Sun Safety

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KEYWORDS

• Nevus • Congenital melanocytic nevus • Pediatric melanoma • Spitz nevus

KEY POINTS

- Melanoma is a rare but deadly disease among the pediatric population, and often has distinct clinical attributes compared with adult melanoma.
- Risk modification is important for pediatric patients at high risk for development of melanoma (eg, due to positive family history, skin phototype), and these patients should be counseled on features of concerning nevi, regular home skin examinations, and safe sun protection practices.
- Congenital nevi and atypical Spitz tumors are pediatric melanocytic lesions that can be challenging to manage and have increased risk for malignant potential.

INTRODUCTION

It is common for parents of pediatric patients to request evaluation of a "lesion" that is new, changing, or concerning in some way. The lesion may be plainly visible to a parent seeking more information, or concern may be related to a rising general overall awareness about melanoma and skin changes. Diagnosis and management of pigmented lesions, particularly pediatric dysplastic nevi and Spitz nevi, can be challenging. In this article, we provide an overview of pigmented lesions in the pediatric population, including melanoma, and management of melanoma risk factors and melanocytic nevi in children.

PEDIATRIC MELANOMA

Melanoma in children is rare. According to the Surveillance, Epidemiology, and End Results (SEER) program, which houses national cancer registry information that has been collected since the 1970s in several states and metropolitan areas, there were 1317 cases of childhood and adolescent melanoma diagnosed between 1973 and

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2009.[1] Only 104 cases were identified among children up to 9 years of age, and a large majority of pediatric cases (1230) were among white persons, corresponding to an incidence rate of 6 per 1,000,000 individuals. The analysis revealed an overall increase in pediatric melanoma by approximately 2% per year, with greatest increases among girls aged 15 to 19, and people with low ultraviolet (UV)-B exposure based on geographic locations, where those who live in these areas often get intermittently intense UV exposure.[1] Examination of all pediatric neoplasms among SEER data between 1992 and 2004 found an overall pediatric melanoma incidence of 4.9 per 1,000,000 individuals. Although this incidence is very low, the annual percentage change of 2.8% makes melanoma one of only a few pediatric neoplasms with significantly increased rates during this time period.[2]

Although a diagnosis of melanoma among pediatric patients is rare, it carries a similar prognosis and clinical course as adult melanoma. Histopathologic prognostic factors include Breslow depth of melanoma, ulceration, mitotic rate, and presence or absence of lymphovascular invasion.[3] It is especially important that the tissue is reviewed by a pathologist who is comfortable with the histopathology of skin from pediatric patients, as banal pediatric Spitz nevi and related tumors may harbor features concerning for melanoma, as discussed in this article.

Although melanoma disease course is similar between children and adults, clinical characteristics of pediatric melanomas do not always follow the typical "ABCDE" detection criteria of asymmetry, border irregularity, color variegation, diameter larger than 6 mm, and/or evolution (**Fig. 1**). Cordoro and colleagues[4] published a retrospective study of 70 cases of melanoma or ambiguous melanocytic tumors treated as melanoma from 1984 to 2009 and found that the most common pediatric melanoma characteristics are amelanosis, bleeding, "bumps," color uniformity, diameter variability, and de novo development. Among 10 pediatric patients who succumbed to disease in their series, 90% were aged 11 to 19 years, 70% had amelanotic lesions, and 60% had at least one risk factor for melanoma.[4] It is important to be cognizant of changing skin lesions and have a higher index of suspicion for patients with melanoma risk factors.

MELANOMA RISK FACTORS

Pediatric patients with inherent melanoma risk factors should be identified and counseled to minimize external factors that can further increase their risk of developing

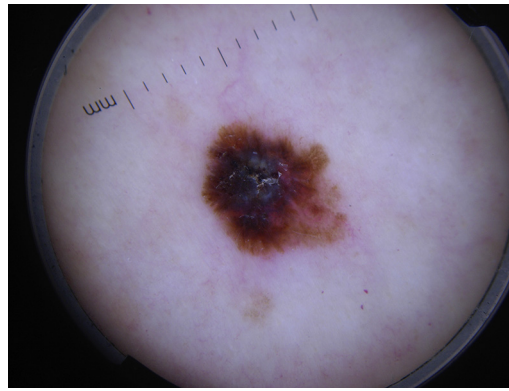

Fig. 1. Dermatoscopic image of invasive melanoma, which was detected by conventional ABCDE criteria.