

Suggestions for diagnosis, treatment and follow-up of the diabetic foot

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Diagnostic approach I

- Patient history – including neuropathy a.o.
 - Previous ulceration
 - Previous amputation
 - Previous vascular surgery
- Co-morbidity
 - Association to a number of variables (e.g. COPD, CVD)
- Medical treatment (e.g. anti-platelet, neurolytica)

Diagnostic approach II

- Conventional X-ray
- MRI – preferred diagnostic modality
- FDG-PET/CT
- FDG-PET/MR – no data on the diabetic foot
- 3D CT and/or rotational radiography
- 3D scanning camera

Surface

SPL



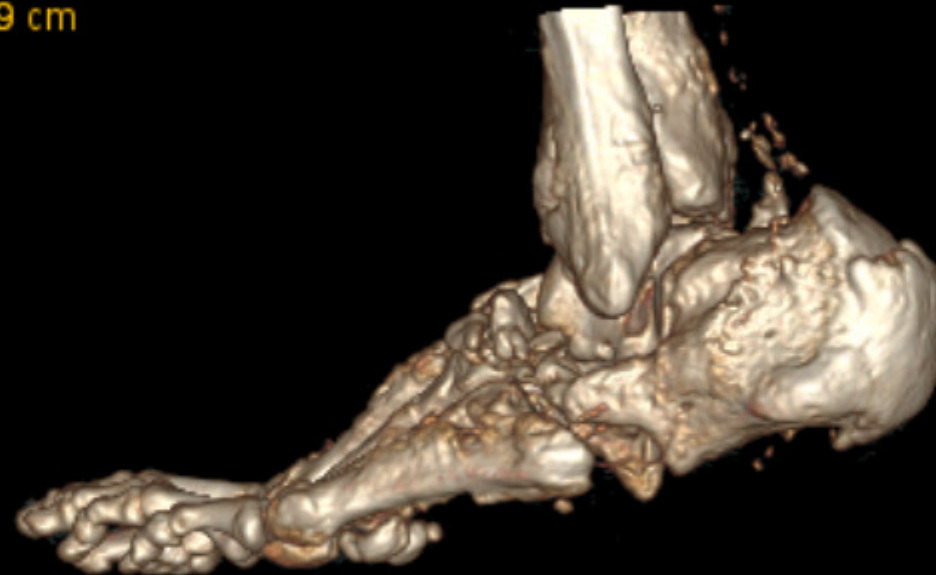
Volume Rendering No cut

Ex:Feb 05 2013

DFOV 33.8 x 29.9 cm
No Filter

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No VOI

0.6mm 0.531:1/0.62sp

W = 400 L = 60

IAR

Surface

SPL

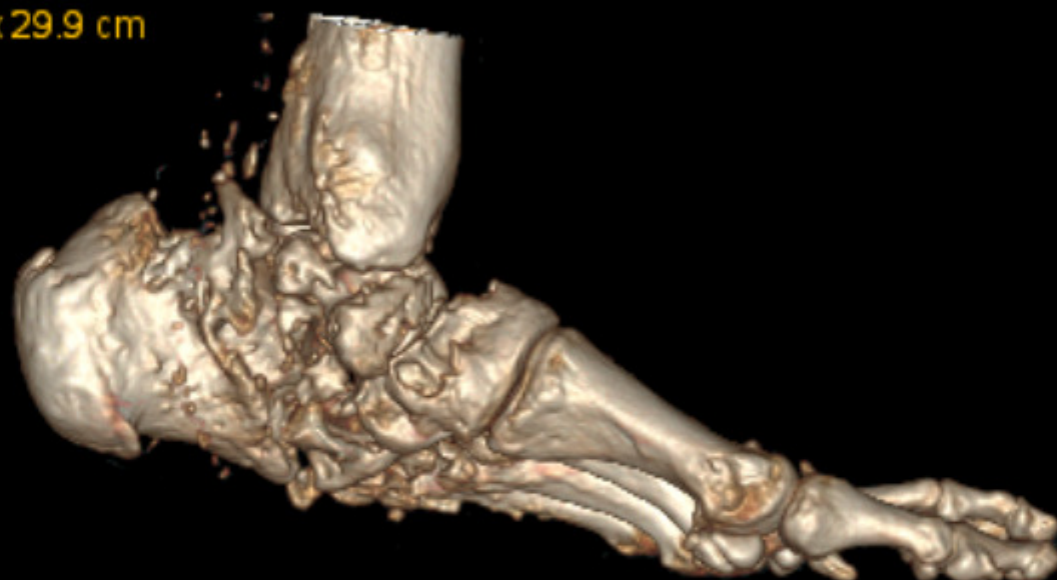


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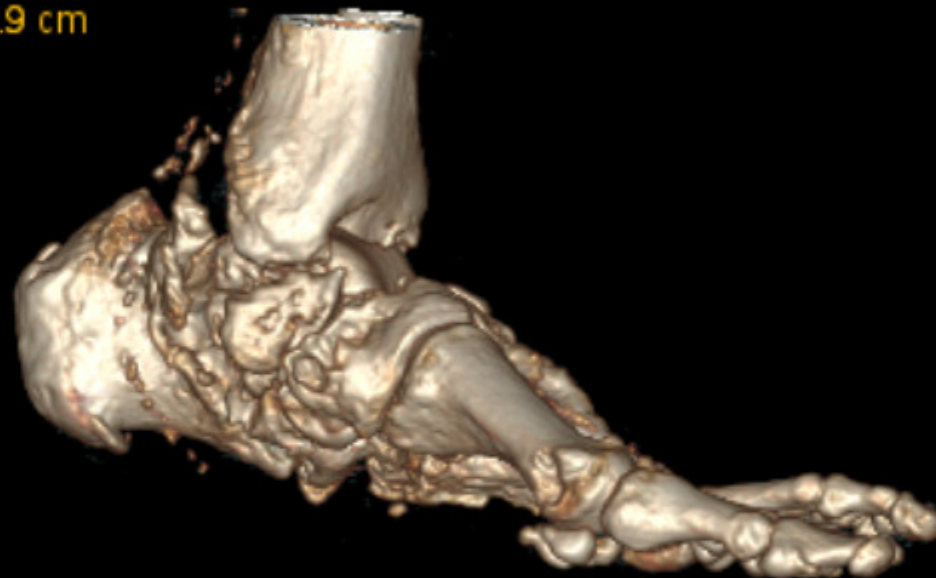


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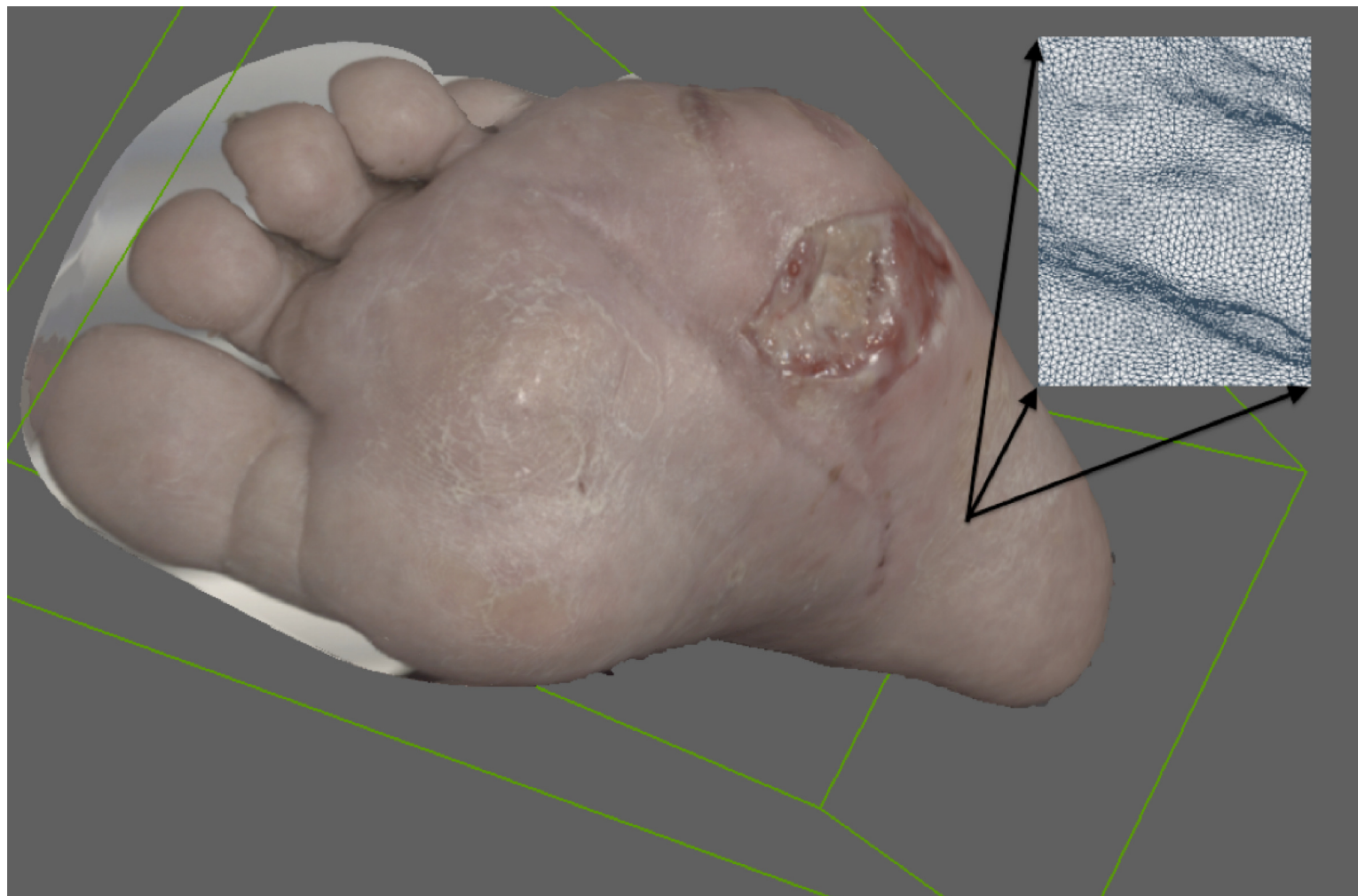
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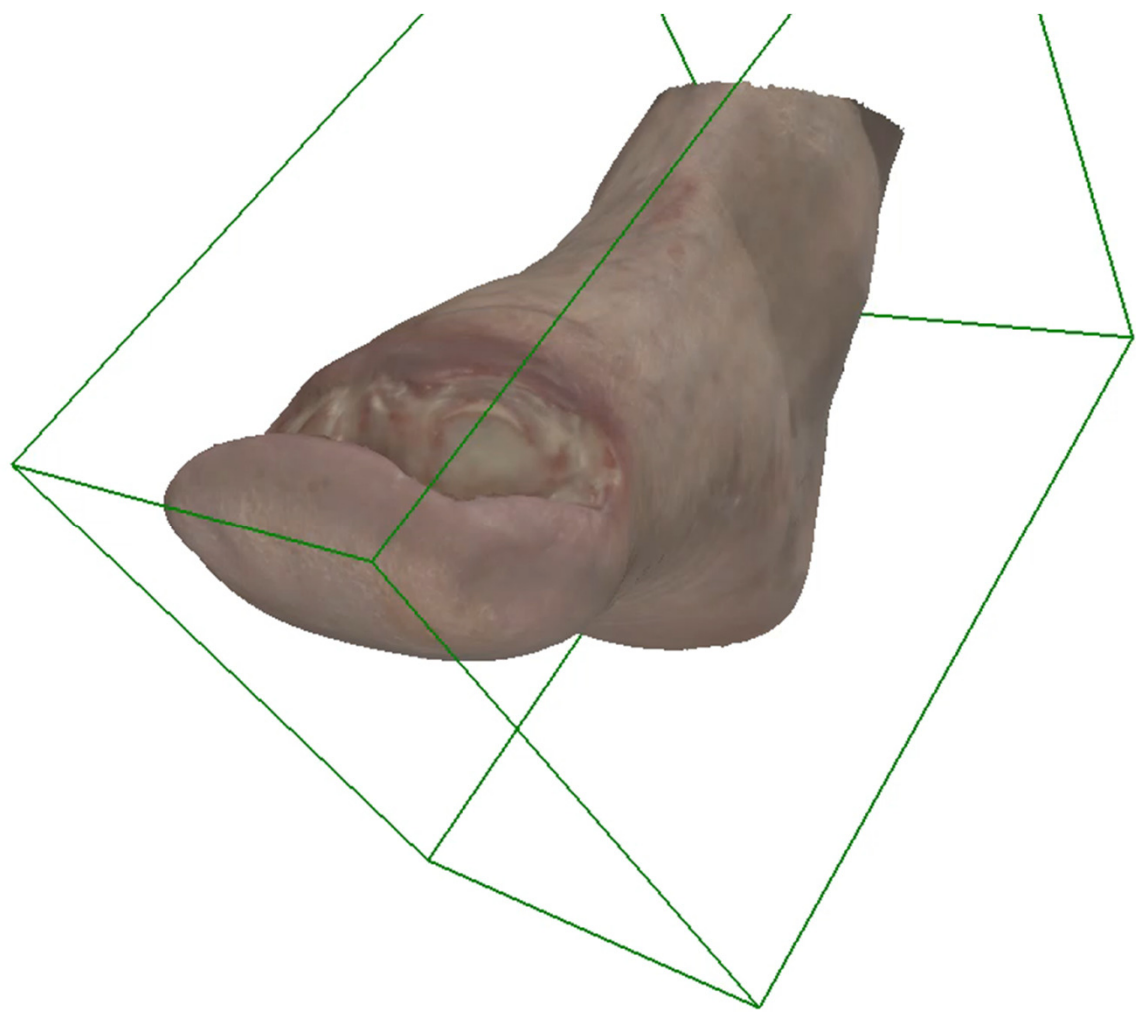
0.6mm 0.531:1/0.62sp

W = 400 L = 60

IAR

3D modality in ulcer morphology and measurement





Strenghts and limitations

- Conventional X-ray
 - Often no bone involvement initially i DFO; soft tissue elements not sufficiently visible
- MRI
 - Informative with regards to bone edema; limited specificity
- FDG-PET/CT
 - High sensitivity and a solid marker of inflammation; specificity hampers use
- FDG-PET/MR
 - A new modality with very limited/no data; probably high sensitivity
- 3D CT scan and/or rotational radiography
 - Primarily a tool for surgeons; detailed reconstruction of the foot; specificity moderate
- 3D scanning camera
 - Usable for following healing and halting of healing in ulcers; technically demanding software

Treatment strategies

- Fast-track approach
 - Somatic history, registration, strain-gauge peripheral pressure, X-ray and MR-angiography
- Multidisciplinary patient approach
 - Including surgeons (orthopedic, plastic, vascular), endocrinologists, podiatrists, specialised nurses, interventional radiologists
- Dedicated professionals
 - Unfortunately a less sexy specialty with recruitment difficulties

Antibiotics

- Except for bandages holding aminoglycosides local antibiotics should be avoided
- Bone biopsies should always be considered in cases where antibiotics are planned
- Culture and resistance pattern necessary, in particular in recurrent cases

Maggots

- Excellent treatment in cases with extensive necrosis
- Mild form of debridement in cases with severe peripheral vascular insufficiency
- A stepping stone towards prognostic evaluation

Micellaneous treatment options

- Stabilization
 - Different modalities including external and internal fixation
- Immobilization
 - Air casts, customized orthoses
- Total contact casts
 - Secure minimal load; improve compliance

Treatment on a case-to-case basis

- Hyperbar oxygen therapy
- Low Energy Shock Wave Therapy
- Artificial skin substitutes
- Autologous growth factor embedment
- Antiresorptive treatment in Charcot foot

Follow-up

- Recurrency of complex diabetic foot ulcers is high (close to 70% after 3 years) and a follow-up after months is advisable (not well documented however)
- Secure continuous offloading (e.g. check for regular insole replacement)
- Co-morbidity indices often relevant

Take-home messages

- Complex ulcers
- Low level of documentation
- High number of treatment strategies
- Always multidisciplinary approach
- Preventive measurements should be prioritized