CASE REPORT

Treatment of Facial Lesions of Multicentric Reticulohistiocytosis by Carbon Dioxide Laser

The carbon dioxide (CO_2) laser is a versatile tool that has applications in ablative lasing and caters to the needs of routine dermatological practice as well as the esthetic, cosmetic, and rejuvenation segments. We report a case of multicentric reticulohistiocytosis with cosmetically disfiguring confluent papules over the scalp, forehead, nasolabial folds, chin, and retroauricular region. We used CO_2 laser in superpulse mode for ablating the lesions in three sittings. The lesions regressed completely and no recurrence was observed over a regular follow-up of 8 months.

KEYWORDS: Ablative, lasers, multicentric reticulohistiocytosis

INTRODUCTION

Multicentric reticulohistiocytosis (MRH) is a rare histiocytic proliferative disease which manifests as skin nodules and rapidly destructive polyarthritis.[1] The skin lesions range from a few millimeters to a few centimeters from diameter, tend to appear over the head, hands, fingers, ears, and articular regions. Lesions over the face and scalp may appear unsightly. Surgical excision has been reported for treatment of skin lesions, however, is not feasible for very small lesions. CO_2 laser treatment ensures minimal discomfort and rapid recovery, enabling a quick return to daily routine.

CASE REPORT

A 40-year-old female patient, diagnosed with MRH (biopsy proven) 2 years ago, presented at our outpatient department with asymptomatic, nonprogressive, multiple fleshy papules, and nodules over the face [Figure 1a], scalp, retroauricular region [Figure 2a], and nail folds of the finger nails ["coral bead"appearance-Figure 3c]. Xanthelasma palpebrum were visible over both the upper eyelids [Figure 1a].

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Erythematous nodules were present over both elbows [Figure 3b].She had developed deforming polyarthiritis and shortening of fingers over both hands since 4 years [Figure 3a].Currently, she complained of severe neck pain for which she was to be investigated.

She had been on treatment with injectable methotrexate 15 mg once a week since the last 1 year which she discontinued 3 months ago as she was symptomatically better. Currently, she was receiving calcium supplements, folic acid, and pain killers orally. While the joint pain improved, her skin lesions persisted in spite of treatment. The facial lesions were disfiguring causing her psychological distress.

The patient was under the combined care of the departments of medicine, orthopedics, and dermatology. She underwent all relevant investigations such as complete blood count (raised Erythrocyte sedimentation rate), liver function tests, renal function tests, antinuclear antibody profile, radiological investigations, including X-ray of affected parts [Figure 4], Ultra sonography abdomen and computed tomography of the brain; the reports of which were not suggestive of internal malignancy. Skin biopsy [Figure 5a and b] from a nodule over elbow revealed large mononucleated and multinucleated giant cells with ground glass cytoplasm with a background of fibrosis with scant inflammatory infiltrate in the dermis, thereby reaffirming the diagnosis of MRH.

We used CO_2 laser to ablate the lesions over the face and

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Figure 1: (a) Multiple fleshy papules over the face (pretreatment). (b) Post-treatment

Figure 3: (a) Mutilating arthritis with nodules over palms with shortening of fingers, (b) Nodules over the elbow. (c) Lesions over nail folds in a "coral bead" configuration

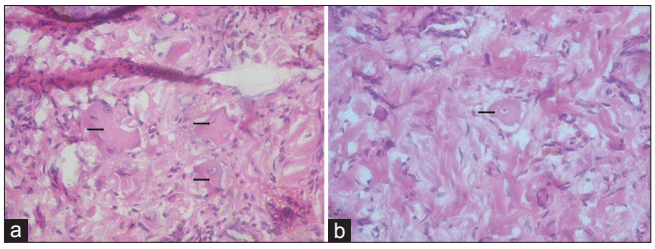

Figure 5: Histopathology from nodule over elbow. (a) Three multinucleate giant cells with fibrosis. (b) Single multinucleate giant cell with fibrosis

retroauricular regions. In the first sitting, the nasolabial lesions were targeted. Topical anesthesia (combination cream of tetracaine and lidocaine) was applied an hour prior to procedure. CO_2 laser at 7.0 W with a 100 mm hand

Figure 2: (a) Fleshy papules over scalp and retroauricular area (pretreatment). (b) Post-treatment

Figure 4: X-ray bilateral hands oblique view, showing extensive scalloping and partial absorption of distal and middle phalanges

piece (1.0 mm spot size) in superpulse mode was used to ablate the lesions. There was no significant bleeding during or postprocedure. Topical antibiotic cream (fusidic acid 1%) was applied after the procedure. A follow-up after 3 weeks revealed that the skin had healed with no significant hyperpigmentation or scarring [Figure 1b].

The other involved sites were treated similarly and follow-up was done after another 3 weeks [Figure 2b]. The results were excellent both subjectively and objectively. Currently, the patient has been on steady follow-up for 8 months with no recurrence of lesions over the ablated sites.

DISCUSSION

MRH is a rare histiocytic proliferative disease in which the joints, skin, and mucous membranes are affected.[2] It is also known as lipoid dermatoarthritis

and has a worldwide distribution with a female preponderance (60%-75%). The symptoms usually begin during 4th decade of life with isolated polyarthritis (50%), cutaneous lesions (25%). or both concurrently (25%).[3-5]

The characteristic histological feature of MRH is the presence of numerous multinuclear giant cells and oncocytic macrophages showing abundant eosinophilic, finely granular cytoplasm, often with a "ground glass" appearance. In older lesions, giant cells and fibrosis are more common. The polyarthritis is due to the granulomatous infiltrate which in early cases is limited to the synovial membrane, in mutilating arthritis the infiltrate is found in the subarticular cartilage and bone, leading to fragmentation and degeneration.[6,7]

Systemic therapy for MRH is usually not effective. There are a substantial number of case reports showing the benefit of methotrexate either alone or in combination with cyclophosphaminde and corticosteroids.[8] Azathioprine, bisphosphonates, etanercept, and infliximab have been reported to be beneficial in a few cases.[9,3]

The prognosis and clinical course of MRH is unpredictable and the disease may remit spontaneously. The prognosis is more favorable for the cutaneous forms, where the lesions may involute spontaneously.[9] While the disease is said to remit over a period of 5-10 years,[10] the clinical course of the cutaneous lesions is not known. As our patient was visibly perturbed by the multitude of papules over her face and neck, we used carbon dioxide laser (CO_2) to ablate the lesions.

CO_2 lasers have played a prominent role in dermatologic surgery because of their broad spectrum of uses. Emitting a continuous beam of light at a wavelength of 10,600 nm, the CO_2 laser destroys tissue by rapidly heating and vaporizing intracellular water.[11] The use of high peak power short-pulsed or rapidly scanned resurfacing carbon dioxide laser[12] diminishes the thermal conduction to normal tissue, by limiting the pulse duration to shorter than the tissue thermal relaxation time. The ablating mode of CO_2 laser has been widely used in a variety of benign and premalignant conditions.[13,14]

In our patient, the lesions regressed completely and did not recur following laser surgery. Moreover, spontaneous remission may be a plausible cause for the same as the patient was diagnosed with MRH 4 years ago. Nevertheless, laser ablation of the lesions ensured an excellent cosmesis.

While surgical excision of solitary histiocytomas has been mentioned in literature,[9] there are no specific guidelines for management of multiple lesions seen in M RH. CO_2 laser may prove to be a good tool for ablating these lesions especially in the esthetic areas of body such as the face.

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REFERENCES

1. Hsiung SH, Chan EF, Elenitsas R, Kolasinski SL, Schumacher HR, Werth VP. Multicentric reticulohistiocytosis presenting with clinical features of dermatomyositis. J Am Acad Dermatol 2003;48:S11-4.
2. Chu AC. Histiocytosis. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rook's Textbook of Dermatology. 8th ed. Willey-Blackwell: John Willey and sons; 2010. p. 55.23.
3. Kaul A, Tolat SN, Belgaumkar V, Mhaske CB. Multicentric reticulohistiocytosis. Indian J Dermatol Venereol Leprol 2010;76:404-7.
4. Rezaieyazdi Z, Sandooghi M, Torghabe HM, Derhami A. Multicentric reticulohistiocytosis: A case report. Acta Med Iran 2005;43:372-6.
5. Liang GC, Granston AS. Complete remission of multicentric reticulohistiocytosis with combination therapy of steroid, cyclophosphaminde, and low-dose methotrexate. Case report, review of literature, and proposal for treatment. Arthritis Rheum 1996;39:171-4.
6. Burgdorf HC, Zelger B. In: Elder ED, Elenitsas R, Johnson BL, Murphy FG, editors. The histiocytosis, lever's histopathology of the skin. 10th ed. Lippincott Williams and Wilkins; 2010. p. 667-97.
7. Chiao N, Tschen J. Multicentric reticulohistiocytosis, J Cutaneous Pathol 2008;32:81.
8. Kaçar N, Tasli L, Argenziano G, Demirkan N. Reticulohistiocytosis: Different dermatoscopic faces and a good response to methotrexate treatment. Clin Exp Dermatol 2010;35:e120-2.
9. Goodman TW, Barret LT, Histiocytoses. In: Bolognia, Jorizzo LJ, Rapini RP, editors. Dermatology. 2nd ed. Elsever Mosby, Spain; 2008. p. 1395-410.
10. Gelmetti C. Caputo R. Non-langerhans cell histiocytosis. In: Wolff K, Goldsmith LA, Katz SI, editors. Fitzpatrick's dermatology in general medicine. 7th ed. McGraw Hill, USA; 2003. p. 1424-34.
11. Krupa Shankar D, Chakravarthi M, Shilpakar R. Carbon dioxide laser guidelines. J Cutan Aesthet Surg 2009;2:72-80.
12. Hruza GJ. Laser treatment of epidermal and dermal lesions. Dermatol Clin 2002;20:147-64.
13. Savant S. The carbon dioxide (CO_2) and erbium: YAG (Er: YAG) lasers. Textbook of dermatosurgery and cosmetology. 2nd ed. ASCAD-Mumbai: India; 2008. p. 462-76.
14. Carpo BG, Grevelink SV, Brady S, Gellis S, Grevelink JM. Treatment of cutaneous lesions of xanthoma disseminatum with a CO_2 laser. Dermatol Surg 1999;25:751-4.

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