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IRONS Editor in Chief
Prof. Juliusz Huber

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DEAR COLLEAGUES,

We are pleased to present the supplement volume of Issues of Rehabilitation, Orthopaedics, Neurophysiology and Sport Promotion – IRONS. It has been exclusively devoted to EFORT Orthopaedic Convention for Eastern Europe 2016 and contains papers and abstracts submitted for the main program lectures as well as complete abstracts of papers presented in poster session.

We appreciate authors' effort in preparing this content. We would like to give special thanks to IRONS Editor-in-Chief – Prof. Juliusz Huber, dr Joanna Wałęcka and Agnieszka Wincek for contribution in preparation of the materials for printing in perfect form and schedule.

We are sure that content of the supplement will be great addition to presented lectures, good source of recent knowledge and remarkable remain of this extraordinary meeting that joins Eastern and Western Orthopaedics.



Prof. Leszek Romanowski
Chairman of the Convention



dr Piotr Czarnecki
Convention Secretary

SZANOWNI PAŃSTWO,

Z wielką przyjemnością przedstawiamy suplement kwartalnika Issues of Rehabilitation, Orthopaedics, Neurophysiology and Sport Promotion – IRONS. Został on w całości poświęcony tematyce wyjątkowego spotkania – EFORT Orthopaedic Convention for Eastern Europe 2016 i zawiera przesłane abstrakty oraz artykuły z programu głównego konferencji wraz z kompletem abstraktów prac prezentowanych podczas sesji plakatowej.

Doceniamy wysiłek autorów w przygotowanie treści artykułów i streszczeń. Szczególne podziękowania składamy Redaktorowi Naczelnemu IRONS – prof. dr hab. n. med. Juliuszowi Huberowi oraz dr Joannie Wałęckiej jak i Agnieszce Wincek za wkład w przygotowanie wszystkich materiałów w odpowiedniej do druku formie.

Z całą pewnością treść suplementu będzie doskonałym uzupełnieniem wygłoszonych podczas konferencji wykładów, źródłem aktualnej wiedzy na poruszane tematy i cenną pamiątką z tego wyjątkowego spotkania łączącego Ortopedię Wschodu i Zachodu Europy.



prof. dr hab. med. Leszek Romanowski
Przewodniczący Komitetu Organizacyjnego



dr n. med. Piotr Czarnecki
Sekretarz Konferencji

THE IMPACT OF HIP SONOGRAPHY

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The impact of hip sonography shows the long term results of 30 years of experiences with controlled and reglemented clinical practice of the sonography method of Professor Graf and his team. It gives an overview about the basic diagnosis, potential dangers, management and prophylaxis of hip dysplasia. It gives a résumé about long term outcome studies and compares the costs of hip sonography as prophylaxis vs. Treatment costs of non-detected infantile hip dysplasia with surgical procedures (pelvic osteotomy, acetabuloplasty and early THA). The audience gets a review of the startup at its roots up to today's daily use in clinical routine as well as statistics and results of the past 25 years with conclusions. To get the importance of hip sonography and necessity of standardization and quality control up to international traceability back into mind.

Key words: hip sonography

PAEDIATRIC TRAUMA**Manuel Cassiano Neves****Hospital CUF Descobertas, Department of Paediatric Orthopaedics, Lisbon, Portugal****cassianoneves.manuel@gmail.com****Anatomical considerations: differences between children and adults**

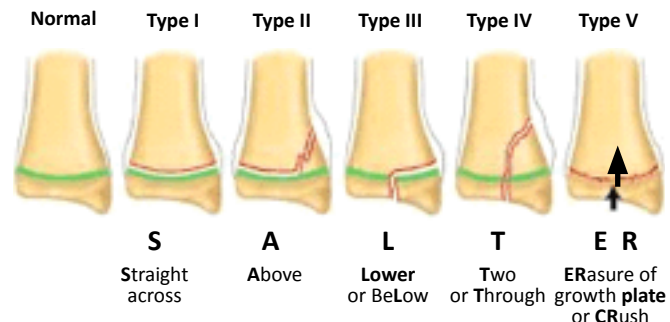
Children differ significantly from adults with respect to skeletal anatomy and physiology. Differences in bone growth and modeling, as well as remodeling, affect the way in which conditions involving the skeleton should be viewed and managed, and trauma is no exception. The periosteum is thicker, more vascularized and more osteogenic allowing fractures to heal faster. The Haversian canals are wider and the bones are more porous leading to differences in bone tension forces. As a result children present specific fractures that do not occur in adults: plastic deformation, torus and greenstick fractures. Also the existence of a “growth plate” constitutes a point of fragility and it is common to have fractures at this anatomical site. Due to the velocity of growth during the development they present considerable capability for remodeling, depending on the age (the older the child, the lower capacity for remodeling) and localization (higher remodeling far away from the elbow and closer to the knee joint).

Epidemiology

It is estimated that one in four children will be injured a year and that 25% will present a fracture. This means that 1 to 3% of children will have one fracture a year. Between birth and 16 years of age, one in three children will sustain 1 fracture, 2/3 of them occurring in the upper limb. The distal radius accounts for almost 45% of the fractures. Most of the fractures are a consequence of a direct fall, vehicle or pedestrian accidents, sports injuries or non-accidental causes like child abuse or pathological fractures. Open fractures and polytrauma are rare in children.

Classification

- Anatomical (descriptive)
- Localization
- Fracture pattern
- Plastic deformation
- Torus fracture
- Greenstick fracture
- Displacement/Angulation
- Articular involvement
- Growth plate involvement
- Salter Harris Classification

**Principles of treatment**

The goals of treatment are to provide anatomical reduction by close or open means. Stabilize the fractures by casts, splints traction or internal/external fixation in order to facilitate fracture healing without disturbing the natural recovery. Complications like non-union, mal-union, premature physal growth (causing shortening or angular deviation), infection and joint stiffness must be avoided. Due to the fact that majority of the fractures tend to remodel easily (depending on the age and localization), mostly of the fracture treatment in children is non-operative and surgery is only required in 3%. The exceptions happen in displaced articular fractures, or just articular like the humerus supracondylar fracture, open fractures or fractures complicated by vascular injury. In the moderns days, and due to social economical pressure, and the improvement of specific hardware for trauma care

in children, we have seen a change towards more surgical intervention as for example in the diaphyseal femur fracture. Special conditions like “child abuse”, open fractures, polytrauma and pathologic fractures require an individualized approach.

Key words: fractures in children, growth plate, child abuse, polytrauma, open fractures

PAINFUL HIP

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The limping child caused by a painful hip is a common problem seen in the emergency room or in clinics and accounts for 0.3% of the pediatric population according to a Malmo study. It may be caused by multiple conditions and due to the severity of some of them, an early diagnostic is fundamental to prevent further consequences.

In this paper a systematic review of the different conditions responsible for a painful hip will be presented in order to allow the young surgeon a systematic approach.

Anatomical considerations

The growing hip differs from the adult hip not only because of differences in the skeletally immature bones but also because of the specific vascularization during the growth period. The femoral head receives blood supply mostly from the medial femoral circumflex artery (MFCA), with the deep branch of this artery being the most important. The anterior nutrient artery of the femoral neck – originating from the lateral circumflex artery – and the obturator artery, via the artery of the ligamentum teres, constitute a minor component of the blood supply to the femoral head. This may lead to an increased hip risk for avascular necrosis during growth, especially in the presence of condition that will increase the pressure inside the joint.

The clinic

Most of the diseases involving the hip are age related and the orthopaedic surgeon must be familiar with them.

Toddler (1–4 years)	Child (4–10 years)	Adolescent (> 10 years)
DDH Toddler’s fracture Transient synovitis of the hip Child abuse	Transient synovitis of the hip Perthes disease	SCFE Overuse syndromes Stress fractures
All ages: Infection: septic arthritis, osteomyelitis, discitis, pyomyositis Trauma Non accidental or inflicted injury (child abuse) Malignancy Rheumatological conditions Non-orthopaedic conditions: Intra-abdominal condition (eg: appendicitis) Inguino-escrotal disorders Vasculitis Functional limp		

Clinical assessment

History

- Duration of symptoms
- Weight bearing or non-weight bearing
- Any associated disease like infection/trauma?
- Fever

Pain: localization (knee pain present in 50% of the hip diseases and lumbar pain can be referred to the hip), severity, duration, pain during the night

Morning stiffness

Previous injury to the hip?

Examination

General appearance/condition

Fever

Hip range of motion (abduction and internal rotation mostly affected)

Observe sacral-iliac joints and spine

Look for bone tenderness

Gait observation

Neurological exam

Abdomen examination

Investigation

Usually only after 3 days of onset or in acute condition

Laboratory (fundamental to rule out infection) CBC,ESR, CRP, Blood culture?

Imaging (See table below)

Pelvic x-rays (AP and “frog position”)

Ultra-sound

Bone scan?

CT & MRI

Plain X-rays	Ultra-sound	Bone scan	CT / MRI
Perthes		Osteomyelitis	
SCFE		Discitis	All
Chronic osteomyelitis	Septic hip	Perthes	Indications for management
Tumours		Occult fracture	
DDH			

Emergency management

An infection around the hip can be devastating and cause a massive destruction of the femoral head. For this reason it is imperative to make a differential diagnosis between transient synovitis and septic arthritis of the hip. M. Kocher based on the evaluation of the following criteria: history of fever, non-weight-bearing, erythrocyte sedimentation rate of at least forty millimeters per hour, serum white blood-cell count of more than 12.000 cells per cubic millimeter (12.0×10^9 cells per liter). The predicted probability of septic arthritis was determined for all sixteen combinations of these four predictors and is summarized as *less than 0.2% for zero predictors, 3.0% for one predictor, 40% for two predictors, 93.1% for three predictors, and 99.6% for four predictors*. The Chi-square test for trend and the area under the receiver operating characteristic curve indicated excellent diagnostic performance of this group of multivariate predictors in identifying septic arthritis.

Key words: Hip pain in children, Transient synovitis, Septic arthritis, Perthes disease, Slipped capital femoral epiphysis

DIAGNOSTIC PRINCIPALS OF MUSCULOSKELETAL TUMOURS**Stephen Cannon****Royal National Orthopaedic Hospital, Stanmore, UK****cannon.fracs@gmail.com**

The recognition of musculoskeletal tumours is one of the most important tasks to fall to the orthopaedic surgeon. In the area of soft tissue sarcomas most of these lie deep to the deep fascia are larger than 5 cm in diameter, increase in size over time and are painful. If all four of these criteria are present then the diagnosis is almost certain. Ultrasound is a very helpful and rapidly available diagnostic aid.

In the case of bone lesions the initial investigation is usually the plain radiograph which should be in 2 dimensions and of good quality. This imaging can then be augmented by CT scanning, MRI and radioisotope bone scanning. Some centers would also add PET scanning.

In both bone and soft tissue malignancy the next critical stage is a biopsy. There is now little place for a blind open biopsy which has been shown not only to lead to local contamination but to diminish the chance of successful limb salvage. Percutaneous, image guided biopsy is now the mainstay of diagnosis using either Tru-cut or Jamshedi type needles. The diagnostic accuracy is greater than 90% but it requires a skilled pathologist.

There is no doubt that the available imaging and biopsy result should always be discussed by a multidisciplinary meeting preferably based at regional center which will lead to better outcomes for the patient.

Mankin HJ *et al.* (1982) *J Bone Joint Surgery*. 64A, pp.1121–1127.

Dupuy DE *et al.* (1998) *Am J Roentgenol*. 171(3), pp.759–762.

Key words: radiology, percutaneous biopsy, multidisciplinary team

MALIGNANT BONE AND SOFT TISSUE TUMOURS**Stephen Cannon****Royal National Orthopaedic Hospital, Stanmore, UK****cannon.fracs@gmail.com**

Taken as a whole soft tissue sarcomas have a 5 year survival of around 50%, whilst bone sarcomas have a slightly better prognosis with the commonest. Osteosarcoma now having a mean 5 year survival of around 70%. Historically the surgical treatment in both groups was amputation but this is now rarely performed in the primary scenario.

Both require accurate diagnosis and staging both of which will affect outcome. The benefit of chemotherapy in soft tissue sarcomas is regarded as weak but specific sub-types e.g. desmoid tumours may be highly sensitive to specific drugs. There is no doubt that surgery and radiotherapy remain the mainstay treatments with debate continuing as to which should come first.

In bone sarcoma the pattern of treatment is neo-adjuvant chemotherapy followed by limb salvage surgery with radiotherapy playing a more minor role. Primary amputation rates have dropped in most centers to around 5%. The debate around which type of reconstruction is best of course continues but in general although specific indications still exist, allograft techniques are less favored than endoprostheses. The latter have improved significantly over the last decade with improvement in function, longevity, growth and diminution of infection rates.

Newer techniques are also being introduced such as Computer Guided surgery. Patient specific jigs and 3D printing of person specific endoprostheses particularly in the area of pelvic reconstruction.

Key words: adjuvant therapy, limb salvage, endoprosthetic replacement

EFO16-00026–2016-01

PLANTAR PRESSURE DISTRIBUTION DIFFERENCES BETWEEN FLAT AND NORMAL FEET

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Introduction

The longitudinal plantar arch is an important structure which is responsible for static and dynamic stabilization. A low arch results in plantar pressure increase under the midfoot so it is important to evaluate flatfoot.

Aim

The aim of this study was to compare relative loads on the plantar surface during walking between flat and normal feet in children.

Material and methods

The examined group consisted of 36 children with flexible flatfoot deformity, age ranged from 6 to 9 (mean 7.8). The control group consisted of 38 healthy children, age ranged from 6 to 9 (mean 7.9). Plantar pressures were recorded during walking with a self-selected speed using our custom-built pedobarographic system.

Results

Statistical analysis yielded a significant difference in relative load under the midfoot in both zones C and D between healthy subjects. ROC-curve analysis showed that the area under the ROC curve for pressure in zone C was 0.927 (95% CI 0, 872–0.963) and for pressure in zone D was 0.922 (95% CI 0, 866–0.959). 3% is the plantar pressure in zone C value corresponding with the highest average of sensitivity 75% (95% CI 63.4–84.5) and specificity 94.7% (95% CI 87.1–98.5). 17% is the plantar pressure in zone D value corresponding with the highest average of sensitivity 77.8% (95% CI 66.4–86.7) and specificity 88.2% (95% CI 78.7–94.4).

Conclusion

Elevated relative load under the midfoot (zones C and D) was found in patients with flexible flatfoot deformity and could work as a predictor of overload in this area and can be used for flatfoot diagnosis.

Key words: flatfoot, plantar pressure

EFO16-00025–2016-01

EVALUATION OF THE REPARATION PROCESSES AFTER PERFORMING A SPONDILODESIS WITH USE OF VARIOUS BONE AND PLASTIC MATERIAL

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Introduction

The result of surgical treatment of patients with a spine injury depends on a quality of spondilodesis. Bone graft has significant advantage against implants owing to high biocompatibility.

Aim

To evaluate the processes of a reparation in a spine column after the decompression and stabilization operations with use of various bone and plastic material.

Material and methods

Research was conducted in 2008–2012 years. Anterior spondilodesis with use of a cancellous autograft (n = 7), or an allograft (n = 8) was performed in the first group of patients (n = 15). Average age of patients (M±m) 27±4.35 years. Anterior combined spondilodesis with use of a cancellous allograft and DBM (n = 9), or cancellous autograft in a combination with DBM (n = 6) was performed in the second group of patients (n = 15). Average age of patients (M±m) 28±4.37 years.

Results

Dynamics of the transplant density (HU) on CT-densitometry right after operation and in 6 and 12 months was studied. The obtained data was evaluated using nonparametric methods (Wilcoxon test) in the Statistica 6.0 program. Average values of a graft density in the first group were: after operation – 257±3,47HU; in 6 months – 223±3,30HU; in 12 months – 245±3,25HU. Average values of DBM grafts density in the second group were: after operation 116±0,86HU; in 6 months 157±0,88HU, in 12 months 192±1,58HU.

Conclusions

Density of grafts in the first group decreases in 6 months (–13.2%). in 12 months increases (+9.87%). In the second group density of the DBM-graft increases in 6 (+35.3%) and 12 months (+22.3%). Use of DBM allows spondilodesis faster.

Key words: spinal column, spondilodesis, demineralized bone matrix

EFO16-00024–2016-01**ONE-STAGE PERCUTANEOUS HALLUX VALGUS AND FLATFOOT SURGERY IN ADOLESCENCE**

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Introduction

During growth, in patients affected by flatfoot the deformity more often associated with hallux valgus than in non-affected population.

Aim

The aim of this study is to evaluate the outcomes of simultaneous treatment of both deformities combining talar-stop arthroereisis and SERI first metatarsal osteotomy. Material and methods

Four patients (7 feet, age range 12–19 years) with flexible flatfoot and hallux valgus underwent surgical treatment combining SERI first metatarsal osteotomy and talar-stop arthroereisis with 6.5 mm cancellous screw.

Results

Mean follow-up time was 13 (2–38) months HVA ranged from 26°±4 to 5°±2, IMA from 16°±2 to 8°±2, DMAA from 14°±2 to 3°±2, and Meary's angle from 160°±10 to 178°±2. AOFAS score ranged from 84±4 to 98±2 (hindfoot) and from 76±8 to 98±2 (forefoot). During-op and post-op complications were not observed, splitting and casting in post-op period was not required, excellent cosmetically and footprint results were obtained in all cases.

Conclusions

One-stage percutaneous hallux valgus and flatfoot correction resulted in an effective, technically simple and easily combined approach, with an excellent clinical and cosmetically results. These techniques, performed simultaneously, represent a favorable option in adolescence and young adult suffered from hallux valgus associated with flexible flatfoot deformity.

Key words: flexible flatfoot, hallux valgus, arthroereisis

EFO16-00023-2016-01

AUGMENTATION TECHNIQUE FOR SHOULDER JOINT STABILIZATION IN CHRONIC ANTERIOR INSTABILITY

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Introduction

One of the most frequent cause of anterior shoulder instability is a Bankart labral lesion. The last often requires surgical management. In the absence of significant bone loss, arthroscopic capsulolabral repair or open procedure to gain stable shoulder joint can be performed. In according to the recent systematic reviews both methods are associated with the same good functional outcome. Despite of that, reported recurrence instability rates at a minimum of ten years follow-up are surprisingly high, ranging from 9.1% to 57.6%. In selected cases, capsule-labral deficiency may be result in implants failure and degenerative changes in labrum that does not allow to adequate scar formation and joint negative pressure maintenance. In this situation both labral and extra-articular reconstruction seems to be reliable in terms of long time joint stability.

Aim

To describe a technique of stabilization procedure for augmentation of capsulolabral deficiency using a subscapularis tendon transposition and Bankart repair.

Material and methods

Five adult were operated with traumatic anterior shoulder instability and the presence of Bankart lesion. They an open Bankart lesion repair with ankers and subscapularis tendon transposition through coracobrachialis muscle. Outcomes were assessed at 6 weeks and 3 months after surgery.

Results

DASH score estimation after 6 weeks and 3 months after surgery showed us an increase in 16% and 39%. No patient had an apprehension sign, pain, instability.

Conclusion

This combined surgical procedure clearly is effective in preventing shoulder dislocation but it needs in further investigation in terms of follow-up and comparison to isolated Bankart repair and Bojchev-Andreev procedure.

Key words: shoulder joint stabilization

EFO16-00022–2016-01

NEW STANDARDIZED TECHNICAL APPROACH IN NUSS MINIMALLY INVASIVE PROCEDURE FOR TREATMENT OF PECTUS EXCAVATUM.

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Introduction

Pectus excavatum is the most frequent pathology of thorax wall. The Nuss minimally invasive procedure of the pectus excavatum correction has become the gold standard for the treatment of this pathology.

Aim

To improve the pectus excavatum treatment results, by improving the Nuss techniques by creating a standardized process which includes: thoracoscopy; sternum elevating technique; silicone introducer applying for the retrosternal plate installation; usage of the own designed simple and convenient instruments and implants.

Material and methods

From September 2014 to June 2016 nineteen patients (age range 11–18 years) with pectus excavatum underwent surgical correction with new standardized technical innovation using thoracoscopy, sternum elevation, metal and silicone introducer, own designed instruments and retrosternal plate with stabilizer.

Results

The results of 19 patients treatment operated in our clinic since 2014 with the help of the standardized process of the Nuss procedure were evaluated. The mean operation time was reduced from 95 ± 22 to 47 ± 8 minutes. The good result was achieved in 17 patients (89%). Two patients remained with the chest asymmetry. One patient had intraoperative bleeding from the internal thoracic vein, which has been successfully stopped using thoracoscopic coagulation.

Conclusion

The use of our standardized technical innovation in Nuss minimally invasive procedure has significantly reduced time of surgery, minimized surgery trauma, reduced the intraoperative risks and allowed to achieve good clinical results.

Key words: pectus excavatum, Nuss procedure, new technical approach

EFO16-00021–2016-01

THE WIDENING OF SPORTS SUSPENSION SYSTEMS USAGE

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Introduction

Suspension therapy, or sling-therapy, is a method of physical rehabilitation with the use of various systems of the suspension of the whole body or limbs. These systems are now widely used in rehabilitation treatment as well as in the training process in sports.

Aim

Our work is aimed at the widening the range of therapeutic and diagnostic usage of sports suspension systems.

Material and methods

We realize the aim by elastic suspensions.

Results

The use of elastic suspensions in sports variants of suspension systems can identify the “weak link” in the musculoskeletal chain and correct it, using a variety of dynamic exercises. The use of elastic suspensions makes it possible to strengthen the weaker muscle groups, by alternating performance of dynamic and static exercises. In this case the doctor is able to prevent participation of other, stronger muscle groups, in the motion. Involvement of compensatory muscle in movement is a signal for finish or for change the conditions of exercise. By this way it is possible to form and train the right motor pattern in a patient without much effort. The use of elastic suspension makes it possible to increase or decrease the load without changing the number of repetitions of exercises and, accordingly, without changing the duration of sessions.

Conclusion

Thus, additional equipment of sports variants of suspension systems with elastic suspensions is the way to widening the usage of such systems.

Key words: sling therapy, suspension system, elastic suspender, rehabilitation

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SURGICAL TREATMENT OF FLEXIBLE FLATFOOT IN CHILDREN AND ADOLESCENTS

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Introduction

In cases of late diagnosis of plano-valgus foot deformity, which occurs in children and adolescents, as well as belated preventive therapeutic measures this deformity tends to develop and acquire the irreversible nature. As a result, it aggravates quality of life and in number of cases requires surgical correction. The bulk of the proposed surgical techniques, are aimed at surgical correction, are based on the principle of local effect upon main pathologic link.

Aim

To develop and implement into surgical practice the new approach in surgical correction of a flexible pes plano-valgus in pediatric patients.

Material and methods

40 children aged 2.5–15 years (27 males (67%) and 13 females (32.5%); total 55 feet) with flexible pes plano-valgus underwent surgical correction. X-ray examination has been performed in all cases. We also performed photoplantography and apply of computerized diagnostic complex that evaluated distribution loads onto sole surface, shift of the center of body mass. The main stages of suggested surgical correction: transverse lengthening osteotomy of the calcaneus, lengthening of the Achilles' tendon with medialisation of the fixation point, capsuloplasty of the talonavicular joint and a spring ligament, shift of the part of tendos m.tibialis anterior to the lower part of navicular, shortening of the tendon m. tibialis posterior.

Results

Before correction in 5 (9%) patients, X-ray longitudinal arch angle ranging from 150–155°. In 50 (90.9%) from 156–176°. Postop angle decreased by 18–38°, calcaneal pitch increased by 12°.

Conclusion

Proposed technique removes all the components of deformity and preserves mobility of the foot joints.

Key words: pes plano-valgus, surgical correction, computerized sole barography

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SURGICAL TREATMENT OF FLEXIBLE FLATFOOT IN CHILDREN BY CORRECTIVE LATERAL ARTRORISIS METHOD

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Introduction

Flatfoot is more common cause to visit an orthopedic surgeon. When the longitudinal arch is flat, all functions of a foot is disturbed. As a result a lot degenerative diseases is present, such as osteoarthritis, hallux valgus, tendinitis of a Achilles tendon etc. Known conservative and operative methods not allows to achieve the desired results. Promising direction is development minimally invasive method of surgical treatment.

Aim

The aim of this study was to describe a corrective lateral artrorisis technique for the correction of flexible flatfoot in children and report the outcome.

Material and methods

From 2009 to 2016, data were collected on 91 (182 feet) patients who underwent corrective lateral artrorisis at the Grodno Emergency Hospital and Grodno regional children hospital. The average age of the patient cohort was 9.3 ± 3.6 years. Inclusion criteria were symptomatic flexible flatfoot, and the exclusion criterion was rigid flatfoot. Main idea of the treatment is implantation of the cancellous screw in lateral process of the talus. Because of this hyperpronation of subtalar joint is blocked and longitudinal arch remains higher.

Results

Calcaneal valgus angles preoperative $14^\circ \pm 4,1$ and postoperative $5.1^\circ \pm 2,5$. The values of the pre- and postoperative weight-bearing X-ray angles were: talo-I-metatarsal $161.5^\circ \pm 6.9^\circ$ and $174.7^\circ \pm 5.3^\circ$; calcaneal pitch $11.1^\circ \pm 2,7$ and $13.0^\circ \pm 3.6$; talocalcaneal angle and $44.9^\circ \pm 6^\circ$ and $37.7^\circ \pm 5^\circ$, respectively.

Conclusions

Collected findings shows that corrective lateral artrorisis is effective method of treatment flexible flatfoot in children. Evaluation of long-term results revealed an improvement in almost all the studied parameters.

Key words: flexible flatfoot, corrective lateral arthrorisis, children

EFO16-00018–2016-01

USE OF VERTEBROPELVIC TRANSPEDICULAR FIXATION FOR STABILIZATION OF VERTICALLY UNSTABLE PELVIC RING INJURIES

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Introduction

TPF application in traumatic vertebral and pelvic dissociation syndrome treatment corresponds to orthopaedic criteria: anatomical reposition, restoration of supportive ability and verticalization, possible decompression of stenotic sacral channel.

Aim

Assessment of TPF effectiveness and impact on vertebral and pelvic dissociation syndrome.

Materials and methods

Seventeen patients with traumatic pelvic ring instability and lumboiliac transition underwent Ileo-lumbar stabilization with pelvic bone integrity restoration (11 had neurological complications). Lowering of gemipelvins with transpedicular fixators placed at L4-5 level – ala Osis illi eliminated SI joint and pubic symphysis damage. A transversal connector was used for fractures of the sacrum. Patients with neurological deficiency underwent decompression of the sacral channel. Extramedullary and transosseous osteosynthesis of the pubic joint concluded the operation. Lumbar compartment damage localisation determined the highest level of stabilisation. The lowest level – L5-S1 Ala osis illi. Rehabilitation began 1–2 days after the operation. Therapy was symptomatically defined.

Results

Treatment effectiveness was based on the absence of secondary shift, stability of the defective segments; conformity on ODI, VAS questionnaire results. 1.5 year observation showed satisfactory X-rays, absence of secondary shifts at 9 months. In 4 patients prevailed pelvic organ dysfunction. In a year patients with previous motor and sensory dysfunction showed improvement, there were no indications for removal of the TPF. Patient questionnaire taken before the operation and 1.5 year later showed: ODI $63.48 \pm 3,26 / 28.74 \pm 0.84$, VAS $7.6 \pm 1,7 / 1.9 \pm 0.6$.

Conclusion

Transpedicular lumbar-pelvic fixation can be regarded as a highly effective and progressive treatment for unstable pelvic bone damage.

Key words: transpedicular fixation, sacrum fracture, vertebropelvic dissociation

EFO16-00017–2016-01

RAMAN SPECTROSCOPY ANALYSIS OF BONE TISSUE

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Introduction

Biomechanical properties of bone depend on the composition and organization of collagen fibers.

Aim

The objectives of the study were to determine the levels of mineralization, carbonate accumulation and collagen quality in bone tissue. Moreover, the changes in composition and structure of trabecula were illustrated using Raman spectral mapping.

Material and methods

Raman microspectroscopy was employed to determine the content of mineral and organic constituents and orientation of collagen fibers in spongy and subchondral bone collected from patients with clinical and radiological evidence of idiopathic osteoarthritis of the hip and from patients who underwent a femoral neck fracture, as a result of trauma.

Results

The polarized Raman spectra permit separate analysis of local variations in orientation and composition. The subchondral bone from osteoarthritis patients in comparison with control subject is less mineralized due to a decrease in the hydroxyapatite concentration. However, the extent of carbonate accumulation in the apatite crystal lattice increases, most likely due to deficient mineralization. The alpha helix to random coil band area ratio reveals that collagen matrix in subchondral bone is more ordered in osteoarthritis disease.

Conclusions

The results presented illustrate the versatility of the Raman method in the study of bone tissue. The study permits better understanding of bone physiology and evaluation of the biomechanical properties of bone. Moreover, the study can help finding the origins of degenerative coxarthrosis disease.

Key words: Raman spectroscopy, bone tissue, structural analysis, joint diseases

EFO16-00016–2016-01

MODIFICATION OF INTRAOPERATIVE RADIATION IN THE FEMORAL GAMMA NAILING

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Introduction

Comparison of femoral nailing radiation time, modification standard gamma nail access. To determine effect of surgeon experience in reducing femoral nailing radiation time (Consultant more than 50 vrs middle-grade surgeon over 10 femoral nailing).

Aim

Modify operative technique reduce femoral nailing radiation times with same early operation complication.

Material and methods

Patients (N = 140) hospitalised in General Hospital Varaždin with pertrochanteric fractures operated in emergency, used gamma nail by standard (n = 67) or modification protocol (n = 73). Intraoperative values X-rays times exposition (sec.) noted by Arcadis-orbic 3D. Validate differences between proportion (radiation times), Student t-test (surgeon experience) were used for statistical analysis.

Results

There was statistically significant difference between standard (radiation time, min.) 0.25(0.15–0.45) and modification protocol 0.10(0.06–0.24), $p < 0.05$. It also was significant statistical difference, radiation time, between consultants (standard n = 30, median (range) 0.2(0.15–0.40) vrs modification (n = 33, 0.09(0.06–0.24), $p < 0.05$ and middle -grade (standard n = 37, 0.35(0.25–0.45)) vrs. modification ((n = 40,

0.21(0.16–0.24)) $p < 0.05$. But no statistical difference was found in radiation time standard consultant surg n = 30 vrs middle – grade surgery $p > 0.05$. No statistical differences in perioperative values (intraoperative bleeding, hospitalizations, mobilisation, local infection) was found between standard vrs modification procedure $p = 0.97$, $p = 0.77$.

Conclusion

The modified operative access proved to be successful osteosynthesis for peritrochanteric fracture with 8–10 shortly rtg exposition, shorter radiation time (0.06 to 0.24 sec.) with same perioperative effect.

Key words: femoral gamma nailing, radiation

EFO16-00015–2016-01

APPLICATION OF DENOSUMAB IN TREATMENT OF GIANT CELL TUMOR. EXPERIENCE OF ONE CLINIC

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Introduction

The reason of application of denosumab (monoclonal antibody blocking RANKL/RANK) in our clinic were cases of advanced giant cell tumor (GCT) of pelvic bones when surgical treatment was associated with serious disability of patients.

Aim

To present the results of treatment of patients with GCT using denosumab.

Material and methods

Study included 26 patients with GCT who were treated from 2012, localized in pelvic bones in 5 cases, distal femur – 13 cases, tibia – 4, humerus – 2 and ulna – 2 cases. Mean follow-up was 13.5 months. Patients received 6 injection of denosumab (120 mg) as neoadjuvant therapy. The treatment efficiency was assessed by radiological techniques.

Results

In all 26 (100%) patients were achieved positive effect of therapy (decrease in pain intensity after 2 week of treatment). In 24 (92.3%) cases was revealed tumor regression by 30%, were detected calcification of tumor area and consolidation of cortical area. 23 (88.5%) patients underwent curettage with plastic of defect by polymethylmethacrylate. In all patients there was observed complete tumor necrosis morphological study. One patient had no effect of therapy. 2 (8.7%) patients had local recurrence in 12 and 14 months after surgery. 3 (11.5%) patients refused of any surgical treatment. In one of them was detected disease progression in 21 months after therapy. 25 (96.2%) currently in remission (median follow-up – 20.8 months).

Conclusion

Administration of denosumab in patients with GCT of bone helps to avoid disabling operations or endoprosthesis and allows to achieve remission and to increase the quality of life.

Key words: giant cell tumor, treatment, pelvic bones

EFO16-00014–2016-01

THE LIMB SALVAGE SURGERY OF PELVIC BONE TUMORS

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Introduction

Choosing the optimal surgical treatment for patients with the pelvic bone tumors (PBT) remains one of the most complex and important issues of the modern orthopedic oncology.

Aim

To conduct a comparative analysis of the quality of life (QOL) and functional outcomes of patients with PBT after the limb salvage surgery with the pelvic ring reconstruction and patients after amputation.

Material and methods

Patients with PBT were divided into two groups. 35 patients have been undergone hemipelvectomy amputation, 15 patients have been performed surgeries with the limb preservation (hemipelvectomy resection with the pelvic ring reconstruction). The QOL was assessed by the functional independence measure (FIM) in both groups and the lower limb functional outcome was evaluated after the limb salvage surgery (scale MSTs).

Results

The functional outcome of lower limb among patients with the reconstruction by scale MSTs was 26.7–86.7% (average 53.44%) and the rate of FIM was 34.9–93.6% (average 65.07%). In the group of patients after amputations FIM was 31.7–89.6% (average 61.63%).

Conclusions

There are no significant differences in terms of functional independence among patients in both groups. Therefore, to preserve lower limb among patients with PBT in order to achieve the required functional outcome and QOL it would be reasonable thoroughly selection of patients for reconstructive surgery. Not in all cases after the reaching wide resection of PBT it is possible to conduct reconstruction and limb salvage intervention with positive results.

Key words: pelvic bone, hemipelvectomy, limb salvage, quality of life

EFO16-00013–2016-01

PARTIAL FLEXOR TENDONS INJURY MIMICKING TRIGGER FINGER – CASE REPORT

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Introduction

Partial ruptures of flexor tendons occur rarely and can cause diagnostic and therapeutic troubles.

Aim

The aim is to present a case of partial rupture of flexor tendons, which were initially incorrectly treated because of untypical clinical picture.

Material and methods

Twenty nine years old patient had an injury of a palmar surface of the left hand in the base of index finger, above the retinaculum A1. He presented symptoms similar to trigger finger. Orthopedic surgeon who qualified this patient for first operation, he saw untypical

rupture of tendons for which he wasn't prepared. He closed the wound and he sent this patient to hand surgeon. Hand surgeon after taking detailed medical history and physical examination, sent this patient for ultrasound which shown heterogenous tendons structure. During second operation surgeon diagnosed rupture about 40% of diameter of FDS and FDP. Damaged fragments of the tendons were blocking flexion and extension at the A1 and A2 level. A1 was opened and damaged fragments excised and after this procedure patient shortly achieved full range of motion.

Results

After one week patient had a full range of motion, which continues in a long term observation.

Conclusion

In case of injury of palmar surface of the hand, when motion is partially impaired, we have to consider partial rupture of flexor tendons and we have to be prepared for unusual presentation of the tendon injury.

Key words: tendovaginitis, FDS FDP rupture, knife injury

EFO16-00012-2016-01

CHONDROSARCOMAS METACARPALS: PRIMARY RECONSTRUCTIVE SURGERY.

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Introduction

In the treatment of chondrosarcoma metacarpals are currently paying off a different kind of surgery.

Aim

The aim of the study was to prove the feasibility of the primary organ reconstructive surgical interventions in patients with chondrosarcoma metacarpals.

Material and methods

In 1992–2016 were treated 16 patients with chondrosarcoma metacarpals. Primary neoplastic lesions were observed in 12 patients, 4 – secondary. All patients were young (19 to 45 years) – 15 female and 1 male. Diagnosis of tumors underwent clinical and special methods of investigation. Affordable and one of the informative methods of diagnosis is radiography. In the diagnostic process, ultrasonography and computer tomography also are used. Finally, the question is solved by means of histological examination of the removed tumor. The removal or resection of the affected bone tumors should be carried out in accordance with the rules of ablatics. In all cases, the primary plastic defects of bone grafts replaced metatarsal IV with the creation of a new metacarpophalangeal joint and mandatory mini-graft fixation by Ilizarov. Terms fixation device were dependent on the level of the operational benefits (from 37 to 63 days).

Results

Brush function in all patients recovered fully in 2–2.5 months after surgery. Long-term results were followed from one to twenty years. Local recurrences were observed. Lung metastases were detected in one patient (death within 6 years after surgery). Four women after surgeries gave birth to healthy children.

Conclusion

Oncology hand surgery is registered as an independent scientific and practical problem with strategic, tactical and technical characteristics.

Key words: chondrosarcoma, reconstructive surgery

EFO16-00011–2016-01

SYNPOLYDACTYLY. A CASE REPORT.

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Introduction

Synpolydactyly is a congenital limb defect characterized by fusion of the middle and ring fingers with partial or complete digit duplication within interdigital webbings. We present a case of a male patient with bilateral synpolydactyly who underwent left hand syndactyly separation and right hand syndactyly separation with interdigital extra phalanges removal at 8 and 17 months of age respectively. At age 24 he was readmitted to our department, seeking to improve functionality of his middle and ring fingers.

Aim

To compare patient's hand functionality bilaterally and over time.

Material and methods

All prior existing patient records were reviewed for information regarding clinical evaluations, surgical interventions and rehabilitation. Current clinical assessments were carried out in alike manner, allowing for bilateral and over time hand functionality comparison.

Results

Age 3: LH-Middle finger ROM: PIP 5–35°, DIP 0–20°; Ring Finger ROM: PIP 0°, DIP 0°. Lateral axis deviation deformity of distal and middle phalanges of ring and middle digits respectively. RH-Middle finger ROM: PIP 5–7°, DIP 0–10°; Ring Finger ROM: PIP 5–30°, DIP 5–25°. Age 24: LH-Middle finger ROM: PIP 5–7°, DIP 7–9°; Ring Finger ROM: PIP 0°, DIP 0°. Lateral axis deviation deformity of distal and middle phalanges of ring and middle digits respectively. RH-Middle finger ROM: PIP 5–7°, DIP 5–7°; Ring Finger ROM: PIP 15–16°, DIP 25° flexion contracture. Extreme lateral axis deviation deformity of distal and middle phalanges of ring digit.

Conclusions

Unexcised interdigital phalanges greatly hindered ROM, but had little effect on axial deformity. Further patient follow-up is necessary to determine post-rehabilitation outcome.

Key words: synpolydactyly, syndactyly type II, HOXD13 gene, congenital malformation

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DIFFERENTIAL APPROACH TO THE TREATMENT OF TYPICAL CLEFT HAND

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Introduction

Historically, cleft hands were divided into “typical cleft hands” and “atypical cleft hands”. Having analyzed the literature sources we concluded that it was the most rational to interpret the typical cleft hand form as pathology, which is characterized by congenital absence or deficiency of the middle hand ray, with possible transversal position of underdeveloped phalanges of III digit, as well as with presence of other unspecified congenital disorders of IV and V rays.

Aim

The aim of our study was to improve the treatment results patients with the typical cleft hand.

Material and methods

We have analyzed surgical treatment of 8 patients (11 hands) with diagnose: typical cleft hand in the age between one and 22 years. We used differential approach while correction the typical cleft hand. The main focus was given to the grade of hypoplasia of the first web space by classification suggested by Manske PR and Halikas MN (1995). The authors outlined five grades of the first web space hypoplasia in cases of central longitudinal deficiency, which to our mind are fundamental for the choice of the pathology treatment.

Results

Long-term results of treatment were studied in course of six years from the day of surgery. In all cases we have reached good and excellent long-term results of this pathology treatment.

Conclusion

The use of differentiated approach to the cleft hand treatment allows reaching the most optimal results.

Key words: cleft hand, congenital malformation

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THE EFFICACY OF PLATELET RICH PLASMA IN RECALCITRANT TENNIS ELBOW: THE DERBY EXPERIENCE

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Introduction

Tennis Elbow is a degenerative disease resulting in elbow pain following overuse of forearm extensor muscles. A self-limiting pathology that is managed in the community with conservative measures usually within weeks to months. However a fraction can become chronic affecting livelihood mandating specialist referral. Few studies have reviewed PRP in the context of chronic disease.

Aim

To evaluate the outcomes of platelet-rich plasma (PRP) injections in patients with tennis elbow.

Material and methods

We conducted a retrospective observational study from August 2011 to April 2015. Patients that were coded as tennis elbow were selected. Electronic and medical case notes were reviewed to collate patient demographics, duration, previous treatments, follow-up, complications, outcome, pre- and post-OES.

Results

During the 4-years 154 patients (166 elbows) were referred. Of these, 128 patients (137 consecutive elbows) had PRP, 9 were bilateral, 72 were female and 65 male respectively with average age of 47.9 (32–78) years. Mean duration was 20.8 (1–180) months, 62% had physiotherapy and 46% had steroid injections preceding PRP 89 elbows (65%) had complete resolution. However 48 elbows (35%) did not and required surgical intervention. Before intervention the mean OES was 18.3, which increased to

33 post-PRP injection. Those who went onto surgery their mean final OES score was 30. Mean follow-up was 5.2 months (0.5–25). No patient suffered an adverse event following PRP infiltration.

Conclusion

PRP is a viable alternative even in chronic tennis elbow where it provided symptom relief to 65% of patients – a reasonable outcome.

Key words: Platelet-Rich Plasma, PRP, Tennis Elbow, Lateral Epicondylitis, Oxford Elbow Score, OES

EFO16-00008–2016-01

LONG-TERM RESULTS OF SURGICAL TREATMENT OF UNSTABLE TENDON OF THE LONG HEAD OF THE BICEPS IN SHOULDER

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Introduction

The authors studied the results of treatment of 66 patients with instability of the tendon of the long head of the biceps, treated between 2004 and 2015 using differentiated approaches and methods developed by the authors.

Aim

The aim of this study was to evaluate the results of treatment of patients with instability of the long head of the biceps tendon with a differentiated treatment policy.

Material and methods

During period 2004–2015 there were treated 66 patients with instability of the long head of the biceps.

Results

Application of the developed tactical approaches to the treatment of patients with instability of the tendon of the long head of the biceps significantly, with a probability $p < 0.02$, improve the results of treatment on a scale of Rowe from 48.4 ± 98.2 up to $26.9 \pm 3,9$, OOP from 52.2 ± 5.7 to $12.5 \pm 0,9$.

Conclusion

When comparing the results of point scoring analyzed groups of patients according to the classification Bennett before and after treatment revealed that the probability ($p < 0.02$) a positive therapeutic effect.

Key words: biceps tendon, shoulder, treatment

EFO16-00007–2016-01

COMBINED CONSERVATIVE TREATMENT FOR EXTREMELY PAINFUL FROZEN SHOULDER – CASE PRESENTATION

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Introduction

Patient with chronic pain syndrome left shoulder similar to frozen shoulder has presented in ambulatory unit. Symptoms lasted 1.5 years, there was no injury or other

reasons. Patient reported severe pain and significant reduction range of motion, trial motion worsen the pain and cause tremors. No improvement after physical therapy and kinesitherapy without the effect of pharmacotherapy NSAIDs, steroid injections, persistent pain opioids were used with only a small reduction in pain. The patient was told that the surgery is needed and referred to our hospital.

Aim

To demonstrate that exaggerated and imprinted pain has to be diminished with combined methods of anesthesia and physiotherapy to gain the good treatment results.

Material and methods

Patient was carefully clinically evaluated and plan of the treatment was presented excluding the surgery in this stage. Pain rating scale was used before and after treatment. Under deep sedation the mobility of shoulder was checked. Next made the brachial plexus anesthesia and without pain patient started rehabilitation. She reported almost complete decrease in static pain 2 days after. In second stage suprascapular nerve was blocked for prolongation of relief.

Results

It was possible to eliminate static pain and tremors, significantly decrease pain in motion and start effective rehabilitation. The patient regained nearly normal range of motion in the joint and efficiency limbs without surgery.

Conclusions

In our opinion the pain can have various causes, each patient requires individual treatment. To be able to speak about the effectiveness of conservative treatment must be an effective treatment for pain and psychological support.

Key words: perception, pain, plexus anesthesia, conservative treatment

EFO16-00006-2016-01

NECROSIS OF THE HAND AND FOREARM AFTER RADIOLOGIC CONTRAST MEDIUM EXTRAVASATION

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Introduction

Radiological diagnostic methods with infusion contrast medium are wide used in medicine. Generalized use of the pump injector are increased and extravasation of the contrast medium at the venipuncture side is common.

Aim

Present of the risk factors, clinical manifestation, how to prevent and make a right treatment in case of extravasation contrast medium in the soft tissue surrounding the vein.

Material and methods

Dramatic contrast medium extravasation during radiological diagnostic at the 85 years old patient with abdominal aortic aneurysm, heart and kidney insufficiency. The veinpuncture at the dorsal vein of the right hand. Symptoms: pain, swelling, skin color changing. Couples hours later skin necrosis has been seen. Patient was consulted with hand surgeon and the administration of the conservative therapy has been recommended. After 5 days expansion of the necrosis the soft tissues at the hand and forearm decision of the amputation of the limb has been made.

Results

Even when whole diagnostic procedure with contrast medium infusion is performed appropriate accident with extravasation can happen. In this case diagnostic procedure with computer tomography has been helped in the aortic aneurysm treatment plan but in consequence of the extravasation patient lost his distal third of the forearm and the hand.

Conclusion

Focus on details in diagnostic and therapeutic procedure can save patient life and decrease the medical risk. Cooperation, new and adequate caliber vein cannula, checking the vein and making physiologic saline lavage of the cannula before diagnostic procedure are crucial.

Key words: Contrast medium extravasation, necrosis of the soft tissues, forearm amputation

EFO16-00005-2016-01

PEDICLED FLAPS FOR COVERAGE DISTAL LOWER LIMB TISSUE DEFECTS

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Introduction

Difficult healing of the dorsal foot skin lesion is a great challenge for surgeons. In lower part of the leg are specific conditions like limited mobility and availability of the skin, poor vascularization and the weight-bearing function. Coverage of the wound with flaps is one of the options in large defects with infection and bone exposition. Pedicled flaps including perforator flaps, fasciocutaneous flaps, adipofascial flaps based on sural, peroneal or tibial arteries are safe, much more simple in technique for orthopedic surgeon.

Aim

Presentation of possible flaps coverage as a safe and reliable surgery technique.

Material and methods

A 20 years old man with pilon fracture and the soft tissue loss on the foot. Doppler assessments, flap designed, harvesting adipofascial sural flap and transposing to the donor side. Covering the flap with the skin graft from the opposite thigh. Second example of 24 year old male with infected not healing wound over Achilles tendon covered with perforator flap based on peroneal artery. Perforator was marked with Doppler, flap designed, harvested with skin and fascia and rotated to cover the defect.

Results

Distal third leg is the most common area requiring coverage by flaps and is very difficult to reconstruct. The type of reconstruction depends from size of the lesion and biological factors. Using flaps surgery technique in both cases brought a good final clinical effect.

Conclusion

Harvesting flaps is very useful surgery technique, can be done quickly without advanced microsurgical approach and can help to cover losses tissues.

Key words: Leg injury, difficult healing, pedicled flaps

EFO16-00004–2016-01

FEASIBILITY AND COMPARISON OF FUNCTIONAL ULTRASONOGRAPHY (USG) IN DIAGNOSING ANTERIOR CRUCIATE LIGAMENT INJURY AS COMPARED TO GOLD STANDARD – MAGNETIC RESONANCE IMAGING (MRI)

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Introduction

Magnetic Resonance Imaging (MRI) has been gold standard investigation for diagnosing Anterior Cruciate Ligament (ACL) tear. MRI is not widely available and is costly investigation. We seek to explore the role of ultrasonography in such cases as it is cheap and easily available.

Aim

To compare the outcome of functional ultrasonography with MRI scan in patients with clinical suspicion of ACL tear.

Material and methods

Patients with clinical suspicion of having tear of ACL underwent functional USG evaluation. Patients were made to lie prone with towel rolled under the lower leg so as to make the knee flexed by 20 degrees. The procedure was performed as described in paper by H G Palm *et al* (2009). The difference in translation of tibia on femur with and without pressure was calculated and compared with normal side. Value of difference more than 1mm was considered significant. All the patients also underwent MRI scan to compare the results.

Results

We recruited 130 patients. 91 of them had positive ultrasonography (> 1 mm of difference in translation). ACL tear was detected in 89 of those patients in MRI. 39 patients had negative ultrasonography. Of these 39 patients 22 of them had ACL tear on MRI. Sensitivity 80%, Specificity 89%, Positive Predictive Value 98%, Negative Predictive Value 44%. The p value of translation as .0001 was considered as significant.

Conclusion

We can, on the basis of our study, safely recommend ultrasonography in suspected cases of ACL tears as first modality if investigation.

Key words: Magnetic Resonance Imaging (MRI), Functional Ultrasonography (USG), Anterior Cruciate Ligament (ACL)

EFO16-00003–2016-01

FEATURES OF THE WHEEL-BICYCLE INJURY IN PRESCHOOL CHILDREN

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Introduction

Among the bicycle injuries there is special category – damage, which are obtained when leg of a child falls between wheel and fork. A child gets injured while riding on the frame or the trunk without special seat. Not only extensive soft tissue damage but fractures of the long bones occur.

Aim

The aim of our study was to evaluate significance of this new type of injury.

Material and methods

We analyzed 20 cases of such trauma that were treated in May–June 2015. 10 boys, 10 girls, the average age was 3.5.

Results

In 80% cases damage was on the external surface of the ankle, in 15% – on the posterior surface of the heel. 50% children have fractures of the leg in the lower third. 1 child has compression fracture of the heel. Cast with padding used in treating all fractures. “Window” in the cast need for dressing. Ointment dressings were applied on the soft tissue damage. Necrectomy was performed in 8 cases, skin grafting was not need.

Conclusions

The average duration of treatment in the hospital with this pathology greatly exceeds average duration of treatment with other trauma. Common average duration of treatment with trauma in 2015 – 9.2 days and with this pathology – 14.3 days. Minimal changes in the social sphere can lead to appear of new types of injuries or to increasing the number of infrequently occurring injuries. In recent years there has been increase of bicycle-wheel injury. It requires active preventive measures.

Key words: wheel-bicycle injury, young cyclist, bicycle, preschoolers, bone fractures, soft tissue damage

EFO16-00002–2016-01

PROXIMAL LATERAL VARUS FEMUR OSTEOTOMY IN CHILDREN

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Introduction

Proximal femur osteotomy is important to correct developmental hip disorders in children. Varus osteotomy more often used in treatment of DDH, Perthes disease, cerebral palsy. Opening wedge varus osteotomy has some advantages: femur shortening is much smaller in contrast to closing wedge osteotomy and effect of shortening is smaller too. However, time to consolidation is greater owing to presence of bone defect on lateral femur (Richard F. Santore).

Aim

The goal of our study was to expand indications for lateral femur varus osteotomy in treatment of Perthes disease and coxa valga.

Material and methods

In 2011–2015 we performed 31 proximal femur osteotomies. Lateral varus femur osteotomy used in 10 cases in 9 children. From it: Perthes disease – 6, coxa valga in DDH and cerebral palsy – 4. For opening wedge we used allografts.

Results

Follow-up was 1 to 5 years. All results were good, the mean femur shortening was 1.2 cm. Gait disturbance that appeared in first months gradually decreased. Abductor tone recovered after 3–4 months. Hip ROM was full. The mean time of consolidation with use allografts was not longer.

Conclusion

Proximal lateral varus femur osteotomy is effective method and it can be used more often in unilateral coxa valga and Perthes disease.

Key words: varus femur osteotomy, Perthes disease, cerebral palsy, coxa valga, opening wedge, allograft

EFO16-00001–2016-01

CORPORATE, CLINICAL AND SUBJECTIVE OUTCOMES OF PATIENTS UNDERGOING NON-COMPLEX CERVICAL AND LUMBAR SPINAL SURGERY IN NHS V INDEPENDENT SECTOR HEALTHCARE SETTINGS

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Introduction

In U.K, prevailing thought is that independent sector patients ‘cherry pick’ patients- in that more complex patients are treated by state hospitals, reducing opportunity to learn for trainees and increasing clinical workload. This has been proven to be untrue with hip and knee procedures, however, no study has been conducted to compare NHS and independent spinal surgery patients.

Aim

Identify and compare patient demographics, patient complexity, case-mix, patient reported outcomes (PROMs) and timeline of care in NHS and independent spine surgery cohorts.

Material and methods

Patients were retrospectively recruited from a continuous period of 1 year starting November 2013 from a tertiary NHS hospital and an independent hospital both located within Plymouth city. Cases included were elective anterior cervical decompression and fusion (ACDF), microdissection and decompression operations. Patient reported outcomes used was the Oswestry Disability Index and the Visual Analogue Scale.

Results

Patients independently treated were healthier than NHS patients, had less severe pre-operative symptoms, were more affluent, although differences were small. Adjustment applied, NHS patients benefited less from surgery than independently treated patients- difference of -2.1 (95% CI -2.9 to -1.9) on the Oswestry Disability Index. NHS patients reported more complications (odds ratio 1.2 (95% CI 1.1 to 1.4)).

Conclusions

Independently treated patients were slightly healthier and had less severe initial presentations compared to NHS patients. Overall, difference between the two cohorts was small and non-significant.

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1. The Editorial Board accepts manuscripts for review and possible publication by means of the original papers, reviews, research reports and case studies regarding rehabilitation, physiotherapy orthopaedics and neurophysiology as well as studies on evaluation of the health status and treatment of patients after sport related injuries. IRONS is a quarterly published scientific journal printed in Polish and English, both in the traditional and electronical forms. This journal is dedicated both for experienced and young scientists.
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- The full title of the manuscript
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odniesienie się do poszczególnych części recenzji w formie pisemnej w osobnym pliku.

Wskazówki techniczne dotyczące przygotowania materiałów dla Wydawnictwa

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Authorship

According to the International Committee on Medical Journal Ethics (ICMJE), an author is defined as one who has made substantial contributions to the conception and development of a manuscript. Authorship should be based on all of the following: 1)substantial contributions to conception and design, data analysis and interpretation; 2)article drafting or critical advice for important intellectual content; and 3)final approval of the version to be published. All other contributors should be listed as acknowledgments. All submissions are expected to comply with the above definition.

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This guide examines case studies, a form of qualitative descriptive research that is used to look at individuals, a small group of participants, or a group as a whole. Researchers collect data about participants using participant and direct observations, interviews, protocols, tests, examinations of records, and collections of writing samples. Starting with a definition of the case study, the guide moves to a brief history of this research method. Using several well documented case studies, the guide then looks at applications and methods including data collection and analysis. A discussion of ways to handle validity, reliability, and generalizability follows, with special attention to case studies as they are applied to composition studies. Finally, this guide examines the strengths and weaknesses of case studies. The manuscript must follow the same format requirements as full length manuscripts. Case Studies should be up to 2700 words (excluding title page, abstract and references) and can include up to 3 tables and/or figures. The number of references should not exceed 25.

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Acknowledgments

Under acknowledgments please specify contributors to the article other than the authors accredited. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.). Also acknowledge all sources of support (grants from government agencies, private foundations, etc.). The names of funding organizations should be written in full.

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Elhassan, B., Bishop, A., Shin A., Spinner, R. (2010) 'Shoulder tendon transfer options for adult patients with brachial plexus injury.' *J Hand Surg Am.*, 35 (7), pp. 1211–1219.

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Przykład:

Elhassan, B., Bishop, A., Shin A., Spinner, R. (2010) 'Shoulder tendon transfer options for adult patients with brachial plexus injury.' *J Hand Surg Am.*, 35 (7), str. 1211–1219.

Examples

Article from journal

Elhassan, B., Bishop, A., Shin A., Spinner, R. (2010) 'Shoulder tendon transfer options for adult patients with brachial plexus injury.' *J Hand Surg Am.*, 35 (7), pp. 1211–1219.

Books

Rang, H.P, Dale, M.M., Ritter, J.M., Moore, P.K. *Pharmacology*. 5th Ed. Edinburgh: Churchill Livingstone; 2003.

Phillips, S.J., Whisnant, J.P *Hypertension and stroke*. In: Laragh JH, Brenner BM, Editors. *Hypertension: pathophysiology, diagnosis, and management*. 2nd Ed. New York: Raven Press; 1995. pp. 465–478.

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Przykłady

Artykuł z czasopisma

Elhassan, B., Bishop, A., Shin A., Spinner, R. (2010) 'Shoulder tendon transfer options for adult patients with brachial plexus injury.' *J Hand Surg Am.*, 35 (7), str. 1211–1219.

Książki

Rang, H.P, Dale, M.M., Ritter, J.M., Moore, P.K. *Pharmacology*. 5th Ed. Edinburgh: Churchill Livingstone; 2003.

Phillips, S.J., Whisnant, J.P *Hypertension and stroke*. In: Laragh JH, Brenner BM, Editors. *Hypertension: pathophysiology, diagnosis, and management*. 2nd Ed. New York: Raven Press; 1995, str. 465–478.

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