

## Modified first distal metatarsal osteotomy for hallux valgus

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**Introduction:** Percutaneous K wire fixation combined with osteotomy had been widely used before. The main concern about the method was recurrence of hallux valgus. Therefore, we had modified the operation method using a new osteotomy technique in treating the disease to reduce the recurrence rate. This study evaluated the clinical and radiographic outcomes using modified first distal metatarsal osteotomy for correction of mild to moderate hallux valgus deformity.

**Materials and Methods:** From September, 2011 to July, 2013, 20 patients with hallux valgus deformity had distal metatarsal osteotomy performed using the modified minimally invasive surgical technique. The patient age ranged from 15 years to 69 years (mean 39.7 years) with 20 women. One 2 mm Kirschner wire was used to splint the osteotomy site, which was removed after 4 weeks to 5 weeks.

**Results:** The hallux valgus angle improved from a preoperative mean of 32.2 to 13.6, and the first intermetatarsal angle improved from 14.6 to 7.12. There was no major complication encountered. All patients showed bony union with no avascular necrosis. 2 patients had mild skin necrosis. 3 patients had recurrence of hallux valgus. So far, no patients required reoperation due to recurrence.

**Discussion:** In our cases, no recurrence was noted in mild hallux valgus group (hallux valgus angle < 30). The recurrence rate is higher in the moderate group (30%). However, the recurrence rate in our study is lower in both mild and moderate group compare to other studies. Good clinical and radiographic results have been achieved with this modified minimally invasive technique for treatment of hallux valgus. This is an acceptable alternative operation for mild-to-moderate hallux valgus.

## 微創手術治療拇趾外翻

P-037

## Minimal invasive surgical treatment for hallux valgus deformity

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**Introduction:** The purpose of this study was to identify functional outcomes of the comminuted fracture of radial head treated with minimal invasive procedure.

**Materials and Methods:** Total eighteen patients were operated by MIS technique on between May 2005 and June 2010. Inclusion criteria were symptomatic moderate to severe incongruent hallux valgus deformity, no significant restriction in the first metatarsophalangeal joint movement, none to minimal degenerative changes in the first metatarsophalangeal or the tarsometatarsal joints, and no hypermobility. The median age was 60 years. American Orthopaedic Foot and Ankle Society (AOFAS) scores were collected at final follow up, along with a rating of the overall satisfaction. Any complications were recorded. Pre- and post-surgical radiographic angles were measured and analysed using the Student's t-test. The angles measured were the hallux valgus angle (HVA), the inter-metatarsal angle (IMA) and the distal metatarsal articular angle (DMAA). A second surgeon independently reviewed the angles in order to assess the inter-rater reliability using the Pearson product moment correlation.

**Results:** The patient satisfaction rate was 92%. The mean postoperative HV angle was 11.2 degrees, IM angle 5.8 degrees, AOFAS score 90 points. Removal of complete or partial hardware was needed in 2 feet (11.1%) for symptomatic hardware. No patient developed hallux varus and no any recurrent hallux valgus was found. Transfer metatarsalgia was noted in only one feet (5%).

**Discussion:** Hallux valgus is more commonly known as a bunion. In a small minority of patients, bunion development is associated with underlying genetic conditions affecting the structure of the foot (e.g. ligamentous laxity syndromes and certain neurological conditions). However, in most patients the aetiology is not clear. This study demonstrated that the MIS technique is effective in treating mild to moderate hallux valgus in terms of relief from symptoms and functional improvement. This technique allowed correction of the main parameters of the deformity, with durable clinical and radiographic results at a mid-term follow-up.