DX ACROSS THE SKIN COLOR SPECTRUM

Early Infantile Hemangioma Diagnosis Is Key in Skin of Color

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A Mixed infantile hemangioma (IH) with both a violaceous to erythematous superficial component and a deeper palpable component on the scalp of a 5-month-old infant with a melanin-rich skin tone.

B Brightly erythematous superficial IH on the cheek of a 4-month-old infant with a lighter skin tone.

Photographs courtesy of Richard P. Usatine, MD.

Infantile hemangioma (IH) is the most common vascular tumor of infancy, appearing within the first few weeks of life and typically reaching peak size by age 3 to 5 months.[1] It classically manifests as a raised or flat bright-red lesion in the upper dermis of the skin and/or subcutaneous tissue and can vary in number, size, shape, and location.[2] It is characterized by a rapid proliferative phase, especially between 5 and 8 weeks of age, followed by gradual spontaneous regression over 1 to 10 years.[1-3]

IH are categorized based on depth (superficial, deep, or mixed) and distribution pattern (focal, multifocal, segmental, or indeterminate).[4] In most cases, complete regression occurs by age 4 years, but there can be residual telangiectasia, fibrofatty tissue, and/or scarring.[1,4] About 10% to 15% of IHs result in complications that require medical intervention (eg, visual, airway, or auditory compromise; ulceration; disfigurement); ideally, these patients should be referred to a specialist by 5 weeks of age.[4] Prompt assessment of IH severity is essential to prevent or mitigate potential complications and ultimately improve outcomes.[3] Social drivers of health contribute to delayed diagnosis and management of hemangiomas, leading to increased complications in some patient populations.[5-7]

Epidemiology

Infantile hemangiomas are estimated to manifest in 4.5% of infants in the United States.[1] The most common type is superficial IH, typically found on the head or neck.[5] Risk factors in infants include female sex, White race, premature birth, and low birth weight (< 1000 g).[1,3] Maternal risk factors include advanced gestational age (ie, > 35 years), multiple gestations, family history of IH, tobacco use, use of progesterone therapy during pregnancy, and pre-eclampsia.[1,3]

Focal IH typically manifests as a single localized lesion that can occur anywhere on the body.[2,3] In contrast, segmental IH manifests in a linear pattern and/or is distributed on a large anatomic area, most commonly on the face and less frequently the extremities and trunk.[2,3] Segmental IHs are more common in Hispanic patients and carry a higher risk for morbidity, often complicated by ulceration that can lead to functional and cosmetic challenges.[8]

Key Clinical Features

Superficial IH in patients with darker skin tones may appear as a dark-red or violaceous papule or plaque compared to bright red in lighter skin tones.[5] Deep IH may appear as a soft, round, flesh-colored or blue-hued subcutaneous mass, the color of which may be harder to appreciate in those with darker skin tones.[5]

Worth Noting

Complications from IH may require imaging, close follow-up, systemic therapy, multidisciplinary care, and advanced health literacy and patient/family navigation. Multifocal IHs (≥ 5 lesions) are more likely to be associated with infantile hepatic hemangiomas.[2,3] Large (> 5 cm) segmental IHs on the face and lumbosacral area require further evaluation for PHACES (posterior fossa malformation, hemangiomas, arterial anomalies, cardiac defects, eye anomalies, and sternal raphe/cleft defects) and LUMBAR (lower-body segmental IH; urogenital anomalies and ulceration; myelopathy; bony deformities; anorectal malformations and arterial anomalies; and renal anomalies) syndromes, which are more common in patients of Hispanic ethnicity.[2,3]

The Infantile Hemangioma Referral Score is a recently validated tool that can assist primary care physicians in timely referral of IHs requiring early specialist intervention.[4,9] It takes into account the location, number, and size of the lesions and the age of the patient; these factors help to determine which IHs may be managed conservatively vs

those that may require treatment to prevent life-threatening complications.[1-3]

Systemic corticosteroids historically have been the primary treatment for IH; however, in the past decade, propranolol oral solution (4.28 mg/mL) has become the first-line therapy for most infants requiring systemic management.[10] It is the only medication approved by the US Food and Drug Administration for proliferating IH, with treatment initiation as young as 5 weeks corrected age.[11] As a nonselective beta-blocker, propranolol is believed to reduce IHs through vasoconstriction or by inhibition of angiogenesis.[1,4,10]

For small superficial IHs, treatment options include timolol maleate ophthalmic solution 0.5% (one drop applied twice daily to the IH) or pulsed dye laser therapy.[4,10] Surgical excision typically is avoided during infancy due to concerns about anesthetic risks and potential blood loss.[4,10] Surgery is reserved for cases involving residual fibrofatty tissue, postinvolution scarring, obstruction of vital structures, or lesions in aesthetically sensitive areas as well as when propranolol is contraindicated.[4,10]

Health Disparity Highlight

Infants with skin of color and those of lower socioeconomic status (SES) face a heightened risk for delayed diagnosis and more advanced disease at the initial evaluation for IH.[5,7] Access barriers such as geographic limitations to specialty services, lack of insurance, underinsurance, and language differences impact timely diagnosis and treatment.[5,6] Implementation of telemedicine services in areas with limited access to specialists can facilitate early evaluation and risk stratification for IH.[12]

A retrospective cohort study of 804 children seen at a large academic hospital found that those of lower SES were more likely to seek care after 3 months of age than their higher SES counterparts.[6] Those who presented after 6 months of age also had higher IH severity scores compared to their counterparts with higher SES.[6] Delayed access to care may cause children to miss the critical treatment window during the rapid proliferative growth phase.[6,12] However, children insured through Medicaid or the Children's Health Insurance Program who participated in institutional care management programs (which assist in scheduling specialty care appointments within the institution) sought treatment earlier regardless of their SES, suggesting that such programs may help reduce disparities in timely access for children of lower SES.[6]

An epidemiologic study analyzing the demographics of children hospitalized across the United States demonstrated that Black infants with IH were more likely to belong to the lowest income quartile compared with White infants or those of other races. They also were 2 times older on average at initial presentation (1.8 vs 1.0 years), experienced longer hospitalizations (16.4 vs 13.8 days), and underwent more IH-related procedures than White infants and infants of other races (2.4, 1.9, and 2.1, respectively).[7]

These and other factors may contribute to missed windows of opportunity for timely treatment of high-risk IHs in patients with darker skin tones and/or those facing challenges stemming from social drivers of health.

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