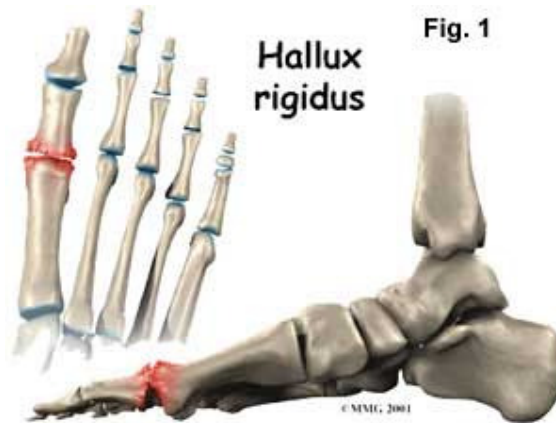


About Hallux Rigidus (Osteoarthritis) and Your Operation

P6



This is a very common condition, and in the foot, most often affects the big toe (1st metatarsal-phalangeal) joint. Progressive joint pain and stiffness can occur over a long period of time, although it can develop quickly following injury or even after surgery where the arthritis was pre-existing. Initially, the smooth white cartilage on each side of the joint becomes thinned and roughened. The joint may start to appear to be thickened, which is due to bone lipping (osteophytosis) building up around the joint. The joint may become swollen from time to time due to inflammation of the joint lining (synovitis); and painful stiffness, especially after a period of rest, is a common complaint.

A useful classification to denote the level of joint disease, involves staging the arthritic damage I – IV (*Modified Regnauld Classification*). Early stage osteoarthritis (I –II) may be improved by reconstructive surgical management, where the joint is repaired and preserved. Late stage osteoarthritis (III-IV) is deemed beyond reconstruction, where the surgical management involved is unfortunately termed “destructive”.

Conservative (non-surgical) Treatment

It is important to keep the joint mobilized as much as possible, unless it is extremely painful. If the joint is painful (and often may also be swollen) this may be due to inflammation of the joint lining (capsule and synovium). In this case an anti-inflammatory injection –corticosteroid- will often relieve both the pain and swelling. Where osteoarthritis is present in the joint, the natural joint lubricant (synovial fluid); can be reduced by up to 50%. A new treatment can be undertaken to re-vitalize the joint fluid with a course of injections to replace the depleted fluid. It is thought that this treatment may give relief for 6-12 months, where it may then need to be repeated. For painful arthritic joints, stiff-soled shoes are recommended to reduce the joint strain when walking; and some patients are helped with special insoles called orthoses. Some evidence shows long term use of glucosamine/chondroitin/MSM tablets may be helpful in slowing down the disease progression and maintaining the joint's movement.

Types of Surgery Available

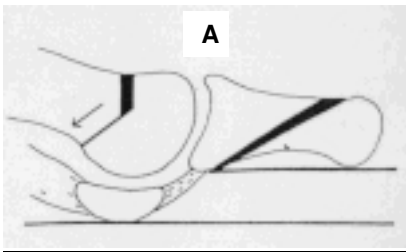
A) For early stage I-II degenerative osteoarthritis (*reconstructive joint procedures*)

- 1) **Joint Cheilectomy**:- this is the simplest surgery, medically proven to help with the joint pain and occasionally may help with the stiffness. The arthritic “lipping” that builds up around the joint is removed and the joint is cleaned.

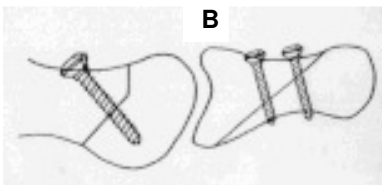


Shaded area shows bone lipping to be resected for cheilectomy procedure

- 2) **Decompressive osteotomy**:- this is where a small wedge of bone is removed from one side of the joint to de-stress the joint, and is usually combined with a cheilectomy (above). If the long bone to the big toe joint (1st metatarsal bone) is considered overlong, then the bone is taken from the 1st metatarsal to shorten it (Watermann-Green procedure). Otherwise, the bone wedge is removed from the base of the big toe (Bonney-Kessel procedure). A 2002 study stated 88% patients had 70% improvement with the Watermann-Green osteotomy (*Journal American Podiatric Medical Association*)



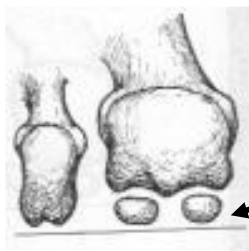
Shaded black area shows bone sections to be removed to perform decompression procedures



Following removal of bone sections, the bone is fixed with bone screws or pins

A & B show cross section of a big-toe joint with decompression osteotomies on the 1st metatarsal and big toe (Watermann-Green on the left, Bonney-Kessel on the right)

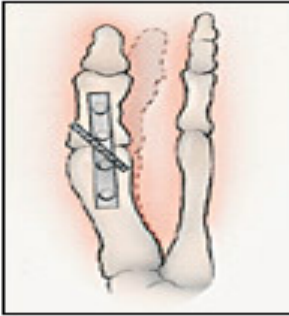
- 3) **Sesamoid excision**:- this is where the two small bones under the big toe joint (sesamoids) are removed. The sesamoid bones are often also arthritic and can jam the joint and prevent the big toe from moving upwards. Strictly speaking, this procedure may be more appropriate for stage III disease.



End-on cross-section of big toe joint to show the two sesamoid bones underneath the big toe joint

B) For late stage III-IV degenerative osteoarthritis (*destructive joint procedures*)

- 1) **Joint fusion / arthrodesis procedure**:- this is where the diseased cartilage is resected from both sides of the big toe joint and the joint is set at a specified and fixed angle; using screws or a bone plate and screws, to hold the big toe whilst it sets. No movement is left in the joint following this surgery. You will need to wear a cast and use a special heel-walker shoe for 6-weeks following this surgery.



Fusion / arthrodesis of the big toe joint – this diagram shows a plate being used

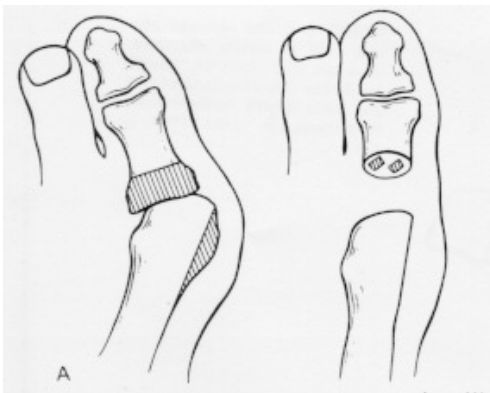
- 2) **Joint Implant**:- This is where the diseased joint is resected as for the fusion / arthrodesis procedure, however, a medical-grade silicone implant is then placed into the old joint and allows some movement to continue. Early post-operative mobilization and walking is essential to good recovery.



Diagrams to show silicone joint implant



- 3) **Arthroplasty (with capsular interposition)**:- this is where a section of the joint is removed from the big toe side. The joint capsule is then placed between to create a new joint space. Early post-operative mobilization and walking is essential to good recovery.



A cheilectomy is also performed as part of this procedure

Pros and cons of the above surgeries.

This information is provided so that you can make an informed decision over your treatment; it is not designed to frighten you as it should be remembered that the overwhelming majority of our procedures are very successful and all complications are treatable.

Common to all procedures:

Infection, (approximately 2% risk). The vast majority of these are soft-tissue infections, treatable by antibiotic tablets as an outpatient. Bone infections are very uncommon, but would require hospital admittance for treatment.

Severe pain only occurs in around 7% of cases in the first 24 hour period. We use a combination of local anaesthetic techniques and compound analgesics, which is usually very effective. Rarely, patients can develop Complex Regional Pain Syndrome (cause unknown), requiring specialist treatment at a pain clinic.

Swelling is common to all surgery and may take 4-6 months or longer to reduce.

Vein clots can occur with any lower limb surgery, but in our practice they are seen in less than 1 in 200 cases (compared with general orthopaedics where the occurrence is reported as high as 4 out of 10 cases). Vein clots, or Deep Vein Thrombosis (DVT), is more common in elderly patients, diabetics, obese patients and patients where two or more immediate family members have suffered DVT, stroke or heart attack.

Unsightly scarring (hypertrophic or keloid) is more common in Afro-Caribbean; Middle and far-Eastern skin-types. Scarring can be reduced by starting to use – 2 weeks after surgery – Boots scar reduction pads (£19.99) and also using an emollient cream at 4 weeks onwards, massaged into and across the scar. At 6 weeks following surgery, you may wish to use a hydrocortisone cream to massage *vigorously* along the scarline twice a day for 2-weeks e.g. HC45 cream.

Specific considerations and complications:

Osteoarthritis is a progressive problem, only the **fusion, implant** and **arthroplasty** (i.e. destructive) surgeries will stop the disease by virtue of the fact that part of, or all of the joint, is removed. This means that the reconstructive surgeries will not eradicate the arthritis and occasionally the surgery may hasten the progress of the disease. The **chellectomy** procedure is the simplest surgery, which has proven to yield good results (approx~ 70% successful), but is unlikely to increase joint movement. The **decompressive osteotomies** are used to alter the mechanics of the joint by reducing the stress, which can contribute to inflammation and mechanical wear in the joint. The **Bonney-Kessel** will not increase joint movement significantly, although the **Watermann-Green** may do. However, with the Watermann-Green, there is a risk of increasing pressure under the adjacent 2nd toe joint with this surgery (transfer metatarsalgia). Surgery to shorten the 2nd metatarsal may then be required to balance the stresses on the forefoot. It is therefore reserved for an overlong 1st metatarsal. The **Waterman-Green** may appear to shorten the big toe. **Sesamoid excision** is a relatively new procedure; but early studies are encouraging to show that it could be a valuable technique and may increase joint motion, although some loss of flexion power may be expected.

Joint **fusion / arthrodesis** has been undertaken for a long time with a proven track record of both stability and pain relief. There is a 7% risk of non-union (increased three-fold with smoking), which may require a second surgery to attempt re-fusion. The major side effect of this surgery is that the joint will have no remaining movement, which can alter the way patients' walk and is very restricting for footwear (especially heel height). The big toe will also be shorter following fusion and the bone screws may need to be removed. Joint **implant** (silicone) has been used for around 3 decades and also has a proven track record. Some newer implants (titanium, ceramic etc) are still experimental and so far may not be yielding any better results than the silicone joint. A small number of patients may react to the implant (silicone synovitis), where it then has to be removed. These implants also have a limited life span of 10-20 years and will need to be replaced when they fragment. The **arthroplasty** technique has been modified since its use in the early part of the 20th Century for hallux valgus (bunion) correction. It is far more successful for the treatment of arthritis and does give good pain-relief and more joint movement in a stage III-IV joint. The big toe will be shorter and a small number of patients have a weak and loose toe following arthroplasty, although usually the joint does become stiffer and physiotherapy can strengthen the toe. Transfer metatarsalgia under the second toe joint can also occur. The main advantage of **arthroplasty** over the implant and fusion, is that no foreign implant material is used, and the joint does usually recover more movement than prior to the surgery.

Any stage I-II surgery may need to have further stage III-IV surgery with the passing of time. A failed **fusion** procedure can really only be revised to further fusion; they are very rarely reversible (e.g. to an implant). Fusion revision may involve taking bone graft from the heel bone. A failed **implant** can be revised to a fusion, although a bone graft may also be required. A failed **arthroplasty** can be revised to an implant or an arthrodesis (no graft is required).

Please return this slip, signed on the day of your procedure.

✂

Declaration: I have read and understood all the information in this leaflet (P6)

Date: ___/___/_____

Full name: _____ Signature: _____

Patient

Parent

Guardian