LEONARDO
ÄRZTE FÜR ORTHOPÄDIE UND TRAUMATOLOGIE

OSTEOARTHRITIS OF THE ANKLE JOINT

DEFINITION/FORMATION

The largest joint at the foot and ankle is the upper ankle joint. Here the movement of the foot is either up or down. (Fig. 1). As with all other joints in the body, osteoarthritis can also occur here. Osteoarthritis is the wear and tear of the articular cartilage up to the complete loss of cartilage. As a result, the bone tries to adapt to the changed joint situation and bone spurs ("overbone"), so-called osteophytes, often occur in the course of the development of osteoarthritis. These osteophytes and the loss of cartilage lead to an increasing reduction of joint mobility, ultimately leading to the stiffening of the joint.

This process is usually accompanied by variable, stress-related and inflammatory reactions in the joint leading to swelling and pain. The causes of osteoarthritis at the upper ankle joint are manifold. The most common (approx. 80%) is post-traumatic, an osteoarthritis resulting from injuries (e.g. ankle fractures or ligament injuries). Other causes are e.g. metabolic diseases or rheumatic diseases. In addition, the form and positioning of the foot as well as the axis of the leg can lead to overloading certain joint sections and thus cause or accelerate osteoarthritis.

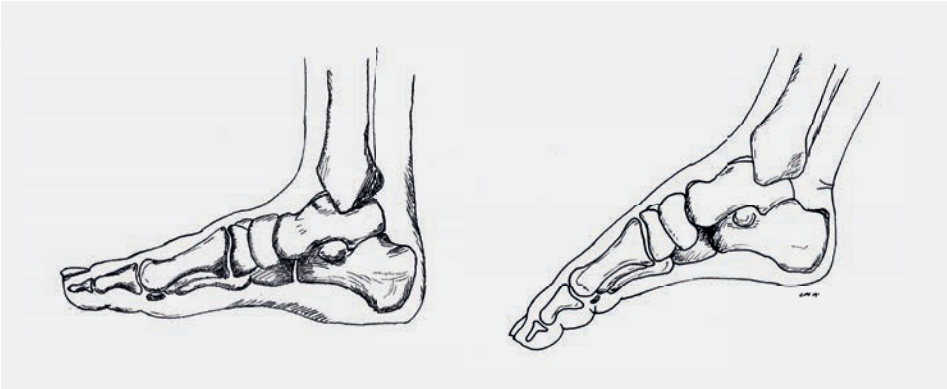


Abb. 1: Upper Ankle Joint and it's Mobility

SYMPTOMS

Most patients complain of pain and swelling around the ankle joint or in between the inner and outer ankle (malleoli). Typically, this is a start-up pain and pain that increases with/after exertion. Occasionally, pain while resting can also occur. The limitation of movement is not perceptible for most patients at first, as it develops slowly. Occasionally, patients experience more difficulty walking uphill or downhill, or they notice that their feet are slightly outwards to allow them to better roll off.

EXAMINATION

The examination often reveals a swollen joint with noticeable thickening of the bone and sometimes redness. Movement is painful and limited. The normal rolling of the foot is often no longer possible.
The x-rays show the extent of the osteoarthritis (narrowing of the joint space) and the bony spurs (Fig. 2).

Fig. 2 Drawing and X-Ray Image with Osteoarthritis in the Upper Ankle Joint

TREATMENT

A) Non Surgical

Osteoarthritis is not dangerous, and treatment is based on the patient's symptoms and not on the X-ray image. Conservative treatment is worth trying depending on the extent of the symptoms. The swelling and pain can be reduced with cooling, elevation and anti-inflammatory painkillers. A slightly stabilizing upper ankle joint bandage (Malleotrain or similar) can also be worn as a support, especially during exercise. With physiotherapeutic measures, accompanying muscle pain can be treated, the musculature can be strengthened, and mobility and balance can be improved to protect the joint. Occasionally, in extremely painful situations, infiltration of the joint with cortisone preparations can be useful.

B) Surgical

If the osteoarthritis is already advanced or conservative treatments have been unsuccessful, surgery is a worthwhile treatment. There are different possibilities:

1. Deformity correcting Osteotomy: If the wear and tear due to a changed leg axis only exists in one part of the joint and it is not yet too far advanced, the leg axis can be corrected. This way the load in the ankle joint is shifted from the worn side to the still healthy side. This shift is usually carried out directly above the inner or outer ankle (malleoli), occasionally also at the heel. A wedge is removed from the inside or outside of the shin and closed or the bone is opened in a wedge shape. As a rule, the fibula must also be "broken" in order to make the adjustment possible. Afterwards, the bone is fixed again with a plate and screws. After the operation, as after a fracture, the leg must be immobilized in a VACOped. Partial weight bearing of 15kg must be maintained for the first 6 weeks.

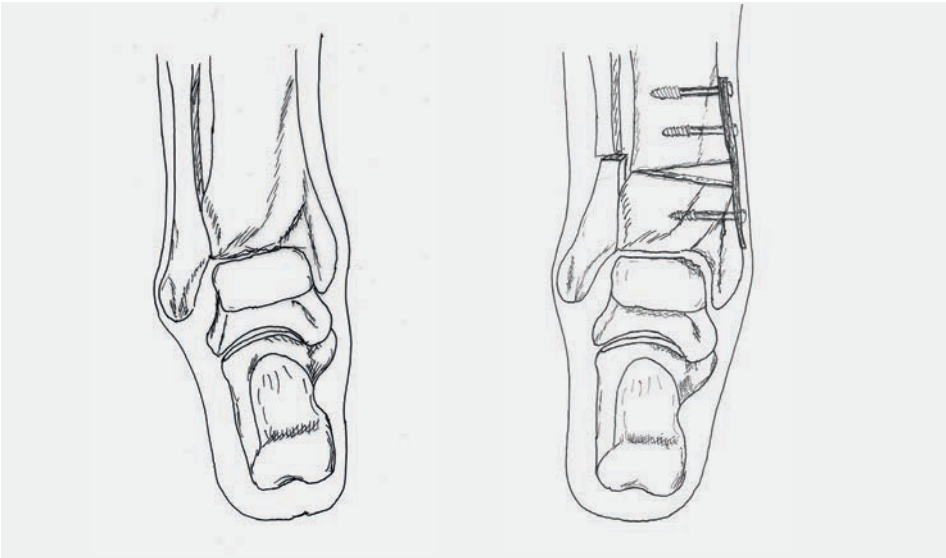


Fig 3: Change in the Load on the Upper Ankle Joint caused by a Repositioning Osteotomy

2. Arthroscopy with debridement and Removal of osteophytes: An arthroscopy with debridement can be considered when there is little pain and it is more likely a pinching. Removal of osteophytes can make sense if they are pronounced and restrict movement. Neither intervention can prevent the progression of osteoarthritis, but in the best case it can significantly reduce the symptoms, at least for a certain time.

3. Ankle fusion or ankle joint replacement: In the case of advanced osteoarthritis with corresponding pain and unsuccessful conservative measures, these two options remain to eliminate the osteoarthritis permanently.

A) Fusion (stiffening of the joint): For a long time, fusing the upper ankle joint was considered a standard treatment. In contrast to other joints, joint replacement (prosthesis) was developed at a late stage. The reason for this was on ~~the~~ one hand the initial difficulties with the artificial joints, on the other hand a stiff upper ankle joint is functionally good, in contrast to a stiff knee or a stiff hip. Since there are many other joints in the foot that compensate for the lost movement of a fused upper ankle joint, this stiffening is noticeable but has little effect on walking and everyday burden. The increased load on the other joints of the foot can lead to wear and tear and osteoarthritis of other joints. However, this usually takes at least 10-20 years. Even today, ankle fusion is still a successful treatment with good functional results, especially for people who put a lot of strain on their ankle joint and do not have any further osteoarthritis in their feet. The joint is fused with a few screws, occasionally also with a plate. After the surgery, the ankle joint must be immobilized in a cast for 6-8 weeks and no weight bearing is allowed. The greatest risk of the operation is the lack of fusion of the bones, occasionally the surgery then must be repeated.

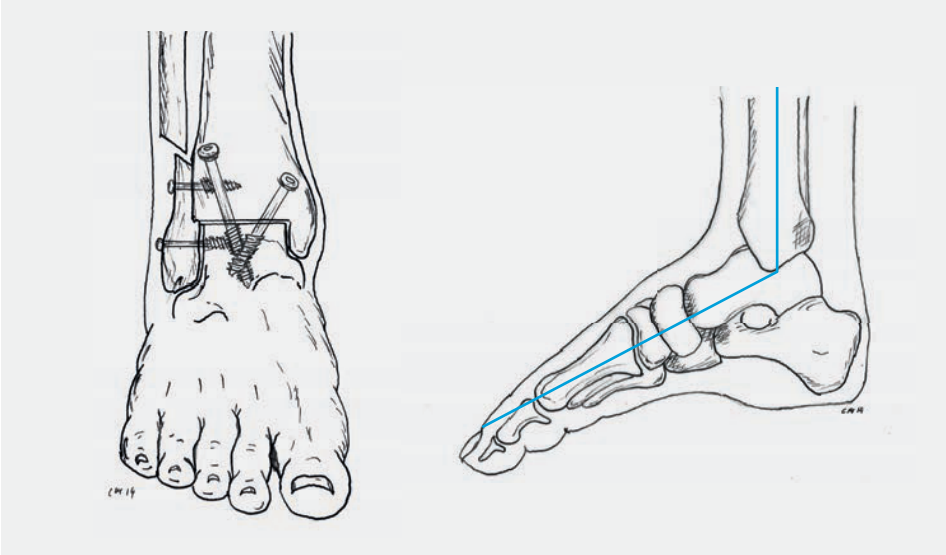
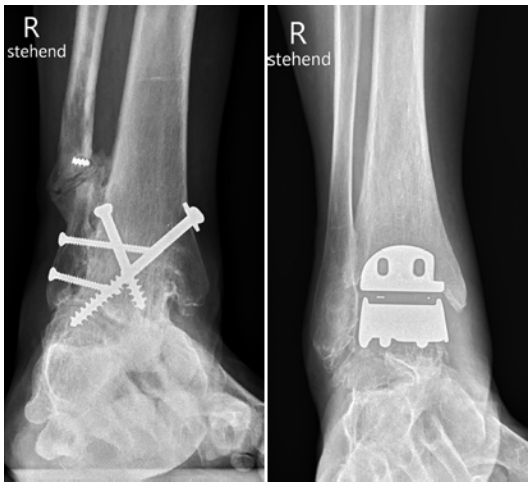


Fig.4: Fusion (stiffening) of the Upper Ankle Joint and Mobility afterwards

B) Total ankle joint replacement (TAR): Since the end of the 19th century there have been well-functioning joint replacements for the upper ankle joint after initial failures. Even with a TAR, mobility is usually improved only slightly. This residual mobility, however, protects the other foot and ankle joints. This makes the TAR a good option especially for patients with osteoarthritis of other foot and ankle joints or already fused joints. After the operation, the TAR is immobilized in a cast for 6 weeks with reduced weight bearing. The most common risks of the surgery are wound healing disorders and infections. Approx. 1/4 patients still have complaints after the TAR. In the long term, TAR may loosen or become worn out again. Depending on the literature, the 5-year survival rates of TAR are around 90% and the 10-year survival rates are around 75-80%.



There are still only a few studies comparing fusion and TAR. As things stand today, the medium to long- term results are comparable. It is important to decide individually for each patient whether fusion or a TAR is more suitable.

Fig. 5: X-ray after fusion (left 10 years), and TAR of the ankle joint (right)

RISKS AND COMPLICATIONS

Complications and risks may occur during or after the operation and delay the healing process or make further surgery necessary. They can never be completely ruled out during surgery, even if they are rare during foot surgery. These are summarized below:

- Wound healing disorders
- Infections
- Vascular injuries, secondary bleeding, bruising, blood loss
- Nerve injury
- Non Union (lack of bone healing)
- Interfering implants (screws, plates)
- Thrombosis, embolism
- Residual complaints
- Loosening of the TAR

FOLLOW UP TREATMENT

The operation is only a part of the whole treatment. The post-operative treatment plays a major role in the success of the surgery. It is important that you know what you should observe and possibly avoid.

Dressing and Wound Care

During the time in the hospital you will be shown how to take care of the wound. As long as the wound is not completely dry (wound secretions/blood), the dressing should be changed daily. Do not apply any ointment or powder directly to the surface of the wound until the stitches have been removed! Disinfection is not necessary. Always remove the entire dressing when changing. The new dressing must be dry and must not slip.
If the wound is dry, a plaster (quick bandage) is sufficient. An elastic bandage can protect and cushion the operated area. This will also reduce the swelling that is still present. If you are not sure whether everything is normal, you can contact your family doctor or contact us directly. The stitches can be removed approx. 2 weeks after the operation, this is usually done by the family doctor.
If you receive a cast, it will remain for 6 weeks and no dressing changes are necessary. There is also no need to remove the stitches, this is done during the 6-week check-up after the removal of the cast. If the cast no longer fits properly, you should contact us so that a new cast can be fitted.

Swelling and pain

After an operation, the affected foot is always more or less swollen. This swelling can recur for weeks (up to 6 months). The most effective measures to prevent this is to elevate the leg. It makes sense to move several times a day (walking, not as much standing) but only for a short time. It is time to elevate the leg again if the foot becomes tense and starts to hurt.

Pain in the operated foot can occur in the first few days and weeks after the surgery despite these measures. However, to relieve the pain, you can take the pain medication prescribed to you.

Weight bearing

The permitted weight bearing of the foot depends on the operation performed. You received a special shoe to protect and simplify your mobility (Fig. 6) or a plaster cast. Depending on the operation, partial weight bearing is recommended or full weight bearing is allowed. During the first 2 weeks, partial weight bearing until the wound has healed is usually recommended.

Partial Weight Bearing

You can put about 25 kg of weight on the affected foot. This corresponds approximately with the weight of the leg and means that you must always use crutches. Our Physiotherapists will instruct you accordingly in order to be able to implement this correctly. It is important that you can use the stairs with the aid of the crutches by yourself.

Full Weight Bearing

As soon as the pain allows it, you may put full weight on the foot. It is important that the special shoe is worn consistently throughout the first 6 weeks.

Personal Hygiene

As long as the stitches are still in the wound, i.e. usually in the first 2 weeks, the operated foot should be protected with a plastic bag. The easiest way is to pull the plastic bag over the special shoe. As soon as the stitches are removed, you can shower and bathe without further precautions. If you have received a cast, you should protect it from water with a plastic bag.

Thrombosis Prophylaxis

Thrombosis prophylaxis already begins during the hospital stay. Depending on the operation, this prophylaxis must be continued. In most cases we use Fragmin 5000IU ready-to-use syringes. They are administered once a day by the patient himself. You will be instructed by our nursing staff during your stay.

How long you need the injections depends on the operation, the individual risks and is necessary until you can fully weight bear the foot and walk without crutches again, in about 6-8 weeks.

Employability

A rest period is crucial after an operation. In the first 2 weeks you should take it easy and not work. How long you will be completely unable to work depends on the type of operation as well as your stress profile. In most cases you and your employer should be able to temporarily find less stressful work. This enables early resumption of work.

The signed work absence that you will receive from us is a preliminary assessment. The certificate can be extended if you are not able to resume work after this time. If this is the case, report to your family doctor or to us.

However, you may take up your work again any time before the given date, if you feel capable to do so.

Driving a Car

At what point you can resume driving again depends on the kind of operation you had. You must refrain from driving as long as you cannot fully burden your foot or are still requiring crutches. How far thereafter your ability to drive is restored is up to you. In case of doubt or if you are unsure, we recommend to avoid driving.

Check-Ups

Your surgeon will require x-rays to be taken 6 weeks after the operation. The further procedure will then be determined. In most cases you will be able to wear your own shoes from then on. We recommend starting with shoes with a firm sole and soft upper leather. Most activities can be resumed about 3 months after the operation. Sports activities should be increased slowly as not to provoke an overuse after a longer sport break.

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