

# MANAGEMENT OF HALLUX VALGUS BY CHEVRON OSTEOTOMY

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**ABSTRACT.** This retrospective study assess the outcomes of the Chevron osteotomy realized for the management of hallux valgus in one-day hospitalization, on 97 cases (74 patients). The results were evaluated using the X-rays examination, and the self reported Foot and Ankle Outcome Score, pre- and postoperatively at 45 days and 6 months. It was an improvement of the functional capacity of the patients, supported by the significant statistic amelioration of the radiological signs of control.

**KEY WORDS:** Hallux valgus, Chevron osteotomy, Foot and Ankle Outcome Score

## INTRODUCTION

Hallux valgus represents a quite wide pathology, which affects mainly females starting at the age of 30 (Valtin B et al., 1999). The orthopedic surgeons had a large variety of procedures to manage the problem (Greer Richardson E et al., 1992; Fakoor M et al., 2014). Nowadays we have to fight with the continuous financial restrictions in the hospitals and we have to find the optimal management of the pathology, to have good clinical, functional results, and to spare the financial resources of the medical unit.

## AIM

This study presents an experience concerning the management of hallux valgus in today conditions of financial restrictions of the hospitals.

## MATERIAL AND METHODS

The study is a retrospective one and contains 74 patients operated in the period 1 February 2011 – 31 January 2014. There were 56 (75.67%) female and 18 (24.33%) male patients. A number of 23 patients presented both feet affected, and 37 presented associated hammer second toe, 23 patients presented overlapping and underlapping of the adjacent toe, and 5 patients presented also one or two claw toes associated to the third ray. I performed a total of 97 Chevron procedure for the hallux valgus uni- or bilateral (51 unilateral and 23 bilateral), and also we solve the defects of the second or third toe (overlapping or underlapping of the adjacent toes) in the same operation. The patients had one-day hospitalization, regional

anesthesia with lidocaine 10%, 30 - 80 ml, under tourniquet, and also intraosseous anesthesia of the first metatarsus. The patients received Oxacilin 500 mg 4x/24 hours for five days, as infectious prophylaxis, were evaluated in out-patient clinic at one and ten days. The patients were seen every day by their general practitioner. I made an assessment of the clinical, radiological and functional results at 45 days and 6 months. The patient gave me his self report evaluation, the Foot and Ankle Outcome Score (FAOS)(4) concerning the symptoms (7 questions – q), pain (9q), function, daily living (17q), function, sports and recreational activities (5q), and quality of life (4q), pre- and 45 days and 6 months postoperatively.

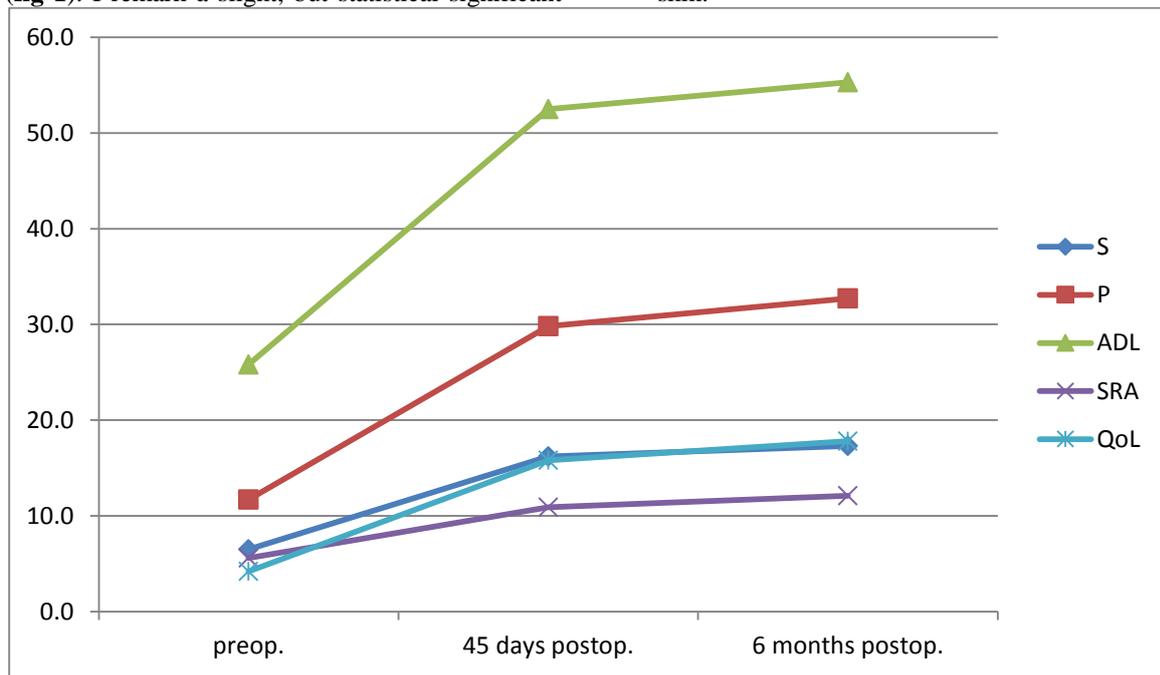
The statistical analysis was performed using Chi-square test (Pearson's test).

## RESULTS AND DISCUSSION

The patients with hallux valgus made the X-rays film of the foot in antero-posterior and profile incidences, preoperatively (Pentikainen I et al., 2014). The radiograms demonstrate the first metatarsophalangeal angle between 15° and 85° (average of 31.3°) and the 1st - 2nd intermetatarsal angle between 9° and 25° (average of 14.7°). The preoperatively FAOS score had an average of 6.5 for symptoms (S), 11.7 for pain (P), 25.8 for daily living activities (ADL), 5.6 for functions as sports and recreational activities (SRA) and 4.2 for quality of life (QoL). The mean time of the surgical interventions was 42.5 minutes, between 23.3 minutes and 72.8 minutes. As complications there was one patient (1.03%) with superficial infections of the wound, treated by soft tissue debridement. At

45 days postoperatively the FAOS was statistical significant improved to 16.2 ( $p = 0.0016$ ) for S, to 29.8 ( $p < 0.0001$ ) for P, to 52.5 ( $p < 0.0001$ ) for ADL, to 15.8 for QoL ( $p < 0.0001$ ). The FAOS score improved to 10.9 ( $p = 0.11$ ) for SRA, but without statistical significance. Many of our patients didn't have the habit to make sport activities before the operation. The patients repeated the self evaluation by FAOS score at 6 months. Compared with the preoperatively scores they had the results: 17.3 ( $p = 0.0004$ ) for S, 32.7 ( $p < 0.0001$ ) for P, 55.3 ( $p < 0.0001$ ) for ADL, 12.1 for SRA ( $p < 0.05$ ), and 17.8 for QoL ( $p < 0.0001$ ) (**fig 1**). I remark a slight, but statistical significant

increase of the ability of our patients to make sport activities. The assessment of the X-rays films at 45 days analysis shows a normalization of the first metatarsophalangeal angle from an average of  $31.3^\circ$  to an average of  $11.9^\circ$  ( $p < 0.0001$ ), and an amelioration of the 1st - 2nd intermetatarsal angle from an average of  $14.2^\circ$  to an average of  $7.2^\circ$  ( $p < 0.05$ ). The 6 months radiological control highlights the stabilization of the corrected angles, and the consolidation of the osteotomies. In 43 cases, I recommended and I made the ablation of the internal fixation screw after 6 months due to the possibility to bother because its position under the skin.



**Fig 1:** The FAOS score preoperatively, 45 days and 6 months postoperatively

## CONCLUSION

I recommend the treatment of hallux valgus by Chevron osteotomy. This technique has the possibility to be performed in a non-expansive manner in one-day hospitalization and demonstrates good results.

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