

Charcot neuroarthropathy

What you're feeling

Charcot neuroarthropathy affects people who have lost some feeling in their feet, most often from diabetes. Because the joints cannot feel strain the way they should, walking and standing can quietly damage them. The joint becomes swollen, warm and red, and the foot may start to change shape. Many people notice little pain at first, which is part of what makes this condition easy to miss.

When there is discomfort, it usually sits in the middle of the foot or the ankle. It often flares after time on your feet, and it can be worse at night or when you first get up. Rest tends to settle it, but the swelling can take a while to go down. As the foot changes shape, everyday tasks become harder: shoes may rub or no longer fit, standing at the bench to cook becomes tiring, and walking to the letterbox or the shops can feel unsteady. Some people develop a rocker-bottom shape to the foot, where the arch has flattened and collapsed, and pressure points can break down into ulcers on the sole.

Your surgeon works out what is going on by listening to your symptoms and examining your foot, then matching what you feel with what they find. If your story and the examination do not line up neatly, further scans such as a CT or MRI can help sort out the cause. The bones in an affected foot can also become thinner, which raises the risk of small breaks happening in the joint itself.

If you have diabetes and notice a hot, swollen foot with little or no pain, it is worth having it checked promptly. Getting the diagnosis early gives your foot the best chance of staying stable.

What's actually happening

Charcot neuroarthropathy happens when a joint loses the protection that feeling normally provides. Healthy joints send warning signals when they are being overloaded, so you rest, change your shoes or take weight off the sore spot. When those signals are missing, the joint keeps taking the load. Small injuries pile up, and the bone starts to break down and change shape.

Two things seem to be going on inside the joint. One is wear and tear without the usual warning system: because you cannot feel the strain, you keep walking on a joint that a person with normal sensation would have rested. The other is changes in blood flow within the bone, which can weaken it from the inside. In an active

Charcot foot, the cells that break down old bone become more active while the cells that build new bone do not keep up. The bone becomes thinner and weaker, which is why small breaks can happen in the joint itself.

The joints most often affected are in the middle of the foot and the ankle, where the bones and ligaments normally hold everything in a stable frame. Ligaments are strong bands that connect bone to bone and keep the joint lined up as you walk. As the bone softens and the ligaments stretch, that frame starts to give way. The arch can flatten and collapse into the rocker-bottom shape described earlier, and the joints can slip out of line. Because there is little or no pain to warn you, the damage can build up quietly until the foot changes shape or the skin breaks down.

No one fully understands why this happens, and it is likely that more than one mechanism is at work. What matters for you is the practical point: a joint that cannot feel damage cannot protect itself, so the swelling, warmth and change in shape you notice are the signs of a joint that has been quietly overloaded.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. We assess your foot by listening to your story, examining it, and arranging scans where they are needed. Because this condition is long standing, we usually begin with non-operative care before considering surgery.

The first step is taking weight off the affected joints so they stop being overloaded. We may suggest changes to your activity, and orthotics, which are devices worn in or on your shoes to support and protect the foot. Orthotic devices can have a real effect on how well your foot works day to day. Physiotherapy aims to keep you moving safely while protecting the joints that have lost their warning signals. We give this approach a fair trial before talking about anything further.

Pain relief and anti-inflammatory medicine can help settle the discomfort in the short term. We use these alongside the steps above, not instead of them.

If these measures have not given enough improvement, we may discuss surgery. The main option is arthrodesis, which means joining the affected bones together so the foot or ankle is stable and holds its shape during weight-bearing. A stable, flat-on-the-ground foot greatly reduces the chance of ulcers and infections coming back on the sole. In some cases we use a rod placed down through the ankle into the heel to hold the bones in place while they join. Where extra support is needed, we can add bone graft, which is bone taken from your own body to help the bones heal together. Surgery is a shared decision, and we will talk through whether it suits your foot and your goals.

What to expect

Charcot neuroarthropathy is a long-term condition. The swelling and warmth in an active foot usually settle over weeks to months, especially once weight is taken off the joint. But the changes to the shape of the foot tend to stay. Without treatment, the joint keeps taking load it cannot feel, and the damage builds quietly until the foot becomes unstable or the skin breaks down into ulcers.

With well-managed care, many feet stay stable and usable. Orthotics and other non-operative steps can make a real difference to how your foot works day to day. If surgery is needed, joining the affected bones together gives a stable foot in most cases, with the bones joining successfully in more than 80% of hindfoot reconstructions. Overall, surgery to correct severe deformity results in stability in 93% of patients. Most people who have this kind of surgery report better pain relief and better function, and are satisfied with the result for years afterwards.

It is honest to say that surgery on a foot with lost feeling is demanding. The bones sometimes fail to join, and infection or wound problems can happen, particularly in people with diabetes, poor circulation to the skin, or those who smoke. Careful selection matters, and surgery is generally a salvage option for feet that have not settled with other measures. In a small number of cases, saving the limb is not possible and amputation is discussed instead.

What you can realistically expect is this: with early diagnosis, protection from overload, and a team approach, most feet can be kept stable and comfortable. The sooner the condition is picked up, the more shape and function your foot keeps.

When to see someone

With Charcot neuroarthropathy, the warning signs are not the usual ones. A hot, swollen, red foot with little or no pain is the sign that matters, and it needs checking promptly rather than waiting to see if it settles. This matters even more if you have diabetes, because a foot that has lost feeling cannot warn you about damage the way it should. Ask for a specialist review if a foot ulcer is not healing, if the shape of your foot is changing, or if you notice new numbness or pins and needles in your feet. Go to an emergency department if your foot becomes suddenly very painful, badly swollen, or the skin breaks down with spreading redness, because these can mean a problem that needs same-day care.