

Metatarsophalangeal joint arthroplasty with implantation of Osteomed Interflex IPG system: our experience

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Abstract. The Osteomed Interflex IPJ system is a stemmed flexible implant specifically designed for replacement of metatarso-phalangeal joints of the lesser toes. The indication for use is a semi-rigid or rigid hammertoe deformity, impaired function and stability, metatarsal pain. The purpose of the study is the result of 45 implants, in 29 patients (27 women and 2 men). The average of the patients at the time of the operations was 65 years. The follow-up is 30 months. In our experiences this surgical replacement is a good solutions in selectionated cases of metatarso-phalangeal deformity. (www.actabiomedica.it)

Key words: metatarsal pain, rigid or semi-rigid metatarso-phalangeal deformity, stemmed flexible implant

Introduction

The Osteomed Interflex IPG System consists of silicon implants of two measures, containing milling machines and single use tester devices for II, III, IV and V metatarso-phalangeal joint arthroplasty.

The indications for this implant are: rigid or semi-rigid hammertoe deformity with luxation or sub-luxation of the metatarso-phalangeal joints, stability and functionality of compromised metatarso-phalangeal joints, impaired length ratio of the hallux.

Contraindications for the use of these implants are suspected or active infections, immunocompromised patients, lack of adequate skin coverage, insufficient bone quality to support the implants, patients with previous allergic reaction to silicon.

This implants are not projected for excessive functional stress, which could accelerate wearing out and hence their failure.

The surgical incision is longitudinal on the dorsum directly above the joint to be operated, deepened by cleavage of tendons and dorsal veins. Subsequently executing longitudinal capsulotomy, sawing and extracting the metatarsal head and the base of the first

phalange, preparing medullar canals with the milling machine included in the surgical kit, using a gauge to insert the appropriate spacer and finally placing the silicon implant which can further be modified shortening, if necessary, the stem.

The purpose of this study was to clinically evaluate the outcome of the implantation of 45 flexible stabilization rods in 29 patients who presented with metatarsal pain from rigid luxation or sub-luxation of one or more metatarso-phalangeal joints, carried out from October 2004 to November 2011 within our clinic.

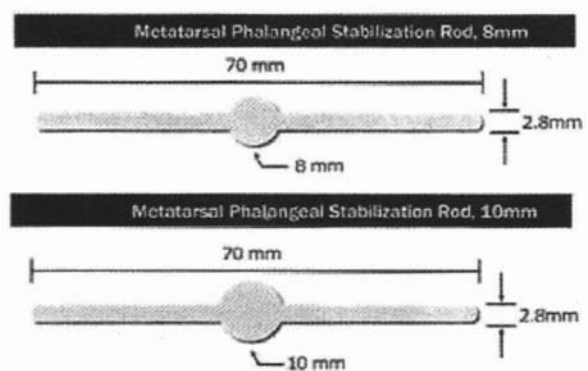


Figure 1.

Materials and methods

We implanted 45 flexible stabilization rods in 29 patients, 27 females and 2 males, with an average age of 65 years.

Arthroplasty of II, III and IV metatarsal ray was conducted in 4 patients (Fig. 2-4), of II and III ray in 8 patients and solely of the II ray in 17 patients.

In 15 of 29 patients, corrective osteotomy of the I ray using S.E.R.I technique was performed simultaneously (Fig. 2-4).

In 3 patients, corrective osteotomy of the I and V ray was adjoined and in 2 patients of the III and IV ray.

The pathologies requiring this implant were:

- Metatarso-phalangeal luxation due to rheumatoid arthritis in 3 cases

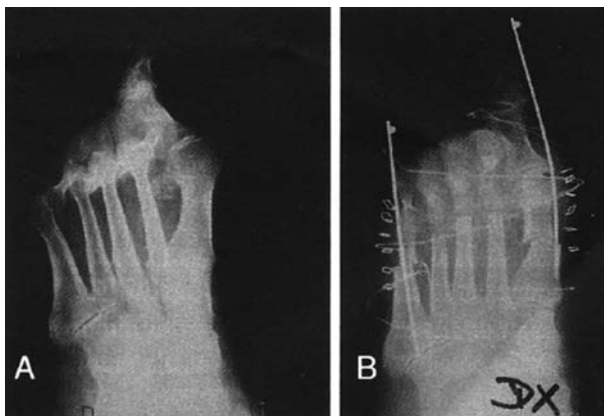


Figure 2. A) Pre-operative X ray; B) Post-operative X-ray showing substitution of II, II, III and IV metatarsophalangeal joints



Figure 3. A) Pre-operative X ray; B) Post-operative X-ray showing substitution of II, II, III and IV metatarsophalangeal joints



Figure 4. A) Pre-operative X ray; B) Post-operative X-ray showing substitution of II, II, III and IV metatarsophalangeal joints

- Hammertoe with metatarso-phalangeal luxation in 10 cases
- Sub-luxation of metatarso-phalangeal joint with metatarsal point following corrective osteotomy in 16 cases

The implantation involving only one joint was carried out under local anaesthesia, whereas the implantation involving more than one joint was carried out under epidural anaesthesia.

During the post-operative period, all patients stood freely using a retro podalic brace the day after the procedure, keeping the brace on for 28 days. On the 15th post-operative day the surgical incision was medicated and sutures were removed. Patients underwent one week of antibiotic therapy and 28 days of low molecular weight heparin.

Patients were discharged on the second post-operative day.

28 days after the intervention, patients began walking with regular shoes and initiated physical therapy focused on reeducation of gait and proprioception.

Results

Currently, no patients experienced intolerance of the implant and all patients regained the ability to walk without feeling any pain at the ball of the foot, in so much that all patients returned to daily activities not including running and jumping.

8 patients presented a hyperextension of the second toe of around 20 degrees, without however, complaining of pain neither spontaneously nor on walking.

Discussion and conclusion

We consider the substitution with flexible silicon rods of metatarso-phalangeal joints, affected by rigid luxation or sub-luxation and metatarsal pain, due to degenerative as well as iatrogenic pathologies, a valid alternative therapeutic method.

Our experience of selected cases has demonstrated that such a procedure can give good clinical results with regards to symptomatology as well as functionality, allowing patients to walk, without exerting excessive functional stress on the foot such as running and jumping.

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