Introduction

Metatarsalgia is a painful condition which depends on the degenerative changes in metatarsophalangeal joint capsule of lesser toes. This degenerative changes complicate by mechanical abnormalities of the forefoot presented 2 – 4 metatarsals elongation. Metatarsalgia is a rare condition in patients with hallux valgus and Morton’s foot. Methods of surgical treatment assumed the shortening of corresponding metatarsals and presented by distal and proximal osteotomies, resection metatarsophalangeal joint arthroplasty. Most of them have the high rate of complications such as nonunion and migration of metatarsalgia. Distal osteotomy by M. S. Weil is the most predictable and has minimal complications.

Objective. Analysis of results of Weil’s osteotomy in the surgical treatment in patients with metatarsalgia, discussion about indications and surgical technique peculiarities.

Material and methods

9 patients with 17 metatarsophalangeal joints aged from 37 to 70 years (mean 53,2 ± 3,3) who underwent the Weil’s osteotomy. All patients were women. The diagnosis of metatarsalgia has been established by clinical and radiological signs: painful calluses under metatarsal heads, subluxated or completely dislocated toe, metatarsal parabola violation on the anteroposterior weightbearing radiograph. The metatarsalgia has been differentiated from Morton’s neuroma, Freiberg disease, neoplasms. The indication to Weil’s osteotomy was the ineffective conservative treatment. In all cases the typical Weil’s osteotomy has been performed with screw twist-off 2 mm (Intercoose, Germany). In 11 cases the osteotomy was combined with correction of toe dislocation. The weightbearing and walking in Barouk’s shoes have been begun after the first bandaging. The sutures were removed after 2 weeks. Full weightbearing was prescribed in term 3 weeks only after radiographs. The foot function was assessed by AOFAS score (2 – 5 toes subscale) before and after operation, the pain dynamics by VAS. The statistical analysis has been performed in Microsoft Excel 2007 by two-sample t-test (α = 0,05) and multiple regression. The differences were considered significant at p < 0,05.
Results

All patients walking without restricting after 3 weeks after operation. Follow-up terms were 6 – 27 months (mean 18,4 ± 4,5). Patients were satisfied after surgery despite residual subluxation was observed in some cases. The function dynamics before/after operation was 50,3 ± 5,7 / 82,8 ± 2,9 points (p < 0,001), pain dynamics (cm) – 6,5 ± 0,4 / 1,3 ± 0,1 (p < 0,001). The subscale “pain” dynamics was 14 ± 4,3 / 36,1 ± 2,7 (p < 0,001), subscale “callus” was 2 ± 4,3 / 4,5 ± 0,5 (p = 0,01). The influence of subscales “pain” and “callus” to total value the multiple regression analysis has been done. Only subscale “pain” has significant influence to total value of AOFAS score (p = 0,003) but the subscale “callus” was not significantly (p = 0,13).

Conclusion

The Weil’s osteotomy is effective surgical procedure, promotes significant pain relief and foot function improving. The adequate metatarsal shortening and stable internal fixation allow to correct toes deviation at the transverse plane.