

was performed with custom-made LAKI semicircular external fixator, fixing bone fragments with Kirschner wires, crossed-placed on the transverse plane; distraction was begun on 5th post-operative day with a 0.75 mm/day rate for 2 weeks, then lowered to 0.5 mm/day.

Results The mean time-in-frame was 16.32 weeks. The mean lengthening was 17.30 mm, with a mean 36.12 % increase of the initial length; the mean healing index was 61 days/cm. The most common complications have been rigidity of the metatarsal-phalangeal joint (6 cases) or its dislocation (2 cases), angular deviation of the regenerate (5 cases), delayed consolidation after lengthening (1 case, requiring a new surgery). No cases required bone grafting. The mean follow-up time has been 37.12 months.

Discussion Progressive distraction technique for metatarsal lengthening permits the accuracy required to allow the formation of a physiological arch of the metatarsal heads and changes in soft tissues, and at the same time the correction of associated deformities without requiring any kind of bone graft. Joint dislocation can be prevented by pinning the toes with longitudinally placed Kirschner wires.

Conclusions Excellent clinical and functional results have been gained with LAKI semicircular external fixator. This technique can be recommended as gold standard to treat metatarsal shortening. Bone lengthening for brachimetatarsia correction can be indicated not only for cosmetic purposes, but also to relief pain and plantar hyperkeratosis at the 2nd and 3rd metatarsal heads and to prevent secondary deformities of the other toes.

Mechanical complications of first metatarso-phalangeal arthrodesis: biomechanical analysis and practice deductions

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Introduction The pseudoarthrosis in case of arthrodesis of the first metatarso-phalangeal joint (MPJ) is a variable complication in international literature : 3 % using intramedullary screw fixation (Johanson), 5 % using K-wire (Mann); Coughlin gets 92 % of bone consolidation using plates. The purpose of this study was to compare and to evaluate the efficiency of 3 different plates.

Materials and methods We report retrospectively, homogeneous and continues a series of 126 patients. There were 102 women and 24 men. The mean age at surgery was 61 years (44–88). We operated 72 right feet and 54 left feet. Etiologies were the following: 85 hallux valgus, 20 revision of hallux valgus and 21 hallux rigidus. We always used dome-shaped reamers and 2 low-profile types with 10° dorsiflexion dorsal titanium plates with compression screw. The mean clinical and radiographic follow-up was 12 months.

Results Osteolysis was major, 5/30 cases, using standard plates; 2/96 cases using angular stable plates. There were 9 broken standard plates, 1 angular stable plate; only 2 cases were asymptomatic. We observed significant correlation with plate breaking and plate morphology.

Discussion Angular stable plates have not been a bone fusion assurance in our series. Buranosky (2001) used plates with compression screw; for Neufeld (2002) the importance of, first the screwing and after the plate. Coughlin (2006) obtained 92 % of bone fusion with cross screwing plate. Maestro (1997) preconized titanium plates. Bennett (2005), Goucher (2006), Shapiro (2009) preconized plates with intrafocal screw.

Conclusions Angular stable plates have not showed significant superiority of standard plates. The other anatomical factors must therefore be determined for the design of plates in the first metatarso-phalangeal joint (MPJ) arthrodesis.

PRP in the treatment of Achilles tendinopathy

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Introduction The Achilles tendinopathy is often a result of overuse and occurs in athletes; however, it is frequent in general population for inappropriate shoes, drugs, overweight, poor muscles. Clinically shows pain in the tendon area and the adjacent structure with functional limitation. An early diagnosis prevents the chonicization and its treatment is generally conservative. Surgery is advised when a conservative approach doesn't result after 6–8 months. In this study we refer to 24 patients with mild to moderate Achilles tendinitis treated with intratendinous infiltration of platelet-rich plasma (PRP).

Materials and methods The study was performed on 24 patients with mild or moderate Achilles tendinopathy (aged between 27 and 56 years). All reported localized pain in Achilles tendon about 2–4 cm from its insertion to heel and functional limitations, particularly during deambulation and going up and downstairs. Diagnosis were confirmed by ultrasonography. The patients were treated with a cycle of 3 PRP intratendinous infiltrations every 14 days. The platelet gel was prepared using autologous blood centrifuged to obtain a dialysate rich of platelets (1000000 platelets/mm³), ready to inject. In the follow-up at 3 and 6 months the patients were monitored clinically and sonographically.

Results Clinical (pain, functional limitation) and ultrasonographic parameters showed a return to normality for the objective and subjective clinical parameters with normal ultrasound pictures in 16 patients. In 7 patients remained mild pain with slightly altered ROM and residual ultrasound thickening of the tendon. In 3 patients clinical and ultrasound data remained unchanged/little changed compared to initial.

Discussion PRP is a bioactive component with biological functions of regeneration and repair of soft tissue and a powerful anti-inflammatory effect.

Conclusions The treatment of Achilles tendinopathies with PRP affords good results to obtain the reduction of pain and correct deambulation recovery.

Articular reconstruction with prosthesis in the treatment of hallux rigidus

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Introduction The degenerative joint disease of the hallux rigidus in the advanced stage has always been a challenge in surgical treatment. Over the years there have been several proposals of joint replacement surgical techniques with the aim of relieving pain, correcting deformity and maintaining a degree of motion.

Materials and methods In recent years, for the treatment of hallux rigidus severe, we used a metal arthroplasty (Reflexion). We checked 25 patients (18 females, 7 males) of mean age 58.1 years, operated with this technique from June 2008 to June 2011. Truncal anaesthesia is performed on the ankle and is granted the immediate loading. The patients were followed up clinically and with radiographs (medium follow-up 18 months). The functionality was evaluated with the score of Kitaoka et al.