Successful treatment of multinucleate cell angiohistiocytoma with fractionated ablative CO_2 laser

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INTRODUCTION

Multinucleate cell angiohistiocytoma (MCAH) is a rare and benign fibrohistiocytic and vascular proliferation.[1,2] MCAH is characterized by well-circumscribed red-brown dome-shaped papules often presenting on the hands, wrists, face, and legs with a higher prevalence in women.[3] Lesions are composed of proliferation of dilated capillaries and small vessels in the papillary to mid dermis, fibrous stroma with thickened collagen bundles, and presence of multinucleated giant cells.[1,3] The overlying epidermis may be normal or hyperplastic.[3]

MCAH lesions progress slowly, but spontaneous resolution is uncommon.[3] Treatment modalities used for MCAH include topical or intralesional corticosteroids, surgical excision, cryosurgery, and laser therapy, and lesions are often refractory to treatment.[2]

Ablative CO_2 laser and vascular selective lasers including argon and pulsed dye laser (PDL), and intense pulsed light (IPL) have been used for treatment of MCAH.[2] Fractionated ablative CO_2 laser combines the ablative properties with the rapid wound healing; hence, MCAH patients may benefit from treatment with fractionated ablative CO_2 laser. Here we describe a patient with MCAH successfully treated with fractionated ablative CO_2 laser.

Abbreviations used:

IPL:	intense pulsed light
MCAH:	multinucleate cell angiohistiocytoma
PDL:	pulsed dye laser

CASE REPORT

A 59-year-old dentist of Middle Eastern origin with Fitzpatrick skin type IV presented with an 8-year history of pruritic lesions on the dorsum of hands. Physical examination found several well-circumscribed firm violaceous papules and plaques measuring 1 to 4 cm with smooth surfaces (Fig 1). A review of symptoms and the patient's medical history was otherwise noncontributory. Punch biopsy of the lesions showed multinucleate cell angiohistiocytoma, with increased numbers of dilated blood vessels, multinucleated cells, and thickened collagen bundles within the dermis. He had been treated unsuccessfully with intralesional and topical triamcinolone, cryosurgery, and 3 sessions of 595-nm PDL. After 4 monthly sessions of fractionated ablative CO_2 laser (Lumenis Ultrapulse, Lumenis, San Jose, CA) with 25% density, 30 J/cm^2, 300 Hz followed by triamcinolone (40 mg/mL rubbed into the treated areas), the MCAH lesions showed significant flattening and improvement in color. The patient reported significant improvement in appearance, elevation, and pruritus component of his lesions. The endpoint of each treatment was pinpoint bleeding. Treatment sessions were conducted 1 month apart to allow for adequate healing between treatments. Treatment stopped after 4 sessions based on the patient's satisfaction with clinical response. Results were sustained at 3 months' follow-up after the last session (Fig 2). Residual hyperpigmentation was present, which is a common temporary side effect in patients with darker skin types.

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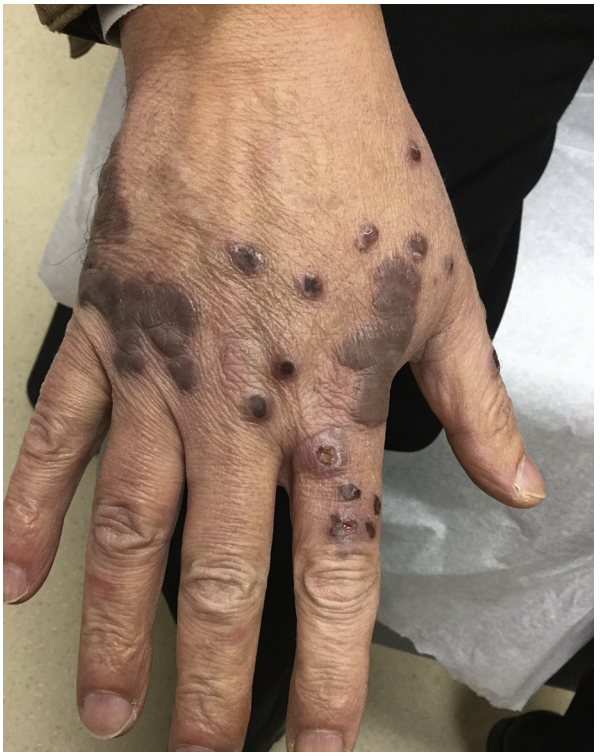

Fig 1. Multinucleate cell angiohistiocytoma before treatment.

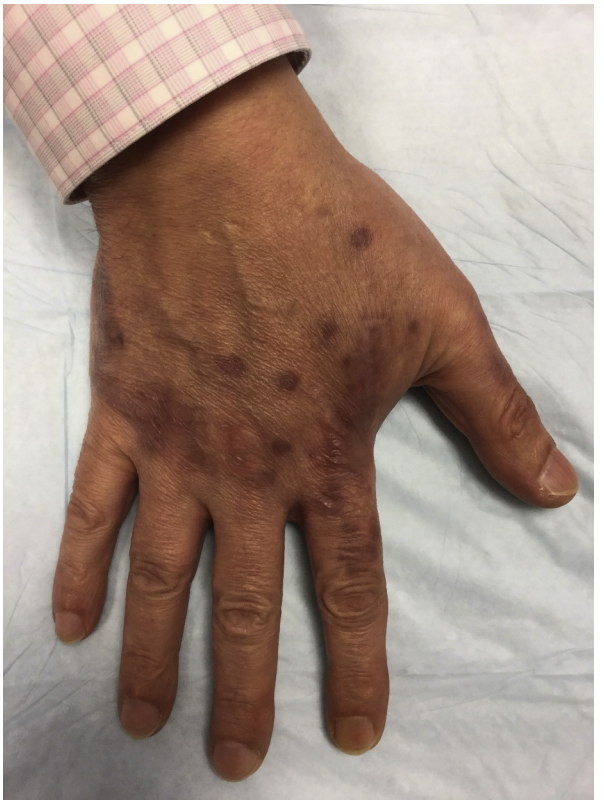

Fig 2. Multinucleate cell angiohistiocytoma 3 months after last treatment with fractionated ablative CO_2 laser shows sustained improvements in appearance of lesions and associated pruritus.

DISCUSSION

MCAH is a new entity with less than 150 cases reported since 1985.[3] There is no consensus regarding the etiology of the MCAH, and it has been categorized as connective tissue disorder or vascular neoplasia in literature. Therefore, surgical approach remains as the definitive therapeutic method in MCAH. Laser therapy is reported to result in clinical resolution of the lesions without scarring in comparison with surgical excision.[4]

Kopera et al[4] reported the successful use of the argon laser to treat 2 patients with a 2- to 3-year history of MCAH. Lesions measured 2 to 5 mm and were located on the face and hands. Increased vascularity in the mid dermis with normal epidermis was noticed. Dermal fibrosis was not reported. Laser treatment yielded to flattening of the lesions with no scarring at 8 weeks and no recurrence after 1 year. Sass et al[5] reported on a patient with a 4-year history of MCAH lesions on the thighs and calf that measured 2 to 10 mm. Increased vascularity in the reticular dermis with moderate epidermal hyperplasia and thickening of the dermal collagen bundles were noticed. Treatment with argon laser resulted in fading of these lesions without complete regression. Coco et al[6] reported on a patient with a 5-year history of multiple papules on the lower extremities. Lesions showed proliferation of vessels in the papillary and mid dermis with moderate degree of dermal fibrosis. Treatment with argon laser was unsuccessful.

IPL has been reported as a definitive treatment in 2 cases.[3,7] Lesions appeared as papules on the nose and back with a 3-year history in 1 case. Lesions in either case had increased vascularity without fibrosis. Complete resolution was achieved in both cases, with residual hyperpigmentation reported in 1 case.

Richer and Lui[8] reported on a patient with a 4-year history of MCAH papules affecting the face that were treated with PDL monotherapy. Histologic examination before treatment found vascular proliferation. Fibrosis was not reported. At 8-year follow-up, the initial lesion was completely cleared. An earlier report of treatment using PDL in a patient with a 5-year history of multiple MCAH papules on the thighs and calves had merely shown mild improvement.[9] These lesions showed slight vascular proliferation and dermal fibrosis before treatment.

Väkevä et al[10] reported treatment of 2 cases of MCAH with the CO_2 laser. These lesions were present for 6 months to a year and showed increased

vascularity in papillary and mid dermis with slight hyperkeratosis in the epidermis and sparse fibrohistiocytic cell infiltration. No relapse was noted at 2.5- or 5-month follow-up.

Reported cases of laser therapy in MCAH show a similar pattern in association of dermal fibrosis with response to laser therapy, particularly the vascular selective lasers. Systematic analysis of 142 MCAH cases by Frew[3] showed that MCAH might be inflammatory and vascular in the initial origin, but fibrosis plays an important role in the pathogenesis, particularly toward the progression of the disease. Whereas argon laser, PDL, and IPL solely target the increased vascular component in MCAH lesions, ablative lasers like the CO_2 laser retain superior ability in remodeling the fibrous stroma along with ablation of vessels and other proliferated tissue components in MCAH. The fractionated ablative CO_2 laser combines the ablative properties with the rapid reepithelialization and accelerated wound healing. Therefore, it could have potential use in treatment of the MCAH lesions with hyperkeratotic epidermis and higher degrees of dermal fibrosis that tend to be nonresponsive to vascular selective lasers.

Despite the failure of previous attempts with PDL and cryosurgery in our case, fractionated ablative CO_2 laser was well tolerated and provided a satisfactory cosmetic result. Clinical appearance and pathologic analysis of the lesions might be helpful for choosing the appropriate laser with a preference for fractionated ablative CO_2 laser in lesions with considerable fibrous compartment. Use of fractionated ablative CO_2 laser presents a possible treatment alternative for patients with MCAH. Future studies with larger samples are needed to compare the effect of different treatment modalities in MCAH patients.

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