depth of ulceration appeared to extend to subcutaneous tissue, without any visible evidence of hemangioma at the ulcer base, and it is possible that the proliferative potential of the lesion had been destroyed by the ulceration itself. In addition, the patient was receiving therapy with systemic steroids at the time the medication was used. This may have blunted any potential stimulatory effect of becaplermin on the hemangioma by contributing to the down-regulation of PDGF, an effect that has been demonstrated in at least 1 case of a hemangioma treated with intralesional corticosteroid. In addition, other factors, such as antibiotics and more aggressive wound care while in the hospital, may have contributed to more rapid healing of the ulceration.

Finally, an intriguing (though unproven) possibility is that the granulation tissue promoted by becaplermin arises through a different angiogenic pathway than the hemangioma itself. There is evidence for biological differences among granulation tissue, hemangioma tissue, and chronic wounds at the molecular level. For example, the erythrocyte-type glucose transporter protein (GLUT-1) is highly expressed in endothelial cells of hemangiomas of infancy but is absent from other benign vascular proliferations including granulation tissue. In addition, PDGF expression is down-regulated in chronic compared with acute wounds. Thus, becaplermin might act specifically to promote the healing of the ulcerated portion of the hemangioma without stimulating proliferation of the tumor vasculature.

Our case illustrates that becaplermin may be useful in the treatment of ulcerated hemangiomas that have not responded to conservative therapy. Although we remain concerned about the possibility that becaplermin could stimulate hemangioma growth, its use may be considered in cases of ulcerated hemangiomas that have the potential for significant morbidity and have failed conventional treatment.

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Editorial Comment: Hemangiomas are the most common tumor of infancy, developing in 4% to 10% of neonates. Most are uncomplicated and appropriately managed with monitoring and counseling, anticipating eventual spontaneous involution with acceptable outcome. However, a significant minority of infants develop associated complications. While caregivers are often concerned about the potential for bleeding, hemorrhage is not common, although disfigurement and ulceration are. These complications often pose a considerable therapeutic challenge. The pain associated with ulceration can be significant enough to disrupt family life. Ulceration is a nidus for infection and precursor to an inevitable scar. Sugarman et al present a particularly challenging case and a novel approach to treatment with commercially available recombinant human platelet-derived growth factor-BB (bepaclemarin [0.01% Regranex gel]). This product is approved for the treatment of lower extremity diabetic neuropathic ulcers.

Becaplermin is not approved for use in children, but absorption has been minimal in adult studies. The rationale for using becaplermin in this case was to promote tissue repair and wound healing. Although this infant’s refractory ulceration responded rapidly after initial application of becaplermin, other variables may have played an important role in wound healing, including hospitalization, more aggressive wound care, intravenous antibiotics, and adequate pain control. Anyone considering this treatment should heed the authors’ concerns about the potential to stimulate hemangioma growth.

Elaine Siegfried, MD
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REFERENCES


Clinicians, local and regional societies, residents, and fellows are invited to submit cases of challenges in management and therapeutics to this section. Cases should follow the established pattern. Submit 4 double-spaced copies of the manuscript with right margins nonjustified and 4 sets of the illustrations. Photomicrographs and illustrations must be clear and submitted as positive color transparencies (35-mm slides) or black-and-white prints. Do not submit color prints unless accompanied by original transparencies. Material should be accompanied by the required copyright transfer statement, as noted in “Instructions for Authors.” Material for this section should be submitted to George J. Hruza, MD, Laser and Dermatologic Surgery Center Inc, 14377 Woodlake Dr, Suite 111, St Louis, MO 63017. Reprints are not available.