Effect of Operation for Lessor Toes Deformity Concomitant with Hallux Valgus on Clinical Outcomes

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Byung-Ki Cho

My disclosure is in the Final Program Book and in the AOFAS database

I have no potential conflicts with this presentation
Lesser toe deformity combined with Hallux Valgus

- Simple asymptomatic deformity
- Pain at gait, discomfort of shoe wearing...
- Chronic intractable skin lesion
- Lack of consensus about treatment principle
- Effect of co-operation on clinical progress?
Lesser toes metatarsalgia in H-V

- Weight bearing pressure ↓ of big toe
  → plantar callosity, pain at 2 & 3rd MT head area
- Various clinical progress following H-V op.
- Long MT length & plantar deviation of MT head
- Combined lessor toes deformity?
- Controversy on necessity of lesser toe operation

- No definitive op. indication
- Lack of reports about clinical outcomes
- Few comparative study between co-op & non-op.
Demographics

- September, 2008 ~ March, 2011  CBNUH
- 46 cases (38 patients) with hallux valgus treated by proximal or distal chevron osteotomy (± Akin)
- Follow-up > 2 yrs after operation by one surgeon
- Age / Sex: mean 51.4 yrs,  M / F (6 / 32)
- Follow-up: mean 38.5 months

Concomitant lesser toe deformity

→ symptomatic rigid deformities which were not corrected by the simple stretching exercise

Hammer toe: 12
Claw toe: 10
Crossover toe: 9
Bunionette: 15
Surgical procedure

(Hammer toe deformity)

- Flexor to extensor transfer
- PIP resection arthroplasty
- Flexor tenotomy
- Extensor tendon (EDL) lengthening
- EDB tenotomy
- MT shortening osteotomy (Weil osteotomy)

- 2nd MT length > 10mm than 1st MT length
✿ Surgical procedure

(Claw toe deformity)

- PIP resection arthroplasty
- Flexor tenotomy
- Extensor tendon (EDL) lengthening
- EDB tenotomy
- MTP dorsal capsular release
- MT shortening osteotomy (Weil osteotomy)

- 2nd MT length > 10mm than 1st MT length
Surgical procedure
(Crossover toe deformity)

- PIP resection arthroplasty
- Extensor tendon (EDL) lengthening
- EDB tendon transfer (to LCL of MTP joint)
- MTP dorsal capsular & MCL release
- MTP plantar plate repair
- MT shortening osteotomy (Weil osteotomy)
- 2nd MTP malalignment (dislocation)
Clinical & Functional results

- AOFAS hallux rating score: 52.5 → 91.8 points
- Pain VAS score (big toe): 5.5 → 1.2 points
- Pain VAS score (lessor toes): 4.6 → 0.8 points
- Period to return to running exercise: 3.6 months

Radiological results

- Hallux valgus angle (HVA): 35.4° → 14.2°
- Intermetatarsal angle (IMA): 15.8° → 8.5°
- Period to union of osteotomy site: 7.5 weeks
<table>
<thead>
<tr>
<th>Question</th>
<th>Ranking</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big toe pain (bunion) ↓</td>
<td>1</td>
<td>41.8 %</td>
</tr>
<tr>
<td>Big toe deformity correction</td>
<td>2</td>
<td>23.8 %</td>
</tr>
<tr>
<td>Lesser toe pain ↓</td>
<td>4</td>
<td>11.4 %</td>
</tr>
<tr>
<td>Lesser toe deformity correction</td>
<td>3</td>
<td>18.8 %</td>
</tr>
<tr>
<td>Comfortability of shoe wear ↑</td>
<td>5</td>
<td>4.2 %</td>
</tr>
</tbody>
</table>

Pt’s subjective satisfaction: 92.8 points

Portion of lesser toe operation among whole satisfaction: 30.2 %
Medical expense assessment

<table>
<thead>
<tr>
<th>Expense category</th>
<th>mean</th>
<th>Additional expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization period</td>
<td>6.8 days</td>
<td>2.5 days</td>
</tr>
<tr>
<td>Cost of operation</td>
<td>793,253 Won</td>
<td>1.8 times more</td>
</tr>
<tr>
<td>Frequency of OPD. F/U</td>
<td>8.4 times</td>
<td>2.4 times</td>
</tr>
</tbody>
</table>

- Causes of additional OPD F/U
  - pin track infection
  - pin loosening, full-out
  → most common in bunionette pts.

Routine H-V op.

- 4.3 days
- 407,253 Won
- 6 times
Operative treatment for lesser toe deformity concomitant with hallux valgus

- Good short-term clinical & functional outcomes
- Disadvantage of additional hospitalization & OPD F/U, operation cost, increased risk of complications
- High preop. expectation & postop. satisfaction
- Considerable procedure on preop. planning for H-V