

AIVL VEIN CARE GUIDE

VEIN CARE and INJECTING RELATED ISSUES

You may be wondering what the link is between vein care and hepatitis C (hep C). One of the biggest reasons vein care is so important is that the more scarring and problems you have with your veins, the more likely it is that large amounts of blood will be around in the injecting process. More blood significantly increases the risk of hep C (and other BBVs) transmission.

It is quite common for people to inject with one or more other people. When this happens, poor vein care can lead to high risk situations if, for example, someone struggles to find a vein. Research has shown that the more blood there is around when injecting (on equipment, surfaces, clothes and hands, etc) the greater the risk of hep C transmission. The risk of hep C being transmitted is even greater if you share needles and syringes with someone else.

Regular injecting can lead to damage to the veins and surrounding tissue. Some of the more common injecting related issues are described here.

Thrombosis

Blood clots form when there is turbulence in the flow of blood. Damage to, or inflammation of the lining of the vein can trigger clotting of the blood at the site of the damage. These clots stick to the lining of the vein, and are known as 'thromboses'.

A blood clot inside a vein does the same things as a blood clot on the surface - it hardens and turns to scar tissue that shrinks and pulls the edges of the vein together.

It's this pulling together of the edges that makes veins 'collapse.' Veins that have collapsed in this way do not 'unblock' - the blood has to find another way back to the heart.



DVT – Deep Vein Thrombosis

Injecting, particularly in the leg or groin, can cause dangerous blood clots to form in the deep veins of the leg. These clot formations are known as a 'Deep Vein Thrombosis' (DVT). DVT can form at or near the injection site, or lower down in the leg around the calf muscle.

The symptoms of a DVT include redness, pain and swelling of the leg. If you inject in the groin and you get these symptoms, you should go to the hospital emergency department immediately.

If you have symptoms of a DVT and you get chest pains and become breathless, call an ambulance. The blood clot may have broken away from the vein, travelled up through your body and got stuck in the lungs. This is known as a pulmonary embolism (PE) and can be life threatening.

In hospital, DVT and other blood clots can be treated with injections that dissolve the clot.

Vein blockage and collapse

Veins may become temporarily blocked if the internal lining of the vein swells in response to repeated injury or irritation. For people who inject drugs, this may be caused by the needle, by the substance injected, or both. Once the swelling subsides, circulation usually becomes re-established.

Smaller veins may block as a consequence of too much suction being used when pulling back against the plunger of the syringe to check that the needle is in the vein. This pulls the sides of the vein together and the sides of the vein may stick together, causing the vein to block – this can be a particular problem if the vein is inflamed. Removing the needle too quickly after injecting can have a similar effect.

Permanent vein collapse can occur as a consequence of:

- Long-term injecting;
- Repeated injections at the same site, and especially with blunt needles;
- Poor injecting technique; and
- Injecting substances which irritate the veins (i.e. pills containing chalk and wax, methadone etc)

- Injecting large volumes of liquid
- Injecting with large bore needles

Long-term consequences of substantial vein damage

When the flow of blood through the limbs has been severely affected, a number of problems can arise, including:

- Ulcers
- Development of a sinus
- Scarring;
- Local infections; and
- Gangrene.

Ulcers

Ulcers form when the skin is knocked or scratched (or injected into) and the surface is broken. The slow flow of blood means that the cells cannot reproduce quickly enough to heal the wound. The resulting moist and painful wound can take years to heal, and can be compounded by infection.

Factors affecting healing

A number of factors can affect the rate of healing, including:

- Diet and nutrition;
- Stress;
- Poor accommodation;
- Poor general health; and
- Excessive drug and alcohol use.

Local infections

As well as the risk of transmission of BBVs such as hep C and HIV, injecting carries the risk of introducing bacterial and fungal infections to the tissue surrounding the injection site.

Local infections are often caused by bacteria, which normally live harmlessly on the skin, getting picked up by the needle and forced below the skin where they multiply.

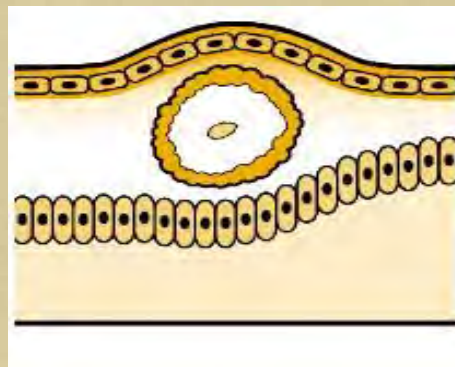
The risk of local infection will be increased by:

- Sharing needles and syringes, and other injecting equipment;
- Reusing unsterile injecting equipment (including filters);
- Injecting non-pharmaceutical medications;
- Unhygienic preparation of drugs;
- Poor personal hygiene; and
- Other health factors affecting circulation and immune function (eg smoking, lack of exercise, poor nutrition, chronic disease).

Local infections include abscesses, phlebitis, and cellulitis.

Abscesses

An infected abscess is a localised collection of pus that is caught within inflamed tissue. It can be caused by a wide range of bacterial and fungal infections. An abscess is different from cellulitis in that it has a defined edge and shape.



An abscess is characterised by:

- Raised skin surface;
- Localised heat;
- Tenderness and pain;
- Redness of the skin;
- Pus formation; and
- A foul smell if there is a discharge.

If you develop an abscess you should seek medical advice and treatment as soon as possible. An abscess will require antibiotic treatment and/or lancing to release the pus.

You should never try to lance or puncture an abscess yourself. This can spread infection and, without appropriate antibiotic cover, you can quickly develop septicaemia (blood poisoning). You should try to alternate injecting sites as this will lessen the risk of localised inflammation, infection and abscess formation. Talk to your local drug user organisation or a medical professional about safe injecting sites that you can use in rotation.

Phlebitis

Phlebitis is an irritation of the smooth inner lining of a vein. This roughening of the vein lining can encourage clot formation. If this happens, the vein becomes inflamed and can sometimes be felt as a thick cord beneath the skin.

Phlebitis can occur as a result of:

- Injecting irritant substances (such as benzos, pills, etc);
- Poor injecting technique;
- Infection; and
- Accidental injury (knocks or blows).

A dangerous complication of phlebitis is deep vein thrombosis (DVT) which can lead to pulmonary embolism.

If phlebitis is suspected you should seek immediate medical advice. Treatment includes resting and raising the limb, antibiotics and anti-inflammatory drugs.

Cellulitis

Cellulitis is a painful spreading inflammation of the skin, which appears red, hot and tender to touch, and is swollen with fluid.

Cellulitis can occur as a result of:

- Irritant substances lodged in body tissues; and
- Serious infection.

When cellulitis is suspected you should seek immediate medical advice. Treatment includes resting and raising the affected limb, and treatment with antibiotics and anti-inflammatory drugs. Never inject into areas that show signs of cellulitis and/or inflammation.

The following can help reduce the general risk of developing cellulitis:

- Always using sterile injecting equipment;
- Using sterile water where available or appropriate alternatives when it isn't;
- Avoiding the injection of irritant or heavily adulterated drugs;
- Avoid injecting large volumes of drug; and
- Removing jewellery prior to injecting if injecting in the hands.

Gangrene

Gangrene is the death of body tissue caused by impaired or absent blood supply. Gangrene generally occurs as a result of infection and artery damage.

The effects of gangrene can be disastrous, potentially leading to loss of limbs. It can also cause the products of tissue breakdown to enter the bloodstream causing blood poisoning or septicaemia which can be life threatening.

Gangrene and artery damage

Gangrene can be the result of injecting into an artery instead of a vein. It can also be the result of injecting irritant drugs (such as benzos, and other pills) into the femoral artery rather than the femoral vein. However, it can also occur when people inject into the smaller arteries in the arm.

Gangrene as a result of injecting into an artery can occur in the following ways:

- The artery can go into spasm and interrupt the supply of oxygenated blood to the tissues;
- The injected substance can block the artery interrupting the blood supply to the tissues; and
- Small particles of the injected substance can be transported into, and block, the capillaries in the tissue - causing their breakdown.

Signs and symptoms of artery damage include:

- Pain;
- Loss of feeling and control in an area of skin;
- Swelling and discolouration of an affected limb;
- Numbing and/or tingling of affected extremities, ie fingers or toes;

- Affected tissue initially becoming white;
- Affected tissue eventually blackening;
- Infected tissue becoming odorous; and
- If untreated, affected tissue dropping off.

Gangrene prevention and treatment

If you inject, it's really important to be aware of the following in order to prevent gangrene:

- The dangers of injecting into an artery;
- First aid treatment following accidental arterial injection; and
- Avoiding injection of crushed tablets and gel-tabs, especially benzodiazepines, Unisom gel capsules, and Diconal.

If you experience any of the symptoms of gangrene, you need to:

- Understand it's a serious complication that will not go away unless you get medical help; and
- Get urgent medical treatment - if the onset is sudden you should call an ambulance.

Speak to your local drug user organisation to find out more.

'Missed hits'

A 'missed hit' describes the swelling which appears around an injection site during, or immediately after injecting. It may be caused by fluid entering the tissue surrounding the vein because the needle has:

- Not entered the vein properly;
- Entered the vein and slipped out again;
- Entered the vein and gone through the opposite vein wall; or
- Entered the vein correctly but excess pressure has caused the vein to split.

These problems can be prevented by ensuring that you:

- Check that the needle is in a vein by gently pulling back on the plunger to see that venous blood enters the syringe;
- Always release the tourniquet before injecting;
- Maintain a steady hand whilst injecting;
- Use the smallest possible syringe and needle;
- Inject at the correct angle (in line with the vein); and
- Inject the fluid slowly.

A 'missed hit' will mean that the drug is absorbed much more slowly by the body, and the effect will be less pronounced. It can also lead to problems such as abscesses, cellulitis, and granulomas.

'Lumps and bumps'

Many injectors have various 'lumps and bumps' under their skin, which can often cause anxiety. The vast majority of these are not serious, and are often caused by one of the following:

- Previous abscesses;
- Frequently used veins that have now collapsed;
- Previous misses; and
- Previously injected tablets.

However, if you are worried, or if the lump/bump ever changes (size, colour, placement) you should seek medical advice.

Bruising

When you inject, blood can leak from the vein out under your skin causing a bruise.

Taking care of bruises

There are a number of creams that may help treat bruising and thrombosis, such as anti-thrombotic and anti-inflammatory creams (available from chemists) and herbal ointments made from arnica (available from health food shops and some chemists). You can also use vitamin E oil, aloe vera, comfrey, calendula and ice to reduce bruising.

You should wait a couple of hours before applying the cream, until the injection wound has begun to close. Don't squeeze ointment straight from the tube onto the injection site and **never** let anyone else put their fingers in your ointment jar, as these are ways of spreading bacteria and/or BBVs.

Scar tissue

The scar tissue that fills collapsed veins (often referred to as 'trackmarks') can remain visible for many years and feel like there is a 'bit of string' under the skin. Sometimes, there can be hard 'knots' under the surface of the skin, at the points where the valves in the vein used to be.

Scar tissue from injuries we suffered as children can often persist into adulthood, and scar tissue below the skin surface (caused by injecting injuries) can also persist for a long time. Old abscesses can also leave lumps of scar tissue that remain for many years.

Sterile abscess

A sterile abscess occurs as a result of injecting irritant substances such as crushed tablets, and possibly also as a consequence of a 'missed hit.'

This will often disperse without treatment but, over time, a granuloma may form around it. However, if a lump begins to become red, hot and painful then seek medical advice.

Granulomas

Granulomas are benign growths of scar tissue that are associated primarily with subcutaneous (under the skin) injections or 'missed hits'. This happens where the solution has ended up in the surrounding tissue. If this happens a residue may remain for many years, eventually leading to granuloma formation.

Many of the common cutting agents for injectable drugs, such as quinine, mannitol, dextrose and lactose, are not thought to cause foreign body granulomas. However the injection of crushed tablets will increase the risk. The principle filler of tablets is often 'hydrogenous magnesium silicate', frequently referred to as 'chalk' by drug users.

You should note that 'successful' intravenous injection of crushed tablets doesn't remove the risk of granuloma formation. It simply changes the place that they may be found, from the injection site to the lungs. If crushed tablets are injected, they should always be thoroughly filtered first.

Endocarditis

Endocarditis is a potentially life-threatening infection of the heart valve. It can develop through injections contaminated with bacteria, fungi or other germs. The germs collect and grow on one of the four valves inside the heart, eventually damaging the valve and stopping the normal flow of blood.

The symptoms of endocarditis can come on quickly, over 1 or 2 days, with fever, chest pain, fainting spells, shortness of breath and heart palpitations. In severe cases, a person may suddenly collapse; have a rapid pulse and pale, cool, clammy skin. Sometimes, endocarditis builds up over months and the symptoms are more vague - a low fever, chills, night sweats, pain in the muscles and joints, headache, shortness of breath, poor appetite, weight loss, odd chest pains and tiny broken blood vessels may appear on the whites of the eyes, inside the mouth, and on the chest, fingers and toes.

Treating endocarditis

Endocarditis usually responds well if treated early with long term intravenous antibiotics (generally administered in hospital). If endocarditis is not detected and treated, it can be life-threatening, or can require a heart valve transplant and long term medication. If you think you might have endocarditis, it is really important to get checked out properly by a medical practitioner and, if necessary, get proper medical care in hospital.

To prevent endocarditis, avoid injecting near skin infections or wounds no matter how small they are. The bacteria most frequently responsible for endocarditis in people who inject drugs is staphylococcus aureus (s. aureus), or staph for short. This same germ can cause things like septicaemia, cellulitis and abscesses, and it can live in the mouth too, so avoid blowing into baggies and/or licking spoons or injection sites - that's another way of spreading staph.

If you have a heart condition, a damaged immune system (eg through HIV/AIDS) or have had endocarditis in the past, it's important to let your doctor and dentist know before you have surgery or dental work done. You might also want to consider another way of using drugs to reduce the risk of contracting endocarditis.

Septicaemia

Septicaemia, or blood poisoning, can be caused by bacteria, fungi or other germs that can get into the bloodstream through unhygienic injecting. This can happen by using contaminated water, using unsterile filters, or having dirty hands. Septicaemia can also occur when a local infection such as an abscess is not properly treated. Among the initial symptoms are chills, fever and feeling totally exhausted. Like endocarditis, septicaemia can be treated with intravenous antibiotics, and it can also be life-threatening if left to progress. If you think you might have blood poisoning, it is really important to get checked out properly by a medical practitioner and, if necessary, get proper medical care in hospital.

Tetanus

Tetanus spores live in the soil and in dirt that you may not be able to see - on floors, other surfaces and even on your hands. Wash your hands and the surface you are working on, before preparing your hit. If you drop your fit, it may become contaminated: throw that fit away and use a new one. Whilst tetanus among people who inject drugs has been reported, it is not very common. There is a vaccine available for tetanus, so it is a good idea for all people who inject drugs to get vaccinated. A tetanus booster shot is required every 10 years.

Dirty Hits

A dirty hit is caused by pollutants and/or adulterants in a hit. They can come from any number of sources: nicotine from a used cigarette filter, dirt from your hands, powder that hasn't been filtered out of crushed pills, powders used for cutting drugs, bleach left behind (if you have cleaned your fit but not rinsed it properly), or bacteria and other micro-organisms in filters, unsterile water, and on your hands. The effects of a dirty hit can come on really quickly, but may also take hours. The symptoms can be severe - headaches, the shakes, vomiting, sweating, fever, aches and pains. Aspirin or paracetamol will help the fever. If you are vomiting, anti-nausea medication might help. It is best to rest and drink lots of fluids. Seek medical attention if the symptoms are strong and cannot be relieved, or if they continue to worsen. As difficult as this might be, it is a good idea to tell the doctor that you have had a hit and that this reaction came on afterwards. This is so you can be treated properly and you won't be misdiagnosed with other conditions such as meningitis or septicemia.

Eye Infections

You might think that eye infections have little or nothing to do with injecting, but there are some kinds of eye infections that can be caused by some injecting practices. An example is using lemon juice to mix up. A fungus that is on the lemon is injected into the blood stream and lodges in the eye where it settles.

In Australia, a small number of reported eye infections are known to have happened when people have injected Buprenorphine tablets that have spent time in someone's mouth. The infection happens when the tablet picks up traces of the Candida fungus, which can live in the mouth or in wounds on the skin.

This kind of eye infection may be preceded by small infections around the hair follicles on the scalp or other parts of the body, or around the injection site where the fungus entered the body. Some days afterwards, the symptoms in the eye appear. These include: a red, bloodshot, or painful eye, sensitivity to light, blurred vision, partial loss of vision and seeing spots. If left untreated for an extended period, this type of eye infection can lead to glaucoma, cataracts and loss of sight.

This kind of infection often requires a physical examination of the eye, as well as a blood test. However, diagnosis may be less complicated when the person's injecting history is known.

Treating these types of eye infections may require injections of anti-fungal medications and/or steroids, followed by anti-fungal tablets. The type and length of treatment will vary from person to person. Sometimes the problem can return once treatment finishes. If the symptoms do reoccur, you need to seek further treatment.

If you think you might have an eye infection through injecting, it is really important to get checked out properly and, if necessary, get proper medical care in hospital.

Summary

The injecting related problems discussed above can all potentially be avoided. You can do this by deciding not to inject in the first place or, if you do choose to inject, by looking after your veins - while they are still functional you are less likely to have problems with injecting, with less blood involved in the process and therefore less risk of hep C and other BBV transmission.

Vein care is about rotating injecting sites, using new syringes EVERY TIME you inject, applying bruising/scarring creams or ointments, using your own tourniquets where needed, avoiding arteries and nerves, being hygienic and taking your time.