SCARF OSTEOTOMY

Expert’s opinion in Management Non-Union

J de Halleux

EFORT, Lausanne

November 28-29th 2014
Advantages of the Scarf osteotomy

- Great inherent stability
- Undisturbed blood supply to MT1

« No » Non-Union!
E Hammel  n= 475 feet

Hammel and All: Complications of first ray osteotomies: a consecutive serie of 475 feet with first metatarsal Scarf osteotomy and first phalanx osteotomy, Rev Chir Orth, 93 :710-719, 2007
**Litterature review**

very rare non-union

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>n (feet)</th>
<th>FU (months)</th>
<th>Non Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crevoisier X and all</td>
<td>2001</td>
<td>84</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Smith M and all</td>
<td>2003</td>
<td>100</td>
<td>&gt;60</td>
<td>0</td>
</tr>
<tr>
<td>Coetzee J Chris</td>
<td>2003</td>
<td>20</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Aminian A, and all</td>
<td>2006</td>
<td>27</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Hammel, and all</td>
<td>2007</td>
<td>188</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Coetzee J Chris, Rippstein P</td>
<td>2007</td>
<td>184</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Choi J H and all</td>
<td>2013</td>
<td>53</td>
<td>24</td>
<td>0</td>
</tr>
</tbody>
</table>

- **Crevoisier X and all:** The Scarf ostotomy for the treatment of hallux valgus deformity: a review of 84 cases. Foot Ankle Int, 22:970-976, 2001
- **Smith A M and all:** Perioperative complications of the Scarf Osteotomy. Foot and Ankle Int, 34:222-227, 2003
- **Coetzee J Chris:** Scarf osteotomy for hallux valgus repair: the dark side. Foot Ankle Int, 24:29-33, 2003
- **Aminian A, and all:** Scarf Osteotomy for hallux valgus deformity: an intermediate followup of clinical and radiographic outcomes. Foot and Ankle Int, 27:883-886, 2006
- **Hammel, and all:** Complications of first ray osteotomies: a consecutive serie of 475 feet with first metatarsal Scarf osteotomy and first phalanx osteotomy. Rev Chir Orth, 93:710-719, 2007
- **Choi J H and all:** Prospective study of the treatment of Adult Primary Hallux Valgus with Scarf osteotomy and soft tissue realignment. Foot and Ankle Int, 34:684-690, 2013
NON-UNION in SCARF OSTEOTOMY Aetiology?

- **Vascularisation MT1**
  - Extensive surgery
  - Smokers, Diabetes

- **Stability Scarf Osteotomy**
  - With or without displacement
  - With or without fracture
  - Screw compression -><trouging of the MT with loss of height!

- **Infection**
Casus 1

F 40 y
Non-Union: aetiology?
R/ Bone graft (BMP- DBM)
Fixation

6MPOP

Pictures from Pierre Barouk
Casus 2

F 68y

No fracture

Displacement
Reduction + Fixation Union
Casus 3-4

SCARF COMPLICATION
Fracture MT1

COPYRIGHT DOCTEUR JACQUES DE HALLEUX
Casus 3

F 65 y

Proximal Fracture MT1 Displacement
Reduction + Fixation → Union
Casus 4
F 60 y

Proximal MT1 Fracture Displacement

No ORIF → Non-Union
R/ Bone graft + ORIF

Pictures from JL Besse
Casus 4

F 43 y

Picture from X Crevoisier
Casus 5

F 60 y

Osteolysis: infection?

Pictures from Pierre Barouk
R/- Surgical debridment + IV AB
  - Tricortical Cresta Iliaca graft + TransMT pinning

R/ WEIL

Pictures from Pierre Barouk
Casus 6

Infected Non-Union

6M POP

Pictures from Kleipool
CONCLUSION

- Non-union in Scarf Osteotomy: very rare!

- Aetiology
  - Devascularisation
  - Instability (with or without displacement)
    (with or without MT1 fracture)
  - Infection

- Treatment: Re-do Surgery
  - Reduction, Fixation and Bone graft/adjuvant
Denis Dufrane and AI: Optimalisation d’une greffe de moelle osseuse autologue par concentration cellulaire et combinaison de poudre osseuse déminéralisée – procédure en environnement contrôlé-. Revue de Chirurgie Orthopédique et Traumatologique, Volume 100, Issue 7, Supplement, November 2014, 314-334