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Infantile hemangiomas: Clinical report reflects multidisciplinary advice

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Prompt recognition and early referral of high-risk lesions are among the key points of a new multidisciplinary AAP clinical report on infantile hemangiomas (IHs).

In *Diagnosis and Management of Infantile Hemangioma*, published in the October issue of *Pediatrics* (2015;136:e1060-e1104; http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2015-2485), the authors provide evidence that large, plaque-like (segmental) IHs and those involving areas of moisture or friction (e.g. lips, perineum) are most likely to ulcerate and scar. Other lesions frequently associated with complications are those involving the eye (visual disturbance), other areas of the face (disfigurement), airway (airway obstruction) and liver (high-output cardiac failure and hypothyroidism).

The authors also present evidence that most IHs grow earlier and more rapidly than once thought, completing 80% of their growth by 5 months of age. They conclude that complications from IHs are best avoided through early referral and management of "high-risk" lesions.

Diagnostic insights, risk factors

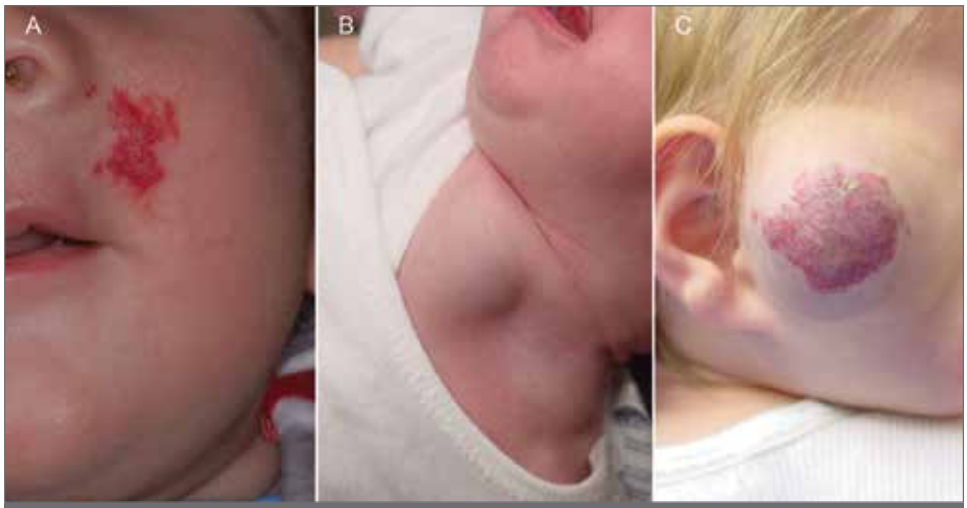
The report provides guidance in distinguishing IHs from other vascular lesions. In most cases, IH may be diagnosed based on history and clinical appearance alone. Most IHs have a rapid growth phase during infancy and a subsequent period of involution, whereas most other vascular lesions appear later, grow slowly or do not involute. When the diagnosis still is uncertain, biological markers specific for IH such as glucose transporter protein isoform 1 (GLUT1) are useful in making the diagnosis. The authors make a case for avoiding imaging in most instances, using ultrasound when necessary for diagnostic purposes and MRI to evaluate extent.

Known risk factors for IH include female gender, white race, prematurity, low birth weight, advanced maternal age, multiple gestation births, placenta previa and pre-eclampsia. Other risk factors may include in-utero diagnostic procedures (chorionic villus sampling and amniocentesis), use of fertility drugs or erythropoietin, breech presentation, and being first born. Although the pathogenesis of IH is not completely understood, the report suggests it may result from aberrant proliferation and differentiation of a pluripotent progenitor cell that migrates to locations in which conditions are favorable to growth of placenta-like tissue.

When to consider intervention

While many IHs involute without consequence, there are exceptions. The clinical report identifies four situations in which intervention may be a consideration: 1) emergency treatment of potentially life-threatening complications, 2) urgent treatment of existing or imminent functional impairment, pain or bleeding, 3) evaluation to identify structural anomalies potentially associated with IH, and 4) elective treatment to reduce the likelihood of long-term or permanent disfigurement.

There is no algorithm to determine the most appropriate intervention for IH, but factors affecting this choice include patient age, the growth phase of the lesion, the location and size of the lesion, the degree of skin involvement, the severity of and type of associated complications, the potential for adverse psychosocial consequences, parental preference, and physician experience.



Pediatrics. 2015;136:e1060-e1104

Cutaneous infantile hemangiomas (IHs) may be classified on the basis of their depth. A: Superficial IHs are visible only at the skin surface and may be focal (as shown) or segmental. B: Deep IHs have no surface involvement. C: Mixed, or compound, IHs have both superficial and deep components.

Medical therapy

Beta-blocker medications have largely supplanted steroids in the medical management of IHs, and the report details their use. The topical gel-forming formulation of ophthalmic timolol has shown efficacy in treating proliferating, small and superficial IHs and has few side effects. For IHs requiring systemic therapy, the drug of choice is orally administered propranolol, one formulation of which has received approval from the Food and Drug Administration for the management of IH (Hemangeol; Pierre Fabre, Castres, France). Dosing is at 1-3.4 mg/kg/day depending on the formulation, divided two to three times daily.

Blood pressure and heart rate should be monitored for two hours after the initial dose and significant dose increases, and patients should be followed for side effects such as hypotension, wheezing, hypoglycemia, bradycardia, sleep disturbance, cool extremities and diarrhea. The medication is continued through most of the growth phase, but there is some evidence that use of the drug even after 12 months of age may result in more rapid involution.

Other syndromes involving IH

The report includes discussions of syndromes involving IH (PHACE [**P**osterior fossa defects, **H**emangiomas, cerebrovascular **A**rterial anomalies, **C**ardiovascular anomalies including coarctation of the aorta, and **E**ye anomalies] and LUMBAR [**L**ower body IH and other cutaneous defects, **U**rogenital anomalies and ulceration, **M**yelopathy, **B**ony deformities, **A**norectal malformations and arterial anomalies, and **R**enal anomalies]); IHs in special anatomic locations (orbital area, nose, lips, airway, liver); and surgical considerations in IH management.

The report was the impetus for an AAP-authored request to the Agency for Healthcare Research and Quality for a systematic review of the literature on IH management. That document is in development.

Dr. Darrow, lead author of the clinical report and executive summary, is a former chair of the AAP Section on Otolaryngology – Head and Neck Surgery Executive Committee.

RESOURCE

Read an executive summary of *Diagnosis and Management of Infantile Hemangioma* at http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2015-2482.

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