

Case Letter

Ultrasonography in the Management of a Recurrent and Eruptive Lobular Capillary Hemangioma and Resolution With Intense Pulsed Light

To the Editor:

Lobular capillary hemangioma (LCH) is one of the most common acquired vascular neoplasms. It occurs most commonly as a cutaneous tumor, though it also presents on mucosal membranes. When it involves the skin and mucosal surfaces, ulceration and suppuration may occur, hence the classic term *pyogenic granuloma*.¹ An isolated, papular or nodular, pedunculated, purplish red lesion with a peripheral desquamative ring is the usual clinical presentation. Histologic evaluation is recommended because malignant tumors, such as melanoma, might mimic these lesions. Lobular capillary hemangioma usually appears spontaneously, but several predisposing factors have been related with the appearance of these lesions, including traumatic events, burns, localized viral infections, insect bites, prior dermatitis, preexistent vascular malformations, and prior laser treatment.²⁻⁴ It has been suggested that LCH may develop in areas where there is an underlying vascular abnormality that may predispose to the development of the angiomatous proliferation.⁵ Several treatment alternatives for LCH have been described, including surgical excision, curettage, cryotherapy, chemocauterization and electrocauterization, and lasers.² The recurrence as multiple lesions is termed *pyogenic granuloma with satellitosis*. Several variants of LCH have been described, with rare types including subcutaneous and intravenous lesions.^{6,7} Sporadic reports have shown that ultrasonography may be a valid help in diagnosing these rare types.^{7,8} We report a case of recurrent and eruptive LCH following the treatment of the primary lesion using ultrasonography.

A 30-year-old woman was referred to our department for a reddish pedunculated lesion measuring 1.5 cm in diameter on the back of the neck. The lesion developed within 5 months and was characterized by a tendency to bleed profusely after minimal trauma. On physical examination, one asymptomatic angiomatous papulonodular lesion on the back of the neck was present. No other similar lesions or other relevant skin lesions were detected on the body surface area. Furthermore, no evidence of lymphadenopathy, hepatosplenomegaly, or systemic illness was identified. On dermoscopic examination, a red homogeneous area with white zones and white "rail lines" that intersected the lesion were appreciated. A white collarette that partially surrounded the lesion also was observed (Figure 1). Our diagnosis was LCH. We performed ultrasonography, which demonstrated light hypervascularization and prompted a shave biopsy of the lesion by electrocauterization with histopathologic assessment (Figure 2). The specimen showed typical features of LCH, such as a vascular proliferation located in the papillary and reticular dermis that was surrounded

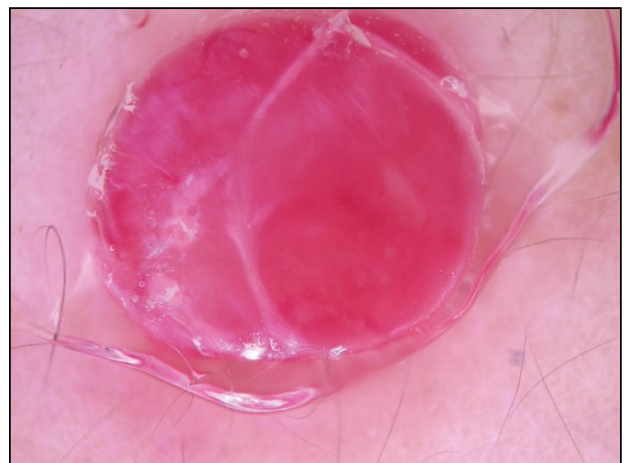


Figure 1. Dermoscopic examination showed a red homogeneous area with white zones and white "rail lines." A white collarette also was noted (original magnification $\times 10$).

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by an edematous stroma with infiltration of lymphocytes. Erythrocyte extravasation also was observed. Five months after the shave biopsy, the patient suddenly experienced a recurrence of the lesion and developed additional vascular satellite lesions. On clinical examination, 34 firm red papules measuring 1 to 3 mm in diameter on the back of the neck were present (Figure 3A). To better understand the vascularization underneath the lesions, cutaneous ultrasonography was executed. Lesions were moderately echogenic with small hypoechoic areas within them. Axial color Doppler imaging showed hypervascularization, both arterious and venous, through the papillary and reticular dermis (Figure 4A). As a consequence, we decided to surgically excise the bigger lesion with a portion of the vascularization at the base and to perform histopathologic examination, which confirmed the prior diagnosis of LCH. Cutaneous ultrasonography was performed again to check for any changes after the surgery. Axial color Doppler imaging showed a decrease in hypervascularization that involved the papillary dermis only (Figure 4B). Intense pulsed light (IPL) treatment (cutting filter of 570 nm; energy fluency of 45 W/cm²; a double pulse of 3 milliseconds; delay between pulses of 20 milliseconds) was performed. After 2 treatment sessions separated by 6 weeks, excellent cosmetic results were recorded (Figure 3B). One year later, no recurrences were registered.

Lobular capillary hemangioma mainly occurs on the cutaneous and mucosal surfaces of exposed areas such as the face, hands, and arms. The term was introduced in 1980 to characterize the histopathologic appearance, an active endothelial cell proliferation resulting in lobules of capillaries separated by septa of connective tissue.⁹ The recurrence as multiple lesions also is known as pyogenic granuloma with

satellitosis, with multiple satellite lesions around the cicatricial area due to treatment of the primary lesion.⁵ This rare phenomenon usually involved patients aged 13 to 20 years with lesions located on the back or in the scapular area.¹⁰ Several treatments of satellitosis have been described, including no treatment¹¹ because it is a benign process with spontaneous involution usually occurring at 6 to 12 months, surgical excision, curettage and electrocauterization of the basis,¹² CO₂ laser,¹³ compression, cryotherapy, and systemic steroids.¹⁴ Controlled studies should be conducted to elucidate the recurrence index of LCH after different modalities of treatment.

The exact physiopathologic mechanisms of satellitosis are unknown; it usually occurs after a

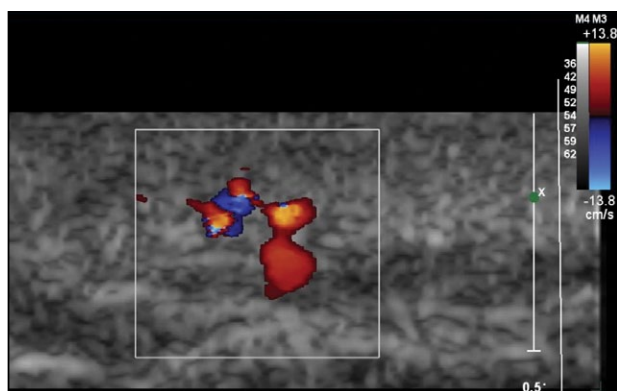


Figure 2. Ultrasonography of the primary lesion.



Figure 3. Recurrent and eruptive lobular capillary hemangiomas were present on the back of the neck 5 months after they were originally treated (A). They resolved with intense pulsed light therapy (B).

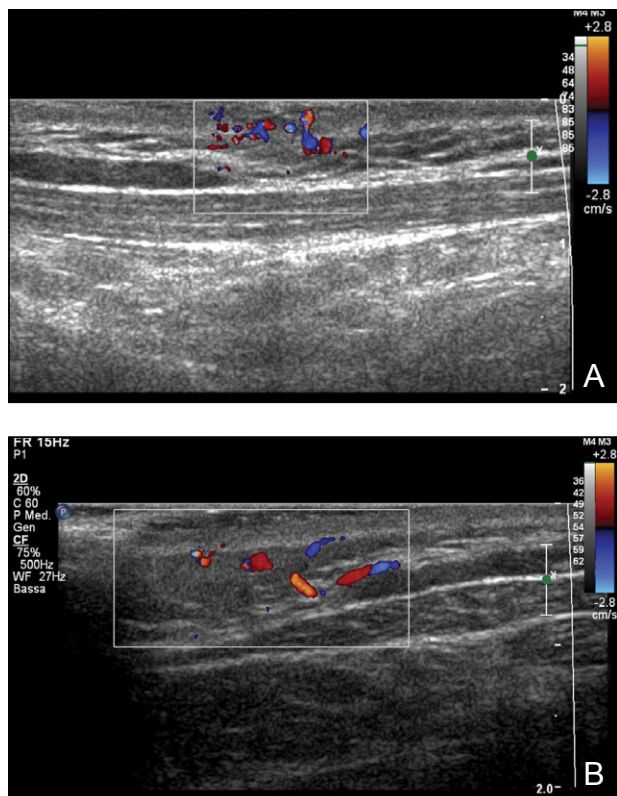


Figure 4. Axial color Doppler imaging showed hypervascularization within the satellitosis (A), and a decrease in hypervascularization was seen after surgical excision (B).

traumatic antecedent, and the liberation of pro-angiogenic factors likely is a relevant pathogenic event. Surgical excision induces no selective tissue damage; after the ablation of the epidermis and superficial dermis, by similar mechanisms to those applied in wound repair, liberation of a potent mitogen for endothelial cells such as vascular endothelial growth factor might occur.¹⁵ One study reported a recurrence rate of 5.05% for LCH after surgical management, including surgery, curettage, shave excision with or without cauterization or cauterization alone, and shave excision with laser photocoagulation. Although the recurrence rate is low, surgical treatment may represent a risk factor for satellitosis.¹⁶

Lobular capillary hemangioma usually is excised without performing imaging studies. In our case, ultrasonography of the lesion was a useful technique to address the right treatment of the recurrence, providing information on the underneath vascularization. Axial color Doppler imaging also was helpful because it prompted us to perform a deeper surgical excision due to hypervascularization, both arteri-ous and venous, through the papillary and reticular

dermis. We performed IPL treatment when hyper-vascularization decreased and involved the papillary dermis only. Intense pulsed light treatment was chosen for its ability to induce a more selective vascular coagulation of the dermis without ablation of the epidermis and liberation of proangiogenic factors. Excellent cosmetic results were achieved in our case and Paradelo et al⁵ reported satisfactory treatment of recurrent LCH with IPL.

Cutaneous ultrasonography is a useful technique in the management of recurrent and eruptive LCH. Furthermore, we suggest that IPL may be a valid treatment of recurrent LCH with good cosmetic results.

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