Forefoot Complications

Complications of surgery of Hallux valgus

Copenhagen 2015
No benefits in any form have been received or will be received by the author from a commercial party, directly or indirectly, related to the subject of this talk.

Consultant:
- Wright medical
- DePuy Synthes
- Medartis GmbH
Hallux valgus surgery - aims

- Restoring or maintaining normal weight bearing mechanism and gait pattern
- Retention of functional ROM of MTP I
- Congruent joint with realignment of the sesamoids
- Correction of transversal and sagittal deformity of first ray
- Resection of medial pseudoexostosis
- No Recurrence of Hallux valgus
Hallux valgus complications - overview

**Soft tissue complications:**

- Impaired wound healing
- Nerve damage or irritation
- Infection
- Instability of MTP I
- Arthrofibrosis
- Recurrence of Hallux valgus
- Transsection of FHL
- CRPS
Hallux valgus complications - overview

bone and hardware complications

- Malunion- pseudarthrosis
- Hardware failure
- Overcorrection- hallux varus
- Undercorrection- recurrence
- Head necrosis
- Failure in Length ratio
Rates of revision surgery using chevron-Austin osteotomy, Lapidus arthrodesis and closing base wedge osteotomy for correction of hallux valgus deformity

Lagaay PM, Hamilton GA, Ford LA, Williams ME, Rush SM, Schuberth JM


Rate of revision surgery similar for all 3 methods, no statistical significance

Total rate: 5.56% Chevron-Austin, 8.82% closing base wedge osteotomy, 8.19% for Lapidus procedure
Complications of first ray osteotomies
A consecutive series of 475 feet with first metatarsal Scarf osteotomy and first phalanx osteotomy

Hammel E, Abi Chala ML, Wagner T

Most frequent complication: MTP I- stiffness- reduced by time!
41,7% after 6 weeks
5,7% after 4 mths

Others:
late wound healing:5,7%
Secondary dislocation of osteotomy:1%
CRPS: 1,3%
Infection< 1%
Hallux valgus complications- literature

Angular correction and complication of proximal first metatarsal osteotomies for hallux valgus deformity

Int Orthop 2013 Sep; 37(9):1771-1780

Metaanalysis of 62 primary studies:
Total amount of 2843 feet
Overall complication rate 18.7%
Most common major complication:
Hallux varus (4.3%)
Recurrence (3.5%)
Dorsiflexion malunion (2.5%)
Complications of surgery of Hallux valgus

Total number of procedures Foot & Ankle:

n= 5510

2 surgeons

• Review of all surgical procedures of primary Hallux valgus

• Exclusion criteria: all kind of HAV revision case
Complications of surgery of Hallux valgus

Gender distribution
female:  n = 948
male:     n = 307

Primary HAV surgery  n = 1255

Time period:         1/2004 – 1/2014

Age at Surgery:   Ø 54,0 yrs
Complications of surgery of Hallux valgus

Surgical techniques HAV Correction

- Chevron
- Scarf
- Proximal
- Prox+Dist
- Lapidus
- Akin

Surgical procedures
Complications of surgery of Hallux valgus

Chevron/Austin Procedure
Complications of surgery of Hallux valgus

Scarf procedure

Sabo D, in Vorfußchirurgie (Sabo D), 2010, Springerverlag

Dutoit M, Operationsatlas Fuß und Sprunggelenk (Wülker N), Enke Verlag 1998, S. 31

Authors own patient documentation
Complications of surgery of Hallux valgus

Proximal displacement osteotomy

Thomas M. Die proximale Verschiebeosteotomie mit winkelstabiler Plattenosteosynthese 2009, Fuß& Sprunggelenk, Elsevier
Complications of surgery of Hallux valgus

Lapidus arthrodesis

Compression screw
Medial locking plate
Complications of surgery of Hallux valgus

Akin Osteotomy

Author’s own patient documentation
Complications of surgery of Hallux valgus

Soft tissue release

Transarticular approach
No adductor tenotomy

Hallux valgus correction using transarticular lateral release with distal chevron osteotomy

Barouk L S, Forefoot Reconstruction
Springer Verlag 2003
Complications of Surgery of Hallux valgus results
1/2004- 1/2014

n =1255, 2 surgeons

1. Chevron-Austin Osteotomy
2. Scarf Osteotomy
3. Lapidus Arthrodesis
4. Proximal Metatarsal Osteotomy
5. Proximal+Distal Osteotomy MT I
6. Akin Osteotomy
Complications of Surgery of Hallux valgus
results
1/2004- 1/2014

Chevron-Austin Osteotomy:

- n= 567
- Infection:0
- delayed woundhealing: 0
- Hallux varus: 3 (0,5%)
- Headnecrosis: 4 (0,7%)
- Recurrence: 3 (0,5%)
- Revision surgery: 5 (0,9%):
  • 1x recurrence
  • 2x hallux varus
  • 2x head necrosis (stiffness, swelling,pain)
Complications of Surgery of Hallux valgus results 1/2004- 1/2014

Scarf Osteotomy:

- n= 155
- Infection:0
- delayed woundhealing:1
- Hallux varus:3 (1,9%)
- Fracture prox cut:1 (0,7%)
- Head necrosis: 0
- Recurrence: 4 (2,6%)
- Revision surgery: 3 (1,9%)
  - hallux varus: 2x
  - recurrence: 1x
Complications of Surgery of Hallux valgus results 1/2004- 1/2014

proximal metatarsal osteotomy:

- n= 49
- Infection: 0
- delayed woundhealing: 1 (1,3%)
- Hallux varus: 1 (1,3%)
- Hardware failure: 3 (6,1%)
- Head necrosis: 0
- Recurrence: 3 (6,1)
- Pseudarthrosis: 0
- Reoperation: 2x
  - hallux varus: 1x
  - hardware failure: 1x
Complications of Surgery of Hallux valgus results 1/2004- 1/2014

proximal + distal metatarsal osteotomy:

- n= 245
- Infection: 0
- delayed woundhealing: 5 (2,0%)
- Headnecrosis:3
- Hallux varus:6 (2,4%)
- Hardwarefailure:8 (3,3%)
- Recurrence : 5 (2%)
- Reoperation:10 (4,1%)
  - hardware failure :4x
  - recurrence: 1x
  - hallux varus: 4x
  - head necrosis/ stiffness: 1x
Complications of Surgery of Hallux valgus results 1/2004- 1/2014

TMT- Fusion

- n= 239
- Infection:0
- delayed woundhealing: 3x
- Hallux varus:4x
- Hardwarefailure: 5x
- Headnecrosis: 0x
- Recurrence: 1x
- Reoperation: 6x
  - hallux varus 3x
  - hardwarefailure: 2x
  - Hallux varus+ hardwarefailure: 1x
Additional Complications of Surgery of Hallux valgus

2x lesion of the FHL Tendon after AKIN Osteotomy!!!!
Complications of Surgery of Hallux valgus

2014: What are our conclusions?

- Headnecrosis: minor problem
- Lateral release: Less is more
- Check indications: more Scarf osteotomies?
- Hardware problems with locking plates?
- Check for neurological problems
- Treat soft tissue carefully (FHL-lesions!)
Complications of Surgery of Hallux valgus

What have we changed?

If neurological problem (parkinson, insult, …):
prefer arthrodesis
Stable osteosynthesis
Watch out for delayed union
Complications of Surgery of Hallux valgus

What have we changed?

Don’t operate on heavy smokers
Complications of Surgery of Hallux valgus

What have we changed?

Check for bone density
If osteoporosis rather plate than screw
Complications of Surgery of Hallux valgus

What have we changed?

Only transarticular lateral release
No adductor tenotomy!
Less is more!
Complications of Surgery of Hallux valgus

Hallux varus
Treatment-Algorithm

- bone
  - Arthrotic MTP II
  - Arthrodesis

- soft tissue
  - no arthrosis
  - Re-osteotomy of metatarsal
    or reverse akin

  - Extensor hallucis split-
    transfedr
  - mini- Tight-Rope
    lateral collateral -
    ligament tightening
  - medial capsule release
Complications of Surgery of Hallux valgus

What have we changed?

If plate does not fit: change it or bend it!
Complications of Surgery of Hallux valgus

What have we changed?

PASA does influence recurrence-rate
Always check with fluoroscopy
Thank you for your attention