Complicaciones y secuelas de la cirurgia del tobillo

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I - Why a complication ?

1 - patient poor conditions
2 - natural evolution
3 - associated lesion missdiagnosed
4 - bad technique
5 - bad indication
Complication in ankle surgery

Why a complication?

1 – patient poor conditions

Diabetes mellitus
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)
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Why a complication?

2 - natural evolution

Open ankle dislocation with lateral malleolar fracture

Secondary arthritis and non union
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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
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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.
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Why a complication?

2- natural evolution?

failure of the material

Because of ossifications on the front of the talus piece which fixe the intermediate piece with painful mobility on the tibial piece
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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
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Why a complication?

4- bad technique

Bad correction of the fracture
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Why a complication?

4- bad technique

Fragment of the posterior margin of the tibia

Sometimes, very difficult to see

CT scan – sagittal view
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
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Why a complication?

5- bad indication

Arthritis with malleolar malunion: fusion or prosthesis?
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Why a complication?

5- bad indication

Ankle prothesis with important hindfoot varus
Complication in ankle surgery

Why a complication?

5- bad indication

Medial ankle laxity treated by a subtalar fusion

Corrected in valgus

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
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How to treat the complication?

Medial laxity with flatfoot and subtalar fusion

Medial ligament suture

Calcaneal medial translation osteotomy
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How to treat the complication?

Good result 1 year after Sport at the same level (surf and soccer)
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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 prothesis?
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How to treat the complication?

The good choice?

Revision ankle prosthesis

Ankle prosthesis migration

Fusion often with graft
III - How to prevent the complications?

Know the patient and prevent some complications with prophylaxis (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


- 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%)
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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

Ankle replacement

Open

Arthroscopy

what approach?

what fixation:
- Screw
- Intramedullary nail
- Staple
- External fixator
- Graft?

what kind of prothesis?
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How to prevent the complications?

The good procedure

Girl, 19 years old. Osteoid osteoma with difficult access.

How to remove it?
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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?
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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.
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Pedobarograph result

Kitaoka score: 48 to 84

Ankle mobility 5°
Able to run

before

1 year after
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
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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
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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
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How to prevent the complications?

Peroperative analysis

Peroperative Pedobarography
(from Martinus Richter)

Interest to prevent metatarsalgia after ankle fusion,...
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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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Gracias por su atencion