Patient information

Chronic Leg Ulcers

Vascular Department

What is a leg ulcer?

A leg ulcer is a break in the skin of the leg that has not healed in two weeks. The immediate cause of the skin break is often trauma – frequently a minor knock or injury.

Failure to heal in a two week period means that there is an underlying cause stopping the healing process. It is important to identify the cause and deal with if the ulcer is to heal.

Wound healing is a complex procedure of four different stages in which:

1) the skin 'cleans' itself of blood clot and damaged tissue followed by
2) a period of inflammation, formation of new small blood vessels and recruitment of healing cells,
3) early regeneration of healing tissue called granulation tissue and
4) remodeling and strengthening of the healing tissue to make mature skin containing all its constituents.

The two commonest causes of failure to heal are poor circulation (arterial disease or high venous pressure or both) and infection. Many other factors are involved including poor nutrition, diabetes, and other diseases involving the heart, lungs, liver and kidneys. As we get older our ability to heal also decreases. Smoking and excess alcohol also reduce our ability to heal.

What investigations do I need?

The most important question that should be answered before any treatment is started is 'what is the cause of this ulcer'? Treating the wrong cause is not likely to be useful.

Tests and investigations are usually necessary for a diagnosis because the appearance of an ulcer does not tell us the cause.

Your doctor will take a history of the ulcer and your current and previous medical history. Your limb and the ulcer will be examined with specific reference to the circulation, pulses, varicose veins, swelling and skin colour.

An assessment of your arterial circulation with the hand-held Doppler ultrasound device is used to listen to the pulse and take an arterial pressure reading from the foot/ankle with a pressure cuff. When this is compared to the Doppler pressure from the arm we call this the Ankle Brachial Pressure Index (ABPI). A similar test called a toe pressure (TBPI) may also be used. This is a measure of arterial disease.

Problems with high pressure in the veins are assessed with the ultrasound duplex scanner which gives an image of the veins and looks at the blood flow within them. Examples of high venous pressure problems include varicose veins (superficial veins) and previous deep vein thrombosis (deep veins). High venous pressure can also arise from right heart failure and can also be seen with the duplex scanner.

If your ulcer has failed to heal for some time it may be necessary to take a skin biopsy under local anaesthetic to check for any possibility of malignancy or skin disease.

Blood tests are frequently taken to look for anaemia, infection, kidney and liver disease. If necessary, blood tests can be taken to assess your nutritional status and look for any deficiencies that might need treatment.

Arterial leg ulcers

Ulceration occurs when the arterial circulation is severely reduced and compromised.
If the measured Doppler pressure is severely reduced it means that not enough blood is reaching the ulcer to allow healing. This is usually secondary to hardening of the arteries and blockage of an artery.

The arterial circulation will probably need further imaging with angiography to see if this can be re-opened with a balloon angioplasty or a surgical bypass.

Venous leg ulcers

Ulceration can occur if the pressure in the veins is too high over a long period of time. It may take many years to develop unlike arterial leg ulcers. Simple trauma is often the trigger to a non-healing ulcer of the ankle or leg.

If vein pressure is the cause then every effort must be made to reduce the venous pressure in the leg. First and foremost is the need to rest with the leg in an elevated position to overcome the force of gravity pushing venous blood the wrong way down the veins of the legs.

There are three main causes of venous leg ulcers although patients may have more than one cause and even all three:

Varicose veins

This is the commonest cause of venous leg ulcers because varicose veins are so common. It is not known why some patients with varicose veins suffer this complication but others do not.

Research has shown that the problem lies with high pressure in the veins rather than the skin itself. Fortunately varicose veins are treatable by surgery, usually be endovenous laser or radiofrequency as a day case under local anaesthesia.

Surgical treatment of varicose veins does not seem to speed up healing but it has an excellent chance of preventing a new or another leg ulcer.

Deep vein thrombosis

A deep vein thrombosis (blood clot in the deep veins) of the leg causes swelling and blockage of the deep veins. The thrombosis almost always gets removed over time by the action of white cells in the blood so that the vein reopens but in a damaged way.

The thrombosis damages the lining wall of the vein and its valves by inflammation so that removal of the thrombosis leads to permanent damage to the valves.

Once these non-return valves have been damaged venous blood will pool in the legs by gravity and cause the pressure in the veins to be very high especially on exercise.

Over time the pressure may cause an ulcer. This is one of the more difficult causes of ulcer to treat because venous valves cannot currently be repaired or replaced with any degree of confidence. The only way of reducing the pressure is to spend more time resting the leg up and/or wearing a tight external medical compression stocking.

Right heart failure

Venous blood in the legs goes back to the right side of the heart. If there is too much pressure in the heart then the venous pressure backs up into the legs.

Common causes of right heart failure include lung disease such as chronic bronchitis, fibrosis and multiple clots (pulmonary embolism). Needless to say – smoking and excess alcohol can damage your heart and lungs.

Other causes of leg ulcer

Ulcers caused by trauma can fail to heal if infected or if there is excessive skin damage. If there is no other underlying cause they will usually heal once the infection is treated. Large areas of skin loss may need referral to a plastic surgery unit for skin grafting.

Rarely ulcers can be caused by medication. Always discuss your medications with your doctor.

Malignancy is a relatively uncommon cause of leg ulcer – a skin biopsy and perhaps further surgery may be recommended.

Blistering of the skin and subsequent ulcer may be a feature of generalised cellulitis (skin infection) of a leg. If severe you will require hospitalisation and intravenous antibiotics. Cellulitis is associated with diabetes, venous disease, lymphoedema and being overweight.

Infection

Infection stops the healing process and causes pain. All ulcers are superficially colonised so that routine culture swabs will invariably grow a bacteria. This does not mean that you should have treatment with antibiotics. Antibiotics should only be given for visible pus or cellulitis.

It is not always easy to tell the difference between inflammation and infection. Common antiseptics such as Iodine, Silver and sometimes honey can be combined with a dressing to remove bacteria from a wound. Simple cleansing of a wound by washing will dramatically decrease the number of surface bacteria.

Dressings and bandages

A dressing placed directly on the ulcer is called a primary dressing. Any covering dressing or compression bandage over a primary dressing is called a secondary dressing.

A wound or ulcer needs a primary dressing that allows the healing process to occur and is non-allergic and non-stick.

Arterial ulcers require a simple secondary dressing with no compression.

Venous ulcers commonly have a multilayer bandage (three or four layer) with some compression to reduce the pressure in the veins. Once the ulcer is dry or nearly healed the bandage system can be replaced with a compression stocking.

Ideally ulcer dressings should be replaced once a week – more frequent dressings are required for exudate (a wet ulcer) and infection.

Dry infected ulcers may need an application of a clear hydro-gel to soften some of the slough (dead tissue in the base of an ulcer).

Occasionally you will have larva therapy (maggots), Vac suction and skin grafts to enable an ulcer to heal.

Some ulcers will heal quickly with treatment but some are very resistant to treatment and take a long time to heal.

What can I do to help myself?

Look after your general health and nutrition. Avoid smoking and stop now if you are a smoker. Avoid excess alcohol.

Light walking is a reasonable exercise if you have an arterial type ulcer and it is not too painful.

If you have a venous type ulcer it will heal quicker if you can rest with your feet up. Make sure that you are in a comfortable position and move the pressure around your seat.

A pillow under the knees will relax the muscles and joints from being too straight. Make sure your heels are free from pressure by resting with a pillow under the calves.
Try to do some exercises with your feet when they are up by flexing and extending the ankle joint. Be very patient with yourself – a leg ulcer can take weeks or months to heal.

Feedback

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

LiVES Contact Numbers

During your contact with us, it is important that you are happy with your care and treatment. Please speak to a member of staff and/or the ward/department Sister/Charge Nurse if you have any questions or concerns.

Vascular Ward
Ward 3
Aintree University Hospital
Tel: 0151 529 2028/2262

Vascular Nurses:

Aintree via switchboard
Tel: 0151 525 5980 Bleep 5609/5594 or extensions 4691/4692

Royal Liverpool Hospital via switchboard
Tel: 0151 706 2000 Bleep 4212 or extension 4675
Text phone number: 18001 0151 706 2000 Bleep 4212

Southport via switchboard
Tel: 01704 705124

Whiston Hospital
0151 290 4508/ 430 4199

Secretaries:

Aintree University Hospital
Tel: 0151 706 3691/ 3523/3524/3481/3457/11813
0151 529 4950/4953

Southport/Ormskirk Tel: 01704 704665

Whiston Hospital
St. Helens and Knowsley NHS Trust
Tel: 0151 430 1499

NHS 111
Tel: 111

Circulation Foundation:
www.circulationfoundation.org.uk/vasculardisease/

Smoking cessation:

Liverpool	**Tel: 0800 061 4212/ 0151 374 2535**
Sefton	**Tel: 0300 100 1000**
West Lancashire	**Tel: 0800 328 6297**

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Participating Hospitals in LiVES are:

- **Liverpool University Hospitals NHS Foundation Trust**
- **Southport District General Hospital**
- **Ormskirk District General Hospital**
- **Whiston and St Helens Hospitals**

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