Comparison of the Proximal Chevron and Opening Wedge Osteotomy for the correction of Moderate Hallux Valgus

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Ho-Jin Lee, M.D.

My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
Introduction

Proximal first MT osteotomy for HV

: crescentric, scarf, Ludloff, Chevron,
lateral closing wedge osteotomy,
medial opening wedge osteotomy (PMOW)

PMOW

first described by Trethowan in 1923

→ intact lateral cortex, well-fitting wedge graft
→ no further fixation
Purpose of study

To compare the short term outcomes of hallux valgus correction utilizing proximal chevron osteotomy and the Arthrex Opening Wedge Low Profile Plate and Screw System (LPS®) retrospectively.
### Materials & Methods

<table>
<thead>
<tr>
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<th>Group A (Proximal Chevron)</th>
<th>Group B (PMOW)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of feet</strong></td>
<td>26 cases (21 patients)</td>
<td>26 cases (20 patients)</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>49.2±10.1</td>
<td>48.1±9.3</td>
</tr>
<tr>
<td><strong>Preoperative IMA/HVA (degrees)</strong></td>
<td>15.2±1.3/36.5±4.3</td>
<td>14.4±1.0/32.0±3.73</td>
</tr>
<tr>
<td><strong>Mean Followup (months)</strong></td>
<td>12(8-14)</td>
<td>12(9-13)</td>
</tr>
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1. Oblique osteotomy in the proximal medial MT base (1.5cm distal to the 1\textsuperscript{st} TMTJ)
2. Open the osteotomy site & mini-lamina spreader insertion for the desired correction of the IMA
3. Akin osteotomy in all cases
# Results (1)

<table>
<thead>
<tr>
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<th>Group B (PMOW)</th>
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<tbody>
<tr>
<td></td>
<td>Preoperative</td>
<td>Last followup</td>
</tr>
<tr>
<td>AOFAS score</td>
<td>43.3(25-75)</td>
<td>85.8(70-95)</td>
</tr>
<tr>
<td>HVA</td>
<td>36.5±4.3</td>
<td>10.1±4.6</td>
</tr>
<tr>
<td>IMA</td>
<td>15.2±1.3</td>
<td>6.2±2.9</td>
</tr>
<tr>
<td>First MT length</td>
<td>62.1±2.4</td>
<td>60.2±4.9</td>
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Discussion

Advantages of PMOW

1. Minimal soft tissue irritation
2. No mechanical support for wedge open
3. Minimal loss of correction of IMA compared with proximal chevron osteotomy
4. No need for routine removal of implant

Disadvantages of PMOW

1. No identical correction degree per mm. of the wedge
2. Breakage of the lateral cortex
   → failure of the lateral cortical “hinge”
   → bone union problem
3. Small increase of the 1st MT length
   → complication in long term F/U(?)
The PMOW with LPS® and proximal chevron osteotomy yielded equivalent clinical and radiographic results in moderate hallux valgus correction. But the PMOW had tendency toward lengthening of the 1st MT that must be investigated in long term, prospective, comparative study.


Hardy, MA; Grove, JR: Opening base wedge osteotomy of the First metatarsal using Arthrex Low Profile Plate and Screw System. Podiatry Internet Journal. 2(4), 2007


Nikiforos, PS: Proximal opening-wedge osteotomy of the first metatarsal for the hallux valgus using a low profile plate. Foot and ankle Int. 30(10): 976-980, 2009

Paul, SS; Troy, SW: Proximal first metatarsal opening wedge osteotomy with low profile plate. Foot and ankle Int. 30(9): 865-872