FIRST METATARSOPHALANGEAL ARTHRODESIS WITH A NEW INTRAMEDULLARY SYSTEM: SURGICAL TECHNIQUE AND EARLY RESULTS

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Disclosures

The authors have not actual or potential conflict of interest in relation to this presentation.
Introduction

Arthrodesis is a commonly and successfully used procedure to deal with advanced hallux rigidus, severe hallux valgus, inflammatory and posttraumatic arthritis and as a salvage of previous failed surgeries. Many different techniques, in terms of joint preparation and fixation constructs, have been reported.
The purpose of this study is to evaluate our short time results with an intramedullary device to perform the first metatarsophalangeal (MTP) arthrodesis.
Methods

Descriptive observational study with prospective follow-up between July 2010 and July 2012

We included 21 arthrodesis in 17 patients using the HalluX® Intramedullary Fusion Device (Fig 1)

The surgery was performed under regional anesthesia and it was allowed immediate deambulation with a flat postoperative shoe

Indications

<table>
<thead>
<tr>
<th>Indication</th>
<th>Cases</th>
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<tbody>
<tr>
<td>Salvage surgery KB</td>
<td>2</td>
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<tr>
<td>Hallux varus</td>
<td>2</td>
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<tr>
<td>Severe hallux valgus</td>
<td>7</td>
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<tr>
<td>Hallux rigidus grade IV</td>
<td>10</td>
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Fig 1. The HalluX® Intramedullary Fusion Device (Extremity Medical®) consists in a 6.5 mm intramedullary metatarsal implant and a hooked 4.0 mm lag screw.
Clinical outcomes were assessed with American College of Foot and Ankle Surgeons scoring scale preoperatively and at the time of the radiological fusion.

The degree of satisfaction of patients was also evaluated using the Coughlin and Mann scale.

**SUBJECTIVE SATISFACTION OF THE PATIENT**

- **Excellent**: Without problems, very satisfied, mild or no pain, walks without difficulty
- **Good**: A few problems, satisfied, mild pain, walks without difficulty or with mild difficulty, would still have had surgery
- **Fair**: Moderate pain, limited walking, reservation about success of surgery
- **Poor**: Continued pain, Little improvement in walking ability, regrets surgery
Results

16 patients (19 feet) completed follow-up evaluation. Fusion was achieved at five to twelve weeks in all the 19 feet. The grade of satisfaction was excellent and good in 95% (1 case fair). ACFAS average score improved 40 points respect to preoperative status.

COMPLICATIONS
In two cases, implant breakage occurred. No complications related to infection were reported.

Fig 3. Grade of subjective satisfaction according to the Coughlin and Mann Scale.
Case examples

Preoperative and 6-week postoperative Rx images of a case
Case examples

Preoperative and 6 month postoperative Rx images of a case
Conclusion

On the basis of the widely accepted mechanical and biological advantages of IM fixation, this technique provides a theoretically more stable fixation, while providing more uniform compression across the joint as compared with a dorsal plate.

Dorsal plate fixation augmented with plantar lag screw fixation is nowadays the reference technique to perform first MTP arthrodesis, nevertheless titanium staples and crossed screws have also reported good results.

In these constructs, sometimes is necessary a second surgery to remove some disturbing material. An intramedullary device would avoid the soft tissue irritation due to the underlying material and seems reliable to provide a strong fixation to achieve early MTP fusion with good short-term evolution.
References


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