

Foot Care & Limb Design Centre
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Department of
Podiatry

Active Charcot Foot

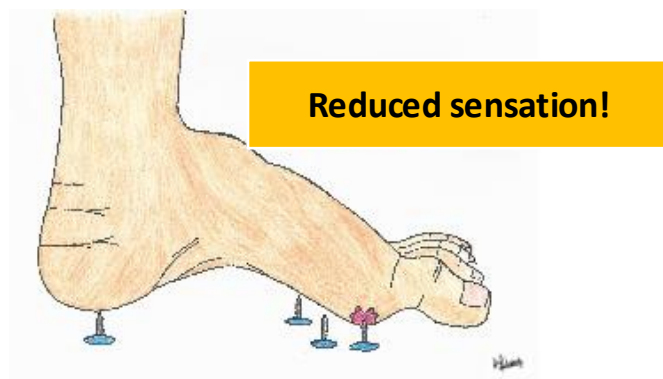


Active Charcot Neuro-osteoarthropathy

Charcot neuro-osteoarthropathy (CNA) is a progressive condition that causes deformities in the bones of the foot and ankle. If not treated during the active stage, it can lead to micro-fractures and eventual deformity.



It usually occurs in patients with peripheral neuropathy (poor sensation) in their lower limbs due to poorly controlled diabetes. This is because neuropathy can increase the risk of repetitive trauma and stress on potential repetitive trauma and overloading of the foot, triggering or causing active Charcot.



Clinical Signs of Active Charcot

1. Erythema (Redness).
2. Localised Unilateral (one-sided) Swelling.
3. Increased Warmth ($>2^{\circ}$ C temperature elevation compared to unaffected foot, detected by infrared dermal thermometry).
4. Pain and Deformity may be present.
5. Bounding Pedal Pulses.
6. History of Trauma.



Example:
Accidental ankle
sprains

7. Peripheral Neuropathy (Loss of sensation in the feet).

Unable to feel any
sensation during
monofilament testing



Diagnosis

If you present with the clinical signs of an active Charcot foot, your doctor may order imaging tests (X-ray/ MRI) to confirm the diagnosis.

Complications

It is crucial to start treatment for active Charcot foot as soon as possible to prevent:

1. Foot Deformity (E.g. Rocker bottom deformity).



2. Ulceration Due to Overloading of from Foot Deformity.



Callus starts to build up over deformity site due to peak pressure loading.

Excessive callus build up can result in ulceration.

Treatment for Active Phase of CNA

In the active phase, it is essential to immediately immobilise the foot and ankle and reduce weight-bearing to minimise the risk of resultant deformity. Standard of care options would include total contact cast (TCC) or the use of a long walker.

Total Contact Cast (TCC)

TCC is a custom-made, non-removable, rigid fibreglass cast that is applied to the affected leg from just below the knee to the end of the toes for immobilisation.



Treatment will also include:

1. Podiatry review every 1-2 weeks for re-casting of TCC until the Charcot becomes inactive.
2. Foot temperature monitoring during each Podiatry review.
3. Periodic X-rays by Orthopaedics team to monitor the progression of the condition.

Treatment for Active Phase of CNA

Long walker

- A long walker is a prefabricated removable knee-high walker that redistributes peak pressures.
- It can be used with a total contact insole (TCI) to provide better contour to the feet, optimise support to the feet and redistribute pressure along the plantar surface (surface of the foot) evenly to prevent resultant deformity.



Treatment will also include:

1. Foot temperature monitoring during each podiatry review.
2. Periodic X-rays by orthopaedics team to monitor the progression of the condition.

Treatment for Inactive Phase of CNA

CNA is likely in remission (inactive) when:

- Swelling and erythema have resolved.
- Temperature elevations are less than 2°C compared to non-affected limb for 3 consecutive reviews.
- Fractures have consolidated (healed) on imaging.

Upon remission of CNA, patients will be advised on the use of appropriate footwear with TCI to accommodate and support the foot deformity. This is to help prevent recurrence of Charcot symptoms and optimise plantar foot pressures (pressure distribution on the foot).



If the Charcot deformity is severe, a Charcot Restraint Orthotic Walker (CROW) may be recommended. It is a custom-made removable knee-high device with a rocker-bottom sole to immobilise and redistribute pressure across the foot and ankle.

