Atrophoderma vermiculata is a rare genodermatosis that presents as an inflammatory follicular atrophy. The morphologic hallmark is a "worm-eaten" or "honey-combed" reticular atrophy of the skin typically localized at the cheeks, preauricular regions, and temples. Rarely, patients may experience the characteristic lesions on the extensor surfaces of the arms and legs. In addition to the follicular atrophic scars, generalized facial erythema, sparse open and closed comedones, and milia can be found. The underlying pathologic defect appears to be an abnormal keratinization of the pilosebaceous unit. This condition generally has its onset in childhood, although some cases arising during puberty or adulthood have been seen. The course is generally one of slow progressive worsening; however, instances of spontaneous regression have also been reported. As treatment options for this mostly cosmetic condition, a variety of therapeutic modalities have been used, including dermabrasion, cryotherapy, ultraviolet light radiation, and several topical medications. This article describes our experience in the successful treatment of 2 patients with atrophoderma vermiculata using the carbon dioxide (CO₂) and 585 nm pulsed dye lasers.

CASE REPORTS
Case 1
A 20-year-old woman presented with generalized erythema of the face and irregular atrophic scars in a honeycomb pattern at her lateral cheeks and temples (Fig 1, A). No papules or pustules were present, but the patient reported a history of acne that was controlled by topical antibiotics. No other family members were similarly affected.

Full face resurfacing was performed by means of a high-energy, pulsed CO₂ laser (Coherent Ultrapulse, Santa Clara, Calif). Two laser passes were delivered to the entire face at 300 mJ energy and 60 W power through an 8-mm² scanning handpiece and # 6 density. Partially desiccated skin was removed with saline-soaked gauze after each laser pass. Immediately after surgery, the laser-irradiated skin appeared pale pink without bleeding. Postoperative wound care included frequent application of Aquaphor ointment (Beiersdorf, Inc, Norwalk, Conn) and ice packs for the first 72 hours with subsequent gentle steaming, dilute acetic acid compresses, and Bi02 healing balm (Bi02 Cosmeceuticals, Beverly Hills, Calif) until reepithelialization was complete (7 days). Significant lesional improvement was apparent 6 months later with complete loss of the honeycombed skin appearance and reduced erythema and depth of scarring (Fig 1, B). These changes were maintained on further follow-up at 12 months.

Case 2
A 31-year-old woman presented with intense erythema of her cheeks and chin, scattered papules, and numerous well-defined pitted follicular scars in a reticulate pattern (Fig 2, A). The lesions had first been noted 10 years earlier, with progressive worsening through the years and upon exposure to extreme temperature changes. No other family member was known to have experienced a similar skin condition. The patient had received treatment with topical metronidazole resulting in good control of the papular component of her condition, but without any effect on the underlying erythema and follicular atrophy.

Because the erythematous aspect of her facial lesions was most pronounced, vascular-specific 585 nm flashlamp-pumped pulsed dye laser treatments
DISCUSSION

Atrophoderma vermiculata is characterized by erythema and reticulate atrophic scarring of the face and is categorized as a follicular syndrome with inflammation and atrophy. Additional entities of the same group are keratosis pilaris atrophicans faciei and keratosis follicularis spinulosa decalvans, which can be distinguished from atrophoderma vermiculata by location, degree of inflammation, mode of inheritance, and histologic pattern. Each of these diseases manifests in early infancy and runs a chronic course with only rare spontaneous regression seen. Their common pathologic features are follicular dilation, hyperkeratosis, and ultimate follicular destruction. Patients with atrophoderma vermiculata are often psychologically affected by their obvious facial lesions and thus are compelled to seek cosmetically effective treatment. Because there are no causative therapeutic modalities available, palliative treatment has been attempted with topical steroids,
tretinoin creams, and systemic retinoids. More aggressive treatment modalities include cryotherapy, dermabrasion, and laser therapy.

In the first case described, the primary cutaneous manifestation was atrophic scarring. Laser vaporization of atrophic scars with pulsed and scanned CO$_2$ lasers has been shown to improve the clinical appearance of atrophic scars by providing removal of fibrotic tissue and the opportunity for re-epithelialization and neocollagenesis.$^5$ In addition, heat-induced collagen shrinkage is effected with progressive collagen remodeling over several months, serving to further enhance the clinical effect.$^6$

In the second patient, the predominant clinical feature was intense facial erythema with follicular accentuation. A vascular-specific 585-nm flashlamps-pumped pulsed dye laser was thus used to achieve vessel destruction through selective photothermolysis. In addition, pulsed dye laser irradiation of various inflammatory and scarred conditions$^7-10$ has been shown to cause a limited degree of collagen remodeling, which could also account for the favorable and long-standing results obtained in this case.

In conclusion, the two cases of atrophoderma vermiculata described herein exemplify the variable clinical manifestations and different treatment approaches that can be applied to cause favorable cosmetic outcomes in patients in whom limited therapeutic modalities previously existed. Future use of these and other combination treatments may also serve to enhance results and speed postoperative recovery.

REFERENCES