

Midfoot arthritis

Fusion surgery (arthrodesis)

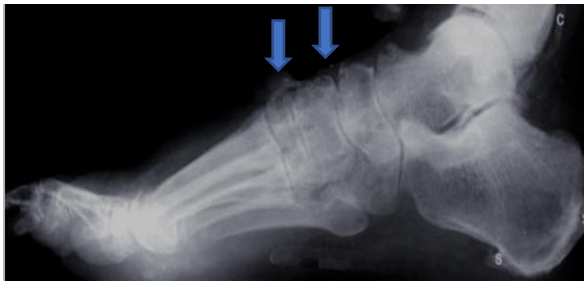
A patient's guide

What is mid foot arthritis?

The **midfoot** is the middle region of the foot, where a cluster of small bones forms an arch on the top of the foot. The midfoot contains 5 bones which are connected by “joints” to one another and also are connected to the “hindfoot” and “forefoot” by other joints. From this cluster, five long bones (metatarsals) extend to the toes.



The process of osteoarthritis involves wearing or thinning of the smooth cartilage joint surfaces which causes bone to rub on bone, as well as soft tissue stiffness surrounding the joints. Swelling, inflammation and pain are symptoms of midfoot arthritis.



Radiograph shows loss of normal joint space indicative of arthritis

Who gets midfoot arthritis?

Wear and tear can happen without clear cause. However, several factors claimed to be responsible for development of osteoarthritis. For example, joint damage as seen with previous fracture even if successfully treated many years before. Inflammation like rheumatoid arthritis, poor ankle-foot alignment, deformity and tendon problems can be possible contributing factors for osteoarthritis.

What are the symptoms?

Pain is usually felt primarily on the top or sides 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 pain.

The foot can subtly change its **shape** and become flatter in its appearance with loss of the natural arch.

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 loading through the small foot joints.

- Weight-Loss - Losing even a moderate amount of weight can substantially decrease the forces going through the arthritic joint.
- Shoe modification - Often stiffer soled shoes or “rocker bottom” shoes can really help when walking, taking the strain off the painful joints. Rocker bottom shoes can be searched for online to see the types of footwear available
- Pain killers - such as paracetamol and anti-inflammatory medication can help decrease pain symptoms
- 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.
- Steroid/Anaesthetic injections into the joints can provide temporary relief and can be repeated. These are undertaken in theatre with X-ray guidance.

Operative treatment is usually reserved for extensive arthritis that has failed non-operative management. It involves joining the arthritis joints together so that they form one bone and therefore no longer rub and move. This is known as a midfoot fusion.

What are the benefits of surgery?

The primary goal of midfoot fusion is to decrease pain and improve function by eliminating the painful motion between arthritic joint surfaces. A successful midfoot fusion can relieve pain and improve function.

Summary of surgery

Midfoot fusion is usually performed under a general anaesthetic. Following recovery, you will generally be able to go home after your surgery. You might be asked to stay for 1-2 nights according to the extent of surgery.

Fusion (arthrodesis) surgery

This procedure stabilises the joints, prevents movement and provides pain relief. Surgery is usually accomplished by one or 2 cuts on the upper or inner surface of the foot. Your surgeon will open the joints, remove the joint surface, reshape it, and the joints are then fixed and kept in place using screws, plates and staples.

Multiple joints may be included in the fusion.



Combination of screws and plates used to hold the bones and help with fusion



During the fusion, your surgeon may add bone grafts to fill the gaps between the joints after the cartilage has been removed. If necessary, this bone graft material may be taken

from another location in the patient's body (autograft). It may also come from donated bone (allograft) or from a synthetic material. A combination of these materials may be used.

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 surgery.
- Swelling - It may take more than 12 months for the swelling to go down, but may permanently be slightly more swollen than the other side. Elevation of the foot is of paramount importance to minimize 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. This rarely can result in a painful scar.
- 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). This could happen in 5-15%. Smoking is a significant risk factor. In some cases, prolonged immobilisation in a cast solves the problem. Sometimes further surgery may be required.
- Malposition – resulting in persisting or new deformity of the ankle joint or hindfoot. Most deformities can be accommodated by insoles and footwear. Rarely is further surgery required.
- Hardware related problems – loss of fixation, prominent screw heads, broken screws. A further operation might be needed to remove the metal work.
- 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 may occur, however rarely needs further surgery.
- Complex regional pain syndrome (CRPS) – nerve pain syndrome which is rare.
- 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 minimise swelling and reduce the risk of infection. Your temporary cast and wound dressings will be changed and stitches removed at your follow-up appointment, which is usually about 2 weeks after the operation.

You will then go into a full plaster for a further 4 to 8 weeks. You are allowed to weight-bear on your operated leg in the plaster, sometimes sooner according to your surgeon's advice. This will mean you will be hopping and using crutches or some other sort of walking aid.

You will be supplemented with blood thinners in form of injections whilst your limb is immobilised in a cast for the first 2 weeks. This will help in reduction of clot formation risk.

You might be asked to wear walking boot or brace for few more weeks after coming out of the plaster.

Advice after surgery

Whilst you are in hospital you will be monitored and the medical staff will give you regular painkillers. You will be given painkillers and instructions on management of the pain by nursing staff before you leave hospital. It is important to take the painkillers regularly for the first few weeks.

Swelling is quite common, so in order to reduce swelling, your foot should be elevated for 55 minutes in every hour for the first two weeks.

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.

You will gradually start to build up your mobility and strength once out of the cast. Full recovery will take 6 months to one year, (depending on your type of surgery).

After your plaster is removed you can start taking increasing exercise. Start with gentle exercises and activity, building up to more vigorous exercise as comfort and flexibility permit. Most people can walk a reasonable distance on the flat, slopes and stairs, drive and cycle.

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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