Clinical Article

Management of Ulcerated Deep Hemangiomas

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Abstract

Hemangiomas are proliferating vascular harmatomas that can be superficial or deep. The natural history of hemangiomas includes proliferative, stationary, and involutional phases. Most cases resolve with minimal sequelae. During the rapid growth phase, hemagiomas may ulcerate. Therapy includes daily local wound care, topical antibiotics, and systemic steroids. Our patient failed to improve with this therapy, and was taken to the operating room for surgical debridement and vascular dye laser treatment of the ulcerated lesions showing good response. The vascular dye laser should be considered in the treatment of ulcerated hemagiomas.
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Key words: congenital hemangioma, complications, laser treatment

Introduction

Hemangiomas are proliferating vascular hamartomas that can be superficial or deep. Superficial hemangiomas commonly present as small lesions in infancy and usually follow a benign course. The spontaneous regression rate is 80% to 85% by age 9 years.[1] However, hemangiomas can be large, produce skeletal overgrowth, or produce high output cardiac failure. They can also interfere with function, ulcerate and bleed, become infected, and cause significant cosmetic problems.[2]

Modes of treatment for large and deep lesions causing morbidity include systemic or intralesional corticosteroid therapy, interferon alfa 2a or 2b, and ligation and/or embolization of feeding vessels. Although some modes of therapy are effective in controlling the complications and promoting involution of the hemangioma, there is a significant associated morbidity.[3] Vascular dye laser surgery is a useful treatment modality for ulcerated lesions.

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Case Presentation

A 2½ month old was referred to our clinic for evaluation of a congenital hemangioma involving the entire left upper extremity. The patient was born to a 33-year-old mother gravida 3, para 2, via normal spontaneous vaginal delivery following an uncomplicated pregnancy. Birth weight was 3.75 kg. Physical examination at birth revealed a 2 cm hemangioma on the lateral aspect of the left arm. Over the course of 1 month, the hemangioma proliferated and ulcerated. At 1½ months of age, the hemangioma became infected and was treated with cephalexin and bacitracin ointment and silver nitrate 0.25% solution soaks. There was no significant improvement (Fig 1).

The patient was transferred to our institution and was started on prednisone 2 mg/kg per day. He did not improve and was admitted with the diagnosis of infected ulcerated hemangioma. Cultures from the ulceration were positive for *Pseudomonas aeruginosa*. The wound was debrided by whirlpool and the patient was started on ceftazidime and tobramycin. The ulcerated hemangioma was dressed twice a day with elase and silver sulfadiazine ointment. The patient failed to improve and was taken to the operating room for surgical debridement and vascular dye laser of the ulceration (Fig 2). He immediately respond to treatment and improved significantly (Fig 3). Once the infection was controlled he was again started on prednisone 2 mg/kg per day and was discharged. Parents were instructed to change the dressing twice daily, applying elase cream and using compressive wraps to cover the lesion. The patient was referred to an occupational therapist prior to discharge to avoid contractions of the arm secondary to the healing process. He was later seen by a plastic surgeon for surgical treatment of the skin contracture (Fig 4).

Discussion

Nascent hemangiomas usually present as small hypopigmented to pink patches on the skin. The lesions subsequently undergo proliferation. They are found in 2.6% of newborns and are seen in 12% of Caucasian children by 1 year. They have an equal frequency in premature and full-term infants, but are more common (23%) in low-birth-weight premature infants (less than 1000 g). This patient is a full-term infant that was born with a 2 cm red mark and was evaluated during the early proliferative phase.

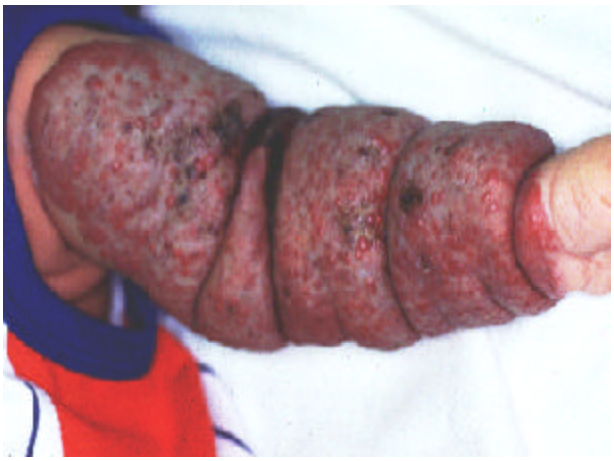

Fig 1.—Left upper arm congenital hemagioma.

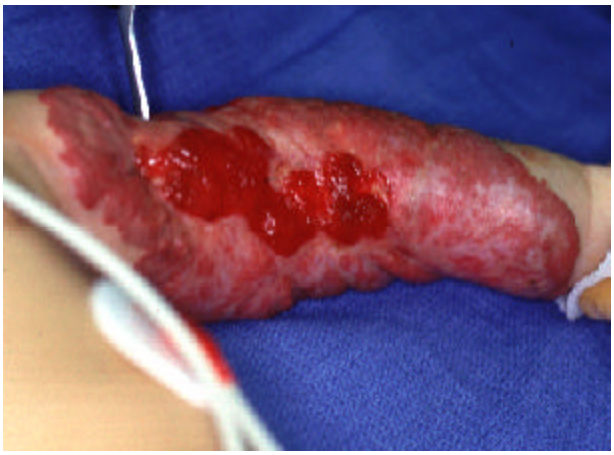

Fig 3.—After vascular dye laser treatment.

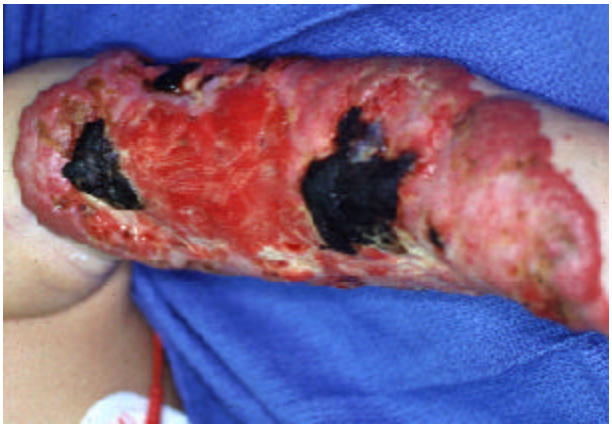

Fig 2.—Ulcerated congenital hemangioma before treatment.

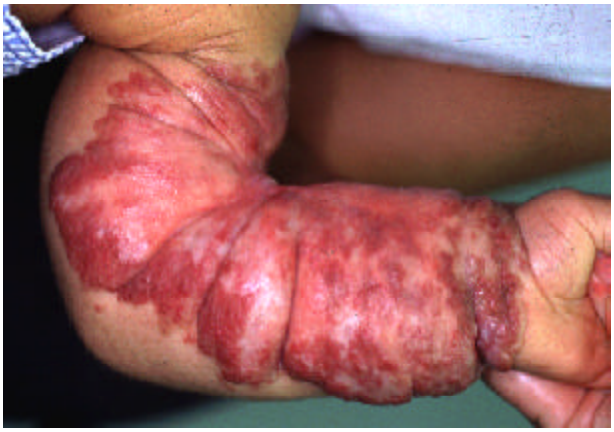

Fig 4.—Skin contractures after healing.

Proliferating hemangiomas in the superficial dermis appear bright red in color and are often raised, whereas proliferating hemangiomas in the lower dermis and subcutaneous tissue appear bluish in color. Hemangiomas may proliferate simultaneously in several organs, including the skin, gastrointestinal tract, liver, lung, or central nervous system, causing significant morbidity.[4]

Hemangiomas can be differentiated from vascular malformations in over 95% of infants by clinical history and physical examination without radiography or invasive procedures. Ultrasonography and magnetic resonance imaging (MRI) are useful to differentiate hemangiomas from deep lymphatic or venous malformations or malignant tumors. They are also used to determine the extent of anatomic involvement.[5] In this case, the ultrasound and MRI were consistent with a large hemangioma in the proliferative phase.

This patient presented with infected ulcerations that were not improving with local wound care. He showed significant improvement after vascular dye laser treatment, followed by systemic prednisone 2 mg/kg per day and local wound care with compressive dressings. The involuting phase is usually evident by 12 months of age. Signs of involution are superficial "greying," and decreased tension in the lesion. Complete resolution can be seen in 50% of children by age 5 years, and more than 70% by age 7 years, with continued improvement thereafter. Neither gender, race, site, size, duration of proliferation, nor clinical appearance seem to influence involution.[1]

Current management of hemangiomas include: (1) observe and wait for involution[6]; (2) pharmacologic therapy which includes systemic corticosteroids, intralesional triamcinolone for small lesions, and interferon alfa-2a or 2b[3,7,8]; (3) embolic therapy or chemotherapy (cyclophosphamide or vincristine) for "life-threatening" hemangiomas unresponsive to standard drug therapy[9]; (4) laser therapy (pulsed-dye for early superficial lesions or for ulcerated lesions)[10]; and (5) surgical resection.[10]

Morelli et al[11] reported the effect of pulsed dye laser on ulcerated hemangiomas. Of significance was their finding that pain, which is inherent in this lesions, disappeared after the first treatment in 6 of 10 hemangiomas. In addition two healed after the first two treatments and the remaining two healed after three treatments. Achauer et al[12] on a retrospective study in a total of 245 patients demonstrated statistical significance between treatment groups, laser therapy was shown to be statistically superior to observation with regard of length of treatment and with regard to outcomes of volume and texture.

Our case showed marked improvement after vascular dye laser treatment of the ulcerated lesions as shown in the figures. The patient also required systemic steroid treatment for several months. In the management and evaluation of hemangiomas, it is advantageous, if not imperative, to apply a multidisciplinary approach. The patients benefit most from a cooperative team of physicians, including the pediatrician, dermatologist, plastic surgeon, radiologist, and pathologist.

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