Arthrodesis of the ankle and treatment with AFO in severe diabetic Charcot deformity or instability

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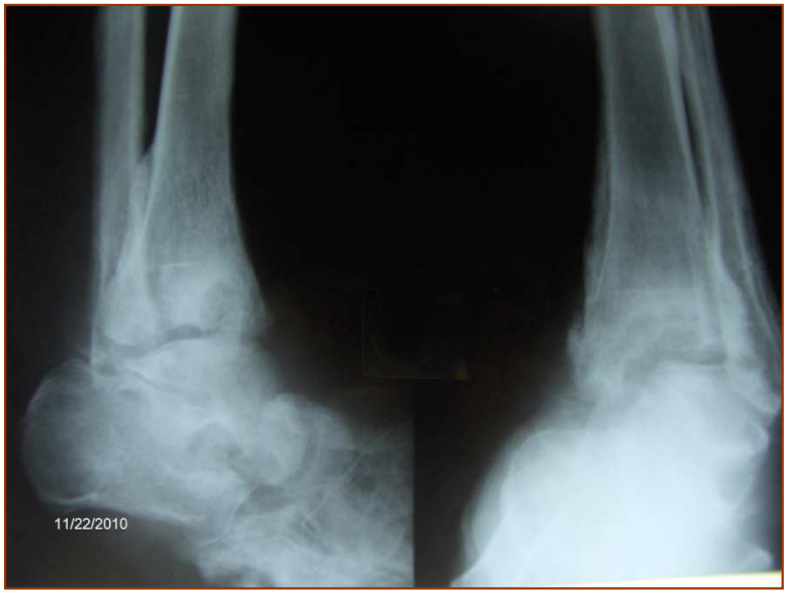
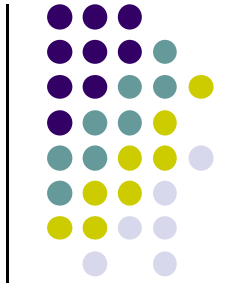
Diabetic neuropathy

- Destructions of the bones and joints can observe often in severe cases of diabetic foot disorders
- It showes the typical clinical and radiological image of osteoarthropathy (Charcot-foot)
- Pathological fractures of the bones, dislocation and subluxation of the joints
- These changes lead to the **deformation** of the foot
- **Instability** and pathological movement of the foot and ankle



Diabetic neuropathy

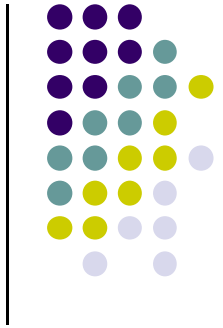


- Clinical signs
  - Disability of walking, walking distance
  - Ankle and foot deformity
  - Ankle and foot instability
- Therapy
  - Non-operative or surgical procedure
- Therapy indications
  - Deformity or instability
  - Quality of the bones
  - Arterial blood supply
  - Septic conditions, signs

Non-operative therapy

- External fixation (plaster cast, custom made AFO)
- Long-time treatment (3-12 month)
- Pantient
- Bone remodelling leads to weight bearing extremity
- The foot and ankle will be stable without any pain and pathological movement

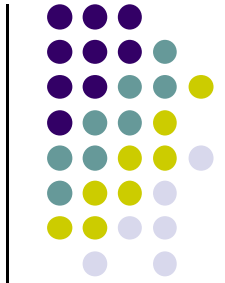
Ankle arthrodesis



- Indication of the arthrodesis
  - Plaster cast or AFO is not enough to keep the foot and ankle alone in neutral and stable posititon
  - Plaster cast or plastic AFO can cause soft tissue wounds and ulcers after the 3-6 month of treatment, may therefore not possible to further use

- Arthrodesis of the ankle and subtalar joint is the treatment in these cases and wearing AFO is an adjuvant therapy after the operation

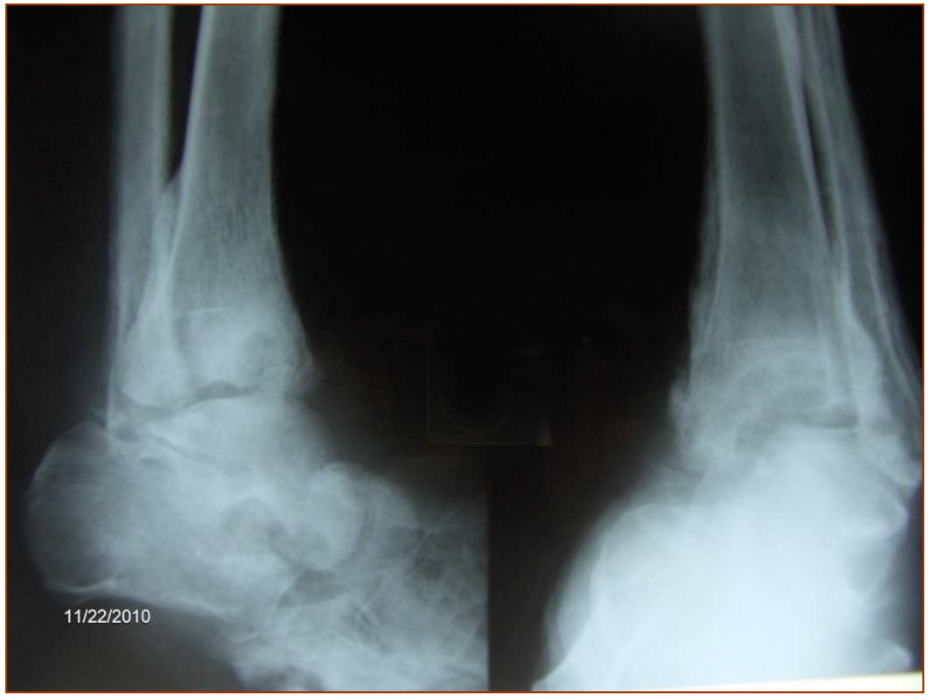
Ankle arthrodesis



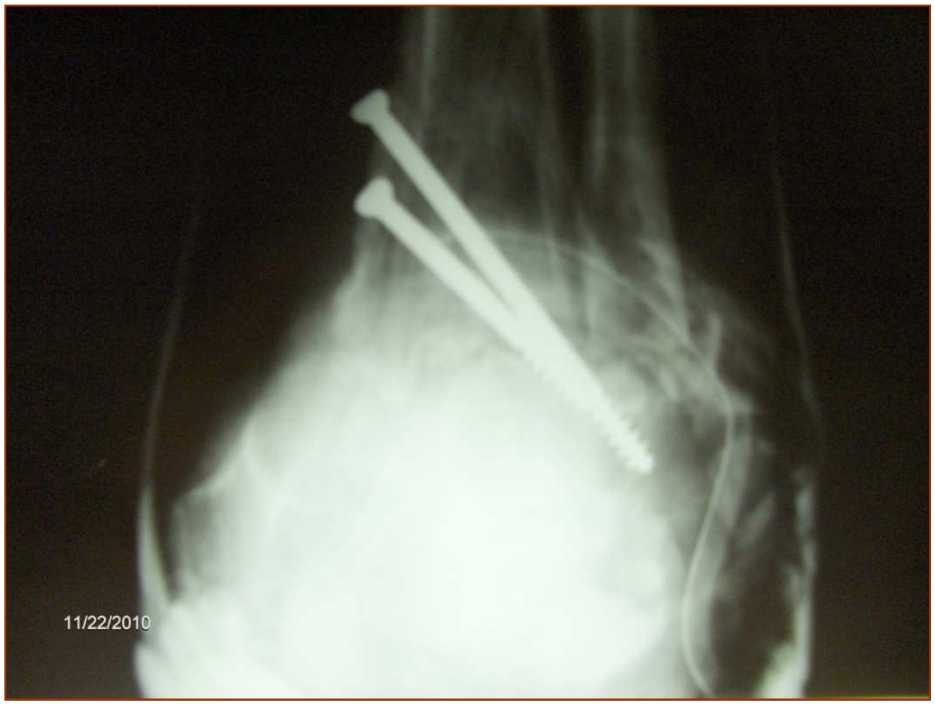
- Indication
  - **instability** causes walking deficiency (**stabilization**)
  - leg **deformity** (varus or valgus) is not adjustable to the neutral position (**correction and stabilization**)
  - plaster cast or orthoses doesn’t allows stability enough
- Different methods and instruments (screw, metal plate, pin, fixateur externe)

Correction of the bad position of the ankle with arthrodesis

- Serious varus deformity, trophic ulcer
- Deformity of the foot, development of pathological pressure point, severe neuropathy and chronic local irritation
- Affected subtalar and talocrural joint



Correction with arthrodesis



- Resection of the joint surface
- Stabilization with two screws
- Reinforce with plaster cast

Correction with arthrodesis

- Arthrodesis was stable
- No loosening of the screws
- Plaster cast change to AFO

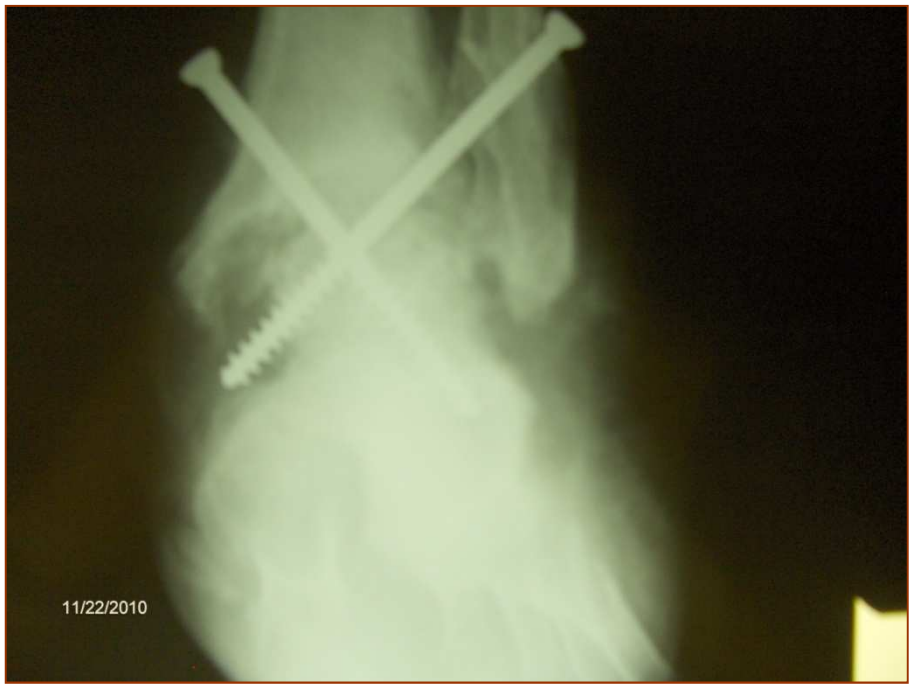
- Restore total plantar surface
- Plantar foot ulcer healed

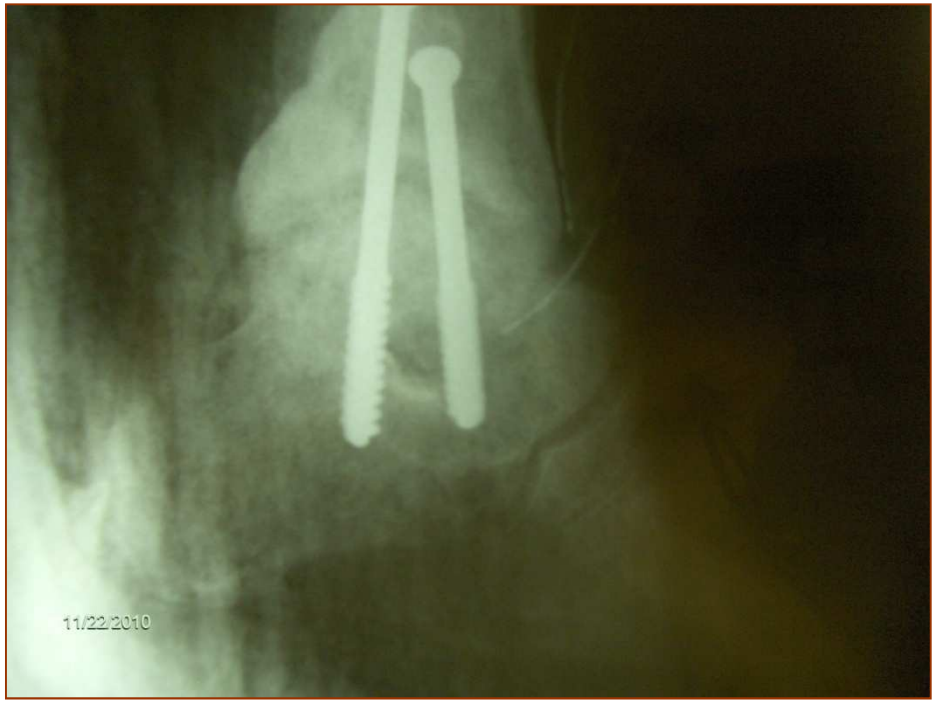
Stabilization with arthrodesis

- Pathological movement in the talo-crural joint
- Instability
- Serious bone destruction
- Unable to walk

Stabilization with arthrodesis

- Resection of the talo-crural joint





- Stabilization with two screws
- Post op. plaster cast

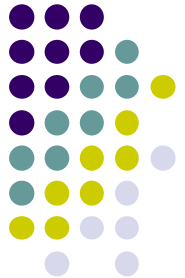
Stabilization with arthrodesis

- Partial load walking during the rehabilitation
- Degree of the load was gradually increase
- Correct position of the ankle and foot

Stabilization with arthrodesis

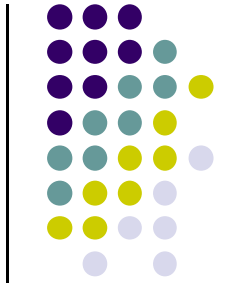
- Good clinical result
- Orthopaedic shoes after AFO
- Lympoedema treatment
- Total load walking

Results



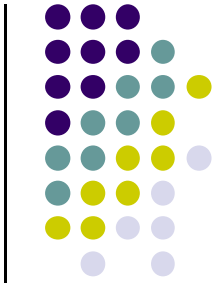
- Early results and experiences, number of cases are not so many
- Correction of the bad position of the foot and ankle
- Stabilization of the talo-crural joint
- Resection of the joint surfaces, fixation with screws
- Post op. complication: partial wound dishealing, but no infection
- There was no loosening of the screws
- We use total contact, custom made AFO after the operation in every case

Results



- Partial load of the affected limb
- The degree of the load was gradually increase
- We were able to adjust the correct position of the ankle and foot
- We were able to restore total plantar surface during walking in every case
- Foot ulcers were healed completely or the surface and size were reduced

Summery



- Arthrodesis is recommended if non-operative methods are can not treat deformity or instability of the foot and ankle in diabetic neuropathy
- Arthrodesis of the ankle and subtalar joint allows correction of the deformity and instability
- The affected limb will be total weight bearing
- Operation leads total plantar surface during walking
- The poor quality of the bones can result loosening of metal materials after the operation without AFO treatment
- Sometimes neuropathy can cause wound healing disorder
- The maior amputation remains the only option if the arthrodesis is insufficient

Thank your for your attention!