



# Non-healing ulcers

## Including those caused by nontuberculous mycobacteria (NTM)

There are many causes of non-healing (chronic) ulcers and they include:

- Problems with blood supply or drainage
- Nerve damage
- Excess pressure
- Cancer
- Infection.

When determining the cause of a non-healing ulcer, it is always important to assess the blood supply and nerve function to the area. If cancer or unusual infection is suspected, a skin biopsy may be required. It is important to seek medical attention early for non-healing ulcers, so that appropriate diagnostic testing can be done and treatment commenced at an early stage. Ulcers that are not healing or improving in a 2 week period should be assessed by a clinician.

### **Vascular disease**

Chronic leg ulcers are commonly due to poor drainage of blood from the legs (venous insufficiency) and/or poor blood supply to the legs (peripheral vascular disease). Older people, particularly smokers and ex-smokers, may have narrowing of the blood vessels leading to decreased blood flow to the lower legs and feet. This can lead to symptoms of cold feet and pain with walking. Minor trauma to the lower limbs can become a non-healing ulcer. The poor blood supply reduces the body's ability to heal following an injury. Rarely, blood vessels can become inflamed as part of an autoimmune disease. This can cause a rash, and chronic ulcers can form.

### **Diabetes**

Non-healing ulcers commonly occur in people with diabetes, particularly if their blood sugar levels are too high or there is a history of smoking. Poorly controlled diabetes is a risk factor for narrowing of the large arteries that supply blood to the legs (see above). It also

leads to damage of much smaller blood vessels. This can damage nerves and leads to loss of sensation in the feet making the feet vulnerable to trauma. Poor wound healing may be an indication to check for elevated blood sugar levels.

### **Pressure areas**

Poor mobility, due to frailty or spinal cord damage, may lead to excess pressure on the sacrum, heels and other parts of the body. This can lead to skin breakdown and formation of a non-healing ulcer. Ill-fitting shoes or casts or splints may also cause ulcers. Unless the pressure point is relieved, the wound will not heal. Sometimes a skin graft is required to close the wound.

### **Skin cancer**

Skin cancers can present as a non-healing, sometimes ulcerated lesion, and early medical attention is particularly important. Skin cancers treated at an early stage are often curable. A delay in treatment may result in the need for more extensive surgery or in spread to other parts of the body.

### **Underlying infection of the bone**

Chronic ulcers can become deep and extend to the bone. This allows bacteria to infect the bone. Once this is established, the ulcer will not heal unless the bone infection is treated (often with a combination of surgery and antibiotics). Sometimes infection spreads to the bone through the bloodstream. Pus can build up and drain through the skin; this can also present as a non-healing skin lesion.

### **Melioidosis**

Melioidosis is a disease caused by a tropical, soil-dwelling, bacterium found across the Top End of the Northern Territory (NT) and Northern Australia. It is much more common during the rainy season. Skin and soft tissue infections usually occur following breaks in

the skin due to injury. The bacteria can then also enter the bloodstream and cause disease in other parts of the body, which can be life-threatening. Wearing gloves and shoes to prevent injury and exposure to soil is important. Diagnosis is made by growing the bacterium from clinical specimens (such as a swab). Treatment involves intravenous antibiotics followed by a long course of oral antibiotics. Infectious Diseases specialist involvement is required.

### **Nontuberculous mycobacteria (NTM)**

NTM are found in soil and water in tropical and temperate parts of Australia and infect the lungs and lymph nodes, and can cause non-healing skin ulcers. NTM skin and soft-tissue disease occur when NTM enter through a break in the skin from trauma or as a complication of a surgical procedure. There are sometimes geographical clusters of cases, however the causes of this clustering remains unclear.

*Mycobacterium ulcerans* skin lesions typically start as a painless, small spot similar in appearance to a mosquito bite that increases in size and then the skin breaks down and an ulcer forms. *M. ulcerans* skin lesions usually remain painless, and have edges that are often rolled. If untreated, the lesion continues to increase in size and can extend down to tendons, ligaments and bone.

Other NTM that cause skin and soft tissue infections include the rapidly growing mycobacteria and *M. marinum*.

NTM skin and soft tissue infections are diagnosed by the presence of acid fast bacilli on microscopy, culture and/or PCR from an ulcer swab or biopsy. Treatment of NTM depends on the type of NTM and involves antibiotic treatment sometimes in combination with surgery. In the NT treatment of NTM is usually under the management of the Centre for Disease Control.

### **Leprosy**

Leprosy is a chronic mycobacterial infection of the skin and peripheral nerves. Leprosy is now uncommon in the NT, however it still needs to be considered especially in skin and neurologic disease in Aboriginal or overseas born people. Damage to nerves can lead to loss of sensation in the hands and lower limbs. People with leprosy are more prone to trauma of these non-feeling areas, which may lead to non-healing ulcers.

### **Other infections**

Non-healing ulcers can be caused by other infections, including sporotrichosis and other fungi, *Nocardia*, actinomycosis and chromoblastomycosis. Some of these are environmental organisms, and should be suspected if there is exposure to soil, mulch, hay or other plant material. The diagnostic laboratory should be made aware so that clinical samples can be set up for appropriate testing. If confirmed, involvement of an Infectious Diseases specialist is advised.

#### **For more information contact the TB Clinic in your region**

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or <http://www.nt.gov.au/health/cdc/cdc.shtml>