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Title: Retrospective Analysis of hallux valgus therapy by Lapidus Arthrodesis
with polyaxial locking plates

Abstract: The hallux valgus deformity imposes an important deterioration of the foot function caused by pain in the metatarso-cuneiform joint although the instability of this joint has not yet been reproducibly defined in the literature. Lapidus developed a surgical technique to solve the problem at the site of deformity with a minimal iatrogenic functional loss. For the Lapidus technique wires, screws and plates are used. A major complication of this intervention is the development of non-union. It appears in osteosynthesis with wires, screws or screw-plate-combinations in 5.3 to 12%. After the development of locking plate systems weight bearing of the fusion could be allowed earlier and concurrently reduced the non-union rate.

A questionnaire was sent to a consecutive series of patients after Lapidus intervention in the period of 2002 to 2005 with osteosynthesis by locking plate and were answered by 78% (128 patients/144 feet). This group was clinically examined, actual radiographs were used. All procedures were conducted by the same surgeon. Study centre was a specialized orthopedic center. In our collective we found 117 women (91.4%) and 11 men (8.6%). At the time of intervention mean age was 50.81 years (min 15 / max 73), the mean BMI was 24.91 (min 18.94 / max 36.23) at follow up. 16 patients (12.5%) underwent surgery at both feet. In the examined group were 74 (51.4%) right and 70 (48.6%) left feet. The follow up took place at mean 35.9 month after primary intervention. The used implant was the "Variax"-plate (Stryker) in 70.8% and "TiFix" (Litos, Hamburg, Germany) in 29.2% of the cases.

In the questionnaire we asked for subjective information using the Shankar-score. During the clinical examination we also evaluated the AOFAS-Score. Finally we analysed the last radiographs regarding non-union, angles and degree of arthritis.

Before the Lapidus-Arthrodesis 77.8% of the patients suffered at least once a day pain in the later on treated foot; at the follow up 87% had no pain, 7.6% suffered sometimes and 5.3% at least once a day pain. In 8 cases (5.6%) reintervention was necessary due to 1 relapse of Hallux valgus, 2 non-union and 5 ROM (Removal of material). The Shankar Score showed in 143 complete questionnaires good or excellent results in 81.2%. The Hallux valgus angle was preoperatively at mean 38° (14° - 58°) and postoperatively at mean 18.8° (-5° - 48°). Severe Arthritis (Grade 3 & 4) was radiologically found in 20% but 53% showed no sign of Arthritis in the x-rays. The AOFAS-score was at 81.9 points at follow up and 72.2% of the cases were above 75 points. Postoperative complications were 2 DVT, 1 recurrence of Hallux valgus which lead to

surgery and 1 slight Hallux varus (5°) without clinical relevance. Wound infections did not occur.

In conclusion we could show good results after Lapidus-Arthrodesis using polyaxial locking plates and less complications in cases of moderate and severe Halux valgus deformities when compared to recent literature.