Treatment of Molluscum Contagiosum With the Pulsed Dye Laser Over a 28-Month Period

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Although benign, molluscum contagiosum causes cosmetic concern, infection, or transmission to close contacts. Treating patients with multiple lesions, especially children, may be difficult. Complications of treatment include infection, scarring, and limited posttreatment activity. The pulsed dye laser (PDL) has proven safe and effective for the treatment of many skin lesions, but little data exist for its role in the treatment of molluscum contagiosum. The purpose of this study is to describe the use, over a 28-month period, of the 585-nm PDL for the treatment of molluscum contagiosum. The benefits of this treatment are discussed.

The charts of 43 patients receiving PDL treatment for molluscum contagiosum between November 1997 and March 2000 were reviewed. Number and location of lesions at initial presentation and on follow-up visits were recorded. Attempts were made to contact patients who were lost to follow-up. All of the approximately 1250 lesions treated resolved, and 35% of patients (n=15) had no new lesions after 2 treatments. No complications were associated with the procedure. The PDL is a reasonable alternative to traditional treatment modalities for molluscum contagiosum. Benefits to the patient may include prompt response, fewer treatments, and minimal morbidity.

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Molluscum contagiosum, caused by a poxvirus, manifests as dome-shaped papules with umbilicated centers. Lesions are most common on the extremities, face, and genitalia. Children, sexually active young adults, and immunocompromised individuals are at highest risk. Individual lesions last approximately 6 to 8 weeks in immunocompetent individuals, leading some to argue that no treatment is needed.[1] However, with constant autoinoculation, lesions may persist for an average of 8 months, and scarring can occur.[2] Early treatment may reduce autoinoculation and transmission.[3] Recently, lasers have gained attention for the treatment of molluscum contagiosum. A single case report describes the use of the 577-nm pulsed dye laser (PDL) for lesions limited to the eyelid and conjunctiva.[4] Hughes[5] successfully eradicated 87 of 88 molluscum lesions in 5 patients with the PDL, and the laser has been used successfully to treat a patient with acquired immunodeficiency syndrome who had recalcitrant lesions.[6] We describe the use and effectiveness of the 585-nm PDL for the treatment of molluscum contagiosum in 43 patients over a period of 28 months and discuss its advantages over other modalities.

Patients and Methods

Forty-three patients (27 males, 16 females), with a mean age of 8.9 years (range, 1–48 years), were diagnosed with smooth, pearly, or flesh-colored umbilicated papules of molluscum contagiosum between November 1997 and March 2000. One patient was positive for the human immunodeficiency virus, but no other patients were known to be immunocompromised. Patients with multiple lesions were instructed to apply a topical anesthetic with occlusion 1 to 2 hours before treatment. Lesions approximately 1 mm or less in diameter were treated by single-pulsing; lesions greater than

1 mm in diameter (many were greater) were double-pulsed. The PDL had a pulse duration of 450 ms at 1 Hz (1 pulse per second), a fluence of 10 J/cm^2, and a 7-mm spot size. Spot sizes available on this laser include 5, 7, and 10 mm. To maintain consistency and effectiveness, we chose the 7-mm spot size because it is large enough to treat all lesions with the least number of pulses. A smoke filtration system was used to reduce the theoretical risk for transmission of the virus through the smoke plume. The time to treat each lesion was approximately 1 to 2 seconds, and treatment was generally well tolerated. Postoperative care consisted of ice for those who requested it. For returning patients, office follow-up occurred at one month posttreatment. Those patients not returning for further treatment were contacted by telephone.

Results

Over the 28-month period, approximately 1250 lesions were treated, and all were eradicated. Patients presented with an average of 29 lesions (range, 3–138) and required an average of 38 pulses per visit. Lesions were found most commonly on the extremities, followed by (in order) the buttocks, trunk, and groin. In one month, all treated lesions were gone in 42 of the 43 patients who were followed up; 19% (n=8) had no new lesions. Many patients, especially those with darker skin types, had hyperpigmentation at the treatment site, and some experienced hypopigmentation. Most pigmentary changes resolved in 6 weeks to 6 months, and none were permanent. These changes were helpful in identifying successfully treated lesions, especially for patients with many lesions. Minimal scarring, if any, was present. At 2 months, of the 20 patients that followed up, all treated lesions were gone, and 40% of those patients (n=8) had no new lesions. Thus, after 2 laser treatments, 35% of all patients (n=15) did not require further treatment. An attempt was made to contact the 23 patients who failed to return to the clinic. Ten of the 23 patients were successfully contacted, and all 10 claimed 100% eradication of treated lesions. In addition, 7 of the 10 patients had no new lesions. With regard to pain, 42 of the 43 patients tolerated the procedure well enough to request a second treatment.

Comment

These results demonstrate the possible effectiveness of the PDL for the treatment of molluscum contagiosum. All treated lesions disappeared. Patients who did not return to the clinic also confirmed this effectiveness. Patients with no new lesions at the first follow-up visit initially had an average of 12 lesions. Those with new lesions at 2, 3, and 4 months initially had an average of 34 lesions. Those with new lesions after 4 months began treatment with an average of 39 lesions. It may be suggested that the factors leading to more initial lesions would predispose the patient for more recurrences. Such factors include decreased host immunity and continuous autoinoculation. A study in Alaska[7] suggested that close contact was the most important factor in transmission, and an Australian study[8] demonstrated increased transmission by the sharing of bath sponges and bath towels. Patients and their families should be cautioned about the high likelihood of new lesions and how to reduce transmission.

Patients with many lesions may present a chronic, therapeutic challenge. In comparison to laser, cryosurgery can be slower, curettage causes bleeding, and chemical destruction is more irritating. Because all of these modalities nonselectively destroy the epidermis, they can limit posttreatment activity and create a portal of entry for skin flora and subsequent infection. In contrast, several patients participated in sporting events one day after receiving PDL treatment on their hands or feet. Due to the time and pain involved in destroying many lesions on a child, some physicians have considered sedation or general anesthesia for selected cases.[9] In this study, however, several patients with more than 30 lesions were treated in less than 2 minutes. In addition, PDL treatment achieved excellent cosmetic results in our study. Other modalities (eg, CO_2 laser) may cause scarring and create pigmentary alterations.[6] We observed minimal scarring and no permanent pigmentary changes in our population. Complete healing times were approximately 1 to 2 weeks for the face, 2 to 4 weeks for the trunk, and 2 to 4 weeks for the palms and soles. In the authors' experience, this is similar to other destructive modalities.

The effectiveness of this modality is similar to standard treatments. A recent study reported phenol ablation and physical expression to be 75% and 77% effective, respectively, in causing complete resolution of lesions after one treatment.[1] Cantharidin has been shown to be 90% effective after an average of 2 visits.[10]

Since its approval by the US Food and Drug Administration in 1986, the PDL has been found safe and effective for the treatment of hemangiomas, telangiectasias, port-wine stains, and scars[11,12] and is highly efficacious for recalcitrant verrucae.[13] The effectiveness of the PDL for verrucae most likely is due to the destruction of the lesion's blood supply. Because mollusca do not have a distinct vascular component, thermal damage to

the virus and lesion is the most likely cause of the laser's success.

Cost-effectiveness of PDL treatment has been questioned. During the study, the equipment was rented on a monthly basis at a cost of between $750 to $1000 per day. Significant price reductions have made lasers much more affordable to purchase. All appropriate patients (eg, those with mollusca or verrucae) were scheduled on the day the machine was in the office. Because treatment is simple and quick, a relatively large number of patients can be treated without sacrificing physician-patient interaction. Generally, more than 50 patients were seen on the "laser" days. In almost all cases, the patients did not require injected local anesthesia, nor did they need extensive directions on postoperative care. Patients were told what to expect in the previous visit, and the encounter efficiently focused on treatment.

The use of lasers in dermatology is ever expanding. Evidence continues to show the effectiveness of PDL for a variety of dermatologic conditions, and advancing technology at lower prices continues to improve cost-effectiveness. With the PDL, a provider has the ability to treat large numbers of lesions successfully in a short period, with minimal morbidity. Our study results show that PDL may be a safe and effective alternative for the treatment of molluscum contagiosum; however, prospective, controlled studies would better examine the efficacy of this treatment.

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