UK national guideline for the management of Genital Molluscum in adults (2021)

Clinical Effectiveness Group, British Association for Sexual Health and HIV

Date of writing: March 2021, Date review due: March 2026

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New in the 2021 guidelines

Some key treatment options have been revised following the availability of previously unpublished trial data in most recent Cochrane review of cutaneous molluscum therapies: Imiquimod is no longer recommended as a treatment for genital molluscum.

We have included a summary table of treatment recommendations for ease of use.

GRADE levels have been provided for recommended therapies (see GRADE methodology in guideline framework document)

https://www.bashhguidelines.org/media/1229/2015-guidelines-framework-amended-dec-2019.pdf

Summary of recommendations for the treatment of genital Molluscum Contagiosum

1.1	Expectant management (i.e. no treatment) for immunocompetent individuals with molluscum contagiosum (MC)	1B
2.1	Liquid Nitrogen treatment in immunocompetent individuals for MC	2C
2.1	Podophyllotoxin 0.5% treatment in immunocompetent individual with MC	2C
2.1	Emollients and mild topical steroid for severe dermatitis associated with MC lesions	2C
3.1	Imiquimod in Immunocompetent individuals with MC	Not recommended
4.1	Treatments for MC for people living with HIV 1. Liquid Nitrogen 2. Podophyllotoxin 0.5%	 2D 2D

4.2	For extensive MC lesions in immunosuppressed patients, the introduction of antiretroviral therapy (ART) is recommended.	1C

Introduction and Methodology

Objectives

This guideline offers recommendations on diagnosis, treatment regimens and health promotion principles needed for the effective management of genital molluscum, including management of the initial presentation and recurrences. *Primary focus is on infection which affects the genital area and has a sexual mode of transmission.*

The guideline is aimed primarily at patients aged 16 years or older presenting to health care professionals working in departments offering level 3 care in STI management within the United Kingdom. However, the principles of the recommendations should be adopted across all levels; level 1 and 2 providers may need to develop local care pathways where appropriate.

Search strategy

PICO questions were set as:

POPULATIONS: individuals with genital molluscum contagiosum

INTERVENTION: management (including no treatment) for molluscum contagiosum

COMPARISON: no specific comparators were applied to ensure all relevant articles were picked up in the search

OUTCOME: clearance of molluscum, adverse effects

The following reference sources were used to provide a comprehensive basis for the guideline:

- Medline and Embase search (from 1980 till end of Dec 2018): the search strategy comprised the following terms in the title or abstract: Molluscum +/- contagiosum +/- genital. Only articles published in English were included in the search.
- Cochrane Collaboration Databases (www.cochrane.org) were reviewed.
- The British Association of Dermatology (BAD) patient information guidance, the American Academy of Dermatology (AAD) Association clinical guidance, the American Centres for Disease Prevention and Control (CDC) clinical guidance and the International Union against Sexually transmitted Infection (IUSTI) European guideline on the management of Molluscum contagiosum infection were also reviewed.

Methods

Article titles and abstracts were reviewed and if relevant the full text article obtained. Priority was given to randomised controlled trial and systematic review evidence where available, and recommendations made and graded on the basis of best available evidence.

Piloting & feedback

The document was reviewed by the Clinical Effectiveness Group of BASHH, and their comments incorporated. The draft guideline was placed on the BASHH website and any comments received during the consultation period were reviewed by the authors and acted on appropriately. The document was also piloted by target users and the public panel of BASHH, and their feedback considered by the authors.

GUIDELINE

Aetiology

Molluscum infection is a benign epidermal eruption of the skin, caused by Molluscum contagiosum, a large DNA virus. Molluscum contagiosum belongs to the *Poxviridae* family and *Molluscipox* genus. [1]

Up to four subtypes of Molluscum contagiosum have been identified by genotypic analysis [2-5]; commonest MCV-1, followed by MCV-2 subtype. [6-8] However, while there appears to be no clinical difference between subtypes, [8-9] MCV-2 relative frequency appears to increase with age and in the setting of genital infection, [7] though MCV-1 still remains the commonest subtype. MCV-2 also appears relatively commoner in the setting of immunocompromise and HIV. [8] [10-12] An individual infection usually includes only one subtype of molluscum. [7]

Molluscum infection may be spread by physical contact between individuals, fomites or autoinoculation. Molluscum incidence appears to be increasing worldwide.

Molluscum infection commonly occurs in one of 3-settings:

- Infection acquired through routine physical contact or occasionally fomites is the commonest presentation, and children account for the majority of infections [13-14]: in the period 1994-2003, over 90% of molluscum infections presenting to General Practitioners in the UK were in children aged under the age of 15 years. [15] In this setting, the molluscum lesions usually affect face and neck, trunk or limbs. [14] [16-17]

- Molluscum as a sexually transmitted infection (STI), usually affecting young adults, is a very small proportion of reported infections, [13] but may be increasing in frequency. [18-20] Sexually transmitted molluscum lesions usually affect the genitals, pubic region, lower abdomen, upper thighs and/ or buttocks.

- Severe molluscum infection can manifest in the context of immunocompromise, notably late stage HIV.

Clinical Features

Molluscum lesions are usually characteristic, presenting as smooth-surfaced, firm, dome-shaped papules with central umbilication. Their colour can vary from pearly-white or pink to yellow. Lesions are usually 2-5 mm diameter, though occasionally much larger (giant mollusca), especially in the setting of immunocompromise. [14] [21-22] Other uncommon manifestations include cystic, cellulitis or abscess-like lesions, [14] [23-27] cutaneous pseudo-lymphomas, [28-31] folliculitis [32-33] or warty appearances. [34] Destruction of an individual lesion will reveal a cheesy material, containing infectious viral particles.

Commonly, patients have 1-30 individual lesions at a time, [35] occurring as clusters, and these can become koebnerised. Especially lesions in later stages, at the point of regression, can be surrounded by an inflammatory dermatitis, which is due to a local inflammatory response to the infection. [36-37] Molluscum infection can affect almost any part of the body, rarely even the oral cavity [38-40] or sole of the foot. [41-43] Molluscum infection of the eyes may cause keratitis. [44] Autoinoculation of other areas is possible following infection of skin at one region. Individuals with atopic dermatitis may be at higher risk of acquiring infection, due to loss of skin integrity and the immune dysregulation of atopic skin. Molluscum lesions are frequently asymptomatic, though occasionally associated with itch, discomfort or secondary bacterial infection. Molluscum lesions will usually regress spontaneously within 6-18 months on average in immunocompetent individuals, leaving no sequelae. Immunocompetent patients can therefore generally be reassured and asked to adopt a policy of 'watchful waiting'.

Molluscum infection in immunocompromised states can be significantly more aggressive and widespread, presenting with 100 or more lesions in one individual,[45-48] and progressing as confluent, coalescing plaques. [49] As described, these individual lesions can be atypical in appearance, are frequently significantly larger than average. [50-52] and fail to spontaneously resolve with time. Extensive molluscum infection has been described in many different settings of immunocompromise, including malignancy, [47] hereditary/ congenital immunosuppressive conditions [53-56] and with immunosuppressant treatments. [36] [52] [57-59]

Severe molluscum infections were also common in people living with HIV in the pre-HAART era,[60-61] estimated to affect 5-18% of positive individuals.[62-65] Extensive disease usually occurs in the setting of late HIV, with CD4 counts significantly under 200 and concurrent illnesses related to advanced HIV infection.[46] [63] [66-74] Extensive molluscum can be the first indication of HIV infection.[46]

Lesions occur commonly on the face and neck, [50] [75] but can also commonly affect the genital regions, indicating both non-sexual and sexual transmission routes in this scenario. [46] Particularly in immunocompromise, molluscum lesions can affect the eyelids [76-78] and cause chronic conjunctivitis due to a foreign body type reaction. [14] [77] [79-81] Molluscum infection can be particularly difficult to treat in late stage HIV using conventional means, [64] [82] though usually responding to HIV anti-retroviral treatment (ARV) initiation [83] However, an Immune Reconstitution Inflammatory Syndrome (IRIS) reaction to molluscum may occur with the starting of ARVs, [84-86] and molluscum may occasionally first present in the setting of IRIS. [87-89]

Diagnosis

Diagnosis is predominantly clinical, on the basis of characteristic lesions.

Occasionally clinical diagnosis can be challenging, and dermatoscopy may be of some additional benefit, [90-91] as appearances are usually distinctive. [92] However, dermatoscopy is not routinely available in a sexual health setting. Rarely, biopsy maybe useful for atypical infections, as the histopathology will usually identify characteristic 'molluscum bodies. [36] [93]

While molecular methods such as PCR now exist for molluscum, [94] these are not routinely used in clinical practice. Electron microscopic appearance of molluscum is again characteristic but not routinely utilised in everyday practice.

Differential diagnoses

Molluscum may be mistaken for a number of other dermatologic conditions, especially if solitary lesions; including basal cell carcinoma (BCC), cysts and abscesses, keratoacanthoma and cutaneous horn. Genital

molluscum may also be confused with ectopic sebaceous glands [95-96] and vulvar lymphangioma circumscriptum. [97-98] Patients may confuse genital lesions with genital warts.

The most significant differential diagnoses of widespread molluscum however are the cutaneous manifestations of disseminated fungal infections, usually presenting in late immunosuppression, including Penicilliosis, [99-101] Cryptococcosis, [102-110] Histoplasmosis, [111-112] Coccidiodomycosis, Pneumocystis carinii [113] and Aspergillosis. [114]

Management

General advice

Patients should be reassured that this is a benign viral infection of the skin that will commonly spontaneously resolve within 12-18 months and treatment is usually not required. Where lesions are predominantly genital, it is likely that the infection was contracted through sexual intercourse though this is not invariable (autoinoculation from another area is possible).

Patients must be warned of risks of autoinoculation and, for example, advised against shaving, electrolysis or waxing their genital regions, to prevent further spread of lesions. [115] Similarly, patients should be advised against squeezing molluscum spots, both due to risk of super-infection and also as the central plug is full of infectious virus which is easily spread to uninfected skin.

Towels, bed-linen, clothes etc. should not be shared when active lesions are present, to reduce risk of onward transmission. Lesions should be covered with waterproof bandages or clothes, if possible, prior to using swimming pools. [116]

With genital molluscum, condoms may reduce transmission, but this is not absolute. [117] Patients should avoid sharing sex toys while lesions are present. Treatment and full resolution of lesions will prevent further transmission.

Further Investigation

Patients who develop molluscum at their genital regions have usually acquired infection via a sexual route [118], and should be offered routine STI screening for other infections.

In patients with immune suppression disseminated fungal infections should be excluded.

Treatments (please see appended Table 1)

Recommended

Expectant management (no treatment) is recommended for immunocompetent patients (although this recommendation is guided by a Cochrane review of molluscum treatments at non-genital sites). [119] **(GRADE 1B)** (Patients should be warned that new lesions may appear while old ones disappear, and it will usually take 12-18 months for infection to completely resolve, though occasionally even longer (up to a few years).

Patients seek treatment from various motives, including for cosmetic reasons, stigma, symptoms (pruritus, secondary infection), extensive lesions, lesion persistence and concerns regarding transmission and auto-inoculation. Some treatments may shorten the disease course, but this requires to be balanced against

possible side-effects. Molluscum infection itself, resolving naturally, usually leaves no long-term sequelae, and it is important therefore that any therapy chosen, especially for delicate genital skin, is also gentle and has minimal side-effects. It is difficult to advocate one single treatment above others and choice is influenced by a number of factors, including site and number of lesions, comparative efficacy, side-effects, cost and ease of use. The patient's views should be considered in the decision-making process. If patients opt for treatment, they must be informed that new lesions can appear for a while, necessitating more than one treatment course.

Where molluscum lesions are associated with dermatitis (either due to background atopy or as an immune reaction to lesions), we suggest considering emollients and possibly mild topical steroid to settle inflammation, reduce the risk of scratching and further autoinoculation. [120] **(GRADE 2C)**

Where active treatment for genital molluscum is required, we suggest that liquid nitrogen therapy or topical podophyllotoxin may be used. **(GRADE 2C)**

Liquid nitrogen therapy has been successfully used to treat molluscum, [121 - 124] although there are no reported trials in genital disease. Discomfort during application and local site reactions, uncommonly including hypopigmentation, are among the side effects.

Podophyllotoxin 0.5%, commonly used to treat genital warts, may also be used in the treatment of Molluscum contagiosum. We note evidence on efficacy is somewhat limited, [121, 125-126] however in one randomised controlled trial (RCT) which demonstrated success, the majority of patients had genital lesions. [125] Podophyllotoxin has the advantage of self-application and should be used twice daily for three consecutive days every week, for up to a duration of 4 weeks [net price 3ml solution £12.38].

Alternative Regimens

Cautery of genital molluscum is possible, especially if lesion numbers are not large. ([119]) Side effects of scarring is unlikely if it is performed expertly and only to the raised dome of the lesions. However, cautery is often painful, though discomfort may be lessened by the prior application of local anaesthetic cream (e.g. EMLA cream). In addition, equipment necessary for cautery is unlikely to be easily accessible within most sexual health services.

Curettage is a conventional and well-recognised treatment for molluscum affecting non-facial, non-genital skin, [127] but is frequently painful [128], impractical if a very large number of lesions, may cause scarring and evidence for its efficacy is relatively sparse. [129-130] It is thus less suitable for treating genital lesions.

Light emitting and pulsed dye lasers, has been tried with some success in both HIV positive and negative patients with non-genital molluscum, though there are no randomised controlled trials. Reported side effects are few; mild discomfort and, usually temporary, pigment changes. [131-138] However, such treatment is costly, requires special equipment and is impractical for routine use at the genital region.

Imiquimod 5% cream has demonstrated some limited efficacy in the treatment of Molluscum contagiosum, in both HIV-positive [48] [139-141] and negative patients [142-146]. There is also some experience in the use of Imiquimod to treat genital infection. ([147-148]) However, the most recent Cochrane review of Molluscum therapies ([119]) considered previously unpublished data from 3 large manufacturer sponsored trials, including a total of over 800 patients, enquiring into the efficacy of Imiquimod as treatment for cutaneous molluscum. The trials failed to demonstrate any superiority of Imiquimod above placebo in the treatment of Molluscum but did note an increased incidence of local application site reactions. Taking this data into account, we therefore no longer recommend Imiquimod as a treatment option for genital molluscum infection.

There is a very extensive list of other chemical preparations that have been tried for treating molluscum on the trunk and limb areas of the body. These include varying strength topical preparations of salicylic acid,[127] [149-150] lactic acid, glycolic acid,[127] trichloroacetic acid,[151-152] carbolic acid, benzoyl peroxide,[153] iodine,[150] phenol, sodium nitrite,[154] potassium hydroxide,[155-159] silver nitrate,[160] Tretinoin.[153] [159] , tea tree oil ([161]) and lemon myrtle oil ([162]) However, there is little robust trial evidence generally for these treatments and none related to their use in genital infection, to recommend any above the policy of 'watchful waiting'. Additionally, many of these topical therapies are too irritant for application on delicate genital skin, and thus are not recommended for use at this site. There is more experience in the use of cantharidin for non-genital molluscum but this treatment is not routinely available in the UK and, again, would be expected to cause significant soreness at genital skin. ([163-170])

Oral Cimetidine has also been attempted as an antiviral treatment for molluscum with mixed success ([171-173]) and cannot be recommended due to lack of evidence.

In summary, there is a paucity of good quality trial data for effective and well tolerated treatments for genital molluscum. We recommend that expectant management is suitable for most immunocompetent patients. Where there is a strong individual patient or clinician preference for active treatment, liquid nitrogen and topical podophyllotoxin can be attempted as easily accessible therapies in most UK sexual health clinic settings. Cautery may also be considered but the required equipment and experience may not be as readily available in regular sexual health service settings. We no longer recommended Imiquimod use for genital molluscum.

Pregnancy & Breastfeeding

Cryotherapy and cautery are safe but Podophyllotoxin should be avoided.

Genital molluscum infection in people living with HIV

We suggest that, where active treatment is required, similar to immunocompetent individuals, liquid nitrogen and Podophyllotoxin remain the first line treatment options for genital lesions in people living with HIV. (**GRADE 2D**)

Topical Cidofovir has demonstrated some efficacy in the treatment of non-genital recalcitrant molluscum infection in the setting of HIV immunosuppression, [174-178] but is frequently associated with significant local inflammation. It therefore cannot be recommended for use on genital skin. There are also a small number of case reports [178-180] on the use of intravenous Cidofovir for extensive, severe and treatment refractory non-genital infection in HIV. There is however no trial data available, either for genital or non-genital infection.

Both intra-lesional [181] and systemic subcutaneous interferon [182-183] have been attempted as immune-boosters for the treatment of molluscum in a few immunosuppressed patients. There is however again no evidence to support interferon use for routine genital infection.

As noted previously, there are also a number of case reports on the use of topical Imiquimod for non-genital lesions in people living with HIV. [48] [139-141]

For patients who are immunosuppressed (with HIV infection), and have extensive genital molluscum lesions, the introduction of active antiretroviral treatment (ART) will speed resolution, [83] [184-188] and we recommend that this should be regarded the most effective management option. [189] (GRADE 1C) However, patients should be warned that there may be an occasional flare-up during immune reconstitution. [84-86]

Reactions to Treatment

Common side-effects to cryotherapy include pain, inflammation and mild oedema at treated areas. Pigment change, hair loss and superficial scarring are rare.

Podophyllotoxin is also commonly associated with local contact irritant reactions.

Follow-up

No routine follow up is required. Patients should be advised that infection does not lie dormant once all the lesions have resolved. However, individuals do not develop immunity after one infection and may be re infected again in the future.

Contact tracing & treatment

Routine partner notification is not required for genital molluscum infection unless there is evidence of a concomitant sexually transmitted infection.

Auditable outcomes

Offer of STI screening for patients presenting with genital molluscum – Target 97%

Cost Implications

The recommended first line treatments of cryotherapy and, podophyllotoxin remain unchanged and no cost implications are expected.

Editorial independence

This guideline was commissioned, edited and endorsed by the BASHH CEG, without external funding being sought or obtained.

Guideline updates and date of next review

The guidelines will be next fully updated and revised in 2026

Declarations of interest

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: All members of the guideline writing committee completed the BASHH conflict of interest declaration at the time the guideline's final draft was submitted to the CEG.

Funding

The authors received no financial support for the research

Membership of the Clinical Effectiveness Group

Current membership of the BASHH Clinical effectiveness group is available at https://www.bashh.org/guidelines

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