

## HALLUX VALGUS MINIMALLY INVASIVE SURGERY: RADIOLOGIC EVALUATION OF OUR EXPERIENCE

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## МИНИМАЛНО ИНВАЗИВНА ХИРУРГИЯ НА HALLUX VALGUS: РАДИОЛОГИЧНА ОЦЕНКА НА НАШИЯ ОПИТ

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**Summary.** The condition known as hallux valgus is a foot deformity involving the first ray, and is characterized by the lateral displacement of the great toe. **Objective.** To assess the effectiveness of minimally invasive surgery to treat hallux valgus.

**Key words:** Hallux Valgus, Minimally Invasive Surgery, Forefoot

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**Резюме.** Състоянието, известно като hallux valgus, е деформация на стъпалото, която засяга първия лъч и се характеризира с латерално изместване на палеца. Целта на изследването е да се оцени ефективността на минимално инвазивната хирургия при лечението на hallux valgus.

**Ключови думи:** hallux valgus, минимално инвазивна хирургия, стъпало

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### INTRODUCTION

The forefoot minimally invasive surgery is gaining special importance due to its theoretical benefits as low morbidity, low cost, quick healing and immediate weight bearing; but it requires slow learning curve and specific equipment for its performance. The treatment results still create controversies compared to classical techniques.

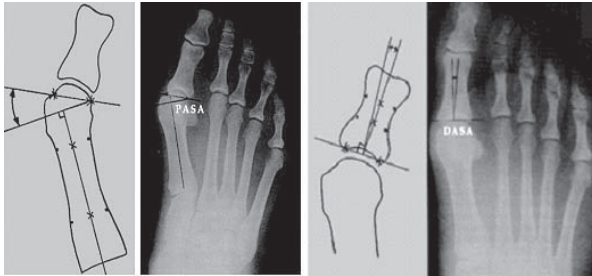
### OBJECTIVES

Evaluate radiological postoperative correction angles in a series of cases of hallux valgus treated with minimally invasive surgery.

### METHODS

Patients were selected by inclusion exclusion criteria between February 2013 and April 2014, that were treated at our institution with minimally invasive surgery by a hallux valgus. All surgeries were performed by the same orthopedist and the same technique: Bunionectomy, abductor tenotomy, minimally invasive V-shaped distal metatarsal osteotomy and proximal phalangeal varizant osteotomy. Patients were allowed to walk with a stiff-soled orthopedic shoe and metatarsal strap since the day of surgery. Weight bearing antero-posterior radiographs were performed in each patient

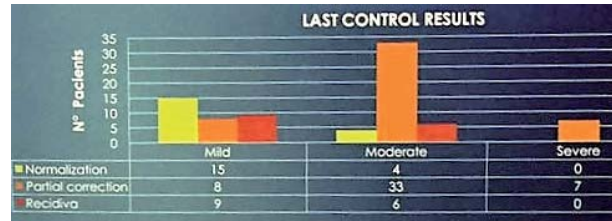
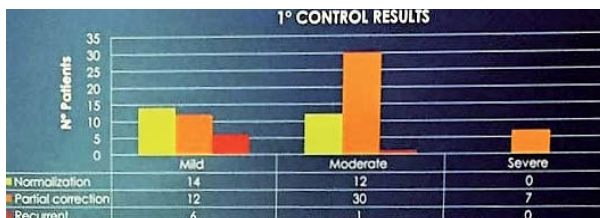
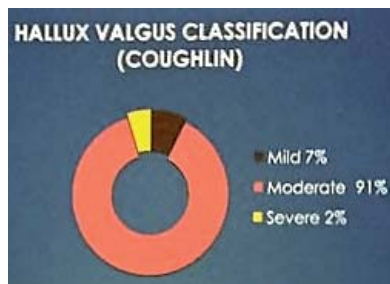
before surgery, at the first postoperative month and every three months to implant removal until medical discharge. The radiological measured angles were: Hallux metatarsophalangeal angle, first-second toe intermetatarsal angle, PASA (Proximal Articular Set Angle) and DASA (Distal Articular Set Angle).



PASA (Proximal Articular Set Angle) DASA (Distal Articular Set Angle)

**RESULTS**

A total of 82 subjects were selected of which 91% had moderate hallux valgus, 7% slight and 2% severe; according to Coughlin's classification. The correction rate to normality is higher in the slight group (47%), in the moderate and severe cases partial corrections were predominant (73% and 100%, respectively) with few cases of normalization or recurrence (8%, 0% and 13%, 0%; respectively). The majority of moderate hallux valgus cases were normalized at the first post-op control, but they degenerate to partial corrections at medical discharge (67%).



**DISCUSSION**

Analysis results shows that the correction rate is higher in the mild deformity group. In the moderate and severe deformity groups, partial corrections predominate having few normalized or recurrent cases. We advise that the majority of moderate hallux valgus that were seen normal in the first postoperative control (1 month after surgery), degenerate to partial corrections at final control discharge (12 months after surgery). Some of these partial corrections required a second intervention, fact that accentuates is osteopenic patients or that had a severe deformity since the beginning. We didn't find any significant difference between the correction or recurrence rate and the mean age of patients.

**CONCLUSIONS**

Minimally invasive surgery as hallux valgus treatment could be limited to slight- moderate cases that require few correction degrees in order to avoid recurrence and reoperation. The age is not a determinant factor for correction or recurrence rate, but osteoporosis association could be a factor with negative effect on bone healing and secondary displacement of osteotomies, leading to alteration of hallux valgus angle correction.

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