



Scar Sarcoidosis Induced by Pulsed Dye Laser Treatment

Hyeong-Rae Kim, Sue-Jeong Kim, Myung Im, Young Lee, Young-Joon Seo, Jeung-Hoon Lee

Department of Dermatology, Chungnam National University School of Medicine, Daejeon, Korea

Dear Editor:

Sarcoidosis is a multi-systemic disease of unknown etiology. Skin manifestations occur in between a fifth and a third of patients and usually appear as red-brown papules or plaques on the face, lips, neck, trunk, or extremities¹. Development of cutaneous sarcoidosis is frequently associated with preexisting scars, and this is called scar sarcoidosis. We report a case of scar sarcoidosis induced by pulsed dye laser treatment.

A 71-year-old man presented with a 50-year history of facial scarring and complained that his scar slowly became larger after three sessions of pulsed dye laser treatment at a local dermatology clinic 3 years before. According to the patient, the lesion had remained the same as it was 50 years ago. Physical examination showed an erythematous indurated plaque on the left cheek with relatively well-defined irregular borders (Fig. 1). Histopathologic examination showed numerous non-caseating granulomas suggestive of cutaneous sarcoidosis (Fig. 2). Polymerase chain reaction for mycobacteria was also negative. Chest radiography showed no specific findings and angiotensin-converting enzyme was within normal limits. A diagnosis of scar sarcoidosis without systemic involvement was made. The patient was started on hydroxychloroquine (100 mg, twice daily) in combination with topical pimecrolimus and topical steroids, which led to marked improvement. Scar sarcoidosis occurs in previously inactive cutaneous scars including surgical scars, tattoos, skin piercings, in-

jection sites, herpes zoster scars, and sites of laser surgery¹. Scar reactivation may occur several months to decades later, even one report citing a 50-year reactivation period². The authors assume that pulsed dye laser induce reactivation of quiescent scar of very long period in our case. But the patient was not assessed at our clinic during those decades, so there is a possibility that the scar was already undergoing very indolent reactivation.

For the treatment of cutaneous sarcoidosis, steroids, antimalarial drugs, methotrexate, and various other agents are commonly used¹. Laser surgery has also been used in several cases with various outcomes, which include CO₂ laser, intense pulsed light, Nd:YAG laser, pulsed dye laser, and combination with non-ablative fractional laser³⁻⁵. Pulsed dye laser is the most commonly reported of the laser treatment modalities, with seven case reports of cutaneous sarcoidosis treatment³⁻⁵. A favorable outcome was reported in five studies; one case showed limited effect after 10 sessions of treatment, and one case showed marked aggravation with the development of ulcerative sarcoidosis in the treated area³⁻⁵.

The exact mechanism through which lesions are improved



Fig. 1. Erythematous plaque on the left cheek with a white atrophic area in the lower part of the lesion as the trace of an old scar.

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Corresponding author: Jeung-Hoon Lee, Department of Dermatology, Chungnam National University School of Medicine, 266 Munhwa-ro, Jung-gu, Daejeon 35015, Korea. Tel: 82-42-280-7707, Fax: 82-42-280-8459, E-mail: Jhoon@cnu.ac.kr

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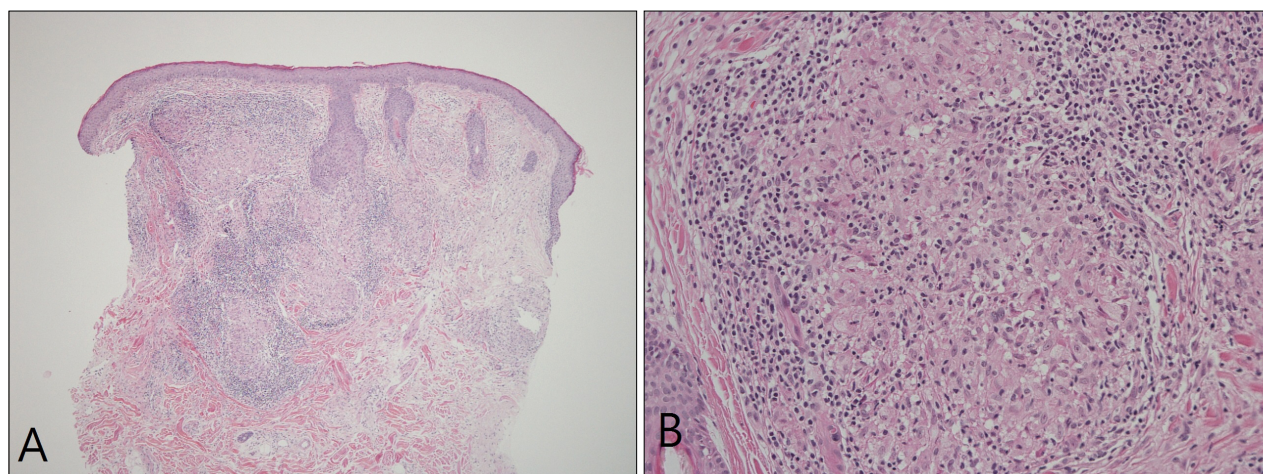


Fig. 2. (A) Well-demarcated multiple islands of epithelioid histiocytes, which are surrounded by fairly dense lymphocytic infiltrate (H&E, $\times 40$). (B) High-power view showing typical sarcoidal granuloma with mononuclear cell infiltrates (H&E, $\times 200$).

or aggravated is unknown at present. One case report with a favorable outcome suggested improvement could be attributed to vascular and immunomodulatory effects⁴, while an aggravated case ascribed the negative outcome to a brisk immune reaction to a previously confined antigen⁵. Given that the pathogenesis of sarcoidosis involves antigen presentation and subsequent granuloma formation, it is plausible that pulsed dye laser treatment could affect members of the immunologic cascade. Large randomized controlled trial studies are needed to establish the efficacy and safety of pulsed dye laser for the treatment of cutaneous sarcoidosis, and to reveal cytokine profiles involved in laser treatment.

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