Third BALKAN Foot and Ankle Congress

27-28 SEPTEMBER EYLÜL 2024

ISTANBUL

TOTBİD
Türk Ortopedi ve Travmatoloji Birliği Derneği

Ayak ve Ayak Bileği Cerrahisi Şubesi

BAFAS
Balkan Foot & Ankle Society

www.bafas.org

It's a great honor and pleasure to welcome you in our 3rd Congress of BAFAS (Balkan Foot & Ankle Society) in the beautiful and hospitable city of Istanbul.

I am deeply grateful to our Turkish Colleagues. Under the auspices and full support of TOTBID members and officers this Congress became a reality.

The aim of BAFAS is
To bring together Physicians with particular interests in the Foot and Ankle Field, as well as other specialists with similar interests (family doctors, general or orthopedic surgeons, neurologists).

To support and spread throughout Balkan Region a correct mentality regarding possibilities of Foot and Ankle Orthopedic Subspecialty, by attracting different specialists.
To introduce the study of Foot and Ankle Surgery as a distinct subject in the curriculum of medical faculties throughout Balkans, and therefore have the subject agreed as an independent specialty.

To establish links and to associate with other national societies of Foot and Ankle Surgery enabling scientific and professional contacts and the spread of Balkan achievements in the field of Foot and Ankle surgery.
We are happy to have with us in this 3rd BAFAS Congress, distinguish lecturers and participants from associate societies like Russia, Poland, Kazakhstan.

I hope you will enjoy the program the scientific program, of BAFAS and TOTBID, the social activities and strengthen bonds and cooperation between fellow members.

Thanos Badekas
President of BAFAS

Congress Organizing Committee

Thanos Badekas

Emre Baca

Altuğ Tanrıöver

Domagoj Perkovic,

Atanas Katsarov,

Metin Uzun

Kaya Akan

3rd BAFAS CONGRESS

Registration 8.30-9.00

Introduction & Greetings from

President of BAFAS -President of TOTBID 9.00 - 9.15

SESSION 1: FOREFOOT 1- HALLUX VALGUS

9.15-10.45

Chairmen: A.Katsarov - M.Uzun

1. Our experience with the MIS PBS systemin over 60000 patients operated for hallux valgus and other forefoot deformities

P. Salonikidis. Greece

2. Lecture title Hallux Valgus correction with concomitant flatfoot deformity

M. Argiropoulos. Greece

3. Comparison between two techniques in percutaneous HV treatment

A. Katsarov. Bulgaria

4. Why hallux valgus relapses?

M. Uzun. Turkey

5. Perioperative management of F&A surgeries

D. Perkovic. Croatia

Discussion 15 min

SESSION 2: FOREFOOT SURGERY AND FOOT MANAGEMENT CONDITIONS

10.30-12.00

Chairmen: D.Perkovic - T.Toros

1. Surgical treatment of hallux valgus in children

I. Zwinczewski. Poland

2. Interposition arthroplasty for hallux rigidus (MOKCIA)

A. Tanrıover. Turkey

3. Revision Forefoot surgery

L. Makinyan. Russia

4. Comprehensive work up for neurological foot deformity

I. Botezatu. Romania

5. Proprioception and balance in diabetic foot

F. Kesiktaş Turkey

Discussion 15min

Coffee break 12.00-12.15

SESSION 3: ORAL PRESENTATIONS: HINDFOOT RECONSTRUCTION THE RUSSIAN EXPERIENCE

12.15-13.30

Chairmen: T.Badekas - A.Kachesov

1. Combined Total Talus Replacement and Total Ankle Joint

Arthroplasty

V. Kuznetzov. Russia

2. Additive technologies in the replacement of bone defects inpatients with diabetic foot

V. Nikitina. Russia

3. Hemiarthroplasty of the hindfoot with ceramic implants

V. Skrebtsov. Russia

4. Two-stage replacement of subtotal defects of the foot bones with apersonalized allogenic 3D bone implant.

V. Obolensky. Russia

5. Removal of navicular bone as amethod of surgical correction of the cavus Foot

L. Makinyan. Russia

Discussion 15 min

SESSION 4 ORAL PRESENTATIONS: TRAUMA AND HIND-FOOT COMPLICATIONS AND TREATMENT

13.30-14.45

Chairmen: M.Argiropoulos - U.Aydoğan

1. Infection after Tibiotalocalcaneal Arthrodesis with Retrograde Intramedullary Nailing: Retrospective Analysis of 16 Patients

Ahmet Berkay Girgin. Turkey

2. Selective Fixation Methods in Lisfranc Fracture Dislocations

N.K. Yazgan. Turkey

3. Isolated Tillaux fractures in adults; Single centre case series

A. Acar. Turkey

4. Evaluation of clinical and radiological results of cross-union method in congenital tibia pseudoarthrosis surgery

A. Aydın. Turkey

Discussion 15 min

Lunch Break 14.45-15.30

SESSION 5 TENDONS AND LIGAMENTS

15.30-16.45

Chairmen: A.Pettas - E. Baca

1. Treatment of Chronic Achilles tendon ruptures

A. Pettas. Greece

2. Plantar fasciitis with endoscopic treatment

B. Çatal. Turkey

3. Impact of Syndesmosis Screw Removal on Medial Clear Space in Ankle Fractures with Syndesmosis Injury

A. Geçer. Turkey

4. Turf toe diagnosis and treatment.

P. Symeonidis. Greece

Discussion 15 min

End of 1st day

NEXT DAY

SESSION 6 FOOT AND ANKLE ARTHROSCOPY AND SPORTS MEDICINE

9.30-10.45

Chairmen: A.Tanriover - K. Akan

1. Using sense of vibration to evaluate proprioception in ankle sprains

E. Baca. Turkey

2. Arthroscopic ankle arthrodesis

A. Yıldırım. Turkey

3. Arthroscopic surgical treatment of postraumatic osteoarthritis of the metatarso-sesamoid joint.

D. Bobrov. Russia

4. Osteochondral lesions of the talus single incision technique

T. Badekas. Greece

Discussion 15 min

SESSION 7: HINDFOOT DEFORMITIES

10.45-12.00

Chairmen: A.Mazalov - A. Yıldırım

1.The effect of spring ligament repair on the results of surgical correction of flexible pes planovalgus

T. Toros. Turkey

2. Navicular tubercle osteotomy for mobilization of the posterior tibial tendon: A simple and effective technique for visualization and repair of the spring ligament.

T. Toros, Turkey

3. The problem of bringing down the 1st ray of the foot in surgery for

planovalgus deformity.

A. Mazalov. Russia

4. The use of titanium nickelide implants in the treatment of flatfootdeformity in adults

A. Skrebtsov. Russia

5. Longitudinal arch stabilizers plasty in adult flatfoot correction;

A. Kachesov. Russia

Discussion 15 min

Coffee break 12.00-12.15

SESSION 8 ORAL PRESENTATIONS FOOT AND ANKLE EVALUATIONS AND PROTOCOLS

12.15-13.30

Chairmen: I.Botezatu - S. Yontar

1. Flexor Hallucis Longus Tendon Injuries: Case Series and Surgical Approaches

Y. Kıratlıoğlu. Turkey

2. Intra- and Interobserver Reliability in Hallux Valgus Angle Measurements on Weight-bearing and Non-Weightbearing Radiographs

B. Acar. Turkey

3. The Joint Awareness Score: A Valuable Tool for Evaluating Patients with Hallux Valgus

O. Özyaman. Turkey

4. Measurements of lateral talocalcaneal angle (L-TCA) and calcaneal pitch angle (CPA) is the radiological evaluation of pes planus

İ. Erdoğan. Turkey

5. Incidence and Characteristics of Foot and Ankle Tumors: A 13-Year Retrospective Study at a Tertiary Oncology Center

R. Bircan. Turkey

Discussion 15 min

SESSION 9: ORAL PRESENTATIONS MISCELLANEOUS

13.30-14.45

Chairmen: E.Baca – B. Çatal

1. Comparison of Clinical and Functional Outcomes in Hallux Rigidus Patients Treated with Cheilectomy Surgery or Cortisone Injection

R. E. Dalaslan. Turkey

2. Usefulness of Tuning-Fork Assisted Vibration Sensation as a Proprioceptive Measurement Method in Cases of Acute Anterior Talofibular Ligament (ATFL) Rupture: A Single Centre Study

M. C. Arı. Turkey

3. A retrospective comparison of WALANT technique and regional anesthesia in cheilectomy

A. Çakar. Turkey

4. Comparison of Fixation Materials Used in Hallux Valgus Patients Undergoing Distal Metatarsal Osteotomy

A. Geçer. Turkey

Closing Remarks 14.45-15.00

BAFAS General Assembly 15.00-16.30

COMBINED TOTAL TALUS REPLACEMENT AND TOTAL ANKLE JOINT ARTROPLASTY

Vasiliy V. Kuznetsov – PhD, Orthopedic Surgeon City Clinical Hospital named after I.I. S.S. Yudin, Moscow, Russian Federation E-mail: vkuznecovniito@gmail.com

Abstract

Introduction Surgical treatment of patients with avascular osteonecrosis of the talus and post-traumatic hindfoot deformity is associated with high morbidity, difficulty of early disease detection, the discrepancy between patient expectations and orthopaedic requirements for surgical outcomes due to traditional methods. The use of customized ankle joint replacement may be a potential solution to this problem.

The objective was to evaluate the results of treatment of a patient with avascular osteonecrosis of the talus, crusarthrosis and hindfoot deformity using an original replacement method for the ankle joint and the talus.
Material and methods A 30-year-old patient with post-traumatic avascular osteonecrosis of the talus, crusarthrosis, equinovarus and adducted foot underwent replacement of the ankle joint and talus using

the method developed by the authors. Radiographic and tomographic methods were used for diagnosis. The VAS scale, AOFAS, FFI, EFAS questionnaires and pedobarography were used to assess clinical and functional results.

Results The results of treatment evaluated at 12 months showed maintained foot deformity correction, stability of a tailored construct with no signs of loosening and osteolysis. The clinical and functional result showed a 81/2 VAS decrease in pain, functional status improved by 4.3 times with functional foot index (FFI) improved by 2.2 times according to the AOFAS scale at 12 months.

Discussion Orthopaedic surgeons are conducting research aimed at preserving ankle motion in the treatment of avascular osteonecrosis of the talus. A serious problem is associated with concomitant deformitie of the hindfoot and available implants fail to solve this problem.

Conclusion The surgical method offered for the patient provided good clinical and functional results with the hindfoot deformity corrected within one stage reducing the treatment time.

TWO-STAGE REPLACEMENT OF SUBTOTAL DEFECTS OF THE FOOT BONES WITH A PERSONALIZED ALLOGENEIC 3D BONE IMPLANT

Osnach SA, Volova LT, Nazaryan A, Obolensky VN, Vinogradov VV, Kuznetsov VV, Tamoev SK , Protsko VG.

Introduction. As reconstructive interventions for lesions of the bones of the middle and hindfoot of the Charcot, resection arthrodesis with submersible or extrafocal fixation is most often used, which is often accompanied by complications (nonunion, osteomyelitis) and leads to a shortening of the length of the limb segment.

Purpose of the study. To evaluate the effectiveness of two-stage replacement of subtotal bone defects of the infected Charcot foot with a personalized allogeneic 3D bone implant while maintaining the length of the limb segment.

Materials and methods. An analysis of the results of treatment of 40 patients with infected Charcot foot with localization of the pathological process in the bones of the middle (7 cases), combined middle and hind (3 patients) and hind (30 people) parts of the foot was carried out. All patients were treated in the Center of septic surgery of the City Clinical Hospital No. 13 and the Center for Foot and Diabetic Foot Surgery of the City Clinical Hospital named after. S.S. Yudin from 2021 to 2023. There were 12 men, 23 women. The average age was 51.1 + 2.1 (24 - 71) years, the average body

mass index was 30.0 + 1.2 (18 - 46.9). There were 9 patients with type 1 diabetes mellitus (DM), 27 with type 2 DM, and 4 people with newly diagnosed DM. All patients were diagnosed with mainline or mainline-altered type of blood flow in the lower extremities. At the first stage, under spinal anesthesia in aseptic conditions under a pneumatic tourniquet, removal of parts of deformed and affected bones, scar tissue and pathological granulations, resection of cartilage of the articular surfaces of bones and synovectomy were carried out through an approach taking into account the type and location of the deformity; in the presence of an ulcer, the latter was excised with the formation of fasciocutaneous flaps for subsequent plastic closure of the wound defect. The foot was brought into the functionally correct position using diafixing wires, preserving the defect-diastasis zone, the correct ratio and length of the segments (foot and/or lower leg). A polymethylmethacrylate cement spacer containing 1 gram of gentamicin and 2-4 grams of vancomycin was implanted into the formed diastasis, the wound was closed with local flaps, and extrafocal osteosynthesis was performed using a compression-distraction external fixation device.

At the second stage, after 6–8 weeks (using Masquelet technology), lyophilized 3D allobone, manufactured by milling according to the CT model of the spacer, was installed into the diastasis defect. Digital modeling of the bioimplant was carried out in a CAD/CAM system, sterilization was carried out with gamma radiation. Fixation in the Ilizarov apparatus after the second stage lasted an average of 6 months, then unloading in an individual polymer bandage, followed by activation in an orthosis and orthopedic shoes.

Results. During the observation period (1 - 3 years), the following results were revealed in patients with localization of the process in the posterior section (30 people): good - 19 patients, 60.7%; satisfactory (partial crushing of the implant, formation of supporting neoarthrosis with relative shortening of the limb) - 6 cases, 21.4%; with complications - in 4 cases, 14.3% (recurrence of osteomyelitis, which required removal of the implant, sanitation and formation of arthrodesis with shortening of the segment); poor - in 1 case, 3.6% (non-union, non-supporting limb).

All patients with localization of the process in the middle and combined in the middle and hindfoot (10 people, 100%) had a good result, no complications were identified.

Discussion. Preservation of not only a weight-bearing limb, but also the length of segments (foot and/or lower leg) significantly increases the standard of living of patients. However, the results obtained encourage a more selective approach to the use of this technique in cases of damage to the hindfoot.

Conclusions. The proposed options for two-stage replacement of subtotal bone defects of the infected Charcot foot while maintaining the length of the limb segment seem clinically promising, but a larger volume of clinical observations and evaluation of long-term results are required.

LONGITUDINAL ARCH STABILIZERS PLASTIC IN ADULT FLATFOOT DEFORMITY

A.V. Kachesov, O. B. Nosov, E.D. Gorshunov A.V. Kachesov – PhD, Orthopedic surgeon Privolzhsky Research Medical University (Nizhny Novgorod, Russia)

Abstract

Introduction. Hypermobile flatfoot in adults is associated with failure of main stabilizers of longitudinal arch of the foot: spring ligament (SL) and posterior tibial tendon (PTT). Plastic of SL and PTT is pathogenetic method of flatfoot correction, repairing both passive and active stabilizers.

The objective is to evaluate the results of treatment of patients with hypermobile acquired flatfoot using proposed method of correction.

Material and methods. 28 patients were undergoing subtalar arthroeresis and first ray depression by Cotton procedure combined with original method of anatomical SL and PTT plastic. The results were assessed by AOFAS questionnaire and weight bearing X-ray imaging. **Results.** The results of treatment were evaluated in 12 months. Radiological parameters were normalized, AOFAS score had significant increase.

Discussion. A lot of methods of adult acquiring flatfoot correction are published and using in practice. Isolated arthroeresis is not enough in adults, Evans osteotomy is accompanied risk of nonunion or delayed consolidation, postoperative edema and not weight bearing period for a long time. Presented method afford get permanent correction and full function and exclude problems due to heel bone osteotomy.

Conclusion. The proposed method o treatment allows to correct acquired flatfoot effectively, permanently and with short time of rehabilitation.

HEMIARTHROPLASTY OF THE HINDFOOT WITH CERAMIC IMPLANTS

V.V. Skrebtsov, V.G. Protsko V.V. Skrebtsov – PhD, Orthopedic Surgeon V.G. Protsko - MD, PhD, Orthopedic Surgeon Moscow, Russia; City Clinical Hospital named after S.S. Yudin,

Abstract

Introduction. The talonavicular and subtalar joints are one of the key joints of the foot. Degenerative changes of them or avascular necrosis of the talus bone leads are primarily a consequence of intra-articular calcaneal or talus fractures, varus or valgus deformities of the hindfoot, rheumatoid arthritis and idiopathic arthrosis deformans. Talus is the most loarded bone of the foot. Arthrodesis of the talonavicular and subtalar joints or panarthrodesis leads to disruption of the biomechanics of the step or to the loss of the function of the entire foot.

The objective is demonstration of the method and to evaluate the short-term results of treatment of patients with degenerative changes of talonavicular, subtalar joints and avascular necrosis of the talus bone using of hemiarthroplasty with ceramic implants.

Material and methods. On the basis of the Center for Foot Surgery of the S.S.Yudin State Clinical Hospital (Moscow, Russia), 21 patients were operated on 21 feet by the method of hemiarthroplasty of the talonavicular joint. 11 patients were operated on 11 feet by the method of individual hemiarthroplasty of the subtalar joint. 21 patients were also operated on 23 feet by the method of individual endoprosthetics of the talus.

Hemiendoprostheses were made of zirconium oxide ceramics stabilized with yttrium.

Results. The observation period was 36 months, from May 2021 to May 2024. The results were assessed by AOFAS and VAS questionnaires, MSCT and weight bearing X-ray imaging.

Discussion. Despite the fact that today the gold standard for the treatment of osteoarthritis of the talonavicular and subtalar joints is arthrodesis, long-term results reflect an increased risk of secondary degenerative changes in neighboring joints. Individual endoprosthetics for treatment avascular necrosis of the talus bone allows to preserve the function of the ankle, talonavicular and subtalar joints, reduce pain, increase daily activity and quality of life of the patient. Zirconium oxide ceramic implants demonstrate good results of hemiendoprosthetics of the joints of the hindfoot.

Conclusion.

The first data obtained indicate that hemiendoprosthesis of the talonavicular, subtalar joints and talus with a ceramic implant is a promising method that is an alternative to arthrodesis and allows restoring the functionality of the hindfoot.

THE JOINT AWARENESS SCORE: A VALUABLE TOOL FOR EVALUATING PATIENTS WITH HALLUX VALGUS

Oğuzhan Özyaman[1], Esat Uygur[1]
[1]Dr. Lutfi Kirdar City Hospital in Istanbul

ABSTRACT

Objective

The aim of this study is to investigate whether the Forgotten Joint Score - 12 (UES - 12) evaluation method can be as meaningful as the American Orthopedic Foot and Ankle Society (AOFAS) and European Foot and Ankle Society (EFAS) criteria in the preoperative and postoperative periods on patients operated with the diagnosis of Hallux Valgus in the Orthopedics and Traumatology Clinic of Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital between 01.8.2021 - 01.09.2022. For this reason, all patients were evaluated with UES - 12, AOFAS and EFAS criteria preoperatively and 1 year postoperatively.

Material and Method

The study was initiated after approval from Istanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital Medical Specialization and Education Board (04.08.2021/Istanbul Decision No: 2021/0417). A total of 79 feet of 65 patients were included in the study and preoperative and postoperative Intermetatarsal Angles (IMA), Hallux Valgus Angles (HVA), AOFAS, EFAS and UES-12 scores were collected. NCSS (Number Cruncher Statistical System) 2020 Statistical Software (NCSS LLC, Kaysville, Utah, USA) was used for statistical analyses. Mann Whitney-U test was used for quantitative two-group evaluations that did not show normal distribution.

Between two follow-ups, the Paired Samples test was used for those with normal distribution, while the Wilcoxon Signed Rank test was used for those without normal distribution.

Results were evaluated at 95% confidence interval and significance was evaluated at $p<0.05$ level.

Conclusions

The study included 65 patients who underwent surgical treatment of Hallux Valgus. Since 14 patients underwent bilateral surgery, a total of 79 feet were included in the study. In the study, 87.7% (57) of the patients were female and 12.3% were male. The ages of the patients ranged from 18 to 78 years with a mean age of 49.4 ± 16.21 years. It was observed that 30.8% (n=20) of the patients had comorbidities. The mean preoperative IMA value was 12.95 and 6.25 in the 1st year postoperative follow-up. The decrease of 6.73º in the IMA value before and after surgery was statistically significant. The mean HVA angle was 34.12º preoperatively and 15.07º postoperatively. The decrease of 19.24º in HVA in the postoperative period was statistically significant. The difference of 59.11±27.11 between the preoperative forgotten joint score - 12 value and the postoperative value was statistically significant. There was a positive correlation between preop UES-12 and AOFAS at a level of 48.1% ($r=0.481$; $p<0.001$); there was a positive correlation between postop UES-12 and AOFAS at a level of 71.7% ($r=0.717$; $p<0.01$); when the relationship between preop and postop differences was evaluated, there was a relationship at a level of 57.2% ($r=0.572$; $p<0.01$). Preop UES-12 was positively correlated with EFAS at 72.1% ($r=0.721$; $p<0.001$); postop UES-12 was positively correlated with EFAS at 78.0% ($r=0.780$; $p<0.01$); the relationship between preop and postop differences was 67.1% ($r=0.671$; $p<0.01$).

In concluding, the UES - 12 scoring system is as effective as AOFAS and EFAS among the scoring forms evaluated by the patient before and after surgery in patients with hallux valgus. **Keywords:** Hallux Valgus, Forgotten Joint Measure - 12, AOFAS Hallux MCP - IP, EFAS

FLEXOR HALLUCIS LONGUS TENDON INJURIES: CASE SERIES AND SURGICAL APPROACHES

Yusuf Kıratlıoğlu, Uğur Bezirgan

Introduction: The Flexor Hallucis Longus (FHL) tendon plays a critical role in the flexion of the great toe and the support of the longitudinal arch of the foot. Although FHL injuries are rare, surgical management of these injuries is essential for patients to regain functional abilities such as walking, running, and push-off strength. In this presentation, we will examine two different cases of FHL tendon injuries and the outcomes achieved through surgical intervention, discussing key considerations in the treatment of such injuries.

Case 1: A 15-year-old female patient presented with complaints of persistent pain, swelling, and restricted movement in the right great toe following a glass puncture injury three weeks prior. On physical examination, there was no active flexion of the great toe, though sensation was preserved. MRI revealed a rupture of the FHL tendon at the level of the first metatarsophalangeal joint, with a 2.5 cm proximal retraction. Surgical exploration under general anesthesia identified the proximal end of the FHL tendon, which was temporarily secured with a hemostat. Sutures were applied to the proximal tendon using the Bunnell technique, and then secured through the distal tendon with a Modified Kessler suture (Figure 1). The skin was closed with 3.0 nylon matrix sutures. The ankle was immobilized in a slightly equinus position using a short leg cast for one month, followed by a physical therapy regimen. Three months postoperatively, the patient achieved 40 degrees of active flexion in the great toe (Figure 2), with an American Orthopaedic Foot and Ankle Society (AOFAS) Hallux Metatarsophalangeal- Interphalangeal Score of 90%.

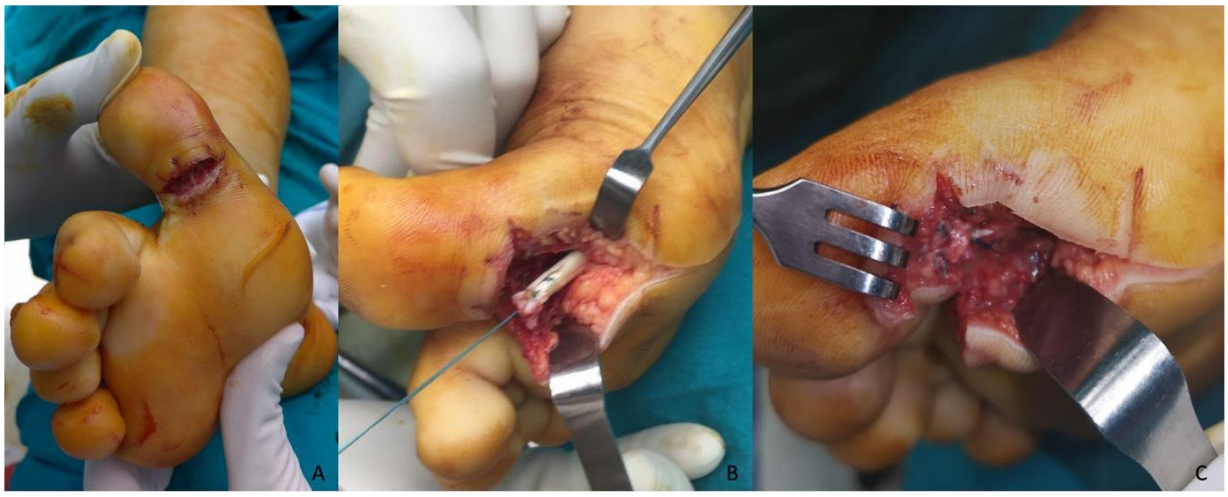

Figure 1: A: Transverse skin laceration B: proximal end of the FHL tendon, C: FHL primary repair

Figure 2: A: Post-operative scar, B: Active flexion of Great toe. The contribution of the FHL tendon to the longitudinal arch of the foot is observed.

Case 2: A 21-year-old male patient presented with complaints of pain and difficulty walking, which developed after a glass puncture injury to his right foot approximately 13 months ago during an orienteering sports competition. On physical examination, there was no active flexion of the great toe, though sensation was preserved. MRI revealed a rupture of the FHL tendon at the level of the first metatarsophalangeal joint, with a 5.5 cm proximal retraction extending to the tarsometatarsal joint. Reconstruction with the plantaris tendon was planned for the chronic FHL rupture. Under wide-awake local anesthesia, the plantaris tendon was harvested from the medial aspect of the Achilles tendon and used for FHL reconstruction with the Pulvertaft suture technique (Figure 3). The skin was closed with

3.0 nylon matrix sutures. The patient was immobilized with a short leg cast in a slightly equinus position for three weeks, followed by the use of a functional brace for six weeks, and underwent physical therapy. Three months postoperatively, the patient achieved 32 degrees of active flexion in the great toe, with an AOFAS Hallux Metatarsophalangeal-Interphalangeal Score of 82%.

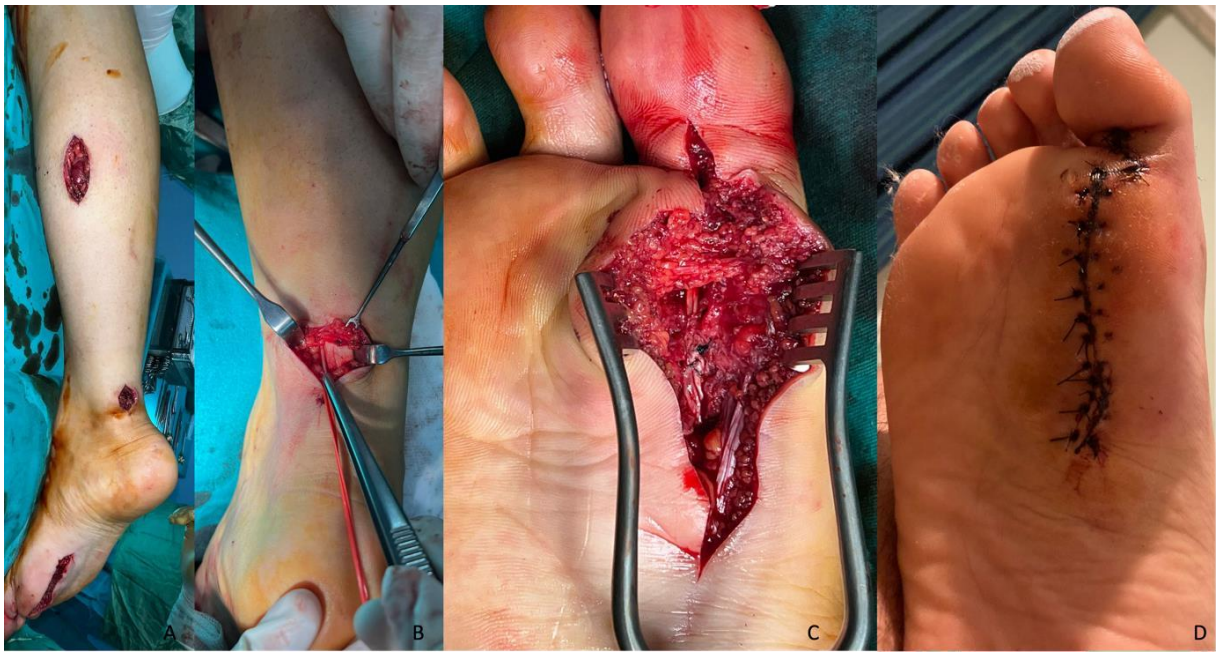

Figure 3: A: İntraoperative incisions, B: Plantaris tendon, C: FHL reconstruction, D: Active flexion of Great toe

Significance of FHL Tendon Injuries: The FHL tendon not only facilitates flexion of the great toe but also contributes to the distribution of forces across the plantar aspect of the forefoot in conjunction with the plantar fascia, supporting the longitudinal arch of the foot. The FHL and flexor digitorum longus tendons stabilize the heads of the metatarsal bones during the stance phase of gait, enabling forward propulsion of the body. Loss of FHL tendon function can therefore lead to significant gait abnormalities, instability, and a reduction in push-off strength.

Surgical Approach and Treatment Options: Surgical treatment of FHL tendon injuries may involve tendon suturing, tendon transfer, or tenodesis to the flexor digitorum longus. According to Wei et al., the primary goals of surgical intervention are pain relief and functional recovery. Krackow suggests that surgical repair may enhance push-off strength, making it a viable option for patients with high physical demands. Non-surgical management may lead to negative outcomes such as loss of push- off strength and gait instability, hence surgical repair is often preferred. Additionally, surgical intervention aids in stabilizing the joint in a neutral position. However, post-operative joint mobility at the interphalangeal joint may be reduced.

Conclusion: These two cases underscore the importance of surgical treatment in FHL tendon injuries. In both patients, surgical intervention successfully controlled pain and restored push-off strength during activities such as walking and running. Even in chronic cases, full functional recovery is possible following surgical repair. Therefore, surgical treatment for FHL tendon injuries should be meticulously planned, with careful monitoring of the post-operative rehabilitation process.

USEFULNESS OF TUNING-FORK ASSISTED VIBRATION SENSATION AS A PROPRIOCEPTIVE MEASUREMENT METHOD IN CASES OF ACUTE ANTERIOR TALOFIBULAR LIGAMENT (ATFL) RUPTURE: A SINGLE CENTRE STUDY

M. C. Arı

ABSTRACT

Objective: The aim of this study was to investigate the changes in the vibration sensation of patients with ATFL rupture after acute ankle sprain and to examine its usability as a proprioceptive measurement method and its place in the diagnosis**.**

Materials and Methods: Patients under 65 years of age without neurological disease and diabetes mellitus who were admitted to the Orthopaedic Emergency Department of our hospital between January and September 2023 were included in the study. In ankle inversion and plantar flexion, a 128 Hz tuning fork was applied to the ATFL tracings in which rupture was detected by USG and vibration times were measured with a stopwatch. The data were compared with those of a healthy population and patients with oedema in the lateral ankle following an acute sprain without rupture. The study was planned prospectively.

Results: The study included 81 patients, 48 of whom were male and 33 of whom were female. The mean age of the participants was 29.19 years. Of the 27 patients with an ATFL rupture, nine had an additional CFL injury and five had an additional PTFL injury (Grade 2-3). The mean tuning fork- assisted vibration time of patients with ATFL rupture was 5.72 seconds on the injured side and 7.87 seconds on the intact side. This difference was found to be statistically significant (p=0.001). The mean vibration time of these patients at the 12th week was 7.65 seconds, which was statistically significant (p=0.001). The prevalence of chronic instability was 25.9% (n = 7).

Conclusion: It was observed that impaired proprioception subsequent to acute ATFL rupture also impaired the vibration sense of the patients, with a concomitant decrease in the vibration duration in the damaged ligament. The results of the vibration measurements indicated that an improvement in proprioception was associated with an enhancement in the vibration sense. The tuning fork-assisted vibration measurement technique can be employed as a proprioceptive measurement method and may be utilized as an adjunctive diagnostic tool.

Key words: ATFL, tuning fork, proprioception, vibration

EVALUATION OF CLINICAL AND RADIOLOGICAL RESULTS OF CROSS-UNION METHOD IN CONGENITAL TIBIA PSEUDOARTHROSIS SURGERY

Abdurrahman Aydın[1], Deniz Akbulut[2] [1]Akçakoca State Hospital, Düzce, Türkiye [2]Van Akdamar Hospital, Van, Türkiye

Objective: Congenital tibial pseudoarthrosis (CTP) is a difficult problem to deal with, affecting not only the tibia but also the entire extremity and causing severe shortness/deformity. In our study, we aimed to evaluate the clinical and radiological results of the patients treated with the cross-union method.

Methods: Between 2021 September and 2024 February, 9 patients operated for CTP were included in the study. All patients had distal 1/3 pseudoarthrosis. Patients who had not been operated before, had additional deformity in the same or contralateral extremity, or had neuromuscular or endocrinological diseases were excluded from the study. Patients operated under general anaesthesia underwent acute shortening of the extremity by wide resection until bleeding was seen in the pseudodarthrosis line. The shortened line was supported with intramedullary rash pin. Cortical bone from the contralateral tibia and cortical bone from the iliac wing were wrapped to provide cross-union at the shortening site. The cortical bones taken as autograft were fixed with the help of ropes. A spongious graft from the iliac wing was implanted into this line. Circular plaster cast was applied for 6 weeks after surgery. Patients were evaluated in terms of the time of healing, complications, and refracture occurrence.

Results: The mean follow-up period of 7 male and 2 female patients was 50.4±18.8 (range: 26-72) months. The left side of 6 patients and the right side of 3 patients were operated. Five of the patients had been operated 3 times, 3 of them 4 times and 1 of them 5 times. No refracture occurred in any patient during the follow-up period. Radiological union of the pseudoarthrosis line was observed at an average of 4.24±0.46 (range: 4-6) months. In one of 9 patients, knee subluxation occurred and in 1 patient, arthrodesis was performed after cross-union because the pseudoarthrosis line was very close to the joint after debridement. The mean intraoperative acute shortening of the patients was 3.21±0.97 cm. When the limb lengths of the patients at the last follow-up were evaluated, a mean length difference of 7.25±1.03 (range: 6-9) cm was observed. No additional supportive treatment (Zoledronic acid, BMP) was given to any of the patients and complete union of the pseudoarthrosis line was observed at the last follow-up.

Conclusion: The cross-union method is an effective method in CPT and the surgical method we performed resulted in a 100% union rate.

Figure 1.a; preoperative image of the patient who had been operated 3 times before, b; early postoperative image after surgery, c; extension after union, d; ap and lateral radiographs at the last follow-up.

A RETROSPECTIVE COMPARISON OF WALANT TECHNIQUE AND REGIONAL ANESTHESIA IN CHEILECTOMY

Albert Çakar, Özgür Doğuş Gözlü

Introduction: Although Wide Awake Local Anesthesia with No Tourniquet (WALANT) is widely used in hand surgery, but its use in forefoot surgery is limited. The aim of this study was to compare the

clinical outcomes of WALANT and regional anesthesia (RA) in cheliectomy.

Patients and methods: In this retrospective study, 31 patients (13 males, 18 females; mean age: 54.6 years; range, 46 to 65 years) who cheilectomy with the diagnosis of hallux rigidus disease at the orthopedics and traumatology department of our hospital between March 2022 and December 2023, were divided into two groups according to the type of anesthesia : the WALANT group and the RA group. Demographic characteristics, Visual Analog Scale (VAS) during needle insertion and at 4th hour for foot and thigh pain, operating room time, transfer to recovery room (%n) and complications were recorded.

Results: There was no significant difference between the groups in terms of demographic

characteristics. The VAS pain score during needle insertion was significantly higher in the WALANT group compared to the RA group ($p<0.001$). VAS for foot pain was similar in both groups. Thigh pain was significantly higher in RA group. Operating room time was significantly lower in the WALANT group ($p < 0.001$). Transfer to recovery room was similar in both groups. (p:0.448) The median

follow-up time was 11.4 months (range, 4-26 months).

Conclusion: WALANT is an alternative anesthesia method to traditional anesthesia methods that shortens the operating room time and is inexpensive.

Keywords: hallux rigidus, Wide-awake local anesthesia, regional anesthesia

	WALANT (n:19)	RA (n:12)	p değeri
Age	58.1	53.8	0.386
Gender	8 M, 11 F	5 M, 7 F	
Body mass index (kg/m2)	25.1	22.6	0.231
Follow up time (m)	11.5	11.25	0.586

Table-1. Demographic datas

	WALANT	RA	p değeri
VAS needle penetration	8.46	5.63	<0.05
VAS at 4th hour	2.23	2.12	0.472
Operating room time	30.8	39.7	<0.05
Transfer to recovery room (%n)	15.7	16.6	0.448

Table-2. Comparison datas

UNVEILING THE LINK: EXPLORING THE CORRELATION BETWEEN PLANTAR FASCIITIS AND HEEL FAT PAD THICKNESS

A. Yüksel

Objective: The objective of this study was to thoroughly assess the thickness of the heel fat pad and to explore the potential relationship between this thickness and the presence of plantar fasciitis in patients diagnosed with the condition.

Methods: A total of 40 patients divided into two groups. First group were the patients whom referred to our orthopaedics clinic with plantar pain and further investigated with an MRI which confirms the plantar fasciitis diagnosis. Second group includes patients that undergone an MRI scan for different diagnosis rather then plantar pain. Calcaneal fat pad and plantar fascia thickness is compared between these 2 groups.

Results: Average thickness for plantar fascia and heel fat pad in first group is is 3.4405 and 13.153 respectively. When we look to the second group average thicknesses are 3.083 and 13.04. All the statistical calculations made with SPSS 22.00 (IBM, software). Our analysis showed us that there is a correlation between plantar fascia thickness and plantar fasciitis ($p=0.082$) but there is no correlation between the heel fat pad thickness and plantar fasciitis ($p=0.822$).

Conclusion: The findings suggest that MRI serves as a dependable imaging modality for diagnosing plantar fasciitis; however, the thickness of the heel fat pad does not appear to serve as a reliable indicator for patients suffering from this condition.

COMPARISON OF FIXATION MATERIALS USED IN HALLUX VALGUS PATIENTS UNDERGOING DISTAL METATARSAL OSTEOTOMY

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Objective: This study aims to compare the outcomes of different fixation materials used in patients treated with distal metatarsal osteotomy for hallux valgus (HV) through imaging methods, clinical data, and scoring systems.

Patients and Methods: A total of 71 patients (82 feet) who underwent distal metatarsal osteotomy for HV deformity at Haydarpaşa Numune Training and Research Center between 2015-2019 were included. The study involved 41 patients treated with magnesium-based bioabsorbable screws (BS) and 41 with titanium screws (TS). Of the patients, 15 were male and 56 were female, with a mean age of 48.27±14.14 years. Surgeries were performed by our clinic's surgeons, and imaging assessments were conducted in collaboration with our radiology department. Clinical evaluations included the Visual Analog Scale (VAS) and the American Orthopaedic Foot and Ankle Society (AOFAS) scores. Radiological parameters measured were preoperative and postoperative hallux valgus angle (HVA), intermetatarsal angle (IMA), and distal metatarsal articular angle (DMMA). We also assessed complications such as avascular necrosis (AVN), osteolysis, focal cystic lesions, loosening, nonunion, recurrence, sesamoid position, joint congruity, and arthritis degree. Metatarsalgia, joint range of motion, infection, stability, and skin irritation were monitored during follow-up.

Results: Both groups showed significant reductions in HVA, IMA, DMMA, and sesamoid position postoperatively. However, patients with TS had significantly higher AOFAS scores compared to those with BS. Postoperative HVA and DMMA values were significantly lower in patients with congruent joints than in those with incongruent joints in both groups. Although not statistically significant, complications such as osteomyelitis (1 patient), AVN (2 patients), osteolysis (3 patients), focal cystic lesions (4 patients), gas formation (4 patients), and metatarsalgia (12 patients) were observed more frequently in the BS group. In the TS group, recurrence was observed in 1 patient and metatarsalgia in 6 patients.

Conclusion: Patients treated with TS showed superior clinical and functional outcomes compared to those treated with BS. AOFAS scores were significantly lower in the BS group, which also experienced a higher incidence of complications such as osteolysis, focal cystic lesions, infection, metatarsalgia, and AVN.

Keywords: Halluks valgus, bioabsorbabl screw, titanyum screw, distal osteotomy, fixation

COMPARISON OF CLINICAL AND FUNCTIONAL OUTCOMES IN HALLUX RIGIDUS PATIENTS TREATED WITH CELIECTOMY SURGERY OR CORTISONE INJECTION

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Objective: Hallux rigidus is a painful degenerative disorder affecting 2.5% of the population over the age of 50. It is a difficult disease to treat, with options including conservative treatments, medical treatments, corticosteroid injections and surgical interventions such as open surgery, chelicectomy and joint arthrodesis. The aim of this study was to compare the clinical and functional outcomes of hallux rigidus patients treated with celiectomy surgery or cortisone injections at one-year follow-up.

Methods: This retrospective, single-center study included 48 patients with hallux rigidus and stage 1-2 osteoarthritis diagnosed between January 2020 and December 2022. Patients with gouty arthritis and previous surgery on the same joint were excluded. The patients were divided into two groups: Group 1 (n=26) received cortisone injection and Group 2 (n=22) underwent cheilectomy of the dorsal joint. Assessments were performed before and 3 and 12 months after treatment using the Visual Analog Scale (VAS) for pain and the American Orthopaedic Foot and Ankle Society (AOFAS) score for functional assessment. Paired t-tests were used to analyze differences in VAS and AOFAS scores in each group at the indicated time points.

Results: Results: In group 1 (cortisone injection), the mean VAS score was 8.00 before treatment, 4.15 at 3 months ($p < 0.001$) and 6.23 at 12 months ($p = 0.0047$). The mean AOFAS score increased from

34.92 before treatment to 65.42 at 3 months ($p < 0.001$). However, this improvement was not sustained at 12 months and the mean AOFAS score was 32.92 ($p = 0.436$). In group 2 (cheilectomy), the mean VAS score showed a significant decrease from 8.22 before treatment to 2.26 at 3 months ($p < 0.001$) and 2.91 at 12 months ($p < 0.001$). The mean AOFAS score increased from 30.78 before treatment to

82.52 at 3 months ($p < 0.001$) and to 73.91 at 12 months ($p < 0.001$).

Conclusion: Compared to cortisone injections in the treatment of hallux rigidus, chelidectomy surgery offers more durable clinical and functional outcomes, especially in terms of maintaining functional improvement over time. These findings highlight the role of celiectomy as a preferred option for patients seeking long-term relief, while demonstrating the utility of cortisol injections for short-term pain management.

INCIDENCE AND CHARACTERISTICS OF FOOT AND ANKLE TUMORS: A 13-YEAR RETROSPECTIVE STUDY AT A TERTIARY ONCOLOGY CENTER

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[1]Ankara Abdurrahman Yurtaslan Onkoloji EAH, Ortopedi ve Travmatoloji, Ankara, Türkiye Abstract

Introduction: Foot and ankle tumors, both primary and metastatic, are infrequently documented in medical literature. This study presents an analysis of 289 surgically treated cases of foot and ankle tumors and tumor-like conditions managed at a specialized orthopedic oncology center from 2011 to 2023.

Materials and Methods: A retrospective review was conducted on 4980 tumors surgically treated at various

anatomical sites by the surgical team at the musculoskeletal oncology center from 2011 to 2023.

Results: A total of 289 patients with bone and soft tissue tumors of the foot and ankle were treated, including 150 females and 139 males. The patients 'ages ranged from 3 to 85 years, with an average age of 33.8. Of these cases, 32(11.1%) were malignant, while 257 (89.9%) were benign. 16 of the malignant tumors were of metastasis origin. There were 4 chondrosarcomas, 4 osteosarcomas, 3 Ewing and 5 spindle cell malignant mesenchymal tumors as primary malignant soft tissue and bone tumors. The most frequently diagnosed condition was a simple bone cyst (24 cases), making it the most common bone tumor. The giant cell tumor of the tendon sheath was identified as the most prevalent soft tissue tumor.

Conclusion: Over 13 years, the incidence of foot and ankle tumors in this series was 5.8%. These findings highlight the importance of increased awareness, precise diagnosis, and timely treatment or referral to an orthopedic oncologist to enhance patient outcomes.

INTRA- AND INTEROBSERVER RELIABILITY IN HALLUX VALGUS ANGLE MEASUREMENTS ON WEIGHT-BEARING AND NON-WEIGHTBEARING RADIOGRAPHS

Barış Acar, Özgür Doğuş Gözlü

Background : Radiographic measurements determine the choice of treatment for hallux valgus deformity. The relevant angles are the hallux valgus angle (HVA), 1-2 intermetatarsal angle (IMA) and distal metatarsal articular angle (DMAA) measured on the anteroposterior (AP) radiograph. The clinical importance of weight-bearing (WB) radiographs is high.

Objective : This study aimed to evaluate the measurements using hallux valgus deformity analysis on weight-bearing radiography and to determine the intra and interobserver reliability.

Material-Method: The study consists of 52 patients. AP radiographs were taken of the foot with WB and non-weight bearing (NWB). A total of 52 radiographs were analyzed with one foot radiograph of each patient. 4 orthopaedic surgeons performed measurements at 4-week intervals according to the American Orthopedic Foot and Ankle Society (AOFAS) guidelines. Intra-interobserver reliability was determined by the intraclass correlation (ICC) coefficient in WB and NWB radiographs.

Results: HVA decreased and IMA increased in all four observers on plain radiographs. There was no significant change in DMEA. Interobserver reliability was high for HVA, IMA and DMAA in WB and NWB radiographs. ICC: HVA (0.98 and 0.98), IMA (0.97 and 0.85), DMAA (0.95 and 0.96),

respectively.

Conclusion: Measuring according to the AOFAS guidelines provides high intra/inter-observer reliability. Changes in HVA and IMA are minimal and of no clinical significance. Both WB and NWB radiographs can be used to treat hallux valgus deformity.

Keywords: hallux valgus, reliability, angular measurement

Table 1. WB and NWB differences of measurements

Angle	Observer	WB	NWB	Mean difference
HVA	OS 1	31.80	32.84	-1.048
HVA	OS 2	27.91	29.53	-1.565
HVA	OS 3	26.60	28.39	-1.791
HVA	OS 4	26.99	28.79	-1.803
IMA	OS 1	14.33	12.55	1.875
IMA	OS 2	12.42	10.86	1.560
IMA	OS 3	12.17	10.65	1.524
IMA	OS 4	11.94	10.23	1.712
DMAA	OS 1	63.22	63.14	0.817
DMAA	OS 2	66.25	65.66	0.585
DMAA	OS 3	65.45	64.90	0.544
DMAA	OS 4	63.90	64.16	-0.264

Table 2. WB and NWB interobserver correlation

		ICC
WB	HVA	0.989
	IMA	0.972
	DMAA	0.950
NWB	HVA	0.986
	IMA	0.853
	DMAA	0.966

Table 3 WB and NWB intraobserver correlation

		HVA (T1-T2)	IMA (T1-T2)	DMAA (T1-T2)
		ICC	ICC	ICC
OS 1	WB	0.973	0.931	***0.765***
	NWB	0.915	0.842	0.865
OS 2	WB	0.925	0.844	***0.554***
	NWB	0.936	0.988	***0.683***
OS 3	WB	0.955	0.849	0.914
	NWB	0.950	0.841	0.924
OS 4	WB	0.977	0.940	0.867
	NWB	0.964	0.904	0.966

Abstract

Background: Pes planus is a frequent deformity characterized by medial longitudinal arch collapse, hindfoot valgus and forefoot abduction. Various radiological metrics, such as the lateral talocalcaneal angle and the calcaneal pitch angle, are used to assess hindfoot alignment in these patients.

Material and Method: In July 2024, 100 male patients aged 17-24 who presented to the Orthopedics Clinic of Abdurrahman Yurtaslan Oncology Training and Research Hospital were included in the study. Using picture archiving and communication system (PACS), the lateral talocalcaneal angle (L- TCA) and calcaneal pitch angle (CPA) were measured from normal bilateral standing radiographs of the feet.

Results: Mean L-TCA was found to be for the right foot 43.46° ± 6.99 (n=100) and the for left foot 42.62°±7.4(n=100). Mean CPA was found for right foot to be 23°±5.3 (n=100) and for the left foot

22.7°±5.33 According to the Turkish Armed Forces Health Fitness Regulation, 3% of the patients had CPA angles that were not suitable for military service.

Conclusion: The mean L-TCA of patients was found to be 43.04° while the mean CPA was 22.85°. No statistically significant difference was observed in the mean of the parameters sides of the body. These results were founded similar with the literature.

Özet

Background: Pes planus, medial longitudinal arkın çökmesi, arka ayak valgusu ve ön ayak abduksiyonu ile karakterize edilen sık görülen bir deformitedir. Bu hastalarda arka ayak hizalamasını değerlendirmek için lateral talokalkaneal açı ve kalkaneal eğim açısı gibi çeşitli radyolojik ölçümler kullanılır. Bu çalışmada ele alınan popülasyonda ölçülen parametrelerin literatürle uyumluluğu ve Türk Silahlı Kuvvetleri Sağlık Yeteneği Yönetmeliği'ne uygunluğu araştırılmıştır.

Materyal ve Metod: Temmuz 2024'te, Abdurrahman Yurtaslan Onkoloji Eğitim ve Araştırma Hastanesi Ortopedi Polikliniğine başvuran 17-24 yaş arası 113 erkek hasta arasından 13'ü eksik veriler ve tekniğe uygun olmayan çekimler nedeniyle çalışmaya dahil edilmedi. Çalışmaya alınan 100 hastada görüntü arşivleme ve iletişim sistemi (PACS) kullanılarak, Türk Silahlı Kuvvetleri Sağlık Yeteneği Yönetmeliği'ne göre rutin olarak istenen hastaların bilateral normal ayakta durma röntgenlerinden lateral talokalkaneal açı (L-TCA) ve kalkaneal eğim açısı (CPA) ölçüldü. Ölçümler 2 ayrı ortopedi uzmanı tarafından değerlendirildi. Ortopedi uzmanları R.B. (ayak ve ayak bileği cerrahisi ile ilgilenen 8 yıllık cerrah) ve S.Y ve İ.M.E. tüm grafileri inceledi ve kaydetti. Ölçümler Kendall'ın W testi ile karşılaştırıldı. Ölçülen değerler birbiriyle uyumluydu (Kendall's W test =0.73; p<0.001). Sonuçlar literatürle benzerlik göstermektedir.

Bulgular: Toplamda 100 hasta değerlendirildi. Ortalama yaş 18.24, sağ ayak için ortalama L-TCA

43.46° ± 6.99 (n=100) ve sol ayak için 42.62° ± 7.4 (n=100) bulundu. Sağ ayak için ortalama CPA 23°

± 5.3 (n=100) ve sol ayak için 22.7° ± 5.33 bulundu. İki taraf ölçüm arasında anlamlı farklılık yoktu. (p?????) Araştırmamızda hastaların dominant tarafı değerlendirmeye alındı. Hastaların %20'sinin ölçümleri pes planus tanısına uygunken %3'ünün CPA açıları Türk Silahlı Kuvvetleri Sağlık Yeteneği Yönetmeliği'ne göre asker olmaya elverişli değildi.

Sonuç: Hastaların ortalama L-TCA'sı 43.04° ve ortalama CPA'sı 22.85° olarak bulundu. Parametrelerin vücut taraflarına göre ortalamalarında istatistiksel olarak anlamlı bir fark gözlenmedi.

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SELECTIVE FIXATION METHODS IN LISFRANC FRACTURE DISLOCATIONS

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Objective: Due to the diversity of injuries, there is no single evidence-based protocol for the treatment of all Lisfranc injuries. The aim of surgical treatment is optimal anatomical reduction and stability of the tarsometatarsal joint. In tarsometatarsal fracture dislocations, fixation is provided after the unstable joint is reduced. There is no study in the literature on selective fixation of the tarsometatarsal joint. The aim of this study was to investigate selective fixation methods in the surgical treatment of Lisfranc fracture dislocations and to investigate the functional results.

Materials and Methods: A total of 49 patients with Lisfranc fracture-dislocation in all age groups with an indication for surgical treatment and at least 1 year after surgery were included in the study. Patients who were treated conservatively for Lisfranc joint injury were not included in the study. Patients were evaluated in terms of demographic information, fracture type, additional injury, type of operation, implant used, screw orientation, operation time, postoperative complications and gait pattern and functional results with AOFAS, MQSFO and VAS scores.

Results: The study was conducted with a total of 49 patients, 38.8% (n=19) female and 61.2% (n=30) male. The mean AOFAS score of the participants was 82.19±11.99; the mean MQSFO score of the participants was 17.02±13.24; and the mean VAS score of the participants was 3.31±1.65. When the gait pattern was analysed, 87.5% of the participants (n=42) were found to have a normal gait pattern. It was found that the development of posttraumatic arthritis was lower in cases treated with CRIF than in cases treated with ARIF. The duration of surgery in patients with midfoot arthrosis was statistically significantly higher than those without midfoot arthrosis ($p=0.010$; $p<0.05$). The VAS score of patients with implant fracture was statistically significantly higher than those without implant fracture ($p=0,030$; $p<0,05$). The results were evaluated at 95% confidence interval and significance was evaluated at $p<0.05$ level.

Conclusion: We think that the main determinant of treatment should be to provide anatomical reduction in the joint with instability as a result of the evaluation of functional results in cases in which we applied selective surgical fixation.

Keywords: Lisfranc injury,tarsometatarsal joint,selective fixation

THE EFFECT OF SPRING LIGAMENT REPAIR ON THE RESULTS OF SURGICAL CORRECTION OF FLEXIBLE PES PLANOVALGUS

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Background: The crucial role of spring ligament complex (SLC) in supplying the integrity of the medial longitudinal arch has recently been defined, and addressing this structure in the surgical correction of pes planovalgus deformity has been strongly favored. However, clinical comparative studies investigating the advantages of ligament repair are lacking. This study aims to explore the efficacy of spring ligament repair in the reconstruction of the medial longitudinal arch in a flexible planovalgus foot.

Methods: 20 symptomatic flexible planovalgus feet irresponsive to conservative treatment were operated on between July 2008 and June 2022 by a single surgeon at the same institution, using the same procedures, including lateral column lengthening, tibialis posterior tendon advancement, and gastrocnemius recession. In 12 cases (group 1), repair of the attenuated spring ligament was also performed; in the remaining eight patients (group 2), the spring ligament was not addressed. The patients were evaluated clinically and radiographically at an average time of 20 months postoperatively, and improvements in postoperative values were tested in order to detect statistically significant differences.

Results: Compared to preoperative values, all patients demonstrated statistically significant improvements both in clinical and radiologic evaluation parameters postoperatively ($p<0.001$). Similar improvements in clinical scores between the groups were detected with no statistically significant differences (midfoot score; $p=0.732$ and hindfoot score; $p=0.954$). Comparison of the improvements of radiographic values between the groups revealed no statistically significant differences in talo calcaneal angle (AP images), calcaneal inclination angle, and height of the navicular and medial cuneiform bones from the ground (lateral images)($p>0.05$). However, the improvements of AP and lateral Meary angle, AP talonavicular coverage angle, and lateral talonavicular angle were superior in group 1 compared to group 2, representing better results in the spring ligament repaired group (improvement comparisons; $p<0.05$ and amount of differences comparisons in sub-group analyses; $p<0.05$).

Conclusion: Although lateral column lengthening, tibialis posterior tendon advancement, and gastrocnemius recession provide an effective correction of type 2B planovalgus foot, this set of operations fail to achieve a perfect talonavicular reduction and proper reconstruction of the medial longitudinal arch in AP and lateral views. Although this study was unable to detect any statistically significant differences in improvements of clinical scores between the groups in the early postoperative period, the ongoing talonavicular subluxation may cause pain, recurrence of the deformity, and talonavicular arthrosis in the long term, necessitating arthrodesis. Hence, in order to achieve a perfect reduction of the talonavicular joint and proper reconstruction of the medial longitudinal arch in the flexible planovalgus foot, addressing the spring ligament in addition to the standard surgical procedures is highly recommended.

Keywords: flexible flatfoot, posterior tibialis tendon insufficiency, spring ligament repair, talonavicular reduction

IMPACT OF SYNDESMOSIS SCREW REMOVAL ON MEDIAL CLEAR SPACE IN ANKLE FRACTURES WITH SYNDESMOSIS INJURY

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Objective: The study aimed to evaluate whether the removal of syndesmotic screws affects the medial clear space (MCS) in patients with ankle fractures associated with syndesmotic injuries. Despite the widespread use of screw fixation for syndesmotic injuries, there remains a lack of consensus on the necessity of screw removal and its potential impact on tibiofibular alignment.

Methods: This retrospective study included 20 patients (13 females, 7 males) with a mean age of 39.3 years who underwent syndesmotic screw fixation for ankle fractures. All injuries were due to isolated limb trauma. Ankle anteroposterior radiographs were analyzed preoperatively, postoperatively, and after screw removal. The syndesmosis screw was removed at an average of 12.2 weeks postoperatively, with a minimum follow-up of 1 year. Patients with screw fractures were excluded. MCS measurements, the distance of the syndesmosis screw from the tibial articular surface, and changes in MCS after screw removal were assessed.

Results: Syndesmosis screws were placed an average of 2.27 cm superior to the ankle joint. Postoperative radiographs showed a significant reduction in MCS from a preoperative average of 5.27 mm to 3.25 mm. After screw removal, MCS increased slightly to 3.44 mm. A statistically significant difference was observed in medial clear space (MCS) values across the preoperative, postoperative, and post-syndesmosis screw removal stages (ANOVA test, $p<0.05$). However, when pairwise comparisons were made, no significant differences were detected between the MCS values (Tukey test, $p>0.05$). Similarly, no significant difference was found when comparing MCS values between the postoperative period and after syndesmosis screw removal (Mann-Whitney U test, $p>0.05$).

Conclusion: Syndesmosis screw fixation effectively reduces the preoperative MCS. However, the change in MCS following screw removal was not significant enough to affect ankle alignment.

Keywords: Ankle fractures, syndesmosis, medial clear space, screw fixation

INFECTION AFTER TIBIOTALOCALCANEAL ARTHRODESIS WITH RETROGRADE INTRAMEDULLARY NAILING: RETROSPECTIVE ANALYSIS OF 16 PATIENTS

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Etlik City Hospital, Orthopaedics and Traumatology Purpose

Tibiotalocalcaneal arthrodesis (TTCA) is a surgery performed in cases of tibiotalar and subtalar arthrosis occurring due to primary or secondary processes such as Charcot arthropathy, neuromuscular disorders, inflammatory arthropathy, posttraumatic arthropathy, failure of ankle arthroplasty,

congenital deformities. Most patients who undergo this operation have poor bone quality, peripheral neuropathy or inflammatory arthropathy. Therefore, stable fixation is essential in these patients. It is sometimes challenging to achieve adequate stability because complications like nonunion, infection, and implant failure are not uncommon. Currently, TTCA is performed with only screws, retrograde intramedullary nails or locking plates. The aim of this study is to evaluate the infection rate of TTCA surgery with retrograde intramedullary nailing.

Patients and Methods

16 patients who underwent TTCA for any indication at our center between 2020 and 2024 were included in the study. All patients were operated using the same surgical technique. All patients

received the same postoperative treatment protocol. Complications during the follow-up period were evaluated clinically and radiologically.

Results

10 patients (%62,5) were female and 6 patients (%37,5) were male. Mean age of patients were 51,9 □

16,9. Mean follow-up time were 17,1 □ 11,2 months. 1 patient (%6,25) had inflammatory arthropathy,

3 patients (%18,75) had Charcot arthropathy, 8 patients (%50) had posttraumatic arthropathy, 2 patients (%12,5) had equinus deformity caused by neuromuscular disorders, 1 patient had pes equinovarus sequela and 1 patient had distal tibial and talar avascular necrosis.

8 of 16 patients (%50) underwent nail removal and intramedullary antibiotic cement spacer operation because of infection. Infected patients had 2,5 □ 0,7 surgeries. None of the infected patients underwent amputation. 2 of the infected patients died 3 months after nail removal operation. 3 of the infected

patients had previously undergone ankle implant removal surgery due to infection. 2 of infected

patients had diabetes mellitus, 1 patient had reumatoid arthritis, 1 patient had chronic kidney disease, 2 patients had coronary artery disease and 3 patients had hypertension as additional diseases.

Conclusion

Management of severe hindfoot and ankle arthrosis with TTCA via the use of retrograde intramedullary nails has become increasing popular for end-stage limb salvage procedures. However, the complication rate of this operation, especially infection, is not negligible. Although infection following arthrodesis does not usually result in amputation, it can have devastating consequences for patients. Considering the additional diseases and poor bone quality of this patient group, necessary precautions should be taken to reduce complications during and after the operation.

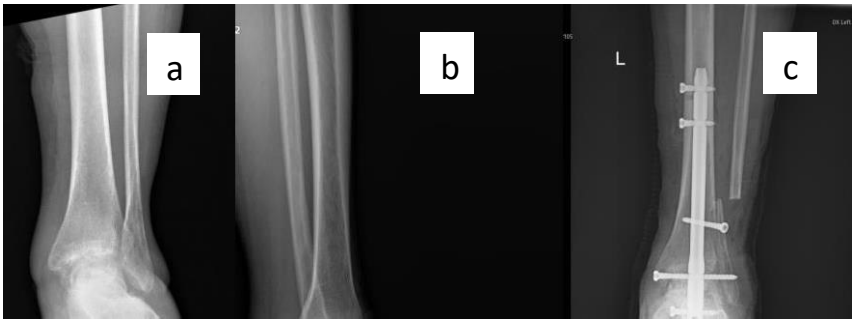

Figure 1. Preoperative ap and lateral ankle x-rays of 40 years old patient (a and b). Ap and lateral ankle x-rays after TTCA with retrograde intramedullary nail (c and d). Ap and lateral x-rays after removal of nail and intramedullary antibiotic spacer implementation (e and f).

ISOLATED TILLAUX FRACTURES IN ADULTS; SINGLE CENTRE CASE SERIES

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Anterolateral fractures of the tibial plafond are called Tillaux fractures. They occur by avulsion of the strong anterior-inferior tibiofibular ligament following ankle trauma (1). It typically occurs in adolescents who are close to skeletal maturation and classified by Salter Harris epiphyseal fracture classification. It is rare in adults. Standard radiographs of the ankle may not show an adult Tillaux fracture, so an oblique view may be required. If the fracture is not diagnosed, the patient may suffer from early degenerative arthritis, pain and restricted ankle joint movements (2). In this study, we present 13 adult Tillaux fractures operated in our clinic.

Patients and Methods

13 patients and 14 Tillaux fractures who are >18 years old and underwent fixation in our clinic were included in this study. 2 patients were operated with plate-screws and 11 patients were operated with 2 anterolateral screws. None of the patients underwent postoperative splinting and early mobilisation was started. Patients were allowed to bear partial weight in the 4th-6th week postoperatively. Range of motion, union status and complications were recorded during the follow-up period.

Results

The mean age of the patients was 40.1 years (19-63) and 9 (69.2%) were male. Of the 14 Tillaux fractures, 9 (64.2%) were left-sided. The mean follow-up period was 21.9 (15-32) months. 1 patient had bilateral Tillaux fracture and 1 patient had syndesmosis injury in addition to Tillaux fracture. All of the patients underwent surgery in supine position. 2 patients were fixed with plate screws, all other patients were fixed with 2 screws. An endobutton was added to the screw fixation for the patient with syndesmosis injury. Only 1 patient underwent percutaneous fixation while all other patients were fixed by open reduction. In all patients, anatomical reduction was achieved and union was complete. At 6 months postoperatively, the visual analogue pain score (VAS) was 2.07 (0-4). Kellgren-Lawrence (K-L) osteoarthritis score was grade 1 in one patient and grade 2 in one patient. None of the patients underwent implant removal during the follow-up period.

Conclusion

Isolated Tillaux fractures are rare fractures in adults. These fractures may be misdiagnosed in standard ankle radiographs and may lead to devastating results because they are intraarticular fractures. Therefore, stress and oblique radiographs are recommended in case of suspicion (3). Isolated Tillaux fractures in adults may also be indicative of a syndesmotic ankle injury. It is important to diagnose and appropriately treat these injuries to prevent further instability, degenerative changes and limitation of ankle joint function. Although there are different methods of surgical treatments. Anatomical reduction, stable fixation and early mobilisation is essential for a good outcome. A long-term and careful follow-up is important to detect and manage any complications that may arise.

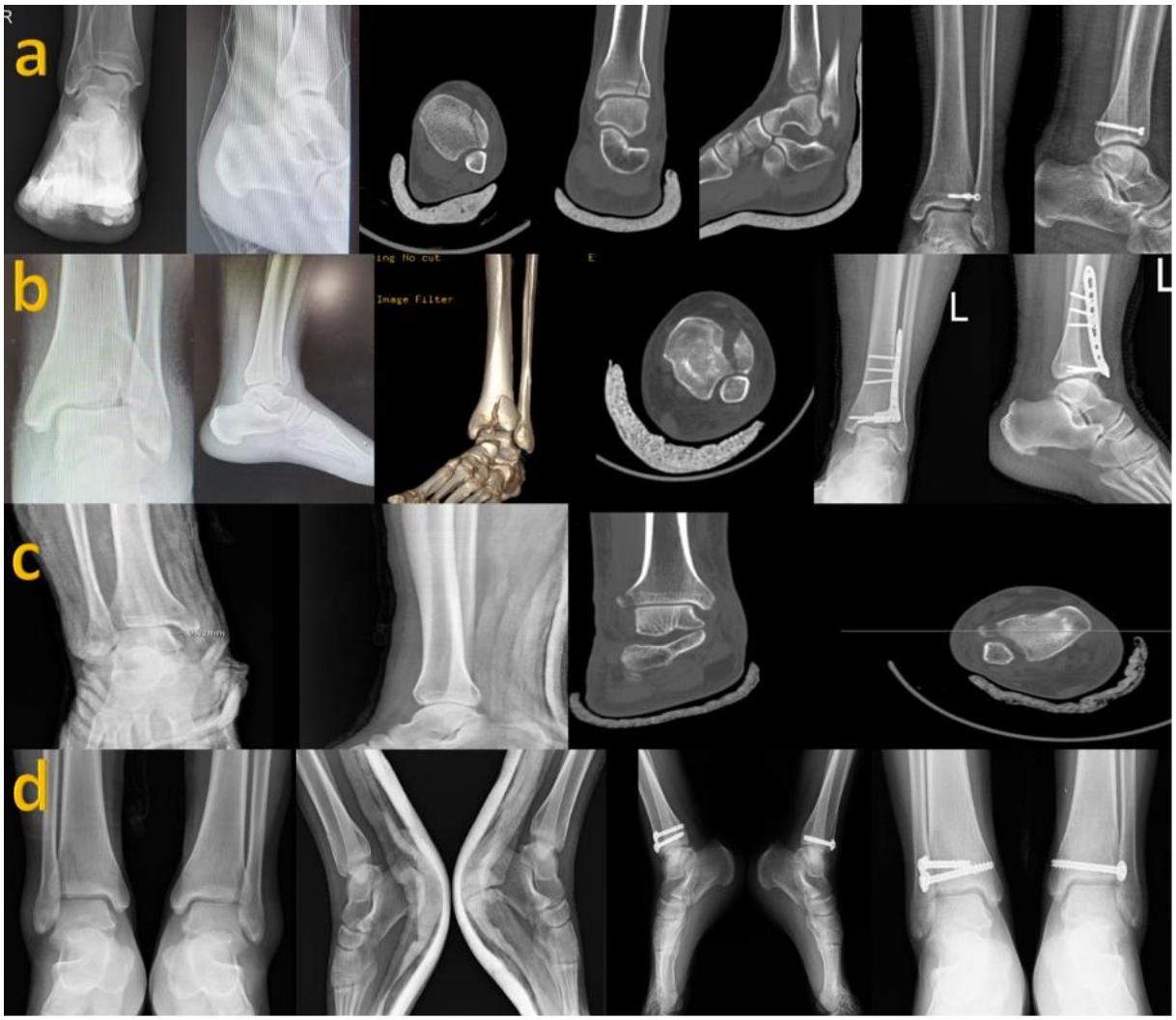

Figure 1. 32 years old male right tillaux fracture was fixed with 2 screws percutaneously (a). 56 years old male with left tillaux fracture. Open reduction and internal fixation was done by plate and screws (b). 38 years old male with syndesmosis injury in addition to tillaux fracture (c). 39 years old male with bilateral tillaux fracture. Percutaneos fixation was done by screws (d).

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