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Successful Treatment of Cutaneous Kaposi's Sarcoma by the 585-nm Pulsed Dye Laser

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The clinical appearance of Kaposi's sarcoma (KS) can cause significant disfigurement and lead to functional impairment, particularly if the lesions ulcerate and become secondarily infected. We describe a patient with a KS plaque on the face that was successfully treated with 585-nm pulsed dye laser (PDL) therapy. No recurrence of the tumor was noted 12 months after the final laser treatment. © 1997 by the American Society for Dermatologic Surgery, Inc. Dermatol Surg 1997;23:973-975.

In 1981, a disseminated form of Kaposi's sarcoma (KS) occurring in association with acquired immunodeficiency syndrome (AIDS) was first reported in the United States.¹ AIDS patients have a more virulent form of KS and are also frequently afflicted with serious opportunistic infections. Kaposi's sarcoma is the most common neoplasm occurring in patients with AIDS² and develops in up to 50% or more of human immunodeficiency virus (HIV)-infected homosexual patients.^{3,4} Lesions are often numerous, disfiguring, and painful. A variety of treatment modalities for KS have been used with varying degrees of success and high rates of lesional recurrence. These treatments include radiotherapy,⁵⁻¹² hyperthermia,¹³ chemotherapy,¹⁴⁻²⁶ immunotherapy,²⁷ interferon,²⁸⁻³⁰ surgical excision and amputation,^{31,32} cryotherapy,³³ sclerotherapy,³⁴ and photodynamic therapy.³⁵ Various lasers have also been utilized to destroy KS lesions, including the CO₂, argon, and Nd:YAG lasers.³⁶⁻³⁹ After CO₂ laser vaporization, the treatment areas remain exposed, leading to prolonged tissue healing and an increased risk of opportunistic or secondary infections. Good initial results have been reported with the use of the argon and Nd:YAG lasers, but follow-up past 3 months has not been documented and complications encountered have included scarring and hyperpigmentation. Pulsed dye laser treat-

ment has also yielded initial promising results, but rates of lesional recurrence have been high.

We present a case of HIV-associated KS that has been successfully treated with the 585-nm pulsed dye laser with no evidence of lesional recurrence after 12 months follow-up. Because the lesions of cutaneous KS are well-recognized, visible stigmata of AIDS, their presence can be psychologically and physically damaging. The primary goal for treating these lesions, therefore, is for their cosmetic management, rather than to provide a cure for this multisystem disease.

Case Report

A 30-year-old HIV-positive African-American man presented with two purpuric thin plaques, one on the tip of the nose and the other on the left anterior tibia for several months. The plaque on the leg contained a non-healing central ulcer. A biopsy of the leg lesion revealed a tumor characterized by endothelium-lined channels and vascular spaces admixed with variably sized aggregates of spindle-shaped cells suggestive of KS. The patient requested treatment for the lesion on the nose because of its clinically disfiguring appearance (Figure 1).

Laser Treatment

A 585-nm flashlamp-pumped pulsed dye laser (450 μ sec, 7-mm spot) was used at fluences ranging from 6.0 to 7.0 J/cm² (mean = 6.5 J/cm²) to treat the nasal lesion (SPTL-1A; Candela Laser Corporation, Wayland, MA). Laser pulses were placed adjacent to one another in a nonoverlapping pattern, producing an immediate purpuric tissue response that lasted an average of 1 week. A total of five laser treatments were delivered at intervals of 6 weeks in order to achieve clinical clearing (Figure 2). No evidence of lesional recurrence was noted at 1 year following the final laser treatment.

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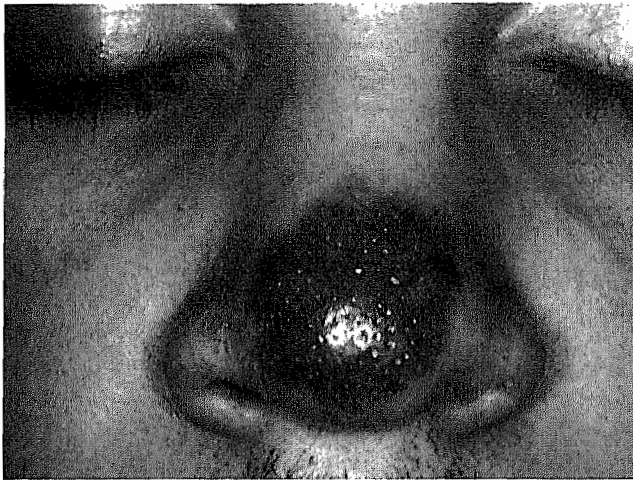


Figure 1. KS plaque on the nose prior to treatment.

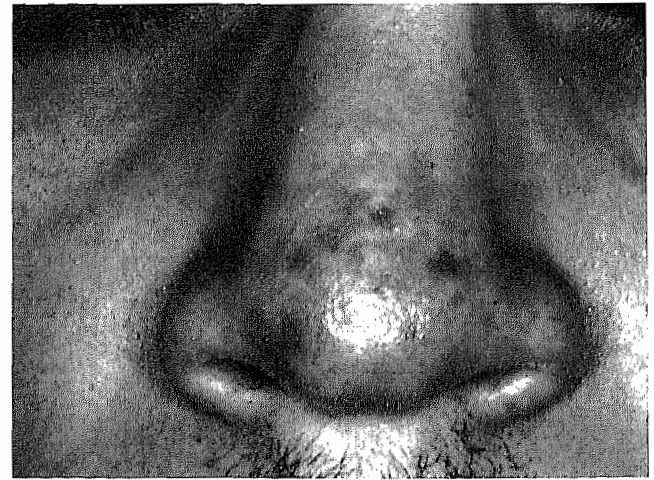


Figure 2. Improvement of KS plaque 6 weeks after fifth 585-nm pulsed dye laser treatment.

Discussion

Because KS is a vascular proliferation, it is not surprising that a vascular-specific 585-nm pulsed dye laser can be used for its effective treatment. In this report the patient had a thin plaque that was treated with the PDL with no recurrence of the lesion 1 year after the final treatment. No complications such as hyperpigmentation or undesirable textural changes from fibrosis or scarring were observed.

KS has been successfully treated with intralesional Vinblastine,¹⁶⁻¹⁸ spot orthovoltage radiotherapy,⁵⁻¹² and liquid nitrogen cryotherapy.³³ However, the proper use of pulsed dye laser significantly reduces the risk of wound infection, bleeding, and wound dehiscence associated with other treatment methods due to its non-vaporizing tissue interaction and vascular specificity. Other advantages of PDL therapy include reduced occupational exposure to HIV-infected blood or tissue products, the ability to treat multiple lesions in one sitting, decreased intraoperative and postoperative pain, and minimal wound care requirements. The fact that near uniform recurrences had been noted within 12 weeks in 15 KS patients who received an average of three pulsed dye laser treatments in a recent report by Tappero et al⁴⁰ can be explained by the fact that the lesions were more papular and located in bony areas with thickened dermis, thus limiting the effective penetration of 585-nm light. In addition, three laser treatments may have been insufficient to achieve lesional clearance.

While the patient described herein had a good cutaneous response to PDL treatment with the longest lesion-free posttherapy interval reported to date, he is known to have eventually succumbed to his underlying HIV disease before more extended follow-up was possible. In conclusion, 585-nm pulsed dye laser treatment may be an effective form of palliative therapy for AIDS-

related KS by improving the cosmetic, psychological, and functional status of the affected individual.

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