Update: Changing pattern of Cutaneous Mycobacterium ulcerans infection in Victoria

Key messages

- Cutaneous *Mycobacterium ulcerans* (also known as *M.ulcerans*) and the cause of Buruli ulcer, continues to be a concern in Victoria with most cases linked to exposure to known endemic areas in the Mornington Peninsula and Bellarine Peninsula.
- There has been a steady increase in notifications of *M. ulcerans*. The infection affects people of all ages.
- Consider the possibility of *M.ulcerans* in patients who present with a painless ulcer or compatible lesion after exposure to an endemic area. Early diagnosis and treatment is essential to minimise skin loss.
- Mosquito bite from an infected mosquito is considered a probable mode of infection so encourage all patients to take steps to avoid being bitten by mosquitoes.
- *M.ulcerans* is a Group B disease and must be notified to the Department within five days of diagnosis.

What is the issue?

*Cutaneous mycobacterium ulcerans* (infection) is a bacterial skin infection which causes slowly developing painless nodules or papules which can also become destructive skin ulcers. These have also been known as Buruli ulcer or Bairnsdale ulcer.

*M. ulcerans* infection was first diagnosed in the Bairnsdale area in the 1930s. Since then a growing number of cases have been reported in the Bellarine Peninsula and since 2012, the Mornington Peninsula – particularly in Rye and surrounding townships of Sorrento, Blairgowrie and Tootgarook. Recently a small and growing number of cases have been seen in residents of Frankston and surrounding suburbs, and other bayside areas in south eastern Melbourne. Currently, cases notified are up 70% so far this year compared with the same time last year.

When recognised early, testing is straightforward and treatment can significantly reduce skin loss and tissue damage.

Who is at risk?

Everyone is susceptible to infection. Although the source of the infection is not completely understood, this environmental organism appears to be associated swampy or stagnant water, and/or coastal vegetation. It is possible that infection may occur weeks to months after direct exposure of broken skin to the environment or through the bite of a mosquito or other insect, which was in turn in contact with an animal reservoir. Individuals who
visit endemic areas are considered at greatest risk. *M. ulcerans* is not known to be readily transmitted from one person to another. People aged 60 years and over have a higher rate of notification with *M. ulcerans* in Victoria.

**Symptoms and transmission**

Although the incubation period has not been clearly defined, it is thought to vary from four weeks to nine months, with a median of 4-5 months. There is a peak in diagnoses in Victoria between June and November each year, however cases are diagnosed year round.

The first sign of *M. ulcerans* infection is usually a painless, non-tender nodule or papule. It is often mistaken for an insect or spider bite and is sometimes itchy. The lesion may occur anywhere on the body but it is most common on exposed areas of the limbs. In one or two months the lesion may become fluctuant and ulcerate, forming a characteristic ulcer with undermined edges.

Ordinarily there is no regional lymphadenopathy, fever or systemic manifestations, because the bacterium produces a unique toxin known as mycolactone that inhibits the immune response whilst leading to tissue damage. If left untreated, extensive ulceration can occur, requiring surgical management. Occasionally the disease may present as a firm, painless elevated plaque or an entire limb or area may be indurated by oedema without an ulcer.

Transmission pathways are not well understood. Mosquitoes are a probable vector, although this is not definitive. Possums have been implicated as a reservoir, although other animals may also be involved as well. Most cases report some form of skin trauma, including insect bites, prior to development of lesions.

**Prevention and treatment**

**Preventive measures**

Although not confirmed, it is probable that *M. ulcerans* is transmitted by mosquito bites, therefore the use of insect repellent when outdoors during warmer months is recommended. Simple precautionary measures such as wearing appropriate protective clothing when gardening and undertaking recreational activities in identified risk areas may assist in preventing mosquito bites and possible infection.

Cuts and abrasions should be cleaned promptly and exposed skin contaminated by suspect soil or water should be washed following outdoor activities. There is no role for culling or relocation of possums as a preventive measure, although avoiding areas with possum faeces is sensible.

**Diagnosis**

Dry swabs (or pre-moistened with sterile saline) from beneath the undermined edges of the lesion or a biopsy should be sent for staining for acid-fast bacilli (AFBs), PCR and culture. Although the same swab or biopsy may be used for all three procedures if performed in the same laboratory, it is recommended to send two separate swabs or a swab and a biopsy, especially if a specimen is being referred to the Victorian Infectious Diseases Reference Laboratory (VIDRL) for PCR and culture. It is essential that there is visible clinical material on the swab.

**Please state on the request form that M. ulcerans is suspected.** A positive smear for AFBs makes the diagnosis likely. Culture or PCR is required for confirmation. A negative smear does not exclude the diagnosis.

A biopsy of suspicious lesions which have not ulcerated can be sent for histology. The suspected diagnosis should be mentioned and a request made for AFB staining, specific PCR and mycobacterial culture. The PCR test is only performed at VIDRL and can confirm the diagnosis in a few days. Culture usually takes 8–12 weeks.

Under the Public Health and Wellbeing Regulations 2009, *M. ulcerans* infection is a Group B disease and must be notified in writing by medical practitioners and persons in charge of laboratories within five days of diagnosis.

**Management**

Referral for treatment to doctors experienced in the management of this condition is recommended. The current mainstay of treatment is rifampicin-containing combination oral antibiotic therapy. Surgery may be used in combination with antibiotic therapy where indicated.
More Information

For clinicians


For consumers


Contacts

For further information please contact the Communicable Disease Prevention and Control section at the Department of Health and Human Services on 1300 651 160.

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