

Topical therapy of molluscum contagiosum as a comparative therapeutic study using 15% phenol in lactic acid, 5% tincture iodine and pricking alone

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ABSTRACT

Introduction: Molluscum contagiosum is a common viral infection of the skin, caused by poxvirus, commonly affects young children. Although there was no specific treatment for molluscum contagiosum virus, many therapeutic modalities were used with different response rates. **Aims:** To evaluate the effectiveness of topical 15% phenol in lactic acid, 5% tincture iodine and pricking alone through comparative treatments of molluscum contagiosum. **Materials and Methods:** This randomized, therapeutic, single, blinded, comparative study was conducted in the Department of Dermatology–Baghdad Teaching Hospital Baghdad, Iraq, during the period from October 2007 to October 2008. Seventy-five patients with molluscum contagiosum were included in this study. They were diagnosed on clinical bases. Patients with prior treatment in the last 2 weeks and patients who had inflamed lesions were excluded. Full history and physical examination were done for all Patients. The patients were divided into 3 equal groups according to the mode of therapy (25 patients for each group): Group 1 patients treated by pricking the lesions with orange stick dipped in 15% phenol in lactic acid. Group 2 patients treated by pricking the lesions with orange stick dipped in 5% tincture iodine. Group 3 patients treated by pricking with orange stick alone. The treatment sessions were done at the time of presentation and then every week until complete cure was achieved, but not more than three sessions. The patients were followed up after one month from the last session to record the clinical cure and any local or systemic side effects. **Results:** Seventy five patients with molluscum contagiosum, 43 (57%) males and 32 (43%) females with male to female ratio 1.3-1, their ages ranged from 2-35 years (median:6 years). The most common age groups affected were below 10 years; 57 (76%) patients. The most common affected body sites were the face and neck 58 (77.3%) patients. Atopic diseases like atopic dermatitis, allergic bronchitis were found in 17 (22.7%) patients. After 3 weeks of treatment, the response rates were as follows: Group 1: 23/25 (92%) patients cured completely, 2 (8%) patients failed to achieve complete clearing, p-value was highly significant <0.000001. Group 2: 22/25 (88%) patients completely cured, 3 (12%) patients not responded completely, p-value was highly significant < 0.000001. Group 3: 21/25 (84%) patients completely cured, 4 (16%) patients continue to develop new lesions, p-value was highly significant < 0.000001. When these groups compared with each other there was no statistically difference (p-value>0.05). Scars were not reported in any group. **Conclusion:** Pricking molluscum contagiosum lesions by orange stick alone is safe, cost effective, highly effective and stimulating mode of therapy. Still topical 15% phenol in lactic acid and 5% tincture iodine are new and effective modes of treatment.

Key words: Molluscum contagiosum; Phenol in lactic acid; 5% tincture iodine; Pricking alone

INTRODUCTION

Molluscum contagiosum (MC) is a benign viral infection that generally affects young children and now

is running an epidemic state in all over the country. It is characterized by smooth, dome-shaped discrete pearly papules that occasionally develop surrounding area of scale and erythema (molluscum dermatitis) [1].

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Molluscum contagiosum caused by molluscum virus which belongs to the family poxviridae subgenus molluscipox virus, which comprises 4 genetically subdivided but clinically indistinguishable molluscum contagiosum viral types [2]. Generally, MC can occur on any part of the body surface including face, trunk, extremities, scalp, eyelids, lip, tongue and buccal mucosa [2,3]. The duration of both the individual lesion and the attack is very variable and although most cases are self-limiting within 6-9 months, some persist for 3 or 4 years [3].

Three groups are primarily affected: young children, sexually active adults, and immunosuppressed persons, especially those with HIV infection [4].

In many instances, therapy is not necessary and natural resolution can be awaited. This generally occurs without complications but often over a prolonged period of months to years in immunocompetent individuals. Curettage, cryosurgery, cantharidine, tretinoin and oral cimetidine and others were used in the treatment of molluscum contagiosum with different successes rate [5-9].

Phenol is also known as carbolic acid, is a toxic, colorless crystalline solid with a sweet tarry odor, it is used in, preparation of cosmetics including sunscreen, hair dyes, and skin lightening preparation. It is also used in cosmetic surgery as an exfoliant [10].

Lactic acid is a member of alpha-hydroxy acid, it is a colorless or slightly yellow, viscous hygroscopic organic acid liquid. Lactic acid works as an exfoliant, for treatment of warts, xerosis of the skin, ichthyosis, follicular hyperkeratosis and seborrheic keratosis [11-13].

Tincture iodine has been used as a topical therapy for treatment of vitiligo for many years and proved to be a successful topical therapy especially in patients with localized vitiligo [14].

Still the researcher search for other new, effective therapy, therefore the aim of the present study was to evaluate the effectiveness of topical 15% phenol in lactic acid, 5% tincture iodine and pricking alone in comparative treatments of molluscum contagiosum.

MATERIALS AND METHODS

This randomized therapeutic single blinded comparative study, was conducted in the Department

of Dermatology and Venereology–Baghdad Teaching Hospital, during the period between October 2007 to October 2008.

A total number of eighty two patients with molluscum contagiosum were enrolled in this study. All patients were diagnosed on clinical basis.

Patients with prior treatment in the last 2 weeks, patients with inflamed lesions and lid margin lesions were excluded from the study.

Patients or their parents were fully questioned regarding: age, gender, site, duration, occupation, residence, associated symptoms (such as itching and pain), associated diseases like atopic dermatitis, diabetes mellitus, topical steroid usage and history of molluscum contagiosum in other family members.

Physical examination was carried out regarding site, size and number of lesions.

The procedure was fully described to the patients or their parents and the need for pre-and post treatment photographs explained for them and formal consent were obtained from all participants in this study after full explanation to each patient or their parent about the disease, course, prognosis and treatment.

Also this study was approved ethically by the Scientific Council of Dermatology and Venereology of Iraqi Board for Medical Specializations.

The patients had been equally divided into 3 groups depending on the mode of therapy (25 patients for each group).

Group 1: patients treated by pricking the lesion with orange stick dipped in 15% phenol in lactic acid.

The 15% phenol in lactic acid prepared by dissolving 15 grams phenol in 100 ml lactic acid (92%, pH 3.5).

Group 2: patients treated by pricking the lesion with orange stick dipped in 5% tincture iodine.

Five percent tincture iodine prepared by mixing iodine 25g, potassium iodide 25g, purified water 25g and alcohol (90%) up to 1000ml.

Group 3: patients treated by pricking the lesion with orange stick only.

The treatment sessions were done at the time of presentation and then every week until complete cure was achieved, but not more than three sessions.

The patients were seen regularly every week for 1 month during the treatment period, at each visit the response to treatment was assessed according to the change in size, number and development of new lesions. The side effects of treatment modalities were recorded such as burning, erythema, scar formation and signs of secondary bacterial infection like tenderness, erythema and swelling). Then the patients were followed after one month from the last treatment session for signs of relapse at the same location of treated lesions.

Statistical analysis was done by the EPI INFO system version 3.5.1. using chi-square. P-value of less than 0.05 was considered to be significant.

RESULTS

A total of eighty two patients were enrolled in this study, seven of them were defaulted after the first visit for unknown reason, while the remaining 75 patients completed the study.

Of these patients, 43 (57%) males and 32 (43%) females with male to female ratio 1.3:1. Their ages ranged from 2-35 years, the median were 6 years. The most common age group affected was from 2-10 years which comprised 57 (76%) patients.

The duration of the disease ranged from 7-30 days with mean \pm SD of 19.5 ± 7.08 days. Thirty two (42.7%) patients had more than 2 anatomical sites involved. The most common involved sites were the face and neck 58 (77.3%) patients, trunk 29 (38.7%), extremities 8 (10.7%) and genital and perianal areas 6 (8%) patients.

Size of lesions ranged from few millimeters to one centimeter. A total number of 679 lesions with range from 2-26 with a mean \pm SD of 9.05 ± 5.6 lesions/patient.

Twenty (26.6%) patients with molluscum contagiosum had associated diseases; 17 (22.7%) patients were atopic diseases like atopic dermatitis (asthma and hay fevers), diabetes mellitus 1 (1.3%) patient, alopecia areata 1 (1.3%) patient and chronic myelogenous leukemia 1 (1.3%) patient. One (1.3%) patient used topical steroid. Thirty four (45.3%) patients had history of contact with other infected persons or family members.

Group 1: Their ages ranged from 2-32 years, the median were 7 years, 14 (56%) males, 11 females with male to female ratio 1.3:1. A total number of treated lesions were 264, the duration of the lesions ranged from 10-30 days with mean \pm SD of 21 ± 7.2 days. During the treatment period 13 (52%) patients were completely cured after the first session, 8 (32%) patients required another session and 2 (8%) patients were healed after the third session. Two (8%) patients still did not respond completely and continued to develop new lesions. So the total cure rate was 92%, p-value was highly significant < 0.000001 , chi-square 53.33 (Table 1).

The reported side effects in this group were (Table 2): mild pain due to pricking occurred in 15 (60%) patients, mild burning sensation in 20 (80%) patients, transient erythema of the perilesional skin due to accidental contact with the medication in 5 (20%) patients and secondary bacterial infection in 6 (24%) patients.

Scarring was not reported in any patient. During the follow up period none of the cured patients developed new lesions.

Group 2: Their ages ranged from 2-35 years, the median were 5 years, 13 (52%) males, 12 (48%) females with male to female ratio of 1.1-1. A total number of treated lesions were 224. The duration of the disease ranged from 7-30 days with mean \pm SD of 18.84 ± 7.9 days. After one session of treatment 11 (44%) patients completely cured, 8 (32%) patients needed another week of treatment, 3 (12%) patients were cured at the end of the third week. At the end of the treatment period 3 (12%) patients still developing new lesions. So the total cure rate was 88%, p-value was highly significant < 0.000001 , chi-square 48.62 (Table 1).

Table 1: Rate of response during period of treatment of molluscum contagiosum

	1 st week		2 nd week		3 rd week		p-value & Chi square
	No.	%	No.	%	No.	%	
Group 1 (n=25)	13	52	21	84	23	92	P<0.000001, Chi 53.33
Group 2 (n=25)	11	44	19	76	22	88	P<0.000001, Chi 48.62
Group 3 (n=25)	8	32	19	76	21	84	P<0.000001, Chi 48.78

Table 2: Side effects of treatment modalities of molluscum contagiosum

Side effects	Group 1 (%)	Group 2 (%)	Group 3 (%)	Total (%)
Pain	15 (60)	12 (48)	14 (56)	41 (54.7)
Burning	20 (80)	-ve	-ve	20 (26.7)
Erythema	5 (20)	-ve	-ve	5 (6)
Secondary bacterial infection	6 (24)	4 (16)	7 (28)	17 (22.7)

The side effects in this group were (Table. 2): mild pain occurred in 12 (48%) patients, secondary bacterial infection in 4 (16%) patients.

Scarring was not reported in any patients. During the follow up period none of the cured patients developed new lesions.

Group 3: Their ages ranged from 3-30 years, the median were 7 years, 15 (60%) males, 10 (40%) females with male to female ratio 1.5-1. A total number of treated lesions are 191, the duration of the disease ranged from 10-30 days with mean \pm SD of 18.52 ± 5.99 . After one session 8 (32%) patients cured completely, 11 (44%) patients required two sessions and 2 (8%) patients needed another session to accomplish complete healing, while 4 (16%) patients continued to develop new lesions. So the total cure rate was 84%, p-value was highly significant <0.000001 , Chi-square 48.78 (Table 1).

The recorded Side effects were as follow (Table 2): mild pain in 14 (56%) patients, secondary bacterial infection in 7 (28%) patients.

Scarring was not reported in any patients. During the follow up period none of the cured patients developed new lesions.

When the results of treatment of the three groups compared with each other, there were no statistical differences p-value > 0.05 , but the cure rate after the first session showed that phenol group had the best cure rate (52%) followed by the iodine (44%) and then the prick group (32%).

Ethics

This study was performed on human subjects; thus, all patients were aware of the presence of the study and they were fully informed about the drug and its side-effects.

DISCUSSION

Molluscum contagiosum is a common viral disease of the skin that mostly affects young children and could be seen in adults as part of sexually transmitted diseases [1-3].

The present work showed that male to female ratio was 1.3-1 and the disease was mainly affecting young children.

The disease is self-limited but this might takes several months-years [1]. Accordingly, the disease should be treated to clear the lesions as quick as possible due to bad cosmetic appearance and to limit the spread of the disease [7,8].

There is no specific treatment for MCV, although various surgical and medical strategies were used with different success rates and various side effects with longer duration of therapy such as curettage, cantharidine, 5% imiquimod cream and 10% KOH [15-18].

Curettage cure rate was 80%, used once and repeated as needed. Pain and scaring were common side effects [5].

Imiquimod cure rate was 75-82%, used 3-5 times/week for 5-9 weeks, it is expensive and associated with erythema, pruritus, post-inflammatory pigmentation and ulceration [17].

KOH 10% cure rate was 91.4%, used twice daily for 30 days, stinging and post-inflammatory pigmentation were reported side effects [18].

While the present study using 15% phenol in lactic acid, 5% tincture iodine and pricking only once weekly gave cure rates 92%, 88% and 84% respectively after 3 weeks of treatment. The reported side effects were mild pain due to pricking, mild burning sensation and transient erythema (phenol group) and secondary bacterial infection which required only topical antibiotic. Scaring were not reported. Although when these groups were compared with each other showed no statistically significant different response, but phenol and iodine groups when compared with prick group showed a quicker cure rate after one session (52%, 44% and 32%).

So this present work gave a high cure rates with shorter duration of treatment and mild side effects with low cost effectiveness.

But surprisingly, pricking of lesions by orange stick was as effective as other therapies ($p>0.05$) and this is very interesting and stimulating point in treatment as pricking only might change MC microenvironment and disturb architecture of the lesion and this was enough in clearance of lesions. Also we can speculate that pricking might stimulate the immune system through releasing relevant cytokines and other immune enhancers and thereby attraction of immune cells (T-cells) which are important in clearing of the lesions.

So the present work opened a new era of therapy that doesn't necessitate using any chemical agent or drug.

Statement of Human and Animal Rights

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008.

Statement of Informed Consent

Informed consent was obtained from all patients for being included in the study.

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