

MICA™

Minimally Invasive Foot Surgery

SURGICAL TECHNIQUE



Chevron Osteotomy
Akin Osteotomy
Basal Osteotomy
1st MTPJ Cheilectomy
DMMO (Distal Metatarsal
Metaphyseal Osteotomy)
Calcaneal Osteotomy



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Wright recognizes that proper surgical procedures and techniques are the responsibility of the medical professional. The following guidelines are furnished for information purposes only. Each surgeon must evaluate the appropriateness of the procedures based on his or her personal medical training, experience, and patient condition. Prior to use of the system, the surgeon should refer to the product Instructions For Use package insert for additional warnings, precautions, indications, contraindications and adverse effects. Instructions For Use package inserts are also available by contacting the manufacturer. Contact information can be found on the back of this surgical technique and the Instructions For Use package inserts are available on wmt.com under the link for Prescribing Information.

Please contact your local Wright representative for product availability.

Introduction

Minimally Invasive (MI) surgical techniques have gained popularity in many areas of surgery. As technology has advanced, the possibilities to operate and achieve an objective with less invasive techniques have broadened. This surgical technique is intended to act as an introduction to minimally invasive / percutaneous foot techniques and is intended to complement attendance at one of the specialised cadaveric training courses in these techniques.

These MI techniques are intended to complement the open surgical options in the management of a variety of forefoot and hindfoot pathologies in what is an expanding and rapidly evolving area of orthopaedic surgery.



Indications and Warnings

Prior to use of the system, the surgeon should refer to the product instructions for use package insert for warnings, precautions, indications, contraindications and adverse effects. Instructions for use package inserts are also available by contacting the manufacturer. Contact information can be found on the back of this surgical technique and the instructions for use package inserts are available on wmt.com under the link for Prescribing Information.

Patient Positioning and Set Up

Patient positioning equipment set-up is extremely important when performing any MICA™ procedure.

The patient's feet should be positioned off the end of the table, enabling ease of access for the image intensifier, thereby ensuring consistent x-rays throughout the procedure. | **FIGURE 1**

The image intensifier itself should come in from the patient's right and should be rotated to a slight oblique angle. | **FIGURE 2**

The Burr Machine can then be positioned to the patient's left. | **FIGURE 3**

This set-up enables free movement around the patient's feet, to either stand at the side or the end of the table as the operation demands. The position of the equipment is independent of whether the operative side is left or right. | **FIGURE 4**



| **FIGURE 1**



| **FIGURE 2**



| **FIGURE 3**



| **FIGURE 4**

Chevron Osteotomy

Patient Presentations

Mild to moderate Hallux valgus deformity.

Lateral Release

This is performed through a beaver blade stab incision.

The beaver blade incision is made over the lateral 1/3rd of the dorsal aspect of the 1st MTP joint line. | **FIGURE 5**

The blade is angled parallel to the joint so as not to damage the articular surfaces as the blade is deepened towards the plantar lateral aspect of the 1st MTPJ. | **FIGURE 6**

The lateral attachment of the Flexor hallucis brevis (lateral sesamophalangeal ligament) is divided on the plantar aspect of the joint. | **FIGURE 7** This is a thickening of the plantar lateral capsule of the joint (plantar plate) and has a gritty quality when cut.

The image intensifier may help to guide the knife positioning, and a varus movement of the Hallux against the correctly positioned knife completes the cut.

Image intensifier views are helpful to confirm the release by observing a static lateral sesamoid on varus movement of the hallux.

In mild to moderate Hallux valgus deformities, this is usually sufficient release of the lateral soft tissues.

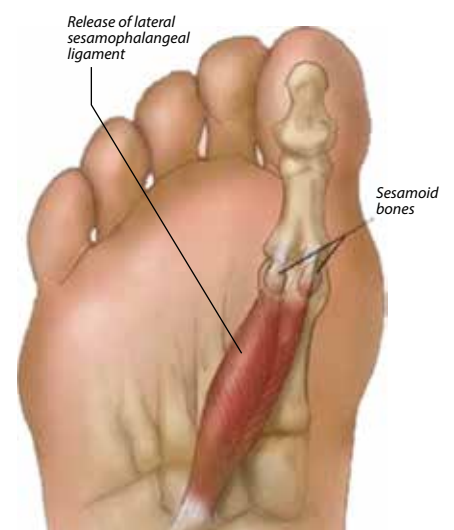
With greater deformities, the adductor hallucis can also be divided and if there is substantial uncovering of the lateral sesamoid then it may also be possible to divide the sesamoid-metatarsal ligament.



| **FIGURE 5** Lateral release incision



| **FIGURE 6** Beaver blade position



| **FIGURE 7**

Surgical Approach

The stab incision is placed over the medial aspect of the proximal edge of the 'flare' of the medial eminence. The placement of this incision is vital.

Firstly, the incision must avoid the dorsomedial cutaneous nerve to the Hallux; if palpable, this nerve should be marked before placing the incision. The incision must also allow a sufficient dorsal entry point into the 1st metatarsal; consideration must be given to the proposed plane of your cut before making skin incision. This is important to achieve a chevron osteotomy with a stout and long tailed distal fragment.

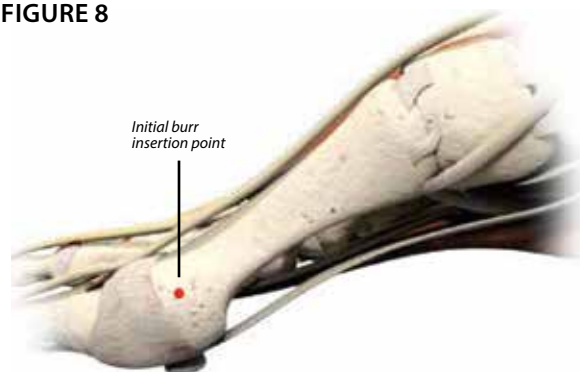
Once the incision is made, the periosteal elevator is used to carefully create a working area for the burr. This can be done over the dorsal surface of M1 but not on the plantar surface, as this may risk damage to the blood supply of the M1 head.

Osteotomy with Burr

2mm x 20mm Shannon Burr

The plane of the osteotomy is first defined by the entry cut of the burr into the metatarsal. It is from this entry cut that the dorsal and plantar limbs of the chevron are then made.

It must be noted that the cut will remove 2mm of bone. This needs to be accounted / compensated for in the choice of plane of the osteotomy in both sagittal and coronal planes. In general it is preferable to aim for no less acute of an angle than perpendicular to the 2nd metatarsal and a slightly exaggerated plantar direction, compared to open techniques. It is wise to also view the initial entry cut under the image intensifier to check the position and planes. | **FIGURE 8**



| **FIGURE 8** Initial burr insertion

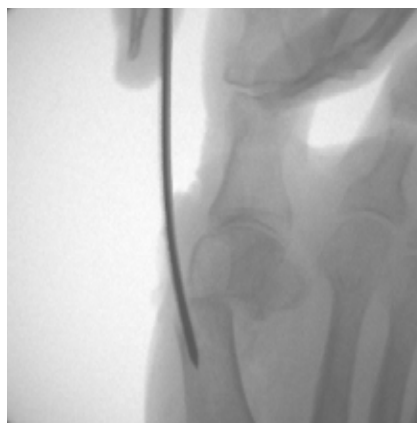
The dorsal limb of the osteotomy is the first limb to be created. | **FIGURE 9** Rotation of the burr driver pencil, rather than translation movement, is vital if thermal injury / maceration of the portal is to be avoided. In other words, think of the skin incision / portal as the fulcrum about which the burr can rotate.

The plantar limb of the chevron is made shallower so as to create a longer cut and more osteotomy stability. | **FIGURE 9** Beware of overdoing this as it will make exiting the bone / completing the osteotomy difficult.

Once the cut has been completed, as confirmed by motion at the osteotomy site, then the osteotomy is displaced along its defined path / plane. This can be achieved by placing a 2mm k-wire through the skin portal, into the diaphysis of the proximal fragment and levering the distal fragment laterally. | **FIGURE 10** During this manoeuvre, care must be taken to avoid fracturing the medial cortex of the proximal fragment. This is unlikely to occur if the k-wire is advanced into the proximal metaphysis of the proximal fragment before levering. The other pitfall is to elevate the distal fragment whilst performing this manoeuvre which is avoided by ensuring that the k-wire remains on the dorsal aspect of the medial eminence during displacement. Additional displacement may be achieved by driving an additional 2mm k-wire into the distal fragment. This acts as a joystick and is also useful in controlling the distal metatarsal articular angle.



| **FIGURE 9** Modified Chevron angles



| **FIGURE 10** Metatarsal head displacement

Fixation of Osteotomy

The osteotomy should be internally fixed. Fixation is usually achieved using cannulated compression screws in one of the two ways described below. The guidewire is inserted via a further stab incision | **FIGURE 11** either from;

Dorsal (proximal fragment) to plantar (head fragment) utilising the long tail / plantar limb of the chevron.

Or,

Dorsomedial (proximal fragment) to plantar lateral (head fragment).

More rigid fixation can be achieved with this technique if the guidewire is inserted through 2 cortices of the proximal fragment before entry into the metaphysis of the head fragment.

The decision as to which method of fixation is used will depend upon the dimensions of the osteotomy achieved and surgeon preference. Once satisfactory position of the guidewire has been confirmed on the image intensifier, the wire can be measured to determine screw length.

The guidewire is then driven through the plantar aspect of the foot and an artery clip applied to prevent inadvertent removal of the guidewire during drilling.

The tube drill and MI Cannulated drill are then used to prepare the bone for screw insertion. | **FIGURE 12** Take care not to create a thermal injury to the portal when drilling, as over zealous force can create significant heat when drilling.

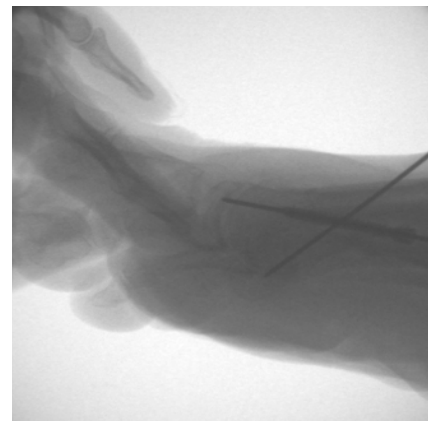
The appropriate screw is then inserted with care to ensure adequate engagement of the head of the screw in cortical bone. | **FIGURE 13**



| **FIGURE 11** 1mm k-wire inserted



| **FIGURE 12** 1st screw insertion



| **FIGURE 13** Lateral image of screw position

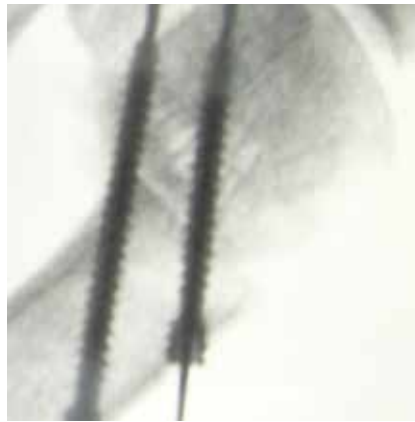
It is strongly advised to use 2 screws to fix the chevron osteotomy to improve stability and avoid subsequent loss of position. If using the bicortical screw fixation technique, the surgeon should site the entry point for this screw sufficiently proximal so as to allow room to insert the second screw distally in the same plane (unicortical). | **FIGURE 14**

A tangential view is useful here to confirm that the screw heads have been countersunk sufficiently. | **FIGURE 15**

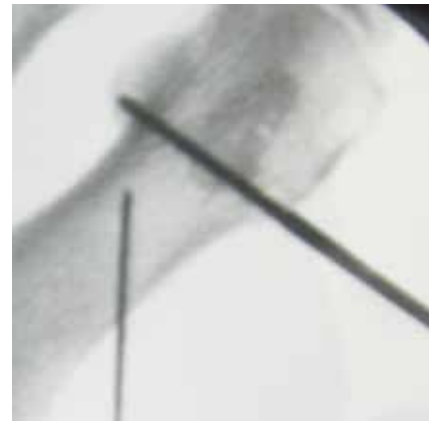
It can be helpful to insert / position the guidewire for the first (bicortical) screw before completing the chevron osteotomy. Ensure that the guidewire is withdrawn slightly before completing the osteotomy to ensure the wire does not impede the path of the burr. | **FIGURE 16**



| **FIGURE 14**



| **FIGURE 15**



| **FIGURE 16**

Akin Osteotomy

Patient Presentations

Hallux valgus interphalangeus deformity.

Surgical Approach

The stab incision, created with a beaver blade, is placed over the medial aspect of the proximal phalanx of the Hallux. | **FIGURE 17** The placement of this incision is vital. Firstly, the incision must avoid the dorsomedial cutaneous nerve to the hallux. If palpable, this nerve should be marked before placing the incision.

The incision must also allow a sufficient proximal osteotomy of the phalanx, otherwise the osteotomy becomes very difficult to fix. | **FIGURE 18** Thus it is advisable to check the positioning of the skin incision under the image intensifier. Once the incision is made, then the periosteal elevator is used to carefully create a working area for the burr.

Osteotomy with Burr

2mm x 12mm Shannon Burr

The plane of the osteotomy is first defined by the entry cut of the burr into the phalanx. | **FIGURE 19** It is from this entry cut that the dorsal and plantar limbs of the Akin are then made. The burr is advanced into the phalanx until the lateral cortex is felt / abutted but not penetrated.



| **FIGURE 17** Stab incision



| **FIGURE 18** 2 x 12mm Shannon Burr



| **FIGURE 19** Initial burr insertion angle

The burr is then rotated about the skin incision to complete the dorsal and plantar extents of the osteotomy whilst preserving the lateral cortex. Please note that the cut will remove 2mm of bone and this is usually sufficient to allow adequate correction of the interphalangeus deformity. | **FIGURE 20**



| **FIGURE 20** Akin osteotomy

If further bone resection is required then this can be achieved by exchanging the Shannon burr for a wedge burr (3.1mm) and repeating the cut, or by closing the osteotomy down onto a 12mm Shannon burr.

If the osteotomy is difficult to close, revisit your cuts, ensuring that the plantar-lateral corner has not been left intact. Rotation of the burr driver pencil, rather than translation movement, is vital if thermal injury / maceration of the portal is to be avoided. In other words, think of the skin incision / portal as the fulcrum about which the burr can rotate.

Care should be taken to avoid damaging the EHL / FHL tendons inadvertently. The FHL tendon is most at risk. The burr is not efficient at cutting soft tissue unless under tension and hence it is wise to flex the hallux whilst completing the plantar limb of the osteotomy.

The osteotomy should be internally fixed. Only if attempts fail to achieve stable internal fixation should percutaneous k-wire fixation be considered as definitive fixation.

Fixation of Osteotomy

Fixation is achieved using a single cannulated compression screw. The guidewire is inserted via a further medial stab incision 5mm proximal to the proximal edge of the proximal phalanx. | FIGURES 21, 22, 23



| FIGURE 21 Reduce the osteotomy



| FIGURE 22 Fix with cannulated HV screw



| FIGURE 23 Final screw position

This is made using the beaver blade, which once deep to the skin is directed to the base of the proximal phalanx with the Hallux held in varus. This closes off the articular surface from risk of damage by the blade, creating a path for the guidewire to be inserted.

The guidewire is then inserted crossing the osteotomy and the proximal phalanx obliquely. Once satisfactory position of the guidewire has been confirmed on the image intensifier, the wire can be measured to determine screw length.

The guidewire is then driven through the lateral aspect of the Hallux until it emerges through the skin and an artery clip applied to prevent inadvertent removal of the guidewire during drilling. The tube drill and MI Cannulated drill are then used to prepare the bone for screw insertion. The screw is inserted with care to avoid leaving the head prominent.

Closure and Postoperative Care

Chevron / Akin Osteotomies

At the end of the procedure, steri-strips can be applied to the wounds.

Gauze soaked in chlorhexidine or saline is then applied, followed by wool and crepe, in order to splint the toe alignment and soft tissues.

A heel wedge or rigid flat shoe is worn on the operated foot for 4 to 6 weeks following surgery, and the patient informed of the need for diligent elevation of the foot for the first 2 weeks following surgery.

At 2 weeks post surgery, the wounds are inspected and hallux motion encouraged. | **FIGURE 24**

DVT prophylaxis is according to national guidance and local protocol.



| **FIGURE 24** Postoperative portal

Basal Osteotomy

Patient Presentations

Severe hallux valgus deformity correction. | FIGURES 25, 26

Overview

As with open surgical techniques for correction of hallux valgus, it is important to understand the limitations of any osteotomy in terms of deformity correction. Broadly speaking, once the M1: M2 intermetatarsal angle increases beyond 17 degrees, the likelihood of achieving adequate and durable correction of associated hallux valgus deformity with a distal metatarsal osteotomy is very much reduced, except when the M1 diameter is very broad and relatively short.

One option in these more severe deformities is to undertake a basal lateral closing wedge osteotomy closing the intermetatarsal angle. Basal osteotomies are inherently powerful in terms of their capacity to correct the intermetatarsal angle, but more demanding in terms of stability due to the moment arm of weight bearing forces in the forefoot, which increases greatly the more proximal the site of the osteotomy.

Beware of the unusual situation of broad intermetatarsal angle and severely lateral facing M1 distal articular surface; very large Distal Metatarsal Articular Angle. In this situation, an additional distal de-rotation osteotomy will be required.

The procedure begins with a distal soft tissue release and bunionectomy.



| FIGURE 25 Preoperative X-ray



| FIGURE 26 Postoperative X-ray

Distal Soft Tissue Release

As for M1 chevron osteotomy– see M1 chevron osteotomy surgical technique text (see page 7).

Simple Bunionectomy

A 5mm skin incision is made 1.5cm proximal to the flare of the medial eminence / bunion and plantar to the mid axis of the metatarsal diaphysis, but not so plantar so as to endanger the medial plantar digital nerve. The straight periosteal elevator is inserted to contact bone and a subperiosteal tunnel created to and over the bunion. It is important to comprehensively elevate the thick capsular attachments from the bunion, otherwise the burr will struggle to engage the bone.

The 3.1mm wedge burr is inserted through the portal and the tunnel created to overlay the bunion. | **FIGURE 28** The bunion is then reamed with the burr under image intensifier guidance. Bone debris is periodically 'milked' from the portal and saline wash can help to remove debris combined with the rasp.

| **FIGURE 29**

Care should be taken when reaming the dorsal extent of the bunion in order to avoid injury to the dorsal medial cutaneous nerve. Once adequate bone resection is confirmed on the image intensifier, then thorough irrigation and rasping must be undertaken to ensure complete removal of bony debris; clear soft tissue on image intensifier helps confirm this. If this clearance of debris is inadequate, then there is a risk of encouraging subsequent new bone formation in the area or irritation due to residual bony fragments.



| **FIGURE 27** Bunionectomy incision site



| **FIGURE 28** Inserts 3.1mm Wedge Burr



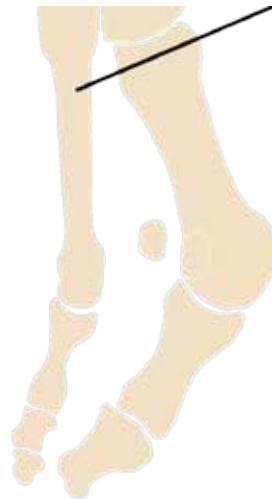
| **FIGURE 29** Extrude bony paste via washout and soft tissue pressure

Basal M1 Osteotomy

The first step is to fix the M1:M2 intermetatarsal angle to its broadest excursion, i.e. fix the 1st tarsometatarsal joint in its maximum varus excursion. This is achieved by driving a 2mm k-wire across the base of the 1st and 2nd metatarsals, whilst squeezing the intermetatarsal space with the other hand to open this up. This effectively simulates the weight-bearing situation and will help avoid under correction during the operation. | **FIGURE 30**

Next, create a dorsal skin portal over the proximal diaphyseal-metaphyseal junction. This should be just to the lateral side of the EHL tendon, which must be protected throughout the procedure. | **FIGURE 31**

The 20mm Shannon burr is then driven into the metatarsal in a slightly dorsolateral to plantar medial direction, 10 degrees from vertical/sagittal, and through the plantar cortex. This axis is then extended in both distal and proximal directions. In the proximal direction, care should be taken to avoid weakening the medial metaphyseal cortex, otherwise this may fracture as the osteotomy is closed. In the distal direction, the osteotomy is continued through the lateral cortex. Care must be taken to maintain the plane of the osteotomy during this step and also to avoid injury to the EHL and maceration of the skin portal.



| **FIGURE 30** K-wire fixes metatarsal at broadest excursion

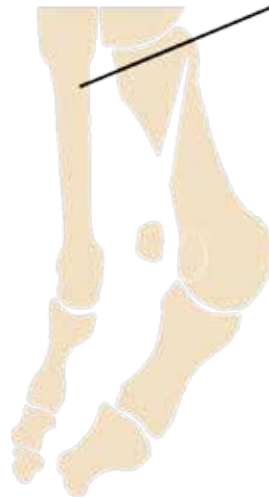


| **FIGURE 31** Initial portal site

The osteotomy channel is then widened with continued burring with the 20mm Shannon or through the application of a 3.1mm Wedge Burr. This is continued until the osteotomy can be closed with adequate correction of the intermetatarsal angle. | **FIGURE 32**

The osteotomy is then fixed with one or preferably two screws if there is adequate space. | **FIGURE 33** These are inserted through additional stab incisions in a slightly dorsomedial to plantar lateral direction, perpendicular to the plane of the osteotomy.

Finally the 2mm k-wire is removed and the portals washed out with saline to remove any bone debris. Saline / chlorhexidine soaked gauze dressings and wool / crepe bandaging are then applied.



| **FIGURE 32** Intended osteotomy



| **FIGURE 33** Fix with HV Screws

Postoperative Care

It is important that the patient is instructed to elevate the leg for the first 2 weeks post-surgery to minimize soft tissue swelling and encourage soft tissue healing. The patient is provided with a heel wedge shoe and crutches and kept NON weight bearing for the first 6 weeks post-surgery as per surgeon preference. Early weight-bearing carries an increased risk of failure of fixation and the patient must be educated as to this risk.



| **FIGURE 34** Postoperative X-ray

A postoperative review at 2 weeks to check portals and apply a compressive strapping / bandage to the forefoot is carried out. This strapping can then be removed by the patient 4 weeks post-surgery. A further outpatient review at 6 weeks post-surgery is then carried out with radiographs. | **FIGURE 34** Usually the patient can be allowed to full weight – bear in ordinary footwear at this stage. Postoperative VTE prophylaxis can be applied as per local protocol.

1st MTPJ Cheilectomy

Patient Presentations

Hallux Rigidus following failed non-operative treatment.

Surgical Approach

The stab skin incision is usually placed over the medial aspect of the 1st metatarsal, proximal to the medial eminence. The placement of this incision is vital. Firstly, the incision must avoid the dorsomedial cutaneous nerve to the hallux. If palpable, this nerve should be marked before placing the incision. The incision must also allow sufficient access to the dorsal osteophyte. A separate incision will be required to access lateral osteophytes if present when employing this approach. The additional stab skin incision is placed over the dorsum of the 1st MTPJ, just to the lateral side of the EHL tendon sheath. This additional portal will allow access to lateral osteophytes if present.

Once the incision has been made, then the periosteal elevators are used to carefully lift the capsule from the osteophytes, and thereby create a working area for the burr.



| FIGURE 35 Preoperative X-rays



| FIGURE 36 Preoperative X-rays

Cheilectomy with Burr

3.1mm Wedge Burr

The osteophytes are shaved using a 3.1mm wedge burr with care to avoid thermal injury / maceration to the working portal. | **FIGURE 37** As the osteophyte is burred away, the removed bone emerges from the portal in a paste.

The burring process is made easier, if at regular intervals, the bone paste is 'milked' out of the portal followed by irrigation with saline delivered through the portal under pressure from a syringe, e.g. via venous cannula, to wash away smaller fragments. The rasp instrument is then used to remove more debris. Introduce the rasp through portal, orient the rasp surface away from bone, and then withdraw with gentle digital pressure on overlying skin. Care must be taken to ensure that the rasp is not used to smooth the bone surface, merely to clear bony fragments from the soft tissues.

This process is continued until sufficient bone has been removed as confirmed on the image intensifier. | **FIGURE 38**

Closure and Postoperative Care

At the end of the procedure, steri-strips can be applied to the wounds.

Chlorhexidine / saline soaked dressing gauze is then applied so as to splint the soft tissues. Wool and crepe bandaging are then applied.

A flat postoperative shoe is worn on the operated foot for one week following surgery and the patient informed of the need for diligent elevation of the foot during this period. The patient can remove the bandages at 48 hours to leave the dressing only in place and can then mobilise the hallux more freely.

After this initial week, the wounds are inspected and joint motion encouraged in ordinary footwear and physiotherapy.

DVT prophylaxis is according to national guidance and local protocol.



| **FIGURE 37** 3.1mm Wedge burr



| **FIGURE 38** Flattened dorsal surface

DMMO (*Distal Metatarsal Metaphyseal Osteotomy*)

Patient Presentations

Plantar pain, intractable plantar keratosis, MTPJ subluxation and dislocation (reducible), hammer / claw toe correction, prophylactic at time of first ray surgery to address relative over length / prominence, postoperative transfer metatarsalgia.

Surgical Approach

Stand facing the foot from the end of the table. Fix the relevant lesser MTPJ between the thumb, placed dorsally, and index finger of the non-dominant hand. A stab incision with the beaver blade is then made to the right side of the relevant lesser MTPJ; left side if surgeon left hand dominant. | **FIGURE 39**

This incision need go no deeper than the skin. Avoid extensive stripping of periosteum, especially on the plantar surface of the neck, as this is both unnecessary and may potentially compromise the blood supply to the head of the metatarsal.



| **FIGURE 39**



Creation of Osteotomy

2 x 12mm Shannon Burr

Select the 12mm Shannon burr for this osteotomy. The burr is inserted through the portal created and placed against the lateral wall of the neck of the metatarsal. The correct position is felt at the concavity of the diaphyseal – metaphyseal junction. It is helpful to fix the relevant lesser MTPJ between the thumb and index finger of the non-dominant hand and mildly plantar flex the toe within this grasp. With experience, image intensifier confirmation of positioning of the burr is unnecessary but, to begin with, some may find it useful to confirm correct burr position with the c-arm.

The osteotomy is then created by a rotation of the burr pencil driver so that the burr sweeps through the neck of the metatarsal from lateral to dorsal, not plantar to dorsal. The plane of the osteotomy should be at 45 degrees to the axis of the metatarsal. | **FIGURE 40**



When performed correctly, the osteotomy is extra-capsular with respect to the MTPJ. Completion of the osteotomy can be confirmed by mobility of the head of the respective metatarsal and also by observing movement on image intensifier views. Saline or Chlorhexidine soaked strips of dressing gauze are then used to splint the toes in a neutral / desired position followed by application of wool and crepe bandaging.

Postoperative Care

The patient can, and should, be mobilised full weight-bearing in a flat postoperative shoe immediately post-surgery with instructions to elevate the operated foot / feet for the first 14 days. There is a dynamic element to DMMOs and hence loading of the forefoot is desired in the early postoperative period to encourage even loading of the metatarsal cascade.

The patient is usually reviewed in the outpatient department at 1-2 weeks post-surgery and the toes splinted with the use of a commercially available toe alignment splint or taping. It is important to educate the patient as to how to use the splint correctly, or how to apply the taping, to maintain desired toe position during the healing period.

The splint / taping is continued for the first 4-6 weeks post-surgery, according to surgeon preference, and the patient also educated to encourage mobility of the operated toes in plantar flexion. Physiotherapy may also be helpful in this respect.



| **FIGURE 40** Hand movements required to complete DMMO Osteotomy

Medialising Calcaneal Osteotomy

Patient Presentations

Flatfoot Correction

Surgical Approach

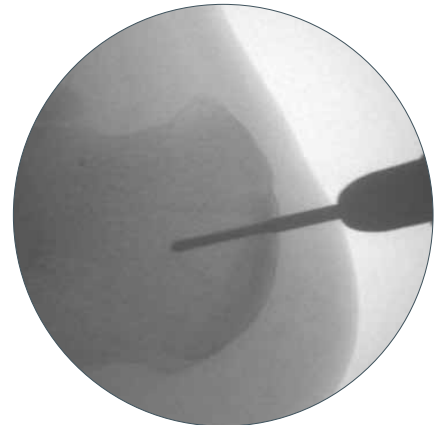
The patient is positioned supine with a sandbag under the hip of the side to be operated. The recommended surgeon position and image intensifier position are shown in | **FIGURE 41**. The image intensifier is positioned under the foot so that the surgeon can work with the foot over the detector of the image intensifier and can easily obtain a lateral view of the calcaneum when required, without moving the foot.

The plane of the desired osteotomy is marked on the skin on the lateral surface of the heel using a surgical marker pen and straight metal instrument under image intensification to plan this. | **FIGURE 42** The osteotomy path should be well away from the posterior facet of the subtalar joint.

The portal is then positioned at the centre of the path of the desired osteotomy, osteotomy apex if planning a chevron. Only the skin is cut, portal approximately 6-8mm. The surgeon must remember the proximity of the sural nerve and, due to anatomical variability, must assume this to be at risk. An artery clip is therefore used to create a clear path to the bone.



| **FIGURE 41** Patient position and set up



| **FIGURE 42** Initial burr insertion point



| **FIGURE 43** Mark intended osteotomy on the skin and use as a guide

Medialising Calcaneal Osteotomy

3mm x 20mm Shannon Burr

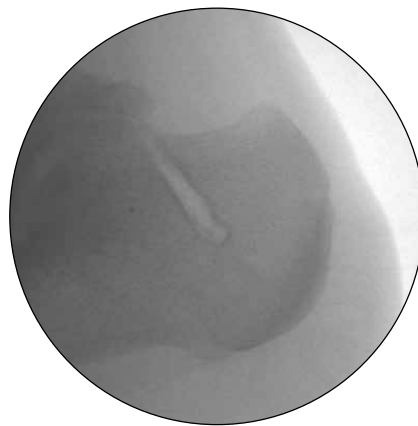
The burr is introduced into the calcaneum through the portal. The surgeon should ensure that all of the cutting surface of the burr is inserted into the bone immediately, and in this way can ensure that there is no possibility of cutting soft tissue during the procedure.

The burr is not long enough to cut both cortices of the calcaneum in one sweep, and this should not be attempted. Instead, the surgeon should cut the near cortex first and then the far (medial) cortex.

The skin mark acts as a useful guide to the surgeon during the creation of the osteotomy, and the handle of the burr is maintained in the same plane as the skin mark. | **FIGURES 43, 44, 45** However, the surgeon should regularly check the position of the burr and the path of the osteotomy using the image intensifier and adjust the path of the burr if required.

Once the near cortex has been cut, the surgeon can complete the osteotomy by cutting the far cortex in a similar fashion. This is achieved by following the path already created by cutting the near cortex. Care should be taken not to over insert the burr through the far (medial) cortex during this procedure, as this may place the neurovascular bundle at risk of injury. Over insertion is avoided by employing a prodding action to cut the far (medial) cortex during which the surgeon receives good feed back through the burr handpiece as to the point at which the burr is through the cortex to be cut. The osteotomy becomes mobile once completed and can then be easily displaced as desired.

A temporary 2mm k-wire can be introduced through the portal to lever the osteotomy and assist with desired displacement and control of the osteotomy if desired.

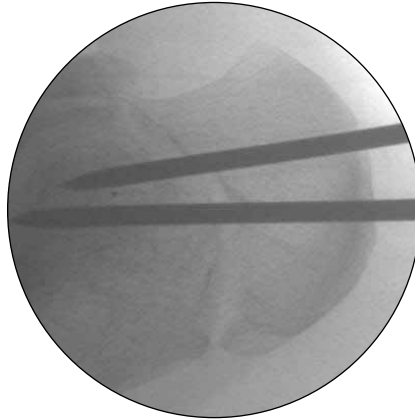


| **FIGURE 44** Mark intended osteotomy on the skin and use as a guide

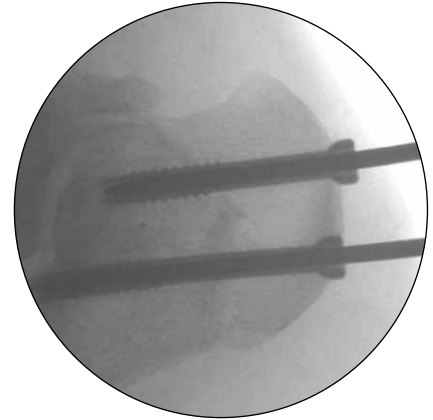


| **FIGURE 45** Dorsal and plantar limbs of chevron can be created

Fixation can then be undertaken as per surgeon preference. | **FIGURES 46 and 47**



| **FIGURE 46** Stabilise osteotomy with k-wires



| **FIGURE 47** Insert screws for fixation

Closure and Postoperative Care

At the end of the procedure, steri-strips can be applied to the wound.

Chlorhexidine / saline soaked dressing gauze is then applied.

A plaster of paris backslab is then applied.

The patient is kept non-weight-bearing for 6 weeks following surgery.

The portal is inspected at 2 weeks post surgery in the outpatient department.

DVT prophylaxis according to national guidance and local protocol.

Ordering Information

HV SCREW RANGE IMPLANTS



WGSHV0101	HV Screw	10mm
WGSHV0121	HV Screw	12mm
WGSHV0141	HV Screw	14mm
WGSHV0161	HV Screw	16mm
WGSHV0181	HV Screw	18mm
WGSHV0201	HV Screw	20mm
WGSHV0221	HV Screw	22mm
WGSHV0241	HV Screw	24mm
WGSHV0261	HV Screw	26mm
WGSHV0281	HV Screw	28mm
WGSHV0301	HV Screw	30mm
WGSHV0321	HV Screw	32mm
WGSHV0341	HV Screw	34mm
WGSHV1361	HV Screw	36mm
WGSHV1381	HV Screw	38mm
WGSHV1401	HV Screw	40mm

INSTRUMENTS

WGSHV01001	HV Instrument Set	
WGSHV0351	Tube Drill	2mm
WGSHV0361	Short One Step Drill	100mm x 1mm
WGSHV0371	Cannulated One Step Drill	200mm x 2mm
WGSHV0381	K-wire	70mm x 1mm

MICA™ FOREFOOT BURRS

WGSMI0051	Wedge Burr	4.1mm x 13mm
WGSMI0041	Wedge Burr	3.1mm x 13mm
WGSMI0031	Shannon Corta Burr	2mm x 8mm
WGSMI0021	Shannon Recta Burr	2mm x 12mm
WGSMI0011	Shannon Recta Burr	2mm x 20mm
WGSMI0071	Shannon Burr	3mm x 20mm

MICA™ FOREFOOT SURGERY INSTRUMENTS

WGSMI0061	Instrument Set (Sterile Packed for Single Use)	
WGSHV02001	HV Instrument Set MI	
WGSHV0391	K-wire	100mm x 1mm
WGSHV0401	K-wire	200mm x 2mm
WGSHV0351	Tube Drill	2mm
WGSMI0081	MI Drill Bit	3mm
WGSMI0451	MI Depth Gauge	
WGS59041	Beaver Blade (SM64 x 25)	
WGSZ2263001	Irrigation Tubing (for Burr Machine x 5)	

STERILE PACKED IMPLANTS AND INSTRUMENTS

The WG Healthcare MICA™ range of implants and instruments is supplied sterile packed. This 'sterile packed for single use approach' has advantages for both surgical and nursing staff as well as the patient.





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