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# UK national guideline for the management of Genital Molluscum in adults, 2014
# Clinical Effectiveness Group, British Association for Sexual Health and HIV

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## 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. *It primarily focuses on infection that affects the genital area and has a sexual mode of transmission.*

It is aimed primarily at patients aged 16 years or older presenting to health care professionals working in departments offering level 3 care in sexually transmitted infection (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

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

- Medline and Embase search (from 1980 till end of December 2012): 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 (http://www.cochrane.org) were reviewed.
- The British Association of Dermatology patient information guidance and the American Centres for Disease Prevention and Control clinical guidance on Molluscum contagiosum infection were also reviewed.

### Methods

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

### Piloting and feedback

The initial draft of the guideline was reviewed by the British Society for Sexual Health and HIV (BASHH) Genital Dermatology special interest group.

The final guideline was then reviewed by the Clinical Effectiveness Group (CEG) using the AGREE instrument before posting it on the BASHH website for external peer review for a two-month period. Comments received were collated by the CEG editor and sent to the guideline chair for review and action. The final guideline was approved by the CEG and a review date agreed before publication on the BASHH website.

## 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]

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Up to four subtypes of *Molluscum contagiosum* have been identified by genotypic analysis;[2–5] commonest Molluscum contagiosum virus (MCV)-1, followed by MCV-2 subtype.[6–8] There appears to be no clinical difference between subtypes,[8,9] or their preferred anatomical sites,[7] though MCV-2 appears relatively common in the setting of immunocompromise and HIV.[8,10–12] An individual infection usually includes only one subtype of molluscum.

Molluscum infection commonly occurs in one of three 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 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 STI, usually affecting young adults, is a very small proportion of reported infections,[13] but appears to be increasing in frequency.[18–20] Sexually transmitted molluscum lesions usually affect genitals, pubic region, lower abdomen, upper thighs, and/or buttocks.
- Severe molluscum infection can also 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 pseudolymphomas,[28–31] folliculitis[32,33] or warty appearances.[34]

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 point of regression, can be surrounded by an inflammatory dermatitis.[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 lesions are frequently asymptomatic, though occasionally associated with itch, discomfort or secondary bacterial infection. Mollsucum infection will usually regress spontaneously within months in immunocompetent individuals, leaving no sequelae. Immunocompetent patients should 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,[44–47] and progressing as confluent, coalescing plaques.[48] As described, these individual lesions can be atypical in appearance and are frequently significantly larger than average.[49–51] Extensive molluscum infection has been described in many different settings of immunocompromise, including malignancy,[46] hereditary/congenital immunosuppressive conditions[52–55] and with immunosuppressant treatments.[36,51,56,57]

Severe molluscum infections were also common in HIV patients in the pre-highly active antiretroviral therapy (HAART) era,[58,59] estimated to affect 5–18% of positive individuals.[60–63] Extensive disease usually occurs in the setting of late HIV, with CD4 counts significantly under 200 and concurrent illnesses related to advanced HIV infection.[45,61,64–72] Extensive molluscum may be the first indication of HIV disease.[45]

Lesions occur commonly on the face and neck,[49,73] but can sometimes affect the genital regions, indicating both venereal and non-venereal spread in this scenario.[45] Particularly in immunocompromise, molluscum lesions can affect the eyelids[74–76] and cause chronic conjunctivitis due to a foreign body-type reaction.[14,75,77–79] Molluscum infection can be particularly difficult to treat in late-stage HIV using conventional means,[62,80] though usually responding to HIV antiretroviral treatment (ARV) initiation.[81] However, an immune reconstitution inflammatory syndrome (IRIS) reaction to molluscum may occur with the starting of ARVs,[82–84] and molluscum may occasionally first present in the setting of IRIS.[85–87]

## 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,[88,89] as appearances are usually distinctive.[90] However, dermatoscopy is not routinely available in a sexual health setting. Rarely, biopsy maybe useful for atypical infections, as the histopathologic features are characteristic.[36,91]

While molecular methods such as polymerase chain reaction now exist for molluscum,[92] these are not routinely used in clinical practice.

### *Differential diagnoses*

Molluscum may be mistaken for a number of other dermatologic conditions, especially if solitary lesions; including basal cell carcinoma, cysts and

abscesses, keratoacanthoma and cutaneous horn. Genital molluscum may also be confused with ectopic sebaceous glands[93,94] and vulvar lymphangioma circumscriptum.[95,96] Patients may confuse genital lesions with genital warts.

The most significant differential diagnoses of molluscum however are the cutaneous manifestations of disseminated fungal infections, usually presenting in late immunosuppression, including Penicilliosis,[97–99] Cryptococcosis,[100–108] Histoplasmosis,[109,110] Coccidiodomycosis, *Pneumocystis carinii*[111] and Aspergillosis.[112]

## Management

### General advice

Patients must be warned of risks of autoinoculation and, for example, advised against shaving or waxing their genital regions, to prevent further spread of lesions.[113] Similarly, patients should be advised against squeezing molluscum spots, both due to risk of superinfection and also as the central plug is full of infectious virus that 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.

With genital molluscum, condoms may reduce transmission, but this is not absolute.[114]

### Further investigation

Patients who develop molluscum at their genital regions have usually acquired infection via a sexual route,[115] and should be offered routine STI screening for other infections.

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

### Treatments

*Recommended.* Expectant management (no treatment) is recommended for immunocompetent patients (although this recommendation is guided by a Cochrane review of molluscum treatments at nongenital sites).[116] (Level of evidence I, A.)

Patients seek treatment from various motives, including for cosmetic reasons, stigma, symptoms (pruritus, secondary infection) and concerns regarding transmission and autoinoculation. 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 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 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.

Podophyllotoxin 0.5%, commonly used to treat genital warts, may also be used in the treatment of Molluscum contagiosum[117–119] and has the advantage of self-application. It is applied twice daily for three consecutive days, with a pause for four days. It can be repeated after a week if necessary, for four weeks (net price 3-ml solution £12.38). In one RCT demonstrating podophyllotoxin efficacy, the majority of patients had genital lesions.[118] (Level of evidence Ib, A.)

Imiquimod 5% cream has demonstrated some limited efficacy in the treatment of Molluscum contagiosum, in both HIV-positive[47,120–122] and negative patients.[123–128] There is also an RCT demonstrating efficacy in the treatment of genital infection.[125] Imiquimod cream is applied to lesions three times weekly and washed off 6–10 h later, for up to 16 weeks. Imiquimod is however not licensed for this purpose, as manufacturer trials failed to demonstrate efficacy in the treatment of non-genital molluscum in children. (Level of evidence Ib, A.)

Liquid nitrogen therapy, routinely available in sexual health clinics, has been used to treat molluscum,[117] though there are no reported trials. (Level of evidence IV, C.)

*Alternative regimes.* Curettage is a conventional and well-recognised treatment for molluscum affecting non-facial, non-genital skin,[128] but is frequently painful[129] and evidence for its efficacy is sparse.[130] It is unsuitable for treating genital lesions. (Level IV, C.)

Light emitting and pulsed dye lasers have been tried with some success in both HIV positive and negative patients with non-genital molluscum, though there are no RCTs. 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 in the genital region. (Level IV, C.)

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,[128,139,140] lactic acid, glycolic acid,[128] trichloracetic acid,[141,142] carbolic acid, benzoyl peroxide,[143] iodine,[141] phenol, sodium nitrite,[144] potassium hydroxide,[145–149] silver nitrate[150] and Tretinoin.[143,149] However, there is

very little published evidence generally for these treatments (and none regarding use in genital infection), to recommend any above the policy of 'watchful waiting'. Additionally, many of them are likely too irritant for application on delicate genital skin, and thus are not recommended for use here. (Level IV C.)

### *Pregnancy and breastfeeding*

Cryotherapy and other destructive methods are safe. Podophyllotoxin and imiquimod should be avoided.

### *HIV-positive individuals*

Topical cidofovir has demonstrated some efficacy in the treatment of non-genital recalcitrant molluscum infection in the setting of HIV immunosuppression.[151–155] However, its use is frequently associated with significant local inflammation[151–155] and therefore cannot be recommended for use on genital skin. (Level IV C.) There are also a small number of case reports[155–157] 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 intralesional[158] and systemic subcutaneous interferon[159,160] 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.

Where HIV positive patients with molluscum infection are immunosuppressed, and have extensive lesions, the introduction of effective HAART will speed resolution,[81,161–165] (Level IV, C) though there may be an occasional flare-up during immune reconstitution.[82–84]

### *Reactions to treatment*

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

Imiquimod and podophyllotoxin both are also commonly associated with local reactions.

### *Follow-up*

No routine follow up is required.

### *Contact tracing and treatment*

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

### *Auditable outcomes*

Offer of STI screening for patients presenting with genital molluscum – Target 100%.

### *Cost implications*

These guidelines have been revised to include a wider range of treatments than previous versions of the guidance. However, the recommended first-line treatments of cryotherapy, podophyllotoxin and imiquimod remain unchanged and no cost implications are expected.

## Membership of the Clinical Effectiveness Group

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## New in the 2014 guidelines

Treatment in HIV-positive individuals.

## Authors' Note

The guidelines were reviewed and commented upon by members of the BASHH Genital Dermatology Special Interest Group (Dr P.N. Sashidharan, Dr Alan Tang, Dr Tim Moss and Dr Gulshan Sethi).

## Editorial independence

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### Conflict of interest

The authors declare no conflict of interest.

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