Review of surgical outcomes between plate and screw fixations in lapidus procedure for hallux valgus.

Presented by:
Singapore Orthopaedic Association

Lee Kong Hwee, Huang Yilun, Chong Hwei Chi, Kevin Koo, A/Prof Inderjeet Singh

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Review of surgical outcomes between plate and screw fixations in lapidus procedure for hallux valgus.

Lee Kong Hwee

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

- Numerous osteosynthetic methods for arthrodesis of the first tarsometatarsal joint (TMTJ) have described, but **no superior fixation technique** has been identified with regards to malunion and nonunion.\(^1\)\(^5\)

- This study aims to evaluate the **clinical outcomes** of the lapidus procedure utilizing either **plate osteosynthesis** or **screw fixation** in a significant sized patient group with a minimum of **2 years follow-up**.
Methods and Materials

- Retrospective analysis of prospectively collected data of 68 consecutive hallux valgus in 56 patients who underwent lapidus procedure with plate (Synthes X-plate™) or screws fixation.

- Performed by a single surgeon in a single institution from 2007 to 2011.

- Post-operatively, the patients were followed up regularly at 3, 6, 12 and 24 month intervals.
Methods and Materials

- Evaluation included:
  a. clinical assessment
  b. weight bearing radiographs
  c. patient reported outcome measures, namely:
     - pain visual analogue score (VAS)
     - American Orthopaedic Foot and Ankle Society (AOFAS) hallux score.

- Clinical outcome scores were recorded at the Orthopaedic diagnostic centre by independent assessors before surgery, at 6 months and 2 years postoperatively.
## Results

<table>
<thead>
<tr>
<th></th>
<th>X plate</th>
<th>Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>47.1</td>
<td>48.9</td>
</tr>
</tbody>
</table>

\[ p > 0.05 \]
<table>
<thead>
<tr>
<th></th>
<th>X plate</th>
<th>Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-op</td>
<td>2 year post op</td>
</tr>
<tr>
<td>VAS</td>
<td>5.09</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>[p = 0.00]</td>
<td></td>
</tr>
<tr>
<td>AOFAS hallux score</td>
<td>53.5</td>
<td>83.7</td>
</tr>
<tr>
<td></td>
<td>[p = 0.00]</td>
<td></td>
</tr>
<tr>
<td>Union rates (%)</td>
<td>89.7</td>
<td></td>
</tr>
</tbody>
</table>
At 2 years, no difference between the 2 groups in improvement in VAS and AOFAS scores.
Radiographs

X-plate

Screws
At 2 years between the 2 groups, there was no difference:

- in the improvement of VAS and AOFAS hallux scores.
- union rates
- in patient’s satisfaction and expectations.

In the X-plate group, there were 4 symptomatic patients undergoing revision surgery with bone grafting. In the screw fixation group, there was 1 symptomatic patient undergoing similar revision surgery.

- However, there was a relatively common incidence of broken screws in the screw fixation group (39.7%, 11/29), in which 3 patients underwent screw removal.

The surgical correction for hallux valgus was preserved on all follow-up radiographs.
Conclusion

Based on our single surgeon’s experience, the lapidus procedure utilizing either plate osteosynthesis or screw fixation is a reliable and safe option for hallux valgus, with good clinical outcomes and low complication rates.


