DIFFUSE NEONATAL HEMANGIOMATOSIS PRESENTING AS BILATERAL IRIS HEMANGIOMAS IN AN INFANT

Stephen S. Couvillion, MD,* Charles C. Wykoff, MD, PrD,* Jacqueline L. Tutiven, MD,† Anne M. Schaefer, MD,‡ Timothy G. Murray, MD, FACS*

Purpose: To describe a case of diffuse neonatal hemangiomatosis presenting as bilateral iris hemangiomas.

Method: Case report.

Patient: A 2-month-old girl presented with bilateral enlarging red masses of her irises, congestive heart failure, and abdominal distension. The iris masses were diagnosed as hemangiomas, and she was found to have diffuse neonatal hemangiomatosis also involving her skin, liver, heart, and cerebellum.

Results: The patient’s systemic hemangiomas were successfully treated with four cycles of weekly intravenous vincristine (0.05 mg/kg/dose) with concurrent resolution of her right iris hemangioma within 6 weeks. The left iris lesion then regressed within 1 month following 1 subTenon injection of 20 mg of triamcinolone acetonide with residual iridocorneal adhesions at the site.

Conclusion: Diffuse neonatal hemangiomatosis should be considered in the setting of bilateral iris hemangiomas. Also, this case demonstrates that iris hemangiomas associated with diffuse neonatal hemangiomatosis may respond to systemic vincristine, and that periorcular steroids may be useful for treating iris hemangiomas that are unresponsive to systemic vincristine alone.

RETINAL CASES & BRIEF REPORTS 3:279–282, 2009

Diffuse neonatal hemangiomatosis (DNH) is a rare condition characterized by multiple hemangiomas involving at least three organs, most commonly the skin, gastrointestinal tract, lungs, and central nervous system. The hemangiomas are often small and may number in the hundreds. The lesions may be asymptomatic or lead to complications including congestive heart failure, hepatomegaly, and thrombocytopenia. Mortality rates have been reported to range from 60–90% within the first few months of life.1–3 Ocular manifestations include hemangiomas of the eyelid, conjunctiva, and uveal tract,4 and iris involvement has been associated with glaucoma.5 To the authors’ knowledge, this is the first reported case of DNH in which the initial clinical presentation was bilateral iris hemangiomas.

Case Report

A 2-month-old full-term, 6 kg girl presented with a 1-day history of an enlarging red mass in her right eye and a 2-week history of an enlarging red mass in her left eye. There was no significant
family history and no history of trauma. Ocular examination revealed apparent bilateral hyphema believed to represent atypical juvenile xanthogranulomatosis (Figure 1A, B).

Preoperative evaluation for examination under anesthesia revealed high output congestive heart failure and abdominal distension. Subsequent imaging studies revealed extensive liver lesions consistent with hemangiomas, cardiomegaly, and a probable right cerebellar hemangioma (Figure 2). The patient also had cutaneous lesions consistent with hemangiomas on her abdomen in the epigastric region, on her left arm and on her left inner thigh just below her groin. The patient was diagnosed with DNH without systemic evidence of Kasabach-Merritt syndrome. She was hospitalized and her cardiac performance was optimized using digoxin, furosemide, and captopril. The patient was initially treated with prednisone 4 mg/kg/d but after 1 month of therapy her hemangiomas were unchanged. Therefore, she was treated with 4 cycles of weekly intravenous vincristine at 0.05 mg/kg/dose without toxicity. Her hepatic, cerebellar, and cutaneous hemangiomas dramatically involuted with eventually near complete resolution of the lesions. Examination of the eyes 6 weeks after initiation of vincristine revealed the right iris hemangioma to have completely regressed (Figure 1C) and the left iris lesion to be unchanged. At the time of examination under anesthesia, there was no evidence of glaucoma in either eye. The left iris lesion was then managed with a posterior sub-Tenon injection of 20 mg of triamcinolone acetonide. One month follow-up revealed complete regression of the left iris lesions with residual iridocorneal adhesions at the site (Figure 1D). One- and 2-year follow-up examinations were unchanged.

Discussion

The differential diagnosis of apparent bilateral hyphema in a neonate includes trauma, inflammation, rubeosis, blood dyscrasias, vascular abnormalities, and neoplasms such as juvenile xanthogranuloma, medullopitheliomas, and retinoblastoma. DNH is a rare entity with approximately 67 previously reported cases, 8 of which have had documented unilateral iris hemangiomas.1,2,4–9 To our knowledge, this represents the first case of DNH which presented clinically as bilateral iris hemangiomas. Our patient’s visceral and right iris hemangiomas responded rapidly to systemic vincristine and the left iris hemangioma responded to the combination of vincristine and a posterior sub-Tenon injection of triamcinolone.
Surgical management of patients with DNH requires multidisciplinary perioperative care and close follow-up. When inhalation anesthesia is required, it should be used with caution due to its potential depressive effects on the myocardium. Treatment of DNH-associated hemangiomas is indicated for tumors that threaten vision or life.

Corticosteroids are the most commonly employed agents for treatment of hemangiomas. Response to systemic administration is highly variable and prolonged therapy beyond 8 to 12 weeks is common which may lead to significant side effects such as growth delay, insomnia, and adrenocortical imbalances. While fewer than half of hemangiomas shrink in response to treatment, if the tumor is responsive, cessation of growth or onset of involution is expected within 2 weeks.[10,11] Of note, hepatic lesions as seen in the current patient are generally less steroid responsive.[10] In comparison, corticosteroid administration locally is often effective for well-defined cutaneous and anterior orbital lesions; in a series of 25 patients, 84% showed a moderate or marked response.[12] Potential complications include hypopigmentation, local fat atrophy or eyelid necrosis, and central retinal artery embolization.

Interferon alpha 2a (IFNα2a), with antiangiogenic and antineoplastic properties, is effective and may result in a higher rate of actual shrinkage of lesions compared to corticosteroids. But potential severe side effects limit their use. For example, spastic diplegia was seen in 5 of 26 children treated with IFNα2a and in 3 of these patients’ paralysis was permanent.[13] Other reported treatments include cyclophosphamide, limited IFNα2a, surgical excision, embolization, laser photocoagulation, and radiotherapy.[10,14]

Systemic vincristine has emerged as a new potential therapy for hemangiomas. Its efficacy has been reported in the setting of the Kasabach-Merritt syndrome[15] and various reports have found it to be efficacious for large, endangering hemangiomas.[16,17] The usual dosage is 0.05 mg/kg in children less than 10 kg, or 1.5 mg/m² in infants greater than 10 kg, given intravenously on a weekly basis.[10] Unfortunately, central venous access is often necessary given its highly caustic nature. Potential complications include seizures, hemorrhage, and respiratory and biliary tract obstruction.[10,16] Further study is needed to determine the optimal treatment regimen for managing life- or function-threatening hemangiomas.

This case demonstrates that iris hemangiomas associated with DNH may respond to systemic vincristine, and that periocular steroids may be useful for treating iris hemangiomas that are unresponsive to systemic vincristine alone.

References