

LETTER TO THE EDITOR OPEN ACCESS

Multiple Eruptive Sebaceous Hyperplasia Secondary to Muir–Torre Syndrome Treated With Fractional Carbon Dioxide Laser Resurfacing Technique: A Case Report

Miriam Leuzzi^{1,2}  | Corrado Zengarini^{1,2}  | Michelangelo La Placa^{1,2}  | Martina Mussi^{1,2}  | Antonio Russo^{3,4}  | Davide Melandri^{2,3}  | Alessandro Pileri^{1,2}  | Bianca Maria Piraccini^{1,2}  | Iria Neri¹ 

¹Dermatology Unit, IRCCS of Azienda Ospedaliero-Universitaria di Bologna, Bologna, Italy | ²Department of Medical and Surgical Science, University of Bologna, Bologna, Italy | ³SOC Centro Grandi Ustionati/Dermatologia Cesena (Forlì), AUSL Romagna, Forlì, Italy | ⁴Dermatology Unit (Forlì), AUSL Romagna, Forlì, Italy

Correspondence: Corrado Zengarini (corrado.zengarini@studio.unibo.it)

Received: 23 August 2024 | **Revised:** 19 September 2024 | **Accepted:** 23 September 2024

Funding: This research was supported by the University of Bologna.

Dear Editor,

With this letter, we want to report our experience using CO₂ laser to treat a facial skin condition caused by Muir–Torre syndrome (MTS). MTS is an autosomal dominant variant of hereditary non-polyposis colorectal cancer, whose mechanism lies in mutations in DNA mismatch repair genes, causing microsatellite instability. It is known that the most critical aspect of the disease is visceral malignancy insurgence, with colorectal carcinoma being the most prevalent, but one of its most visible hallmarks include sebaceous skin neoplasms, which can impair self-esteem and quality of life.

Skin manifestations of MTS include sebaceous adenomas, epitheliomas, carcinomas, cystic sebaceous tumours, basal cell carcinomas with sebaceous differentiation and keratoacanthomas. Typically, these are yellowish, slow-growing papules and nodules, primarily on the face, and are hard to control and treat.

The case regards a 56-year-old North Italian woman, diagnosed MTS at 17, presented with a significant family history of early-age colorectal cancer and numerous facial sebaceous lesions from puberty. Genetic testing confirmed a heterozygote mutation in the MSH2 gene.

Over the last decade, she has undergone various dermatological treatments for cosmetic improvement of her lesions. An initial 3-month course of oral isotretinoin (1 mg/kg/day) yielded minimal benefit [1]. Subsequent surgical therapies, including curettage, electro-dissection, needling and derofreezing, only slightly reduced lesion number and size. Despite pre-treatment with topical lidocaine, the patient discontinued these painful procedures.

During her last examination, 73 yellowish papules (1–3 mm in diameter) were counted on her face (Figure 1A). Given the limited success with previous treatments, we opted for fractional carbon dioxide (CO₂) laser therapy based on the literature and our laser know-how in different diseases [2–5].

We treated the affected facial area using a CO₂ laser with fractional mode (400 μm distance, single stack, 11 W, single pass with 5%–10% overlap). Each session was preceded by a 30-min application of 40 mg/g lidocaine cream. The treatment cycle consisted of three sessions every 2 months for three cycles in total. The patient tolerated the treatments well.

Post-treatment, the lesion count decreased from 73 to 51, a 31% reduction (Figure 1B). The average lesion diameter reduced from 2.2 to 1.8 mm, indicating a 19% size reduction ($p < 0.001$). Notably,

Leuzzi Miriam and Zengarini Corrado are co-first authors.

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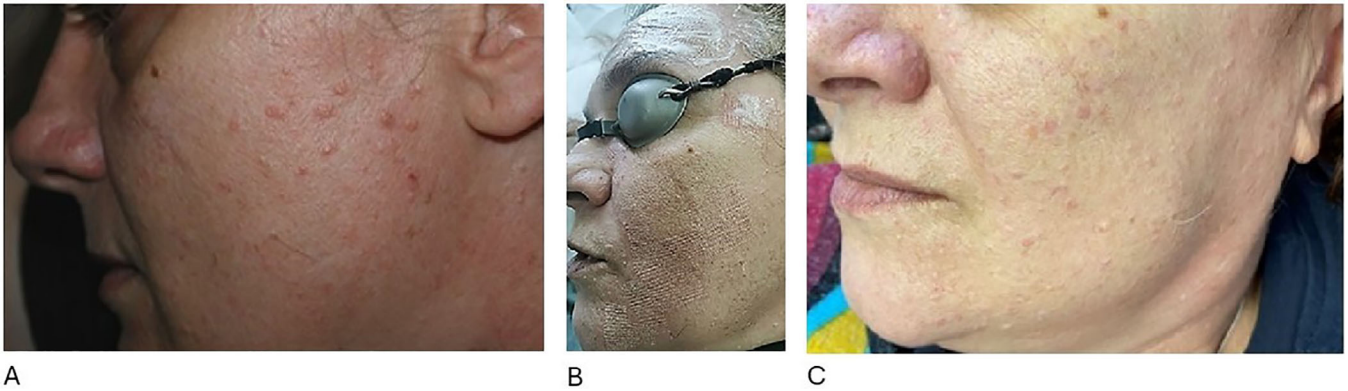


FIGURE 1 | (A) Close-up of facial skin before fractioned CO₂ laser treatment. (B) Facial skin during fractioned CO₂ laser treatment. (C) Patient after three CO₂ laser sessions: the skin appears smoother, and the sebaceous lesions are less prominent.

the patient reported an acceptable pain level, with an NRS score of 4/10 during treatment and 3/10 or lower at other times, demonstrating the tolerability and safety of the CO₂ laser therapy.

At the 1-month follow-up visit, the patient expressed her satisfaction with the treatment and willingness to halt subsequent therapy (Figure 1C). This positive feedback further reinforces the efficacy of the CO₂ laser therapy in managing her condition.

Fractional CO₂ laser therapy is an advancement of continuous pulsed CO₂ treatment. Similar to studies that used the effects of micro-thermal zones to induce collagen remodelling [3, 5], it aims to reach similar endpoints to those of fully ablative treatments but with fewer side effects, especially on the face. It promotes skin remodelling, reduces scar risk and improves tolerability.

We think it may be another viable alternative for managing multiple facial sebaceous hyperplasia, including those in syndromic cases like MTS, especially for patients with poor results from conventional therapies and low tolerance for traditional methods.

Acknowledgements

The authors have nothing to report.

Ethics Statement

The authors have nothing to report.

Consent

The patients in this manuscript have given written informed consent to publish their case details.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data available on request from the authors.

Miriam Leuzzi
Corrado Zengarini

Michelangelo La Placa
Martina Mussi
Antonio Russo
Davide Melandri
Alessandro Pileri
Bianca Maria Piraccini
Iria Neri

References

1. S. Tagliolato, O. de Oliveira Santos Neto, M. M. de Avelar Alchorne, and M. Y. Enokihara, "Sebaceous Hyperplasia: Systemic Treatment With Isotretinoin," *Anais Brasileiros De Dermatologia* 90 (2015): 211–215, <https://doi.org/10.1590/abd1806-4841.20153192>.
2. D. Piccolo, T. Zingoni, I. Fusco, F. Madeddu, and C. Conforti, "A Faster CO₂ Fractional Scanner System Mode for Skin Rejuvenation. A Clinical Study," *Skin Research and Technology* 30 (2024): e13843, <https://doi.org/10.1111/srt.13843>.
3. P. Bonan, I. Fusco, N. Bruscolo, et al., "Laser-Assisted Blepharoplasty: An Innovative Safe and Effective Technique," *Skin Research and Technology* 29 (2023): e13351, <https://doi.org/10.1111/srt.13351>.
4. S. Yoo, J. Kim, E. T. Jeong, S. J. Hwang, N.-G. Kang, and J. Lee, "Penetration Rates Into the Stratum Corneum Layer: A Novel Quantitative Indicator for Assessing Skin Barrier Function," *Skin Research and Technology* 30 (2024): e13655, <https://doi.org/10.1111/srt.13655>.
5. C. Zengarini, A. Guglielmo, M. Mussi, et al., "Primary Cutaneous CD₄⁺ Small/Medium T-Cell Lymphoproliferative Disorder Nodule Successfully Treated With Laser CO₂ Ablation: A Case Report and Literature Review," *Dermatology Reports* (2024), <https://doi.org/10.4081/dr.2024.9884>.