Treatment of Granuloma Faciale With the 585-nm Pulsed Dye Laser

Christie T. Ammirati, MD; George J. Hruza, MD; Division of Dermatology, Washington University School of Medicine, St Louis, Mo

The Cutting Edge: Challenges in Medical and Surgical Therapeutics

REPORT OF A CASE

A 41-year-old white man with a long history of acne rosacea was referred for evaluation of a persistent erythematous lesion on his nose. The lesion had been present for 2 years and had proved resistant to topical and oral antibiotic therapy. Examination of the patient's face revealed malar erythema, scattered acniform papules, and an absence of comedones, consistent with mild acne rosacea. On the dorsum of the nose, there was a discrete 2-cm, reddish-brown, indurated plaque with prominent telangiectasias (Figure 1). The clinical differential diagnosis included granuloma faciale, sarcoidosis, and discoid lupus erythematosus. Histopathologic findings were consistent with granuloma faciale and revealed a mixed infiltrate in the papillary and reticular dermis composed of neutrophils, eosinophils, plasma cells, lymphocytes, and monocytes. There was an overlying Grenz zone noted, as well as associated leukocytoclastic vasculitis.

THERAPEUTIC CHALLENGE

Granuloma faciale is a benign granulomatous process that is frequently resistant to therapy. Multiple medical and surgical modalities have been suggested, but none have been consistently efficacious. The prominent facial location of this lesion required that the posttreatment residual be cosmetically acceptable as well. Our challenge was to treat this patient's persistent and disfiguring lesion effectively, yet minimize the risk for scarring, dyspigmentation, or systemic adverse effects.

SOLUTION

The 585-nm pulsed dye laser is the treatment of choice for a variety of vascular lesions. It uses the concept of selective photothermolysis to target the oxyhemoglobin within blood vessels, while minimizing collateral damage. The reddish-brown color and prominent telangiectasias of granuloma faciale suggested that it might be amenable to treatment with this laser.

The lesion underwent 2 treatments, spaced 2 months apart, with a flashlamp-pumped pulsed dye laser (SPTL-1b; Candela Laser Corp, Wayland, Mass). A wavelength emission of 585 nm and a pulse duration of 450 microseconds were used. The treatments were performed with 5 mm minimally overlapping spots at 8.0 J/cm² for the first treatment and 8.5 J/cm² for the second treatment. No anesthesia was needed and there was no significant postoperative discomfort. Follow-up 2 months after the second pulsed dye laser treatment (Figure 2) and at 6 years (Figure 3) confirmed clinical eradication of the lesion without scarring or pigmentary change.

COMMENT

The term granuloma faciale was first coined by Pinkus in 1952. Formerly, this rare cutaneous disorder had been called eosinophilic granuloma of the skin. While granuloma faciale has been reported in children and adult women, the typical patient is a middle-aged white man. Clinically, granuloma faciale presents as a reddish-brown or violaceous plaque on the face, often with follicular accentuation and superficial telangiectasias. The sites of predilection are the sides (30%) and tip (7%) of the nose, preauricular area (22%), cheeks (22%), forehead (15%), tip of the nose (7%), and helix of the ear (4%). Extrafacial granuloma faciale has also been reported but is rare. The clinical differential diagnosis includes sarcoidosis, discoid lupus erythematosus, lymphocytic infiltrate of Jessner, polymorphous light eruption, rosacea, lymphoma, histiocytosis X, erythema elevatum diutinum, infectious granuloma, and basal cell carcinoma. Histologically, granuloma faciale displays a dense polymorphous infiltrate of the upper two thirds of the dermis. Eosinophils may be present but are not essential for diagnosis. There is sparing of the epidermis, with a notable Grenz zone and a leukocytoclastic vasculitis in the upper dermis. Response to therapy is variable. Medical modalities that have been proposed include colchicine, dapson, antimalarials, gold injections, isoniazid, clofazimine, topical psoralen with UV-A, and corticosteroids in topical, intralesional, and systemic...
forms. None of them have been consistently effective, and a large proportion of them have substantial well-known adverse effects, such as hemorrhagic gastroenteritis, blood dyscrasias, oculotoxicity, nephrotoxicity, peripheral neuropathy, skin discoloration, actinic damage, atrophy, and adrenal suppression.

Surgical treatments have included wide excision, cryotherapy, radiation, electrodesiccation with and without curettage, and dermabrasion. These modalities have been used with varying degrees of success, and all pose a significant risk for permanent pigmentary changes and scarring.

One of the first lasers used to treat granuloma faciale was the carbon dioxide laser. This infrared laser vaporizes tissues in a nonselective manner and has the associated risks of hypopigmentation and scarring. Wheeless et al. reported the successful treatment of granuloma faciale with this laser. Other investigators, however, were unable to reproduce their results. In a side-by-side comparison of electrocautery, carbon dioxide laser, and dermabrasion, Dinehart et al. noted a recurrence in all 3 sites at 1 year. Also, the argon laser was thought to be a promising treatment for granuloma faciale. Apfelberg et al. reported total and complete resolution of granuloma faciale with the argon laser, but their treatment was complicated by a white collagenous scar.

The pulsed dye laser, with a wavelength of 585 nm and a pulse duration of 450 microseconds, is highly effective for the selective destruction of vascular lesions, especially pediatric port-wine stains, superficial hemangiomas, and telangiectasias. Its unsurpassed safety profile and efficacy are attributable to its ability to achieve selective photothermolysis. The 585-nm pulsed dye laser emits energy that is strongly absorbed by oxyhemoglobin, and its 450-microsecond pulse duration is shorter than the 1- to 5-microsecond thermal relaxation time of blood vessels 50 to 100 μm in diameter.

In the case presented herein, the lesion had a distinct reddish-brown hue and prominent telangiectasias, which suggested that it might respond to the 585-nm pulsed dye laser. The result was persistent clinical eradication of the lesion without evidence of scarring or pigment change at the 6-year follow-up. Since the time that our patient was treated, the short-pulsed or scanned carbon dioxide and erbium:YAG lasers for skin resurfacing have been added to the surgeon’s armamentarium. It is our belief that these lasers, with their precise depth control, may also provide safe and effective treatment options for granuloma faciale. Further studies will be needed to confirm this.

In summary, we report a case of granuloma faciale on the nose of a white man that was successfully treated by the 585-nm pulsed dye laser. Because of the noninvasive nature of this laser, there was minimal postoperative discomfort and no complicated wound care. Persistent clinical eradication for 6 years was achieved without scarring, permanent pigmentary alteration, or systemic morbidity. The 585-nm pulsed dye laser provided safe and effective treatment for this often-resistant lesion and warrants further investigation on a larger scale.

REFERENCES