PATIENT INFORMATION FILE:

# HALLUX VALGUS

*Your surgeon has suggested that you undergo surgery for your foot-and-ankle problem.*

*The main lines of this treatment have been explained to you: the alternatives, how the operation will be conducted, the postoperative course, the expected results and also the possible complications. The present file is a supplementary document that your surgeon would like you to have, setting out the key issues concerning your particular pathology and enabling you to check over the important points about the future operation.*

*Your surgeon will be available to see you before the actual operation, to answer any further questions you may have.*

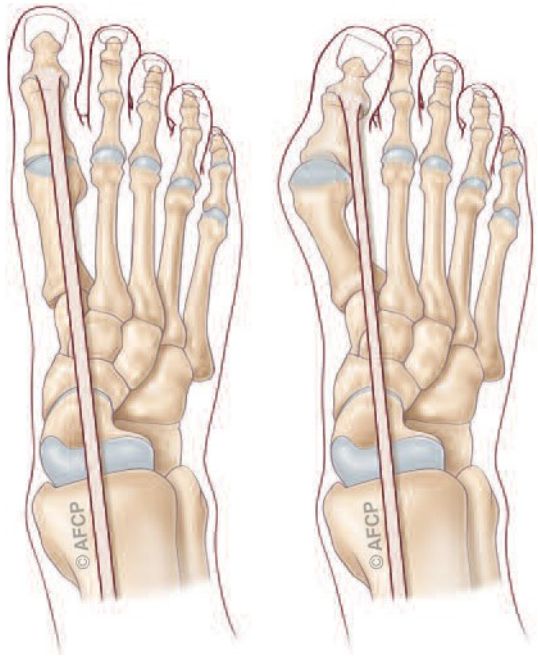
***File drawn up by the medico-legal commission of the French Foot and Ankle Surgery Association (AFCP)***

***This file is also available on-line at:***
***AFCP (https://www.afcp.com.fr/infos-publiques/infos-patients/)***
***SOFCOT (http://www.sofcot.fr/Infos-public-Patients)***
***ORTHORISQ (http://www.orthorisq.fr)***

***Translation by Pr Mc Gill (Lyon University)***


**Hallux valgus (commonly known as "bunion") is a deformity of the first toe ("big toe" or "hallux"), bending it sideward, in "valgus", toward the lesser toes.** This deformity leads to a bone protrusion in the mid-part of the toe, causing pain and difficulties with footwear. It mainly affects women, sometimes even in youth. We do not really understand what causes this deformity, but is seems most likely that the origin is congenital: hereditary, present at birth but worsening over time.

## ANATOMY




The bone skeleton of the big toe comprises the first metatarsal, prolonged by two phalanges. The joint between the first metatarsal head and the base of the first phalanx (the "metatarsophalangeal joint") is usually straight or with just a slight sideward angle (10° valgus on average). Thus, during walking, the big toe can easily and painlessly adapt its position to the ground and the footwear.

The metatarsophalangeal joint is thus critical for walking:
- It slides easily and painlessly thanks to the cartilage covering the ends of the bones.
- Stability is ensured by a fibrous capsule, reinforced by ligaments.
- Motion is governed by tendons, which prolong the lower leg muscles and attach to the various bone segments.
- Sensation depends on the sensory nerves, which are the endings of the major lower leg nerve trunks.

Depending on the relative length of the big toe, your foot is classified as:
- "Greek", with the second toe longer than the first;
- "Egyptian", with the big toe being the longest;
- or "Roman", where the first two toes have the same length.

## THE PATHOLOGY (The problem)

Hallux valgus ("bunion") is a progressive deformation of the big toe, with increased valgus (lateral tilt) of the first phalanx and medial (inward) protrusion of the metatarsophalangeal joint. This pushes your big toe (hallux) sideward (in valgus) toward the second toe. The metatarsal is shifted medially (varus) and the phalanxes laterally (valgus). A "hump" appears where the metatarsal joins the first phalanx, on the medial edge of the foot, and this tends to rub against your footwear, causing inflammation known as "bursitis".

This deformity is the most common forefoot pathology. It mainly affects women and worsens with age and with wearing high-heels and pointed shoes. However, there may be familial predisposition, and the deformity can begin in childhood (congenital hallux valgus).

Gradually, at a varying rate, the joint deformity will lead to retraction of certain soft tissues (capsule, ligaments and tendons) and loosening or tearing of others, making the deformity stiff and fixed.

## CLINICAL PRESENTATION

The clinical deformity begins in the medial part of the metatarsophalangeal joint, creating footwear problems then bursitis. It progressively worsens, with growing bursitis, and the whole foot begins to be deformed, including the lesser toes due to transfer of weight-bearing pressure that can no longer be borne by the big toe because of the deformity and gets shifted onto the adjacent toes. This in turn causes exceptional pressure on the sole of the foot, with callosities under the foot and corns on the lesser toes, gradually leading to a "claw-foot" situation.

## DIAGNOSIS


Diagnosis is straightforward: there is a **painful protrusion on the medial side of the metatarsophalangeal joint of the big toe** (sometimes accompanied by bursitis) and **increased phalangeal valgus**. The two big-toe phalanges tilt toward the second toe, and may even cross over it.

Little by little, the deformity grows worse; the big toe ceases to support weight-bearing against the ground, and the lesser toes are increasingly called into play so that their bone and joint structures, which are less resistant than those of the big toe, deteriorate, leading to claw-toe deformity.

X-ray assessment enables the surgeon to confirm diagnosis, measure the degree of deformity, assess the impact on the lesser toes, and plan surgery when required.
Complementary examinations, such as MRI or ultrasound, may complete the assessment, especially to quantify the involvement of the adjacent toes.

## MEDICAL (non-surgical) TREATMENTS

**Adapted footwear** (wide and supple) will be an effective solution over a long period, possibly supplemented by an orthopedic insole (produced by a chiropodist-podiatrist) or silicone toe spacers.
**Medical analgesics (pain killers)** can relieve pain, but do not stabilize or correct the deformity.
**Surgical treatment** (to realign the big toe) is suggested when pain is restricting your activity, wearing shoes becomes difficult and/or insoles and spacers cease to be effective.
If the patient tries to ignore the pathology, it gradually worsens, with the lesser toes (especially the second) developing claw-toe deformity, making footwear increasingly problematic.

The main risk is that the skin over the bursitis ruptures, with risk of infection of the bursa ("infectious bursitis") and then of the joint ("arthritis") and finally the bone ("osteitis"). This can be so serious as to necessitate amputation, particularly when there are pre-existing chronic conditions such as diabetes.

## SURGICAL TREATMENT (care pathway and the possible operations)

If medical and podological treatment brings no improvement, or if complications set in, surgery can be considered.

**Here we shall just go into the surgical techniques to correct "isolated" hallux valgus, with no other pathology; but, if your whole forefoot is deformed, with not only hallux valgus but also deformity of the lesser toes, then surgical treatment may be more extensive, with other toes also being operated on (e.g., to treat claw-toe in the second toe).**

## > ANESTHESIA

It is essential to have a preoperative consultation with an anesthetist. This doctor will explain to you the different possible types of anesthesia, adapted to the surgery you are to undergo and to your general health status.

During this consultation, the anesthetist will also check any medical treatments you are taking. New medications may be prescribed, before and/or after the operation; the most common are anticoagulants, antibiotics and/or anti-inflammatory drugs – and of course each has its own specific risks.

For the surgical operation, anesthesia may be "**locoregional**" (anesthetizing a segment of the leg from the tibia down to the toes), "**spinal**" (anesthetizing the pelvis and legs with an injection between two vertebrae), or "**general**".

Blood transfusions are rarely needed in this kind of surgery, which does not involve any heavy bleeding.

## > HOSPITAL ADMISSION

You may be admitted on an outpatient basis, with just the day in hospital, or for a few days, depending on the type of operation, any associated health issues (e.g., high blood pressure, diabetes, etc.) and/or your medical or home situation.

## > IN THE OPERATING ROOM

* In the operating room, you will be placed on your back, possibly leaning slightly toward the side to be operated on.

* **When you come to the operating room, don't be too surprised if you are asked more than once (on arrival, then again when you are being positioned) for your name and which foot is to be operated on: this is the mandatory procedure for all patients,** known as the "security check-list" and required by the French Health Authority**.**

## > SURGICALTECHNIQUE

### Tourniquet

A tourniquet may be used, to temporarily interrupt blood flow into the area to be operated on. It may be applied on the thigh, the lower leg or the ankle, depending on the area to be operated on and the type of anesthesia.

### Surgery time

The operation takes between three-quarters of an hour and an hour and a half, depending on the technique, any difficulties that may arise and any complementary surgeries that are needed.

### The incisions

The incisions may be a few inches long or just a puncture, depending on what technique your surgeon uses. They may be on the top of the foot or on the mid-side of the first metatarsal and first phalanx.

### There are several possible surgical techniques

"Conventional" or "open" surgery uses an incision at least 10 cm (4 inches) long, so that the correction of the deformity can be controlled visually.
"Percutaneous" techniques, on the other hand, use several very small incisions, through which special instruments can be introduced, guided under the skin by radiology.

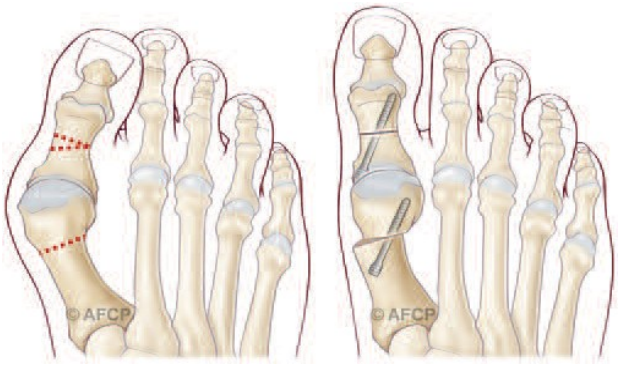
"Minimally invasive" techniques are between the two, with an incision of just a few centimeters.

The aim of the surgery is to correct the deformity, getting rid of the "hump" and realigning the big toe by operating on the bones and/or tendons and ligaments. Which technique is used depends on the degree of the deformity, whether there is also arthritis or not, your age – and your surgeon's habits.

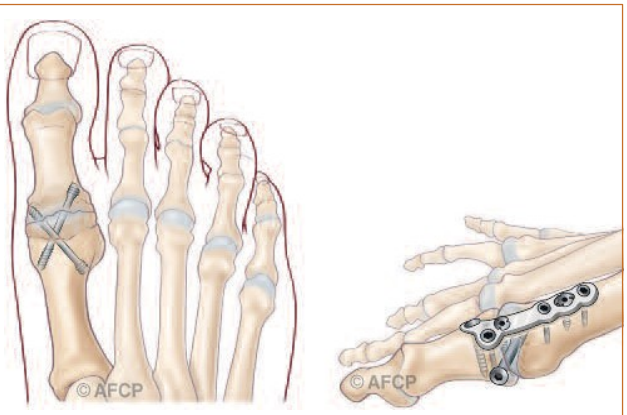
• Whenever possible, the deformity is corrected by bone and/or soft tissue surgery that conserves the range of motion of

the metatarsophalangeal joint:

- Soft-tissue surgery (capsule, ligaments, tendons): release of adherences and retractions contributing to the deformity. Release of certain tendons and/or ligaments; transfer of certain tendons.




- Bone surgery: reorienting the bones by cutting ("osteotomy") to restore a normal axis. Depending on the type of deformity, the osteotomy may be near the base of the metatarsal ("basal osteotomy"), near the head (e.g., Chevron osteotomy), or in the mid-part (shaft: e.g., Scarf osteotomy). It is by shifting the bone surfaces that the deformity is corrected.




• In some cases, when the deformity is severe, recurrent and/or associated with arthritis, these bone and/or ligament operations are insufficient or unfeasible. It that case, it may be necessary to block the joint between the metatarsal and the phalanx ("metatarsophalangeal arthrodesis (or fusion)") to achieve effective and lasting correction.

The joint is blocked in a position that is specific to your case, depending notably on your individual foot morphology and type of preferred footwear.

• Whether the operation conserves range of motion or not, correction often requires using some means of fixation: screws, plates, pins, staples, wires, etc. It is only in the case of some percutaneous surgeries that these may not be necessary.

### *The case of metatarsophalangeal fusion (or arthrodesis)*

Metatarsophalangeal fusion provides reliable and lasting correction of severe, recurrent and/or arthritic hallux valgus. It does, however, reduce the range of motion of the column of the big toe; this is partially compensated by adjacent joints, so that the inconvenience is limited and the joint between the two phalanges ("interphalangeal joint") is usually able to make up for this loss of motion, and you are able to take almost normal steps in walking.
On the other hand, your footwear requirements may be affected: sometimes it is no longer possible to wear very high heels, as the interphalangeal joint alone is unable to adapt as easily as before to varying heel heights.
Because the joint surfaces have been resected, fusion also slightly shortens the big toe, by about 5 mm (a 5$^{th}$ of an inch); this will not usually affect your shoe size or type.

***Surgery for hallux valgus may also be combined with surgery to correct lesser-toe deformities; this is not dealt with here.***
***During the operation, your surgeon may come up against an unforeseen or unusual circumstance that requires a complementary procedure or a procedure not initially planned for. Once the operation is over and you have come out of the anesthesia, you will be told exactly what the surgeon did.***

## AFTER THE OPERATION

>DRESSING is meticulously performed during the operation, according to your surgeon's habits, and usually should not be changed later. However, if there is care to be performed at home, it is important to ensure that the scar remains hygienically clean so long as the sutures are still there and the wound is not fully healed. Clean hands are essential, and you must never touch the scar without first washing your hands. Make sure that there is somewhere at your home for the nurse to wash her hands, or a hydroalcoholic cleanser.

> WEIGHT-BEARING (i.e., standing up) is usually allowed immediately after the operation, although often without at first taking steps. Actually walking may need a postoperative medical shoe, and crutches may be used for the first few days. In case of more severe deformity or bone fragility, you may be asked to refrain from weight-bearing for a number of weeks.
Walking is resumed progressively, first going without the medical shoe and then with a broad shoe until you can start using your usual shoes again. How long this takes depends on the original deformity, the type of operation, your surgeon's habits and other factors that are individual to you: weight, bone solidity, the seventy of the original deformity, your medical history, etc.

> POSTOPERATIVE EDEMA (swelling of the foot and toes) is normal after foot surgery, and does not count as a complication. It is essential for it to be treated, not just to relieve pain but also to improve scar healing: a certain rest period, with the foot raised and wearing compression socks or stockings may be useful. The edema can last a long time (weeks or months), with no lasting harm, although you may need to adapt your footwear in the meantime.

### >MEDICAL TREATMENT AFTER THE OPERATION

**-Postoperative pain** in this kind of pathology is not usually a great problem. Although strong pain-killers may be used straight after the operation, you can usually return home with just normal analgesics.
Sometimes more lengthy complete anesthesia of the leg is applied, with anesthetic nerve block or locoregional anesthesia, to relieve or prevent the worst pain during the first days after surgery.

**-Prevention of phlebitis:**
Depending on your individual risk factors and the type of surgery, anticoagulation therapy may be prescribed to reduce the risk of phlebitis.

**-Sick leave from work** is usually necessary after the operation. On average, it is for 6 weeks, but this depends on your job and on the surgical procedures that have been performed.

**-Postoperative consultations:**
**Your surgeon will carry out regular clinical, radiological and biological check-ups, and enter the results in your medical file.**
**The data in your file (rendered anonymous) may be used in medical studies or scientific communications or publications by your surgeon, in line with the French "Jardé" law of March 2012 (Decree 2016-1537). If so, your surgeon will ask for your specific consent, and this will be recorded in your file.**

The first postoperative consultations are to check on scar healing and conditions around the surgical site. The later consultations are to check progress and functional recovery.

Whether your treatment spared the joint or involved fusion, several months' radiological follow-up is usually needed to monitor bone healing and guide the return to weight-bearing.

## WHAT YOU CAN EXPECT FROM THE OPERATION

The operation will correct your deformity and put a stop to the mechanical pain of footwear, so that you can get back to work, leisure activities and even sport.

> **4 to 6 weeks after surgery,** you can return to normal footwear; this should be wide, and adapted to how your foot is progressing. Lighter shoes are possible, depending on how things go, after a few months.

> Light sport, such as swimming or an exercise bike, is possible **from the 6th week.** More demanding sports, such as jogging, hiking, tennis, etc., are possible at 3 to 6 months.

> Driving can usually be resumed after a month, but may have to be delayed due to postoperative footwear.

> Long-term clinical outcome is generally good or excellent, although there is always a risk of recurrence.

## THE RISKS

*No surgery is ever without risk. Whatever the precautions, "zero risk" does not exist. When you decide to be operated on, you need to be aware of this, and to weigh the risks against the expected benefit: this is known as the "risk/benefit ratio".*

However skilled your surgeon and the team, there is always, unfortunately, a risk of failure with any treatment. Failure here may mean recurrence of symptoms or even worsening, or other more severe risks. These risks may just be a matter of bad luck, but they can also be aggravated by your particular health issues, whether known to you or not, and whether local or general. It would not be possible to detail here every conceivable complication, but we have listed below the most frequent or the most serious risks that may arise with your pathology.

### > STIFFNESS:

Any joint surgery can induce temporary or definitive stiffness. This may require physiotherapy or even re-operation.

### > RECURRENCE:

Recurrence is always possible, even despite initially good correction. It may be due to some individual predisposing factor (e.g., constitutional hyperlaxity) or to some overall abnormality of the foot (e.g., flat foot).

**> HALLUX VARUS:** However careful your surgeon may be in trying to realign your toe, the correction may turn out to be excessive, in the short or long term. Soft tissue healing or tendon tensioning may lead to undue tension, and the toe gets shifted in the other direction, toward the middle ("hallux varus"). This may require repeat surgery.

### > TRANSFER METATARSALGIA:

In some cases, correcting the big-toe deformity can alter your stance during walking, causing pain in the other metatarsals (whence the term "transfer metatarsalgia"); this may require special secondary treatment: orthosis, insole, or surgery.

### > CHRONIC PAIN AND COMPLEX REGIONAL PAIN SYNDROME

In any medical or surgical treatment for pain, some pain may unpredictably persist and other pains may worsen. These chronic, long-term phenomena may constitute a "complex regional pain syndrome" that may progress for several months, sometimes with trophic or joint sequelae.

### > INFECTION

Despite all precautious in terms of disinfection and skin preparation, any surgical incision incurs a risk of microbial contamination leading to infection, early on or much later. Antibiotics are often needed, or surgical revision, with risk of

pain or functional impact. Factors such as diabetes, smoking or immunodepressant treatments (corticosteroids, etc.) may increase the risk of infection.

### > SCAR HEALING DISORDER

Despite all the care your surgeon takes to look after the surgical wound and all nursing care, there can be problems of scar healing, sometimes induced by general or local pathologies such as diabetes or circulation disorder. Wound healing may thus be delayed or defective, leaving a blemish or unhealed scar or skin necrosis. These scar issues can also lead to infection.

### > THROMBOEMBOLIC COMPLICATIONS

Any surgery, and especially in the legs, can lead to a blood clot blocking the veins and causing phlebitis. The clot can even get into the circulation system of the lungs and cause an embolism that may have very serious or even fatal consequences. Prevention may involve anticoagulation therapy, depending on the type of surgery and your general health status.

### > ADJACENT COMPLICATIONS

As the surgical site is close to bones, tendons, blood vessels and nerves, the operation may directly or indirectly impact these elements: hemorrhage, hematoma, paresis, paralysis, loss of sensitivity, restriction of motion, joint stiffness, etc. Given the position of the scar, injury to a small nerve can lead to loss of sensitivity or to persistent pain. In some cases, revision surgery may be necessary: to drain a hematoma, decompress a nerve, release a tendon...

### > MEDICATION COMPLICATIONS

Following surgery, you may be prescribed certain specific medications: most often, anticoagulants, antibiotics, pain-killers, or anti-inflammatory drugs. These obviously all come with their own risks, that can be serious and sometimes unpredictable.

### > SMOKING *(NICOTINE INTOXICATION)*

Nicotine intoxication is a major risk factor in foot and ankle surgery, notably causing healing problems, infections and thromboembolic complications and hindering bone healing.

**Complete cessation of smoking is recommended for 6 weeks before and 6 weeks after surgery. If need be, do not hesitate to consult your family doctor about this.**

### > MATERIAL DISASSEMBLY AND BREAKAGE

Your operation involves moving bone segments, which may require surgical material such as plates, screws, pins or wires. Like any material, these implants can incur complications, due to their fragility (breakage) or displacement under mechanical stress on the structures onto which they are implanted, which can lead to loss of correction.
This surgical material may thus require revision in case of displacement or complications.
Finally, well after the operation and the immediate postoperative period, when you pathology has been resolved, the material can sometimes be removed in a scheduled operation, depending on its location and whether it is causing local discomfort or impingement.

### > DELAYED OR FAILED BONE HEALING

Surgical treatment of your pathology is based on bone healing, which is a biological phenomenon. However, it may fail or be delayed: an arthrodesis (blocking the joint) or osteotomy (bone cut) may fail to consolidate, and surgical revision may then be necessary.

### > POSTPONEMENT OF SURGERY:

**Finally, your operation may need to be postponed, for your own safety, in case of:**

- an illness just before admission;
- recent change to your usual treatment;

- a wound or infection near the intended operative site;
- forgetting or failing to respect the instructions given to you be the surgeon and anesthetist;
- unexpected unavailability of the material and equipment needed for the operation, or unforeseen incident in the operating room liable to interrupt surgery, including after anesthesia.

## Frequently asked questions

*"Is it possible to operate on both feet at once?"*

This can sometimes be possible, depending on your surgeon's habits, the technique employed and the type of anesthesia used to operate on both feet in the same step. Ask your surgeon, who can explain and advise on what is the reasonable thing to do in your situation.

*"If both my feet are operated on, will the pain be worse and the sick leave longer?"*

Regarding pain, the treatment is usually the same, adapted to the operation. The sick leave period is also usually the same, barring the unexpected (such as delayed bone healing).

*"How am I going to manage at home? When will I be able to drive again?"*

Depending on the operation, you may or may not be able to place your foot on the ground, with or without crutches. If you have had forefoot surgery, you will be able to walk, using one or two special shoes prescribed by your surgeon, to protect your foot during bone healing and scar healing.
While wearing this kind of "medical shoe", driving is strongly advised against; your surgeon will be able to explain the possibilities of driving again, according to how you progress.

*"What should I do if my foot or ankle becomes painful again or swells up (edema)?"*
Edema is frequent, and usually not pathological.
In a few cases, if it is accompanied by severe pain, it may be the sign of some problem with healing or with the bone (such as material displacement).

*"What should I do in case of fever or a problem with the scar?"*
If you develop fever, this might be a sign of infection.
If, when you change dressings, your scar is red, inflamed or suppurating, consult your surgeon as quickly as possible, for advice and adapted treatment - local or general (antibiotics).

*"What should I do if I have pain in the calf or difficulty breathing?"*
These signs may point to a blood clot in a vein (phlebitis) or a clot migrating to the lung (pulmonary embolism), which can have serious consequences.
The risk is greater if, because of the type of operation, you are not allowed to put your foot on the ground; in that case, your surgeon will have prescribed protective medicines (anticoagulants) for you – but even so, the risk remains and this kind of sign is an alarm.

**Generally speaking, any new symptom means you should consult either your family doctor or your surgeon or, in case of emergency, the center in which you were operated on.**
**If you cannot reach them, do not hesitate to dial 15 for the emergency medical service, which will guide you.**