ORTHOPEDIC SURGERY IN THE MANAGEMENT OF THE DIABETIC FOOT – A FIVE-YEAR EXPERIENCE

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BACKGROUND AND AIM

Surgical treatment of deformities, especially severe bone changes due to Charcot neuro-osteoarthropathy (CN) complicated by ulcer and subsequent osteomyelitis (OM), shows favorable results in terms of ulcer healing, ability to walk and limb salvage.

The aim of our study was to present the results of five-year collaboration with an orthopedic surgeon in the management of selected diabetic foot patients.

METHODS

- A total of 47 patients treated at the diabetic foot clinic who underwent orthopedic surgery between Apr 2015 and Oct 2020 were included in the study. The median follow-up period was 24 (6-60) month. Patient´s characteristics shows table 1.
- The indication for surgery were severe deformities and/or instability based on Charcot foot. Non-healing or recurrent ulcers were present in 43 (91%) patients. Osteomyelitis was confirmed in 31 (66%) patients.
- Revascularization prior surgery was performed in 13 (28%) patients.
- Orthopedic interventions included mostly realignment and arthrodesis with soft tissue releases, osteotomies and partial osteotomies. External fixation (EF) was used if indicated.
- Main outcome measures were analyzed per protocol and included healing, re-ulceration, need for additional surgery, ability to walk and major amputation

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Table 1. Demografic data and comorbidities (n 47)

Category	Value
Male n (%)	29 (62)
Mean age (years)	58 ± 13
Type 2 diabetes n (%)	29 (62)
Mean diabetes duration (years)	20 ± 12
Mean HbA1c (mmol/mol)	62 ± 20
Coronary heart disease n (%)	26 (55)
Chronic kidney disease, stage 2-5 n (%)	31 (66)
Peripheral vascular disease n (%)	18 (38)
Peripheral neuropathy n (%)	47 (100)

RESULTS

- 40 of 47 included patients were evaluated per protocol, 7 patients died from non-foot related cause (6 patients of CV event, 1 patient of malignancy).
- Main outcomes shows table 2. Most ulcers healed but recurrence was frequent (Fig.1). During follow up 6 patients underwent major amputation (5 patients due to uncontrolled foot infection).
- Location and type of surgery procedure is shown in the table 3. No serious intraoperative or postoperative complication was observed. 11 patients required additional surgery, mostly subsequent orthopedic corrections.

Table 2. Main outcomes of orthopedic surgery in diabetic foot patients (total n = 40, ulcerated n= 36)

Outcome	n (%)
Ulcer healing	28/36 (78)
Walking ability	29/40 (73)
Ulcer recurrence	24 /40 (63)
Major amputation	6/40 (15)

Table 3. Type of orthopedic surgery procedures in Charcot foot patients (n 40)

Surgery procedure	n (%)
Reconstructive procedure of the midfoot	15 (38)
Exosectomy of the midfoot	3 (7)
Reconstructive procedures of the hindfoot	22 (55)
Using of external fixation (EF)	14 (35)
Achilles tendon lenghtening as a part of surgery	13 (33)
Additional surgery required	11 (28)

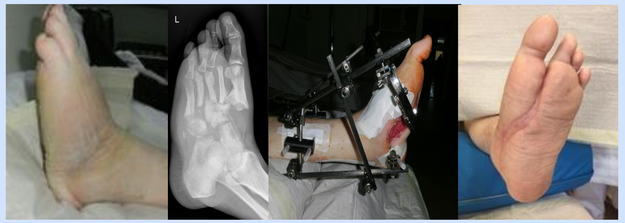




Fig. 1. Infected Charcot foot healed after orthopedic surgery. and foot ulcers recurrency after weigt bearing.

CONCLUSION

Orthopedic surgeon plays an important role in the management of the diabetic foot, especially in patients with Charcot foot deformities complicated by ulcers and infection. In our study we observed a limb salvage in 73 % patients but ulcer recurrence was frequent. Long-term follow-up and further analysis of ulcer recurrence is needed.