Successful Treatment of Cutaneous Sarcoidosis Lesions with the Flashlamp Pumped Pulsed Dye Laser: A Case Report

Susanne Roos, MD,* Christian Raulin, MD,*† Hans-Michael Ockenfels, MD,‡ and Syrus Karsai, MD*

The authors have indicated no significant interest with commercial supporters.

In cutaneous sarcoidosis, the symptoms are wide ranging and often cannot immediately be clearly linked to a single clinical picture. Papules, scar sarcoidosis, ulcers, ichthyosis, and alopecia can all occur.[1] The treatment of cutaneous sarcoidosis is as elusive as its pathogenesis and still remains a challenge.

We report on the successful treatment of nodular cutaneous sarcoidosis lesions using a flashlamp pumped pulsed dye laser (FPDL). After a test treatment session with FPDL, we were able to achieve complete remission of the treated skin lesions. The nontreated areas increased in size and served as a control. The patient has since undergone further treatments of the remaining areas, with complete clearance of all lesions after a follow-up of 28 months.

Case Report

In September 2005, a 63-year-old Caucasian female reported grossly defined nodules on her back (Figure 1) that had developed within a 2-week period. They were not painful and were growing in size.

Our suspicions of sarcoidosis were histologically confirmed. Laboratory tests were normal with the exception of elevated levels of angiotensin-converting enzyme (57.3 U/L; standard range 8–20 U/L). Tuberculin skin testing was negative. Neither sonographic nor radiologic (computed tomography, X-ray, magnetic resonance imaging) tests showed any evidence of organ involvement. Steroids were topically applied for 2 weeks but did not yield any improvement of the nodules, which continued to grow.

Two test sites were then treated with a FPDL at 6 J/cm^2 (585 nm, 0.5 ms, 12 mm). A follow-up 4 weeks later (Figure 2) revealed complete clearance of the treated sites, whereas the untreated sites were still growing. All sites were then treated using the aforementioned parameters. After 4 weeks there was still slight reddening, but the lesions had completely resolved (Figure 3).

As evidence that her sarcoidosis was active elsewhere during the course of our treatment, she developed necrobiosis lipoidica on the right calf.[2] In addition, an ophthalmologic examination revealed iridocyclitis that grew significantly worse in the 4 weeks that followed. Consequently, treatment with systemic steroids (50 mg of prednisone per day) was initiated. The ocular findings resolved, as did the necrobiosis lipoidica on the right calf. There was no recurrence of new lesions or of lesions that had been completely resolved through laser treatment before starting prednisone. The patient was still free of lesions 13 months after the steroids were discontinued, although the necrobiosis lipoidica progressed again.

Laserklinik Karlsruhe, Karlsruhe, Germany; †Department of Dermatology, University of Heidelberg, Heidelberg, Germany; ‡Department of Dermatology, Hospital Hanau, Hanau, Germany

ISSN: 1076-0512 • Dermatol Surg 2009;35:1139–1140 • DOI: 10.1111/j.1524-4725.2009.01202.x

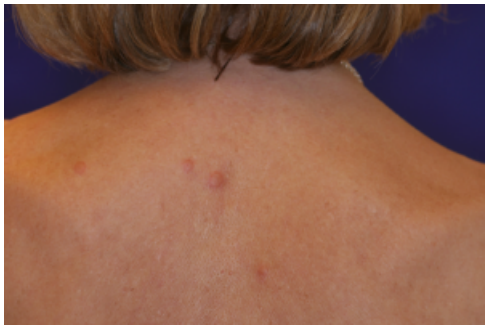

Figure 1. Initial findings.

Discussion

The selective destruction of vessels is thought to be the main mechanism of action of the FPDL, although it is assumed that there are other processes taking place at the cellular level as well, such as the stimulation of immunomodulatory processes.[3] This has been evident in cases of successful treatment of lupus erythematosus[4] and granuloma annulare[5] using an FPDL. One potential explanation for the success of this approach can be extrapolated from a study by Gira and colleagues. High levels of epidermal expression of vascular endothelial growth factor (VEGF) were found in keloids after FPDL treatment.[6] It is conceivable that VEGF and other angiogenic factors may play a role in the pathogenesis of granulomatous inflammatory dermatoses, including granuloma annulare and sarcoidosis (which is similar from a histological standpoint). These factors may provide a target for therapeutic intervention.

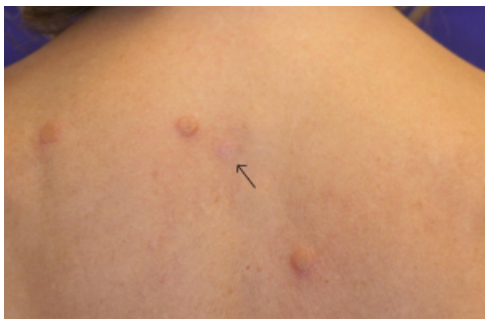

Figure 2. Four weeks after laser treatment of a test site: Complete clearance in test sites (see arrow), whereas the nontreated sites grew in size and depth.

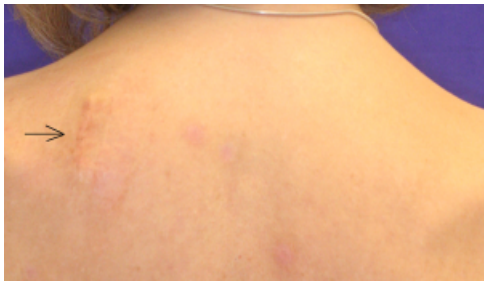

Figure 3. Resolved and stable findings 3 months post-treatment. The arrow points to a sarcoidosis focus that was removed elsewhere for validating our diagnosis of sarcoidosis (by request of the patient).

Spontaneous remission was excluded because the test areas were the only ones to respond to treatment, whereas the other areas continued to spread. As a rule, cutaneous lesions often recur after treatment is discontinued.[7] In our case, there have not been any recurrences or new lesions after 28 months of follow-up. The sustainability and efficacy of this therapeutic approach need to be confirmed in studies with a larger sample size.

References

1. Tchernev G. Cutaneous sarcoidosis: the "great imitator": etiopathogenesis, morphology, differential diagnosis, and clinical management. Am J Clin Dermatol 2006;7:375–82.
2. Mana J, Marcoval J, Graells J, et al. Cutaneous involvement in sarcoidosis. Arch Dermatol 1997;133:882–8.
3. Karsai S, Roos S, Hammes S, Raulin C. Pulsed dye laser: what's new in non-vascular lesions? J Eur Acad Dermatol Venereol 2007;21:877–90.
4. Baniandrés O, Boixeda P, Belmar P, Pérez A. Treatment of lupus erythematosus with pulsed dye laser. Lasers Surg Med 2003;32:327–30.
5. Sniezek PJ, DeBloom JR II, Arpey CJ. Treatment of granuloma annulare with the 585 nm pulsed dye laser. Dermatol Surg 2005;31:1370–3.
6. Gira AK, Brown LF, Washington CV, et al. Keloids demonstrate high-level epidermal expression of vascular endothelial growth factor. J Am Acad Dermatol 2004;50:850–3.
7. Young RJ III, Gilson RT, Yanase D, Elston DM. Cutaneous sarcoidosis. Int J Dermatol 2001;40:249–53.

Address correspondence and reprint requests to:
Syrus Karsai, MD, Kaiserstr., 104, 76133 Karlsruhe, Germany, or e-mail: info@raulin.de