Hindfoot arthritis

Fusion surgery (arthrodesis)

A patient's guide

The **hindfoot** (subtalar joint) is the section of the foot that begins immediately below the ankle joint. This involves the joint between the calcaneum (heel bone) to the talus (bone of the ankle joint). This joint is responsible for side to side movement of the heel especially when walking on uneven ground.

What is arthritis?

The process of arthritis involves wearing or thinning of the smooth cartilage joint surfaces which causes bone to rub on bone, as well as soft tissue stiffening surrounding the joints.

Several factors claimed to be responsible for development of osteoarthritis like joint damage as seen with previous fracture or inflammation like rheumatoid arthritis. Poor ankle-foot alignment and deformity, such as a severe flat foot, can be a contributing factor for osteoarthritis.

What are the symptoms?

Pain is felt primarily on the side or top the foot. Some individuals may suffer from referred pain radiating towards the toes. Pain and stiffness on walking and ascending or descending stairs is often the main aggravating activity.

The foot may become **less flexible**, particularly on uneven surfaces. If osteoarthritis becomes more severe the affected area may develop **swelling** and thickening which can be seen and felt. Some people experience **giving way** due to loose ligament or pain.

What are the treatment options?

Non-Operative Treatment

- Activity Modification - Limiting standing and walking, particularly on uneven terrain, will help limit exacerbation of symptoms. Use of an exercise bike or swimming as a form of aerobic exercise instead of walking or running, will likely be beneficial as it allows for a good workout with much less force going through the subtalar joint.
- Weight-Loss - The back part of the foot is subject to forces equivalent to 3-5x body weight during daily activities, so losing even a small amount of weight can substantially decrease the forces going through the arthritic joint.
- Foot wear modification – Footwear can help with some fo the symptoms. Some may find ankle boots more comfortable, shock absorber inserts in the heal can help decrease the repetitive loading through the subtalar joint. Sometimes flexible trainers may help with the symptoms.
- Ankle Bracing - Use of an ankle brace can be helpful because it helps limit motion through the arthritic subtalar joint.

- Pain killers such as paracetamol and anti-inflammatory medication can be used before and after exercise
- Self-Administered strengthening and stretching programs - Exercise to keep the muscles of the foot as strong as possible, and to keep the joint moving through a gentle range of motion, may be helpful.
- Injections – steroid injections may provide pain relief.

Operative treatment is usually reserved for extensive arthritis that has failed non-operative management. Patients with subtalar arthritis who have lost significant cartilage may opt to have the subtalar joint fused.

What are the benefits of surgery?

If the operation is successful, your pain should be much less severe, you will be able to walk more easily and perhaps take less pain killers. The shape of the deformity may improve but usually not back to normal.

Fusion (arthrodesis) surgery

Fusion surgery is usually performed under general or regional anaesthetic. There are different types of surgery, depending on your individual condition.

A short stay in hospital, a few days, is generally required.

The surgery is performed through a number of incisions on the foot. The surgeon will clean and clear any damaged joint surfaces and fix your joint together using metal devices (nails, screws, plates).

Subtalar fusion - Screws used to hold the bones and help with fusion

Double arthrodesis (fusion)

Hindfoot nail

In some circumstances where there is major deformity or where the arthritis affects more than one joint, your surgeon may recommend fusion of those joints involved. The more joints that are fused usually results in greater stiffness in the joint.

What are the risks with surgery?

The general risks with surgery include

- Infection – In a very small number of cases the wounds may become infected and need antibiotics. It is rare for the bone to become infected but, if it does, this may need further, sometimes major, surgery.
- Swelling - It may take more than 12 months for the swelling to go down, but may permanently be more swollen than the other side. Elevation of the foot is of paramount importance to minimise this.
- Injury to nerves – Numbness or tingling can occur at the wound or in the foot. This is usually temporary but in some it may be permanent.
- Damage to blood vessels that cross around the foot may rarely occur during surgery.
- Blood clots in legs/lungs- Deep vein thrombosis (DVT) or pulmonary embolism (PE). You will be given blood thinning injections after surgery to minimise this risk.
- Scarring - As a result of your surgery you will have a scar on your foot. To begin with the scar will be raised, red and sensitive but with time it will usually settle.
- Anaesthetic complications – more likely if there are pre-existing medical disorders (heart, lung, kidney)

The specific risks to this surgery include

- Delay or failure of bones to knit together firmly (non-union / delayed union). The risk of this is a few in a hundred. Smoking is a significant risk factor. Medications such as steroids will slow bone healing or may stop it from fusing.

In some cases, prolonged immobilisation in a cast may be needed. In some cases further surgery is required.

- Malposition – resulting in persisting or new deformity of the ankle joint or hindfoot. Most deformities can be accommodated by insoles and shoewear. Rarely is further surgery required.
- Hardware related problems – loss of fixation, prominent screw heads, broken screws. Metalwork can be removed if troublesome after a year.
- Metatarsalgia - Failure to relieve pain or transfer of pain to another part of foot. Usually treated with insoles.
- Stiffness and degeneration of nearby joints - This universally occurs, however rarely needs further surgery.
- Complex regional pain syndrome (CRPS) – nerve pain syndrome.
- Amputation – this is extremely rare. However deep infections, vessel injury or chronic pain may necessitate amputation.

After your foot surgery

You will be in half plaster (back slab) for 2 weeks whilst the wounds heal. During this time, you will need to keep the foot elevated for 55 minutes of every hour to avoid swelling and infection. Your temporary cast and wound dressings will be changed and stitches removed (if applicable) at your follow-up appointment, which is usually about 2 weeks after the operation. You will be supplemented with blood thinners, in the form of injections, during this period. This will help in reducing your risk of deep vein clot formation.

You will then go into a full plaster for a further 10 weeks. During this time, you will be allowed to weight bear. You will likely to require crutches or some other sort of walking aid.

You might be asked to wear walking boot or brace for few more weeks once you come out of the cast.

Advice after surgery

Whilst you are in hospital you will be monitored and the medical staff will give you painkillers as required and prescribed. You will be given painkillers and instructions on management of the pain by nursing staff before you leave hospital.

Swelling is quite common, so in order to reduce swelling, your foot should be elevated (above the level of your heart) for 55 minutes in every hour for the first two weeks. You will not be expected to return to a normal level of activity until you have been advised on your progress.

Your own circumstances will determine when you feel ready to go back to work. Discuss with surgeon when it is safe to do so.

You must be free of pain and able to perform an emergency stop before driving again. This will also depend on which foot was operated on (right or left). Your insurance company must be notified regarding the type of operation that you have undergone to ensure that cover is valid.

After your plaster is removed you can start taking increasing exercise. Start with walking or cycling. The foot will be stiffer after surgery. Most people can walk a reasonable distance on the flat, drive and cycle. Walking on rough and uneven ground may be

difficult due to the stiffness. A full recovery can take up to 12 months.

If I have any questions or concerns?

These guidelines are to help you understand your operation. This level of detail may cause concern, anxiety, or uncertainty. Please let your doctor or nurse know so that we may address these issues.

We aim to see you back in the clinic at regular intervals to monitor your progress and answer any questions you may have during your recovery.

If there is concern regarding the wound, such as increased redness, pus, discharge, or pain, then seek medical attention either at your GP or nearest Emergency department.

Above all else, please do not proceed with surgery unless you are satisfied and understand all you want to know about the operation.

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