

A Comparative Split-Face Study of Cryosurgery and Trichloroacetic Acid 100% Peels in the Treatment of HIV-Associated Disseminated Facial Molluscum Contagiosum

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A comparative split-face study of 20 participants with disseminated facial molluscum contagiosum (MC) and human immunodeficiency virus (HIV) infection was conducted to assess treatment with cryosurgery (left side of the face) versus trichloroacetic acid (TCA) 100% peels (right side of the face). A total of 2 treatments were administered at 4-week intervals. At week 8, treatment with TCA 100% proved to be superior to cryosurgery with an average reduction in lesion count of 90% versus 55%, respectively. Demonstrating a statistically significant rate of lesion clearance ($P \leq .05$), TCA 100% appears to be more effective than cryosurgery at treating disseminated facial MC lesions in the setting of HIV infection.

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Molluscum contagiosum (MC) is a benign skin disease caused by infection with a double-stranded DNA virus of the Poxviridae family. The virus is transmitted by direct skin contact, fomites, or autoinoculation. Clinically, MC presents

as single, dome-shaped, umbilicated papules with central plugging. Typical MC lesions also can be mimicked by other disease processes, especially in the setting of human immunodeficiency virus (HIV) infection (Table 1). In immunocompetent hosts, however, the clinical manifestations of MC often are self-limited, responding to currently endorsed treatment modalities. In HIV-positive patients, MC often is recalcitrant to treatment, with a more fulminant clinical presentation and a longer duration in course prone to recurrence.¹

The prevalence of MC in the HIV-positive population is approximately 5% to 18%.² Clinically, HIV-positive patients with low CD4⁺ lymphocyte counts present with widely disseminated and recurrent lesions that are often large and can cause disfigurement. The lesions are distressing, erupting, and disseminating on the face and surrounding perioral surfaces. The extensiveness and persistence of the MC papules have become physical stigmata of HIV infection. These lesions result in social isolation, discrimination, a decrease in self-esteem, and magnification of the depressive state that many patients with HIV infection experience.

There are a number of treatment modalities available to HIV-positive patients with MC (Table 2).³ However, treatments destroying the actual lesions, such as curettage, are not ideal because they increase the risk for both infection and disease transmission. These treatments also have been ineffective because the lesions often are too numerous, large, and bulky to be effectively excised. Even first-line treatment

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Table 1.

Differential Diagnosis for Molluscum Contagiosum in Patients With HIV Infection

Cryptococcosis
Histoplasmosis
Penicilliosis

Abbreviation: HIV, human immunodeficiency virus.

Table 2.

Treatment Options for Molluscum Contagiosum in Patients With HIV Infection

Cantharidin
Chemical peeling agents, including glycolic acid (20%–70%) and trichloroacetic acid (20%–100%)
Cryosurgery
Electrosurgery
Incision/curettage
Lactic acid
Laser surgery (eg, carbon dioxide, ultrapulse, pulsed dye, krypton)
Podophyllin/podophyllotoxin
Retinoic acid compounds
Salicylic acid
Urea compounds

Abbreviation: HIV, human immunodeficiency virus.

modalities, such as cryosurgery, fall short of being effective. Cryosurgery poses a transmission risk and produces less than satisfactory results in the setting of HIV infection, with a high rate of treatment failures and frequent recurrences. The continual lack of therapeutic effectiveness and patient dissatisfaction sparked Garrett et al⁴ to conduct a study evaluating the effectiveness of trichloroacetic acid (TCA) 25% to 50% peels in patients with HIV infection. The peels were repeated every 2 weeks as needed, with an average reduction in lesion counts of only 40.5%.⁴ No other study to date has examined or endorsed

the use of TCA peels at the higher end of its concentration spectrum, more specifically TCA 100%. To determine the most effective treatment, we set out to conduct a comparative split-face study of cryosurgery versus TCA 100% peels for the treatment of disseminated facial MC in the setting of HIV infection.

Materials and Methods

Twenty participants with a mean age of 37 years, HIV-positive status, and a mean CD4 lymphocyte count of 177.4 cells/mm³ were enrolled in the study. Exclusion criteria included individuals with Fitzpatrick skin types V and VI and a history of keloids. Pre-treatment lesion counts were obtained and split-face treatment was performed, with comparable disease involvement bilaterally. Cryosurgery was performed on the left side of the face, with a 20-second thaw time (3-mm halo thaw), and TCA 100% was applied to the right side of the face. Participants received a total of 2 treatments administered at 4-week intervals. All symmetrical treatment areas were prepared with alcohol. Cryosurgery was instituted with a handheld, liquid nitrogen cryospray device, with a 20-second thaw time (3-mm halo thaw). Trichloroacetic acid was applied with a cotton swab; no neutralization step was carried out. A postoperative regimen consisted of application of polysporin ointment twice daily following both treatments. Posttreatment lesion counts were obtained at weeks 4 and 8. Complication profiles were compared. Finally, results were analyzed using the paired *t* test ($P \leq .05$).

Results

Efficacy results are summarized in Table 3. Posttreatment lesion counts obtained at week 4 demonstrated that the side treated with cryosurgery (left) showed a 41% average reduction in lesion count, whereas the side treated with TCA 100% (right) showed a 60% average reduction in lesion count. At week 8, following a second treatment, the side treated with cryosurgery showed a 55% average reduction in lesion count, whereas the side treated with TCA 100% showed a 90% average reduction in lesion count. Results at both weeks 4 and 8 were statistically significant ($P \leq .05$, paired *t* test).

Although treatment with TCA 100% was more effective, there was an increased incidence of minor skin surface irregularities and persistent erythema (>4 weeks) with TCA 100% versus cryosurgery (skin surface irregularities: 2 participants [10%] vs 0 participants [0%], respectively; persistent erythema: 5 participants [25%] vs 1 participant [5%], respectively) that resolved by week 8 in all cases (Table 4). The side treated with cryosurgery,

Table 3.

Cryosurgery Versus TCA 100% Peels in Patients With HIV Infection and Facial Molluscum Contagiosum

Patient No.	Age, y	CD4 Lymphocyte Count, cells/mm ³	Cryosurgery (Left Side)				TCA 100% (Right Side)						
			Baseline	Week 4	Week 8	Baseline	Week 4	Week 8					
			Lesion Count, n	Lesion Count, n	Clearing, %	Lesion Count, n	Clearing, %	Lesion Count, n	Clearing, %	Lesion Count, n	Clearing, %		
1	35	160	30	18	40	12	10	60	38	10	74	3	92
2	48	190	20	16	20	14	12	30	30	12	60	4	87
3	53	240	35	24	31	20	19	43	38	19	50	0	100
4	24	280	50	34	32	28	21	44	61	21	66	8	87
5	29	150	34	20	41	16	17	53	24	17	29	5	79
6	32	280	50	38	24	26	20	48	42	20	52	2	95
7	38	175	71	46	35	32	12	55	45	12	73	0	100
8	39	180	40	25	38	13	10	68	30	10	67	4	87
9	59	170	52	35	33	28	29	46	62	29	53	12	81
10	40	235	45	26	42	18	21	60	60	21	65	6	90
11	34	230	52	30	42	28	16	46	45	16	64	9	80
12	39	190	55	13	76	12	7	78	20	7	65	0	100
13	29	180	28	19	32	14	20	50	42	20	52	1	98
14	29	73	30	12	60	9	14	70	50	14	72	8	84
15	44	64	29	18	38	12	14	59	29	14	52	0	100
16	38	100	43	20	53	16	16	63	55	16	71	8	85
17	39	98	40	21	48	16	11	60	29	11	62	6	79
18	46	190	24	16	33	12	19	50	39	19	51	3	92
19	25	188	33	18	45	12	11	64	37	11	70	1	97
20	20	175	29	15	48	12	12	59	28	12	57	1	96

Abbreviations: TCA, trichloroacetic acid; HIV, human immunodeficiency virus.

Table 4.

Side-Effect Profile of Cryosurgery and TCA 100% Peels (N=20)

Side Effects	Cryosurgery, n (%)	TCA 100%, n (%)
Hyperpigmentation	2 (10)	2 (10)
Hypopigmentation	4 (20)	0 (0)
Minor skin surface irregularities	0 (0)	2 (10)
Persistent erythema (>4 wk)	1 (5)	5 (25)

Abbreviation: TCA, trichloroacetic acid.

however, was not free from side effects. A higher rate of hypopigmentation was reported (4 participants [20%] vs 0 participants [0%] in the cryosurgery and TCA 100% groups, respectively). Both treatment modalities were associated with comparable intervals of lesion recurrence in the setting of immunosuppression. These findings along with the lack of aerosolization make TCA 100% the preferred therapy for recalcitrant MC in the setting of HIV infection.

Comment

Treating recalcitrant MC in HIV-positive patients has been and continues to be difficult. Many conventional modes of therapy have failed to provide the cosmetic results patients desire.⁵⁻⁷ In this study, TCA 100% peels were superior to cryosurgery in the treatment of disseminated facial MC lesions in the setting of HIV infection, with a statistically significant rate of lesion clearance ($P \leq .05$). Trichloroacetic acid 100% offers a new treatment modality for MC lesions in HIV-positive patients with demonstrated efficacy.

However, before the treatment is administered to patients with HIV infection, a confirmatory biopsy is warranted, as MC may mimic many other disease processes within the immunocompromised host, including cryptococcosis, histoplasmosis, and penicilliosis. Once the diagnosis is confirmed, treatment of these lesions is indicated. The treatment

not only helps to eradicate the physical stigmata of HIV infection but also undoubtedly improves the self-esteem of patients.

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