

**Sogacot 2004**

**21 y 22 de mayo**

**Ferrol**



# **Complicaciones y secuelas de la cirugía del tobillo**

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# **I - Why a complication ?**

- 1 - patient poor conditions**
- 2 - natural evolution**
- 3 - associated lesion misdiagnosed**
- 4 - bad technique**
- 5 - bad indication**

## Complication in ankle surgery

Why a complication ?

### 1 – patient poor conditions



Diabetes melitis  
Open fracture  
Arteritis  
Veinous problem  
smoker  
Osteoporosis  
anxious



## Complication in ankle surgery

Why a complication ?

**1 – patient poor conditions**

**What happen ?**

- Infection ( superficial or deep)
- wound necrosis
- non healing , osteonecrosis ,
- secondary displacement / malunion
- reflex sympathetic dystrophy
- phlebitis, chronic oedema

## Complication in ankle surgery

Why a complication ?

**1 – patient poor conditions**

**The solutions**

- **Contraindication**
- **Surgery with some risks ?**
- **Sometimes , amputation**  
( chronic infection with non union)

## Complication in ankle surgery

Why a complication ?

### 2 - natural evolution



Open ankle dislocation  
with lateral malleolar fracture



Secondary arthritis  
and non union

## Complication in ankle surgery

Why a complication ?

## 2 - natural evolution

Arthritis after joint fracture  
even if well corrected



Arthritis in other joints  
after fusion

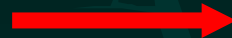


Metatarsalgia after a pantalar fusion

## Complication in ankle surgery

Why a complication ?

### 2 - natural evolution



**Congenital equinus varus deformity  
with talus necrosis after a surgery when 1 year old.**

**Pain on the lateral side of the foot at 15 years old  
because the deformity is not corrected.**

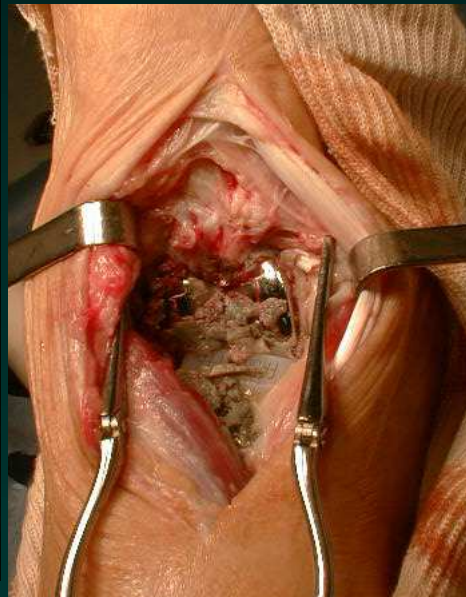


## Complication in ankle surgery

Why a complication ?

**2- natural evolution ?  
failure of the material**

**in ankle prosthesis**



**Because of ossifications on the front of the talus piece which fixe the intermediate piece with painful mobility on the tibial piece**

## Complication in ankle surgery

Why a complication ?

### 3- associated lesion misdiagnosed



Varus stress



Failure of ankle ligamentoplasty

→ Pes cavus varus

## Complication in ankle surgery

Why a complication ?

**3- associated lesion misdiagnosed**



**Ankle instability with  
osteochondritis**



**CT – Scan  
with contrast**

## Complication in ankle surgery

Why a complication ?

**3- associated lesion misdiagnosed**

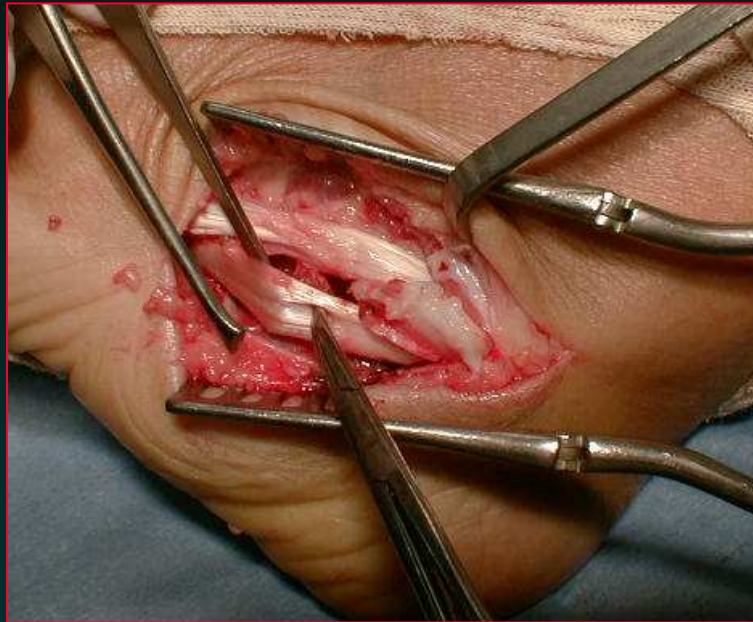


**tibio-fibular  
arthritic joint**

## Complication in ankle surgery

Why a complication ?

### 3- associated lesion misdiagnosed



Ankle instability with  
peroneus tendon tear

→ Echography or MRI



## Complication in ankle surgery

Why a complication ?

4- bad technique

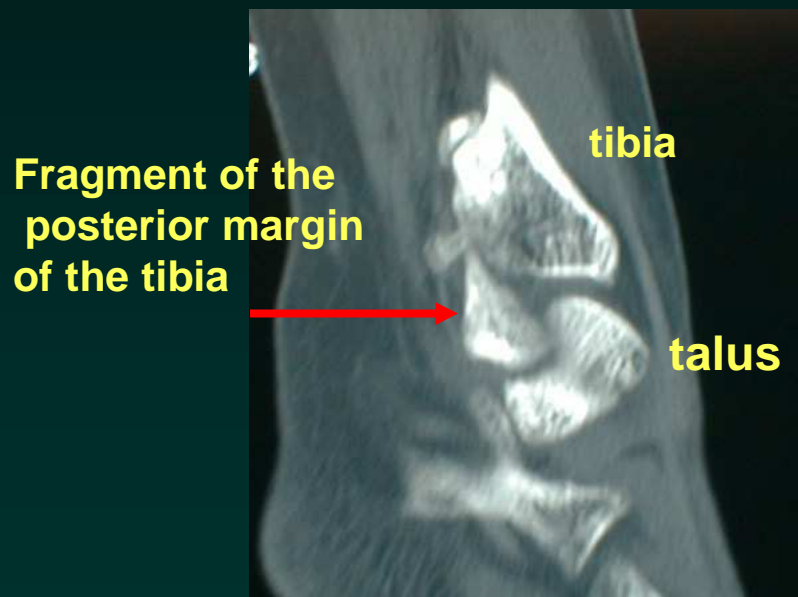


Bad correction of the fracture

## Complication in ankle surgery

Why a complication ?

### 4- bad technique



CT scan – sagittal view

Sometimes , very difficult to see

**Complication in ankle surgery**

**Why a complication ?**

**4- bad technique**



**Tibiofibular joint non corrected**



## Complication in ankle surgery

Why a complication ?

**4- bad technique**

**Nerve injuries**

**Tarsal tunnel by a screw too long**



**Sural nerve lesion with painful neuroma after ankle fusion**

## Complication in ankle surgery

Why a complication ?

**5- bad indication**



**Arthritis with malleolar malunion : fusion or prosthesis ?**

## Complication in ankle surgery

Why a complication ?

**5- bad indication**



**Ankle prosthesis with important hindfoot varus**

## Complication in ankle surgery

Why a complication ?

### 5- bad indication



Medial laxity



Corrected in valgus

Medial ankle laxity **treated**  
**by a** subtalar fusion



flatfoot

## II - How to treat the complication ?

Take into account :

- all the factors of the sequellae
  - **Complete investigation**
- the local consequences of the first surgery ( stiffness, wound retraction , swelling, ...)
- the psychological aspect
  - Information about the possibilities of improvement

# Complication in ankle surgery

## How to treat the complication ?



**Medial laxity  
with flatfoot  
and subtalar fusion**



**Medial ligament suture**



**Calcaneal medial translation osteotomy**



## Complication in ankle surgery

# How to treat the complication ?



**Good result 1 year after  
Sport at the same level  
(surf and soccer)**



## Complication in ankle surgery

### How to treat the complication ?



**Man , 35 years old : the correction with lateral calcaneal osteotomy and M1 BRT osteotomy don't improve the evolution to ankle arthritis He don't want ankle fusion. Place for an ankle prosthesis?**



**Complication in ankle surgery**

**How to treat the complication ?**

**The good choice ?**



**Ankle prosthesis migration**



**Revision ankle prosthesis**



**Fusion often with graft**

## Complication in ankle surgery

### III - How to prevent the complications ?

**know the patient and prevent some complications with prophylaxy ( antibiotic , antithrombotic , antiinflammatory drugs )**

**If poor conditions , contraindication or surgery with some risks ?**

**→ Information +++**

**Medicolegal reason**

## Complication in ankle surgery

How to prevent the complications ?

**With a good procedure**

- **Preoperative planning and good indication**
- **Peroperative analysis**
- **Postoperative cares**

## Complication in ankle surgery

How to prevent the complications ?

### Preoperative planning



### Interest of the CT-scan

→ Search the lesion non visible on X-ray after a **clinical examination** guided by our knowledge of the **associated lesions**

## **To know the associated lesions**

### **Associated lesions with chronic ankle instability**

*DiGiovanni & Co : Foot & Ankle Int., 21, N°10, Oct 2000, 809-815*

- Fibular tenosynovitis ( 77%)**
- Anterolateral impingement ( 67%)**
- peroneus tendon subluxation ( 54%)**
- Ankle synovitis ( 49%)**
- Intraarticular loosing body ( 26%)**
- Peroneus tears (25%)**
- Talar osteochondritis ( 23%)**
- Tibiofibular ligament lesion ( 11%)**
- Medial tendon lesion ( 5%)**

## Complication in ankle surgery

How to prevent the complications ?

**Preoperative planning**

**Different ankle arthritis**



- + adjacent joints
- + conditions
- + willing of the patient ?

## Complication in ankle surgery

How to prevent the complications ?

**Preoperative planning**

**The good indication**

**Fusion**

→ **open**

→ **arthroscopy**

**what approach ?**

**what fixation :**

**Screw**

**Intramedullary nail**

**Staple**

**External fixator**

**Graft ?**

**Ankle replacement**

→

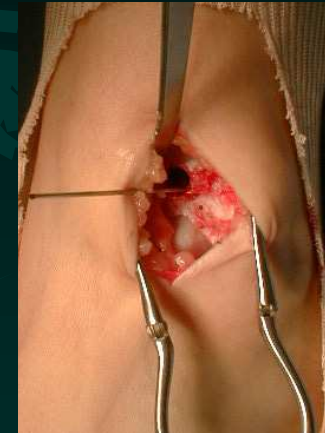
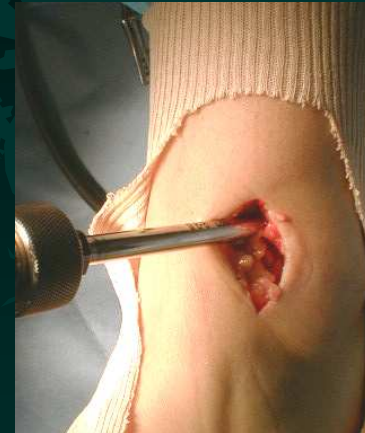
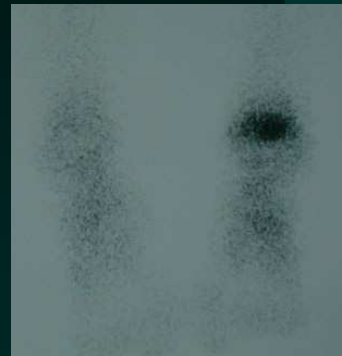
**what kind of prosthesis?**



## Complication in ankle surgery

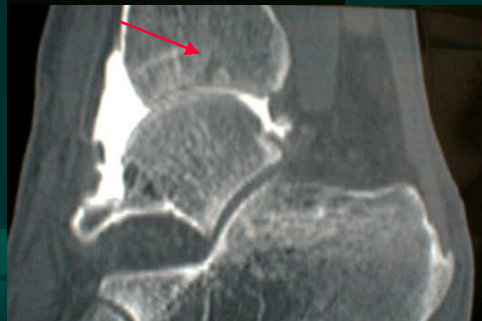
How to prevent the complications ?

## The good procedure



Girl ,19 years old  
Osteoid osteoma  
with difficult access

How to remove it ?

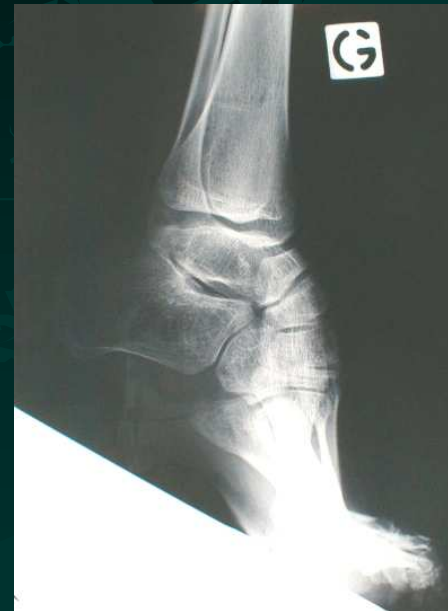




## Complication in ankle surgery

How to prevent the complications ?

The good procedure ?



**Fixed congenital equinus varus deformity – 25 years old**

**What to do ? : ankle fusion and midtarsal osteotomy ?, ...**

**What are the consequences on the static of the body ?**

**Complication in ankle surgery**

**Fixed equinovarus deformity (lodge syndrom)**



**1 year after**



## Complication in ankle surgery

### How to prevent the complications ?



**Ankle posteromedial release ( tendon + TT & ST joint),**

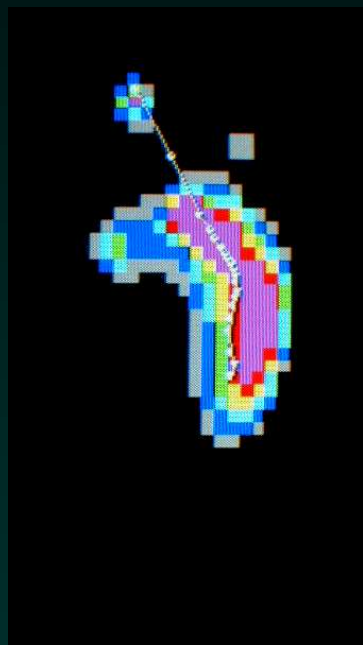
**Calcaneal lateral osteotomy,**

**M1+2+3 Basal elevation osteotomies ( BRT)**

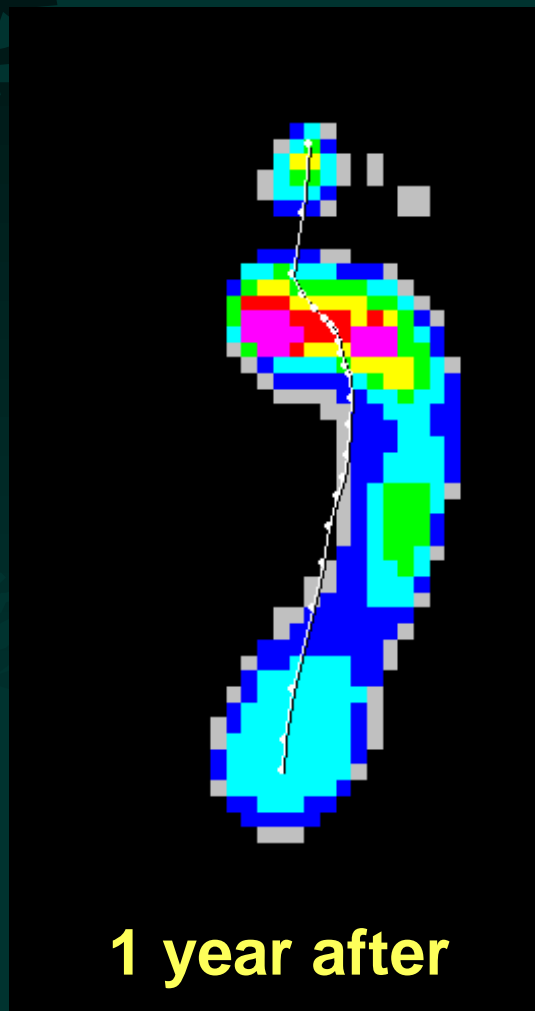
**Half tibialis anterior tendon transfert on peroneus brevis.**

## Complication in ankle surgery

# Pedobarograph result



before



1 year after

Kitaoka score :  
48 to 84

Ankle mobility 5°  
Able to run

## Complication in ankle surgery

How to prevent the complications ?

The good procedure ?



Pes cavus with ankle laxity  
corrected by a valgus stress

Ankle ligamentoplasty



Insuffisant correction



## Complication in ankle surgery

How to prevent the complications ?

### Peroperative analysis

Clinical evaluation of the :

- ankle mobility
- ankle stability
- correct axis of the ankle & the foot compared with the opposite leg  
→ necessary to see the 2 legs

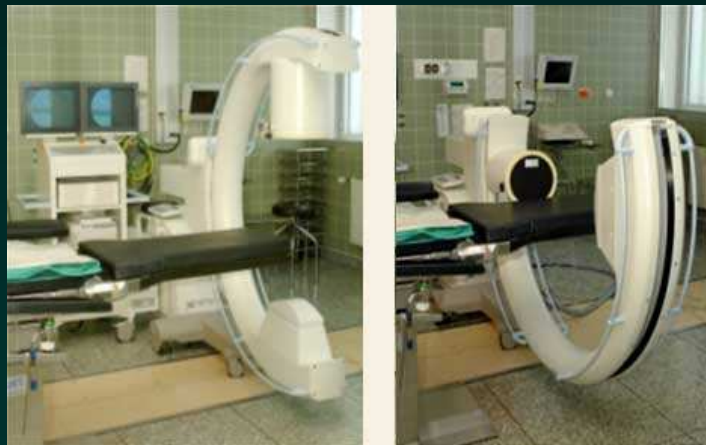


## Complication in ankle surgery

How to prevent the complications ?

# Peroperative analysis

→ INTRAOPERATIVE 3-D IMAGING  
WITH A MOBILE IMAGE AMPLIFIER (ISO-C-3D)



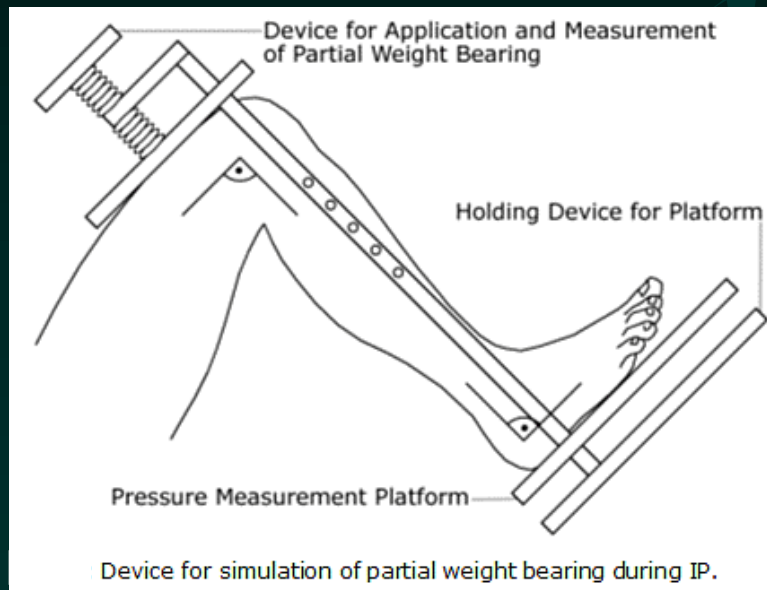
fracture after ORIF with plates and screws showing a step in the fracture line that was not visible on plain radiographs and that was corrected in the same procedure  
From Martinus Richter , Germany

→ arthroscopic visualisation of the reduction

## Complication in ankle surgery

How to prevent the complications ?

## Peroperative analysis



Peroperative  
Pedobarography  
( from Martinus Richter)

Interest to prevent  
metatarsalgia after ankle fusion,...



## Complication in ankle surgery

How to prevent the complications ?

### Postoperative care

- Immobilisation during the time necessary
- Progressive weightbearing
- Ankle brace after cast
- Insole in some cases



- Rehabilitation adapted to each case

## **CONCLUSION**

### **Complications in ankle surgery**

- **Various factors we have to take into account**
- **To prevent some of them but not all**
- **To inform the patient about the prognosis**
- **Because the treatment of the failure is often more difficult**

## **CONCLUSION**

### **Complications in ankle surgery**

#### **To decrease these complications**

- New technologies**
- Discussion about difficult cases  
( mail , congress,...)**
- Studies to define the indications**
- Development of practical course**

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**Complicaciones y secuelas  
de la cirugía del tobillo**

**Gracias por su atención**