
Molluscum contagiosum

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Background

Definition

Molluscum contagiosum is a benign infection of the skin and mucous membranes caused by the molluscum contagiosum virus. Most people with mollusca have multiple lesions, which typically begin as small papules that enlarge to around 3–6 mm and rarely to more than 1 cm in diameter. Fully developed papules typically have a central umbilication or depression that contains a white, waxy, curd-like core. Most lesions resolve without scarring, but they may cause discomfort and/or itching (Figure 1).¹

Incidence

Infections with the molluscum contagiosum virus occur throughout the world, but the incidence varies considerably, with higher rates in areas with warm climates.¹ Children are most often affected.^{2–4} In a British study, the incidence was 243 per 100 000 person-years (py) in males and 231 per 100 000 py in females. Ninety percent of cases were reported in children aged 0–14 years (incidence 1265 per 100 000 py).³ In New Guinea, the annual attack rate was 6% in children aged 0–9 years.⁵ Patients with weakened immune system are particularly prone to molluscum infection and have increased difficulty in clearing lesions (point prevalence in patients with human immunodeficiency virus/acquired immune deficiency syndrome: 5–18%).^{6–9}

Etiology

Molluscum contagiosum, also known as *Molluscipoxvirus*, is a member of the pox virus (Poxviridae) family.^{10,11} Transmission of molluscum occurs during contact with infected lesions, contaminated fomites, or sexual contact.¹² Autoinoculation through scratching is also suspected.¹³



Figure 1 Molluscum contagiosum.

Outbreaks have occurred among children attending swimming pools.^{14,15}

Prognosis

After a variable incubation period (2–6 months), the lesions usually persist for several months and resolve spontaneously or as a result of the inflammatory response following trauma (e.g., scratching) or secondary bacterial infection.^{1,16,17} In immunocompromised people—e.g., patients with acquired immune deficiency syndrome (AIDS)—molluscum contagiosum usually does not resolve spontaneously and is often refractory to treatment.^{1,18}

Aims of treatment

Molluscum contagiosum is self-limiting in immunocompetent individuals. Many parents of children with molluscum may seek treatment because of concerns about the appearance of the lesions, persistence of lesions, spread of lesions, or because of other people's comments. The aims of treatment are to shorten the duration of the condition, to resolve discomfort (e.g., itching), to limit spread, and to prevent secondary bacterial infection.¹

Relevant outcomes

Clinical cure of all infected lesions is the clinically most relevant outcome. Treatment success is defined as the proportion of patients completely cleared of all molluscum contagiosum lesions. Treatment success should ideally be assessed 4–8 weeks after the discontinuation of treatment. Secondary outcomes include the time to clearance of all lesions and the cosmetic result.

Methods of search

We included randomized controlled trials of all interventions for cutaneous, nongenital infection with molluscum contagiosum in immunocompetent patients. We searched the Cochrane Controlled Trials Register (February 2006), the Cochrane Library for systematic reviews (February 2006), and Medline (1966–February 2006).

Question

In immunocompetent patients with cutaneous, nongenital molluscum contagiosum, what is the efficacy—defined as the proportion of patients completely cleared of all lesions at 4–8 weeks after discontinuation of treatment—of surgical treatment strategies, conservative therapies, and waiting for spontaneous resolution?

Evidence summary

No systematic reviews were identified, although we were aware that a Cochrane review on mollusca was to be published later in 2006. The results of six randomized controlled trials (RCTs) are summarized in Table 1. Exclusively children were studied in all RCTs.

Sodium nitrite

Efficacy

After 3 months of treatment with sodium nitrite 5% salicylic acid 5% cream with occlusion on each lesion overnight, 75% of patients completely cleared, in comparison with 25% of children treated with salicylic acid 5% cream.¹⁹

Drawbacks

Brown staining of the skin was recorded in six patients with active treatment, but in none in the control group. The treatment is awkward and time-consuming, and causes irritation in some patients (frequency not reported).¹⁹

Comment

Because of potential staining, sodium nitrite is not recommended for facial molluscum contagiosum. It appears to be beneficial for lesions on the trunk, although larger trials are needed to confirm the results.

Salicylic acid, phenol

Efficacy

Salicylic acid 12%, lactic acid 4% gel (Salatac) applied once to twice weekly, and 10% phenol in a 70% alcohol solution applied once daily had similar clearance rates to those of the vehicle.²⁰

Drawbacks

Significantly more patients discontinued treatment due to stinging in the salicylic acid group in comparison with phenol and vehicle. No serious adverse events occurred.²⁰

Comment

Because an efficacy greater than that of the vehicle was not demonstrated in this study, neither salicylic acid nor phenol are recommended. The sample size of the study was quite small, and important treatment differences might have been missed. In contrast to the full-text paper, in which the results were based on an intention-to-treat analysis, the authors reported results after excluding drop-outs in an previously published abstract. Salicylic acid appears to be beneficial in the per-protocol analysis, highlighting the potential of misleading inferences due to inappropriate statistical methods.^{20,21}

Imiquimod

Efficacy

Imiquimod 5% cream applied three times a week for 12 weeks was not superior to the vehicle in inducing complete clearance. Partial responses (defined as at least a 30% reduction in the lesion count) were more frequent in patients treated with imiquimod.²²

Drawbacks

Tolerability did not differ significantly between imiquimod and the vehicle. Approximately 50% of patients in both treatment groups reported mild to moderate pruritus. Local skin reactions were frequent in both groups (exact numbers not reported).²²

Comment

With a total of 23 participants included, this study was not sufficiently powered to show small differences.²² On

the basis of the limited data available, imiquimod does not appear to be highly effective in molluscum contagiosum. In addition, adverse drug reactions may compromise compliance.

Australian lemon myrtle (*Backhousia citriodora*)

Efficacy

The essential oil of the Australian lemon myrtle (*Backhousia citriodora*) (Herbal BioScience, Oakvale, California, USA), applied once daily for 21 days, induced partial remission (defined as at least a 90% reduction in the lesion count) in 56% of patients, in comparison with 0% treated with the vehicle. Complete response rates are not reported.²³

Drawbacks

None. The treatment was well tolerated.²³

Comment

Australian lemon myrtle appears to be beneficial against molluscum contagiosum. However, complete response rates are not reported, and complete clearance is probably of most relevance for the patient.²³ So far as we are aware, the formulation is not standardized and the product is not widely marketed. Practical reasons may therefore limit the use of this agent.

Benzoyl peroxide

Efficacy

Ninety-two percent of patients treated with benzoyl peroxide 10% cream twice daily for a total of 4 weeks had complete remission of all lesions in week 6, in comparison with 46% of patients treated with tretinoin 0.05% cream.²⁴

Drawbacks

Side effects were limited to mild dermatitis in both treatment groups (exact numbers not reported).²⁴

Comment

Among the six RCTs analyzed, the complete clearance rate was highest in patients treated with benzoyl peroxide 10% cream (Table 1). Benzoyl peroxide 10% cream appears to be beneficial for molluscum contagiosum. However, due to poor reporting quality and methodological shortcomings—i.e. failure to carry out an intention-to-treat analysis—bias cannot be ruled out,²⁴ and better studies are needed.

Cimetidine

Efficacy

Oral cimetidine 35 mg/kg/day for 3 months added no notable benefit to placebo treatment.²⁵

Drawbacks

Half of the patients (19 of 38) dropped out. The reasons for withdrawal are not reported.²⁵

Comment

Cimetidine is not recommended in the treatment of molluscum contagiosum.

Destructive methods such as cryotherapy, electrodesiccation, physical squeezing

We were not able to identify any trials demonstrating the efficacy of these commonly used treatments.

Implications for clinical practice

Molluscum contagiosum is a self-limiting disease in the immunocompetent host. Treatment is not necessary in most cases, since natural resolution occurs. Topical treatments that do not leave scars and are not associated with severe adverse events may be tried in order to limit the spread, shorten the course of the disease, for cosmetic reasons, and/or to suppress accompanying symptoms. Options that can be recommended on the basis of the existing evidence are sodium nitrite 5% salicylic acid 5% cream for nonfacial lesions and benzoyl peroxide 10% cream. Salicylic acid preparations, phenol, imiquimod, tretinoin, and oral cimetidine are not recommended on the basis of the data available.

Key points

- Molluscum contagiosum in otherwise healthy people is self-limiting.
- Treatment is not necessary in most people.
- Many popular treatments, including physical destruction, have not been evaluated properly.
- Topical sodium nitrite and benzoyl peroxide preparations appear to shorten the duration of the disease.
- There is no evidence supporting the value of salicylic acid preparations, phenol, imiquimod, tretinoin, or oral cimetidine.

References

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Table 1 Summary of six randomized controlled trials identified on molluscum contagiosum in otherwise healthy individuals

| First author, ref. | Intervention | Comparators | Study population | Sample size (n) | Study design | Duration of active treatment | Outcome measures | Main results | Study quality: Randomization* Blinding† Statistical analysis‡ |
|-------------------------------|--|--|-------------------------------|-----------------|-------------------------|------------------------------|--|---|---|
| Ormerod (1999) ¹⁹ | Sodium nitrite 5% 5% salicylic acid cream | Salicylic acid 5% cream alone | Children (median age 6 years) | 32 | Double-blind RCT | 3 months | Complete clearance rate after 3 months | Sodium nitrite 5% salicylic acid 5% cream 75% (12/15) vs. salicylic acid 5% cream 25% (4/15); completely cleared ($P = 0.01$) | Adequate Adequate Inadequate |
| Leslie (2005) ²⁰ | Salicylic acid 12%, lactic acid 4% gel (Salatac) | a) 10% phenol in 70% alcohol b) 70% alcohol (placebo) | Children (1–15 years) | 114 | Nonblinded RCT§ | 6 months | Complete clearance rate after 6 months | Salatac 57% (21/37) vs. phenol 42% (17/41) vs. placebo 44% (16/36); completely cleared ($P = 0.38$) | Adequate Not applicable Adequate |
| Theos (2004) ²² | Imiquimod 5% cream | Vehicle | Children (4.7 ± 1.9 years) | 23 | Double-blind RCT | 12 weeks | Complete clearance rate at week 12 | Imiquimod 33.3% (4/12) vs. vehicle 9.1% (1/12); completely cleared ($P = 0.32$) | Inadequate Inadequate Adequate |
| Burke (2004) ²³ | Essential oil of Australian lemon myrtle | Vehicle | Children (4.6 ± 3.1 years) | 31 | Double-blind RCT | 3 weeks | Proportion of patients with reduction of lesions > 90% | Essential oil of Australian lemon myrtle 56% (9/16) vs. vehicle 0% (0/15); met efficacy outcome ($P < 0.05$) | Adequate Adequate Adequate |
| Saryazdi (2004) ²⁴ | Benzoyl peroxide 10% cream | Tretinoin 0.05% cream | Children (not reported) | 30 | Investigator-masked RCT | 4 weeks | Complete clearance rate at week 6 | Benzoyl peroxide 92% vs. tretinoin 0.05% 45%; completely cleared ($P = 0.02$) | Inadequate Inadequate Inadequate |
| Antony (2001) ²⁵ | Cimetidine 35 mg/kg/day | Placebo | Children (1–16 years) | 38 | Double-blind RCT | 3 months | Complete clearance rate after 4 months | Cimetidine 21% (4/19) vs. placebo 26%; completely cleared ($P > 0.05$) | Inadequate Adequate Inadequate |

RCT, randomized controlled trial.

* Adequate, if clear description of method of randomization and concealment of allocation of randomization given.

† Adequate, if assessors and participants were completely blinded to the study interventions.

‡ Adequate, if an intention-to-treat analysis was carried out—i.e., all patients originally randomized were included in the final main analysis.

§ Randomized controlled trial.

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