Surgical Treatment of Non Diabetic Chronic Osteomyelitis Involving the Foot and Ankle

Jae-Jung Jeong¹ • Ho-Seong Lee² • Sang-Woo Kim³ • Young-Rak Choi⁴ • Jeong-Ho Seo⁵

Department of Orthopedic Surgery,
The Catholic University of Korea, Daejeon St. Mary’s Hospital¹,
Asan Medical Center, College of Medicine, Ulsan University²,
Ulsan University Hospital, College of Medicine, Ulsan University³
CHA Bundang Medical Center, CHA University⁴,
Bumin Seoul hospital⁵
Surgical Treatment of Non Diabetic Chronic Osteomyelitis Involving the Foot and Ankle

Jae-Jung Jeong¹ • Ho-Seong Lee² • Sang-Woo Kim³ • Young-Rak Choi⁴ • Jeong-Ho Seo⁵

My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
**Chronic Osteomyelitis of Foot**

- Foot: unique environment for development of infections
- The foot’s environment is modified by footwear, trauma, systemic illness, and poor soft tissue coverage
- Each of these factors: susceptibility of foot to infection
- Most Common cause in Foot: Diabetic ulcer
- Non diabetic foot infection: open fracture, after internal fixation, puncture wound
Purpose

To evaluate the clinical characteristics of COM involving the foot & ankle

To analyze the treatment outcomes following debridement, dead space control, and arthrodesis based on invasion of adjacent joint
MATERIALS

• Sep. 2004 - Mar. 2007

• 15 patients treated for COM in Foot & ankle
  - F/U > 24m, M : F = 10 : 5
  - Exclusion : immune compromised, DM
  - No vascular problem

• Age : Mean 46.7yrs (25 – 72yrs)

• All pts. referred from other hospital

• Period of Tx. for COM : Mean 3.07yrs (6 -13yr)
Preoperative evaluation

- ESR/CRP: 53.56 (2-120) / 2.86 (0.1-11.86) at OPD visit
- MRI for accurate extent, invasion of adjacent joint

- forefoot: 1
- Midfoot: 1
- Distal tibia: 6
- Ankle: 3
- Calcaneus: 4
Surgical Technique

① 1st stage: Extensive marginal excision
- until normal tissue, synovectomy & joint debridement
- Dead space control: antibiotic-loaded cement spacer

② 2nd stage: Arthrodesis with BG

Antibiotics mixed cement: 8 cases
Bone graft: 10 cases
curettage only: 2 cases
  (TBc of distal tibia, cuboid)
cementing only: 1 case (distal tibia)
partial calcanectomy: 1 case

Arthrodesis: 5 cases
- ankle fusion: 2 cases
- subtalar fusion: 1 case
- ankle & subtalar fusion: 1 case
- TMT fusion: 1 case
<table>
<thead>
<tr>
<th>Cause</th>
<th>Pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture : 10</td>
<td>MRSA : 4</td>
</tr>
<tr>
<td>- open fx. : 5</td>
<td>Pseudomonas : 4</td>
</tr>
<tr>
<td>- post. OR/IF : 5</td>
<td>MSSA, Enterobactor,</td>
</tr>
<tr>
<td>Post. Arthroscopy : 1</td>
<td>M. tuberculosis : 1</td>
</tr>
<tr>
<td>Post. Flap surgery : 1</td>
<td>Burkholderia, anaerobe : 1</td>
</tr>
<tr>
<td>Punctuating wound : 1</td>
<td>No growth : 1</td>
</tr>
<tr>
<td>Recurred AOM : 1</td>
<td></td>
</tr>
<tr>
<td>Hematogeous : 1(TBc)</td>
<td></td>
</tr>
</tbody>
</table>
Results

- Average of 2 surgeries (1-3)
- Hospitalized for a mean period: 39.1 day (14-116)
- Keep cement spacer: mean 27 day (14-67)
- 14/15 pts: no recurrence
- 1 pt: iatrogenic septic arthritis: BKA
- Mean ESR/CRP: 14.7/0.13 at final F/U
CASE I M/41
9yrs ago TA
distal tibia open fx.
>10times I&D, Flap
ESR/CRP: 18/0.44
Culture: pseudomonas
CASE II M/56
3 month ago
ankle open Fx. – D/L
>10 times debridement
pus discharge, medial
soft tissue defect
AVN of talus
ESR/CRP : 120/3.61
Culture : MRSA

Culture : MRSA
SUMMARY

Characteristics Of COM involving foot & ankle

- M/C cause: fractures
- Extrinsic cause > intrinsic cause
- M/C pathogen: MRSA, pseudomonas
- Good result after staged operation
  (wide debridement + dead space control)
- Check the involvement of adjacent Joint
  → selective joint arthrodesis
CONCLUSION

For successful Treatment Of COM involving foot & ankle

- Wide debridement
- Dead space control
- Selective Joint Arthrodesis


12. Sealey, RJ; Myerson, MS; Molloy, A; Gamba, C; Jeng, C; Kalesan, B: Sagittal plane motion of the hindfoot following ankle arthrodesis: a prospective analysis. *Foot Ankle Int* 30:187-96, 2009.